ITS
Institut
Teknologi
Sepuluh Nopember

국립부경대학교
PUKYONG NATIONAL UNIVERSITY

icci 2015

ICCI 2015
International Conference
on Creative Industry

Proceedings of the 3rd ICCI 2015

"Opportunity and Challenge on Creative Industries in The Era of Global Free Trade"



ISBN 978-602-0917-25-2

Organized by:
DEPARTMENT OF INDUSTRIAL DESIGN
Faculty of Civil Engineering and Planning
Sepuluh Nopember Institute of Technology
ITS Campus, Sukolilo Surabaya, 60111, East Java, INDONESIA

PROCEEDINGS
International Conference on Creative Industry (ICCI) 2015
"Opportunity and Challenge on Creative Industries in The Era of Global Free Trade"

ISBN : 978-602-0917-25-2

Editor
Ellya Zulaikha
Octaviyanti Dwi Wahyurini
Sayatman

Design and Layout:
Sayatman
Kahane Noeschi
Dina Yulianti

Organized by:
Department of Industrial Design
Faculty of Civil Engineering and Planning
Sepuluh Nopember Institute of Technology
Surabaya
ITS Campus, Sukolilo Surabaya 60111, Indonesia
Phone/Fax: +62 31 5931147
icci@prodes.its.ac.id

Published by:
ITS PRESS
2015

Organization Committee

Advisory board :
Prof. Ir. Joni Hermana, M.Sc.Es.Ph.D (Rector of ITS)
Drs. Taufik Hidayat, MT
Sabar, S.E., M.Si
Dr. Agus Windharto H, DEA
Ir. Baroto Tavip Indrojarwo, M.Si
Dr. Ir. Bambang Iskandriawan, M.Eng

General Chair:
Dr. Agus Windharto, DEA
Dr. Ellya Zulaikha

International Steering Committee:
Honorary Chair :
Prof. Margot Brereton (QUT, Brisbane, Australia)

International Committee:
Prof. Yoo Sang Wok (Pukyong National University, South Korea)
Prof. Cho Jeung Hyung (Pukyong National University, South Korea)
Associate Prof. Nigel Power (King Mongkut's University of Thonburi, Thailand)
Stevie Heru Prabowo (TU Delft, Netherland)
Nor Arbina Zainal Abidin (USM, Malaysia)
Rinkle Shah (Seattle, USA)
Gaurang Desai (The American University of Sharjah, UEA)
Dr. Jared Donovan (QUT, Brisbane, Australia)
Dr. Fiona Redhead (QUT, Brisbane, Australia)
Dr. Steve Snow (QUT, Brisbane, Australia)
Ravihansa Rajapakse (QUT, Brisbane, Australia)
Muhammad Haziq Lim Abdullah (UTEM, Melaka, Malaysia)
Su Yeon Ryu (Urban Planning and Architecture, Seoul, South Korea)
Joanne Taylor (The Kupi Culture Project, Sydney, Australia)
Kenta Kishi (Crisis Design Network, Yokohama, Japan)
Prof. Eduardo Romeiro Filho (Universidade Federal de Minas Gerais, Belo Horizonte, Brazil)
Patricia Lima (Denmark)
Dr. Alvanov Spalanzani (ITB, Indonesia)
Dr. Riama Maslan Sihombing (ITB, Indonesia)
Dr. Andar Bagus Sriwarno (ITB, Indonesia)
Prof. Nunung Prajarto (UNS, Indonesia)
Dr. Albert Kuhon (Indonesia)
Gigih Budi Abadi (Indonesia)
Satrya Mahardhika (Binus University, Indonesia)
Sigit Kusumawijaya (Sigit Kusumawijaya Archtecture, Indonesia)
Kadek Heri Sanjaya (LIPI, Indonesia-Chiba University, Japan)

Steering Commitee
Octaviyanti Dwi W., ST, M.AppDesArt
Nurina Orta Darmawati, ST, M.Des

Secretary :
Hertina Susandari, ST,MT
Dyah Ayu Prasetyawati, ST
Adinda Paramita

Publication :
Nugrahardi Ramadhani, S.Sn, MT
Arie Kurniawan, ST, M.Ds
Akbar Zota, S.Kom
Putri Dwitasari, ST, M.Ds

Workshop and Exhibition:
Waluyohadi, S.Sn, M.Ds

Sponsorship:
Denny Indrayana Setyadi, ST, M.Ds
Putri Dwitasari, ST, M.Ds
Andjrah Hamzah Irawan, ST, MSi
Didit Prasetyo, ST, MT
Rabendra Yudistira Alamin, ST, M.Ds
Kartika Kusuma Wardani, ST, M.Si

Organization Committee

Proceeding : Sayatman, S.Sn, M.Si
Bambang Tristiyono, ST, M.Si
Senja Aprela Agustin, ST, M.Ds

Documentation : Bambang Mardiono Soewito, S.Sn, M.Sn

Supporting Staffs : Untung
Siyono
Wahyu Kurniawan
Sujoko
Agus Zainal

Student Committee: Ihsan Biantoro
Muhammad Chanif Syamsudin
Amalia Dyah Savitri
Verronica Ajeng
Arief Bagus Rachmadi
Nadim Arsalan
Agustin Faiqoh
Shabrina Nur Adilah
Sekar Ayu Lutfiana
Fijria Hadjar
Dzaizul
Anisa Khoirunisa
Fani Basha
Fatur Rochman
Achmad Fauzan Abidin
Sarah Aghnia Husna
Saktia Golda Sakina Dewi
Ottidilia Nurlaili
Irfianti Nur Jannah
M. Nazary Duzki Abid
Prayodi Bagus Aldyguna
M. Hilmy Fawwazi
Farhan Nur Muhammad
Arif
Nayla
Indon Wiraswantika
Andega Cantika Larasati
Yurif Setyadi
Efandis Yudiantoro
Rezha Gema
Anyakra Kusuma
Dicky Bayu Suranto

Diah Naruti
Ariani N. Rizkiya
Cindy Ornita
Ade Noviruz
Diah Larasati
Shanditya Mr
Rendra Prasetya
Sonya Putri Ramadhaniar

Foreword

ICCI is a biennial conference organized by the Industrial Design Department – Institute of Technology 10th November Surabaya. ICCI aims at providing an overview of multi-disciplinary issues of creative industries regarding the creative economy era.

The 1st ICCI was held on 11th March 2011 at Sanur, Bali, attended by 90 presenters from 30 institutions. We're pleased to inform that The Minister of Cooperative and Small Medium Enterprises of the Republic of Indonesia was coming to officially open the first ICCI. The 2nd ICCI conference was held on the 13th of November 2013 in Surabaya, East Java, Indonesia.

The 3rd ICCI 2015 is collaboration between Industrial Design Department ITS Surabaya Indonesia and Marine System Convergence Design-Pukyong National Univeristy, South Korea. It is held on 11-12 August 2015 in Bali Creative Industry Center and Fave Hotel Tohpati Denpasar, and were attended by 179 participants from 14 countries; South Korea, Australia, Denmark, United Arab Emirates, Brazil, Thailand, Japan, Portugal, the Netherlands, Taiwan, Singapore, the USA, Malaysia and Indonesia. Furthermore, ICCI can be: 1) a reference for policy makers related to creative industries, in order to exchange information on current issues and challenges facing creative industries, 2) a forum to establish a network among stakeholders of creative industries, 3) a prestigious publication channels for academics and researchers in the field of creative industries.

We greatly appreciate the partnership with Pukyong National University, South Korea in this event. We also would like to thank the Ministry of Industry Republic Indonesia (Directorate General of Small and Medium Enterprise) as our main sponsors, Pupuk Kaltim, Garuda Indonesia as the official airline of this event, ISI Denpasar, and also to our partners ADPII, DGI, BPIPI, PIRNAS, and CHI-UX Indonesia.

Bali, 11 August 2015

General Chair



Welcome Speech
Industry Minister of Republic of Indonesia
On the opening of
International Conference on Creative Industry (ICCI) 2015
in Bali Creative Industry Center (BCIC)
Denpasar, August 11, 2015

Distinguished the Governor of Bali, Made Mangku Pastika,
The participants of ICCI 2015,
Ladies and Gentlemen.

Assalamualaikum warahmatullahi wabarakatuh.
Om Swastiastu, May Peace and Prosperity be upon us all.
First of all, let's pray upon Allah SWT for His blessings that today we can gather here to join the opening of International Conference on Creative Industry (ICCI) 2015 in Bali.

The honorable guests,
Creative industry is one of important pillars in developing national economy.
Creative industry can empower human resources to compete in the globalization era, as well as to enhance people's welfare, that makes it a strategic consideration.

The development of creative industry in 2013 showed positive depiction, in which this sector has grown 5.76% or 5.74% above the national economy's growth with added value as much as Rp. 641.8 trillion or 7% of National GDP. In terms of manpower, this sector is able to absorb 11.8 million workers or 10.7% of national workers, followed by the number of business units that reaches 5.4 million units or 9.7% of all business units. The export activity is also considered good, reaching Rp. 118 trillion or 5.7% of total national exports.

The honorable guests,
Recently, there are 15 subsectors of creative economy being developed, namely advertising, architecture, art galleries, crafts, designs, fashion, film-video-photography, interactive games, music, art performances, printing and publishing, computer and software, radio and TV, research and development, and culinary.

Out of those 15 subsectors, there are 3 subsectors that can give dominant contributions to PDB, namely culinary sub-sector (Rp. 209 trillion or 32,5%), fashion (Rp. 182 trillion or 28.3%), and crafts (Rp. 93 trillion or 14.4%). Further about fashion and craft industries' performance, the fashion industry export reaches Rp. 76.7 trillion or increases 8% compared to the one in 2012. In line with fashion, craft industry has also got export performance leverage, reaching Rp. 21 trillion or increasing 7.6% compared to the one in the previous year.

Based on the development and the potential the national creative industry has, the strategic step done by the Ministry of Industry is by establishing Bali Creative Industry Center or BCIC. BCIC can be used by creative industry people, designers, university community, as well as related association to develop new creative products which have selling value and produce more competitive and high quality products; so that Indonesia's creative industry is able to embrace the free trade era.

Honorable guests,
In realizing that plan, one of BCIC's activities is expanding the network with national and international creative community, through the participation in ICCI.

ICCI is an international conference held every two years by ITS Surabaya which aims to accommodate and discuss the newest issues in creative industry, from various points of view and disciplines. All related parties in creative industry (creative industry people, academic people, community, Profession Association and Government) can synergize, share thoughts and build network.

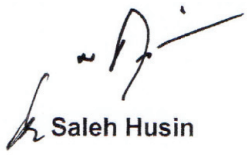
As we know, the economy dynamic changes rapidly from highly depending on natural resources into depending on the capacity of human knowledge, science, art and creativity.
Back then, the strongs conquered the weaks. Today, the fasts conquered the slows. It means that creative industry must be supported by reliable information, communication and technology.
This phenomenon shows that it needs different approaches to enhance creative economy between developed countries and developing countries. The complexity faced by creative industry in each country is strongly influenced by different contexts. The different contexts are the crucial issue to be discusses both by the creative industry doer and the academic institution in developed and developing countries.
The knowledge on these different contexts can affect the policy and strategy to establish a creative industry in a certain country.

Blessed guests,
I would like to express my gratitude to all parties who help make ICCI 2015 to happen.
We do expect active participation from all participants so that all activities could run well. May God give His blessing to us all.

Finally, with Bismillahirahmanirrahim, the International Conference on Creative Industry 2015 in Bali Creative Industry Center is officially open.
Wawwalamualaikum Warahmatullahi Wabarakatuh.

Om Santi Santi Santi Om. May peace upon us all.

Minister of Industry



Saleh Husin

Acknowledgement

The 3nd International Conference on Creative Industry (ICCI).
Organizing Commite wishes to express its gratitude and appreciation to:

- Directorate General of Small and Medium Enterprise, Ministry of Industry Republic of Indonesia
- Surabaya City Mayor
- Pukyong National University
- Rector of Sepuluh Nopember Institute of Technology.
- Dean Faculty of Civil Engineering and Planning Sepuluh Nopember Institute of Technology.
- All session moderator and conference speakers, for their participation.
- All conference sponsors, supporters, exhibitors and advertisers for their generous support.
- All participants and other who have in one way or another contributed towards the success of this conference.
- Premiere Sponsor and Association

Table of Content

Organizing Committee..... iii
Foreword..... v
Preface..... vi
Acknowledgements.....viii
Table of Content..... ix

PLENARY SPEECH

Paper ID	Title	Author(s)	Page
P.01	Creativity Kills Business –Entrepreneural Challenges In The Creative Industry	Susanne Jensen, Jeanette Landgrebe, Henrik Sproedt	1-8
P.02	Slums: Creative Clusters of the Informal Sector	Gaurang Desai	9-17
P.03	Bali Creative Industry Center (BCIC) as Ecosystem Model for Developing National Competitiveness	Agus Windharto	18-22
P.04	Emergence of Marine Design in Asia	Yoo Sangwook	23
P.05	The Kupi Culture Project	Joanne Taylor	24
P.06	Design and Craftmanships	Eduardo Romeiro Filho	25

PARALLEL SESSION ROOM A

Paper ID	Title	Author(s)	Page
A. 01	Analysis on Cultural Color in Traditional Textile and Culinary of Sumatera	Mita Purbasari	27-35
A. 02	Muslim Women's Identity In The Midst Of Urban Society As Represented In "Hijab" Movie Poster	Puspita Sari Sukardani	36-43
A. 03	The Development of Visual Identities for East Java Regencies towards the Global Trade Era	Octaviyanti D. Wahyurini & Agus Windharto	44-51
A. 04	Jurig (ghost) in Comics Sunda: Myths & Tradition in Popular Culture Products	Kankan Kasmana, Setiawan Sabana and Iwan Gunawan	52-57
A. 05	The Development Of Visual Identity Design System For Strengthening The Brand Of Academic Institutions	Sayatman	58-65
A. 06	Digital Imaging in Product Packaging	Didit Widiatmoko S., Mohammad Tohir & Yanuar Rahman	66-69
A. 07	Typography As Brand Image To Small And Medium Enterprises	Peter Ardhianto	70-73
A. 08	Construction And Beauty Culture In Television Advertising Media (Case Study Pond's White Beauty Ad)	Putri Dwitasari & Nurina Orta Darmawanti	74-77
A. 09	Character Education in Indonesia Children's Picture Books	Kartika B. Primasanti & Desi Yoanita	78-85

A. 10	Wedha's Pop Art Portrait (WPAP): Developing Design Style Through Community	Gusti Mohammad Hamdan Firmanta, Angga Kusuma Dawami	86-89
A. 11	Mascot or Character Design as a logo on "Sour Sally" Brand	Riky Azharyandi Siswanto, Novian Denny Nugraha, Arry Mustikawan Soemantri	90-93
A. 12	Beauty Construction of Camera 360 apps in Indonesia	Luri Renaningtyas & Aniendya Christianna	94-98
A. 13	Follow Me ! The Power of Home Industry Promotion Through Social Media	Aryo Bayu Wibisono	99-102
A. 14	Determining The Role of (Graphic) Design in the Creative Economy Roadmap of Surabaya	Rahmatsyam Lakoro	103-106
A. 15	Traditional Food Packaging Design towards a Creative Industry Era: A Case study of East Java Food Packaging Development and Problem of Pudak, Jubung, and Getuk Pisang	Senja Aprela Agustin	107-111
A.16	The Sundanese Traditional Packaging Design Concept: Enhancing The Value Of Sundanese Local Food	Kankan Kasmana & Rini Maulina	112-116

PARALLEL SESSION ROOM B

Paper ID	Title	Author(s)	Page
B. 01	The role of physiological anthropology in product design: laterality study during locomotion and its prospects in design	Kadek Heri Sanjaya, Yoshihiro Shimomura, Tetsuo Katsuura	117-124
B. 02	Women Shoes Ethnic Design towards Aesthetic Impression	Primaditya Hakim, Eri Naharani, Kartika Kusuma W & Bambang Mardiono	125-130
B. 03	Design of 4-Seater Passenger Electric Car: From Concept to Parts Design	Baroto Tavip Indrojarwo, Andhika Estiyono, Agus Windharto, Sabar	131-143
B. 04	Implementation of Electric Bicycle Design and Environment- Friendly Energy Utilization Chase Study : Bike Sharing- Institut Teknologi Bandung	Arie Kurniawan and Dudy Wiyancoko	144-150
B. 05	Design, Entrepreneurship and Tourism in Bandung (Case Studies: Creative Industries Owned by Art and Design Graduates)	Arianti Ayu Puspita, Agus Sachari & Andar Bagus Sriwarno	151-158
B. 06	Basic research for WIG ship utilization measures for the development of marine creative industry	Kim Youngdong and Yoo Sangwook	159-162
B. 07	Trend Research on Cutting board towards Future Technology	Lee Chang Jun and Cho Joung Hyung	163-166
B. 08	Development of Portable Mini-PhotoBot ver.02 for Small Medium Business	Widi Sarinastiti, Sritusta, Yahya Adi Styawan	167-170
B. 09	Traditionalism in Creative Industry: Learning the Development of Bamboo Craft from Traditional Basket to Contemporary Art from	Yongky Safanayong, July Hidayat, Fatmahwaty	171-176

	Shono Shounsai		
B. 10	Evaluating Ergonomic Factor of *Cilaja Muncang* Vernacular Bamboo Furniture	Hendriana Werdhaningsih	177-181
B. 11	Prototype Design and Development of Bicycle Hi-CUB (Hybrid-Commuter Urban Bike) for Middle and High School Student Which is could be Produced by SMEs Local Bike	Bambang Tristiyono, Andhika Estiyono, Eri Naharani Ustazah, Thomas Ari Kristianto	182-188
B.12	The Development of Shoes Prototype Using Outsole Craft for Outdoor Activities to Support Local Shoes SMEs Design	Bambang Tristiyono, Bambang Mardiono, Jatmiko	189-194

PARALLEL SESSION ROOM C

Paper ID	Title	Author(s)	Page
C. 02	Aceh Rencong Preservation by Creative Kampoong Strategy	Qisthi Shabrina and Agus Suharjono Ekomadyo	195-202
C. 03	Promotion Strategies of Fashion Products in Instagram	Genia Despriana	203-210
C. 04	Integrated Learning Model in Product Design Studies based on Design Thinking and Business Model Canvas	Tri Noviyanto Puji Utomo and Stephanus Evert Indrawan	211-218
C. 05	The Rise of Sole-Proprietor Makers in Urban Cities of Indonesia	Aulia Ardista Wiradarmo	219-223
C. 06	Proposed Form of Work Agreement in Specific Time (PKWT) for IKM Employees (Case Study at IKM "X" in Tasikmalaya)	Siti Rohmah, Kuswinarti, Karlina Somantri	224-228
C. 07	Regulating Billboards Outside Public Infrastructure Seen From City Image Point of View: Semarang Case Study	Adi Nugroho & Robert Rianto Widjaja	229-233
C. 08	Effect of Visual Analogy and Design Values In Ideation Phase, Generated by Designers From Different Educational Background	Adi Nugroho and Jasmine Zeng Si-jie	234-238
C. 10	Study on Experiential Marketing Model of Taiwan's Chocolate Museum	Shih-Ching Lin & Chi-Hsiung Chen	239-245
C. 11	Indonesian's Convivial Society Products	Kumara Sadana Putra	246-250
C. 12	Personalization as Sustainable Living in Public Space of Apartment	Prasetyo Wahyudie & Susy Budi Astuti	251-254

PARALLEL SESSION ROOM D

Paper ID	Title	Author(s)	Page
D. 01	A New Approach for The Teaching of Practical Color Theory	Woon Lam Ng	255-261
D. 02	Study of the Existence of Traditional Textile for Local People of Tuban District, Kerek Subdistrict, East Java	Fajar Ciptandi, Agus Sachari and Achmad Haldani	262-265
D. 03	Bloombogus, Plastic as a Repurpose Material for Future Fashion and Textiles	Widia Nur Utami B. & Eka Arifianty Puspita	266-273
D. 04	Production of an Eco-friendly Textile Colorants by Using Bengkoang (Pachyrizus erosus) for Replacing Rice (Oryza sativa) as a Substrates of	Ika Natalia Mauliza, Bambang Sunendar, Mardiyati	274-280

	Monascus purpureus		
D. 05	Wastewater Treatment Plant Design Of Ikm Batik Process with Coagulation-Floculation And Sedimentation Methodes	Octianne Djamaludin, Juju Juhana, Maya Komala Sari	281-284
D. 06	Utilization of Natural Materials For Textile Dyeing Based Enviromentally Friendly	Maya Komalasari, Ika Natalia Mauliza and Octianne Djamaluddin	285-289
D. 07	Experiments of utilizing wasted Onyx stones as jewelry	Evan Primavera & Eri Naharani Ustazah	290-297
D. 08	Developing Skills Of a Women Group in The Pelem Watu District by Banana Stems and Crafts Making	Asidigisianti Surya Patria, Imam Zaini, Siti Mutmainah	298-302
D. 09	Innovation and Creativity of Batik Tulis on Jacquard Weaving with Laser Cutting Leather	Janet Rine Teowarang	303-306
D. 10	The Influence of Young Entrepreneurs in Utilizing The Potential Of Indonesian Culture And Craftsmanship	Rahayu Budhi Handayani	307-310
D. 11	Resiliency in Batik Industry using Inclusive and Eco Design Strategy	Paulus Bawole, Puspitasari Darsono, Eko Prawoto and Winta Guspara	311-317
D. 12	Applied Creative Pedagogy: A Practical Approach from the Creative Educators' Perspectives	Victoria Kuan and Kendy Mitot	318-325
D. 13	Design With Petungan (Java Size System) Method In Graphic Design Implementation	Irwan Harnoko, James Darmawan, Lintang Widyokusumo	326-333
D. 14	The Aesthetic Sensibility of Nirmana Dwimatra through Design Methods Based on Stimuli of Senses (Study Case of Estetika Rasa Project)	Dyah Gayatri Puspitasari, Hanny Wijaya, Sri Rachmayanti	334-341
D. 15	Creative Learning through Experience and Innovation in M!ND's Class for High School Education	Antonius Malem Barus	342-346

PARALLEL SESSION ROOM E

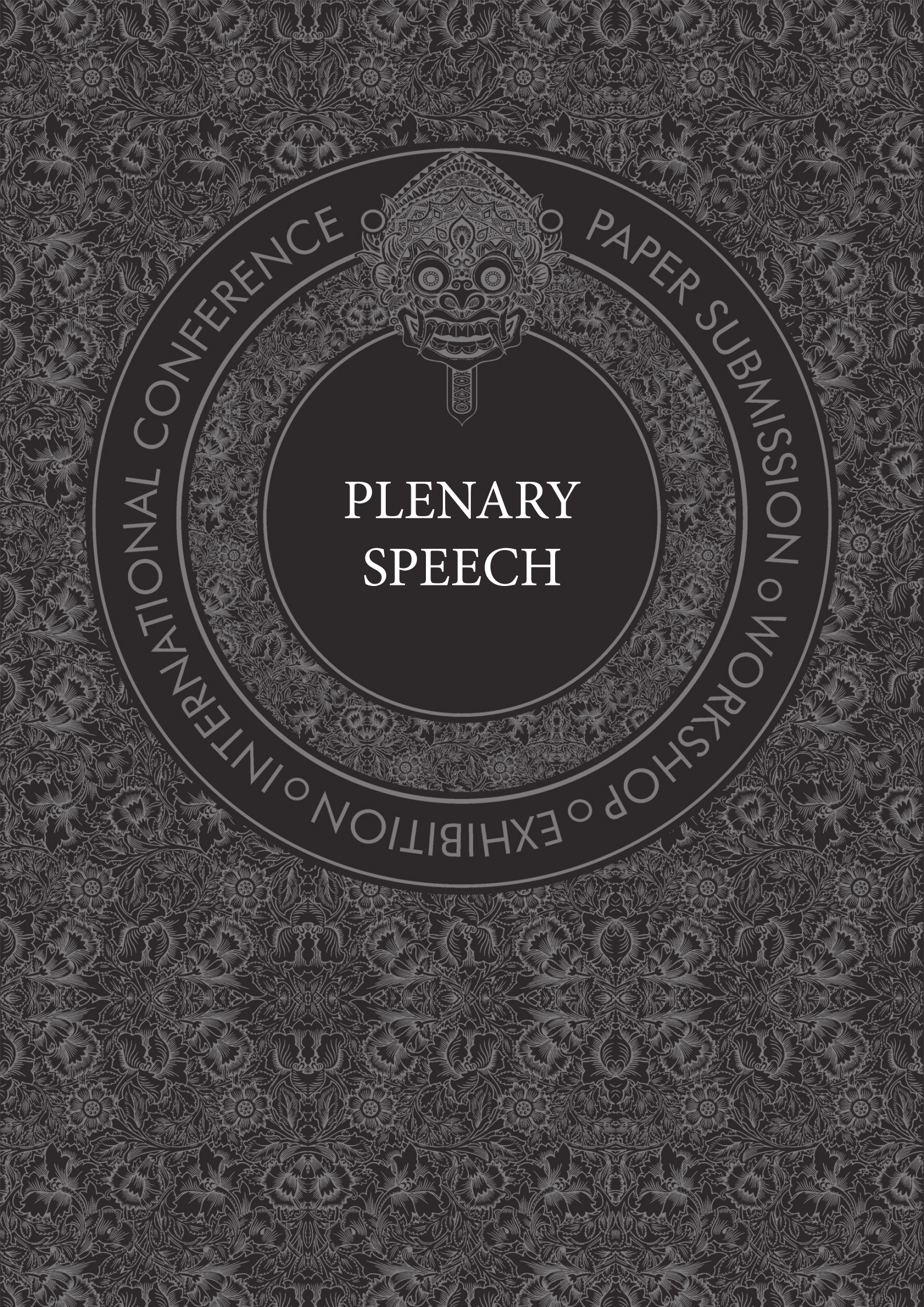
Paper ID	Title	Author(s)	Page
E. 01	PORTAHOS: Portable Hospital Design for Post Disaster Emergency Situation at Remote Area (Portable Design Analysis Approach)	Genie Anggita	347-354
E. 02	Creativity in Designing Architectural Function	Melania Lidwina Pandiangan	355-358
E. 03	A Study on the Seashore Environment Improvement Plan through the Introduction of Eco-Friendly Certification system of the International Cases	Hwang Dasom and Kim Myeungsoo	359-362
E. 04	Communication Process on Public Space in Involvement of 'Tradition Symbol' as Visual Element of Denpasar City 'Facade'	I Nyoman Larry Julianto, I Made Jodog and Imam Santosa	363-367
E. 05	The Iconic Bali Aga Vernakular Architecture In Hospitality Buildings	Ida Ayu Dyah Maharani, Imam Santosa and Prabu Wardono	368-375

E. 06	Fantasy Motivation Construction in the Creative Industries Development with the Role of Information Technology	Ratih Mahardika	376-379
E. 07	Immersive Virtual Reality for Tourism and Creative Industry Development	Hendro Trieddiantoro Putro	380-385
E. 08	Presenting Basic Electricity Awareness to Children using Digital Interactive Media	Rosiyah Faradisa, Moh Hasbi Assidiqi, Suriadi Madia	386-389
E. 09	Audience Awareness Of Product Placement In Wide Screened Movies	Rabendra Yudistira, Nugrahardi Ramadhani, Denny Indrayana Setiadi, & Andjrah Hamzah	390-396
E. 10	Two Character Animation Control In Folklore Digital Storytelling Using Hand Motion Capture Based Finite State Machine	Rahmawati F Tias, Didit Prasetyo and Surya Sumpeno	397-405
E. 11	Masculinity Representation In Anime (Semiotics Analysis About The Representation Of Masculinity In Tiger And Bunny Anime)	Aniendya Christianna & Daniel Kurniawan	406-412

POSTER CONTRIBUTOR

Paper ID	Title	Author(s)	Page
Poster 01	Redesign Product Packaging for Getuk Pisang Kediri	Dwi Susanto, Widi Sarinastiti	413-414
Poster 02	Tandem Bike Design for Apartment Resident as The Effort to Diminish Pollution in Urban Area	Iskandriawan B, Jatmiko, Hawari, F.	415-416
Poster 03	The Role of Design Institution as One of IBG Actors in Developing Design Sub-Sector by Using Ergonomic Research Tools	Noel Febry Ardian	417-419
Poster 04	DOME: Doodle On Me. The Anti-Boredom Shirt	Diva Danica and Andrathena B.T.	420
Poster 05	Visual Design Concept and Application for The Packaging of Traditional Food as a Gift from East Java	Sayatman	421-422

Authors Index 423
Curriculum Vitae Plenary Speaker..... 425



PLENARY SPEECH


INTERNATIONAL CONFERENCE
PAPER SUBMISSION
WORKSHOP
EXHIBITION
icci
2015

Creativity Kills Business – Entrepreneural Challenges In The Creative Industry

Susanne Jensen
Department of Entrepreneurship & Relationship Management,University of Southern Denmark, Denmark
sjen@sam.sdu.dk

Jeanette Landgrebe
Department of Design & Communication, University of Southern Denmark, Denmark
landgrebe@sdu.dk

Henrik Sproedt
Mads Clausen Institute, University of Southern Denmark, Denmark
hsp@mic.sdu.dk

***Abstract* —** Entrepreneurship in the European creative industries is high on the agenda due to the potential for economic growth, societal prosperity, employment and sustainable competitiveness. However, entrepreneurial companies regularly run into the dilemma of how to grow from the creative, innovative and entrepreneurial start-up phase into the efficiency-oriented scaling phase. Growth potential is highly dependent on private investors or the public innovation system which tend to be oblivious to the type of entrepreneur known as the creative, artistic-based *the innovative entrepreneur,* as the characteristic traits of such an entrepreneurial firm often entail a fuzzy product portfolio, which is not easily distinguished from the creative personality of the entrepreneur. Using the case of the Danish fashion entrepreneur Justian Kunz, whom we characterize as an innovative entrepreneur, we discuss entrepreneurial challenges in the creative industry as seen from within, arguing that revisiting the traditional ”growth paradigm”, so manifest by the established innovation support system, is paramount if the innovative entrepreneur is to survive the transition phase.

***Keywords* – Creative Industry, Entrepreneurship, Fashion Design, Growth Paradigm, Business Models**

1. INTRODUCTION

Entrepreneurship in the creative industries is high on the European agenda due to the potential for economic growth, societal prosperity, employment and sustainable competitiveness (EU2020, n.d.; Horizon2020, n.d.). On a national level the potential has also been recognized: *“*Politically, Denmark wishes to ensure that Danish enterprises have good opportunities to generate growth and renewal by incorporating design, experiences and creativity as innovation methods. Therefore, the Danish Business Authority works to create the best conditions for this.”(Danish Business Authorities, n.d.). However, entrepreneurial companies, which often start as micro-firms, regularly run into the dilemma of how to grow from the creative, innovative and entrepreneurial start-up phase into the efficiency-oriented scaling phase.

One of the leading researchers in management and entrepreneurial literature (Hindle, 2010) argues that the challenges of small creative entrepreneurial firms as seen from ‘within’ remain a neglected topic, which is paradoxical in the light of the role they seem to play for economic strength outlined above. For instance 98.6 per cent of all Danish firms have less than 50 employees counting for approx. one third of total employment (CESFO, 2013). From practice and research it shows that most entrepreneurs do not make it after the first

crucial years, in fact a recent survey has shown that only less than 10% of SME's do manage the transition from the entrepreneurial phase to the business phase, i.e. the 'shelf-life' of most SME's is generally acknowledged to be three years (Just, 2013), after which the firm, if not sold to an investment conglomerate, is simply closed down.

Among the reasons for both the success and failure of entrepreneurs to survive the transition to maturity, we find a) characteristics of the entrepreneur, i.e. lack of human resources, risk attitude, motivation, independency etc., b) contextual conditions, i.e. market position regarding customer and competitors, and c) organizational factors, i.e. lack of financial and social resources, unclear strategies, business model and processes etc. (Bessant & Tidd, 2007). However, there is little empirical evidence that allows a deeper understanding of what is really going on in practice and why. For example, in a recent article on Brand Universe (a Danish online site for entrepreneurs), it is claimed to be problematic that as many as 41 per cent of Danish entrepreneurs are in doubt whether they do in fact have ambitions to grow beyond the size of a micro-firm. Seeing this as a problem implies growth as the only solution for survival and reveals a paradigm, which was paramount and successful in the 20th century where efficient industries and economies of scale and scope were the drivers of growth and prosperity. Interestingly, the Danish innovation and entrepreneurial support system reflects this paradigm too, as is clearly exemplified in a public invitation from the support system (i.e. banks, money investors, consultancy firms, accountants etc.) to micro-firms to join a seminar to learn more about growth potentials (Value Connect, 2013).

In the light of recent developments it seems worth to revisit the growth paradigm and critically look at its validity for entrepreneurs today: Europe has developed into a knowledge-driven economy. Complexity and the pace of change have reached unprecedented levels, as creativity and state-of-the-art technology has become Europe's competitive advantage, i.e. the need to innovate is no longer the exception but the rule. Large firms increasingly demand more "intrapreneurship" and "start-up culture" to cope with the innovation challenge – implying that efficiency in operations may often come at the cost of creativity (Tushman & O'Reilly III, 1996; Tidd & Bessant, 2013). Further, innovation and creativity are increasingly seen as processes that are driven by and involve a variety of internal and external stakeholders (Mainemelis and Ronson, 2006; Buur & Matthews, 2008; Chesbrough, 2006). Thus, from the point of view of the entrepreneur it is vital to take both internal and external conditions into considerations.

In the following, our aim is to map the worldview and challenges of the innovative entrepreneur in the sensitive transition phase from entrepreneur towards an established business as seen from within. Further, the goal is to identify if hidden 'survival' or 'growth' potentials appear in this transition process that could possibly imply alternative business paradigms for 21st century entrepreneurs.

First we provide a literature review carving out relevant themes from the entrepreneurial and business innovation perspective. Next, we introduce our case: *La Maison Justian Kunz* (in the remainder called KUNZ or Justian Kunz), which will be described in a situated regional context, outlining its history, product portfolio, market position, strategies and business model as a means to identify challenges and opportunities for growth. We then compare the relevant literature to the real life scenario of KUNZ, pointing to relevant themes or issues that may shed new light on the challenges and practice of entrepreneurial micro-firms in the creative industry. We finalize this article with implications for future research and entrepreneurial practice.

2. LITERATURE REVIEW

In the fashion industry, creativity understood as effectively developing and bringing into life new ideas dynamically is one of the driving forces for success. However, if growth requires focused resource allocation, standardization and management understood as measuring, mastering and controlling a known process, two questions arise. First, how can we manage creativity to enable growth without losing the competitive edge, and second how can we imagine a business model that sustainably creates, delivers and captures the value of the specific firm, in our case "the KUNZ value". In other words, the challenge is how the design approaches that value creative solutions to wicked problems can be aligned with business approaches that value efficient and optimal solutions to every problems. The differences may manifest themselves in people's motives to become entrepreneurs.

We will investigate these points by describing and discussing the factors that influence on the successful creation of new ventures focusing on the challenges in the creative industry. In Bessant & Tidd (2007) entrepreneurial behaviour may be explained by either personal characteristics of the entrepreneur and contextual factors while Gartner's situation-based theory (1985) adds the organizational dimension and includes the collective and social factors reflected by strategies, business models and business processes. Hindle (2010) goes further and has developed a conceptual model of the entrepreneurial process that defines three interrelated domains of activities relevant for entrepreneurship. The first is the *strategic domain* where the entrepreneurial capacity to evaluate the potentials of the entrepreneurial opportunity is essential. A part of the evaluation process is taking the contextual factors into consideration as a means to create the business model which then captures and visualises how the entrepreneur may create, deliver and capture value (Hindle, 2010; Osterwalder & Pigneur, 2010). The second is the *personal domain* where the psychological capacity may influence on the entrepreneur's commitment. The third is the *tactical domain* focusing on the managerial capacity to exploit the opportunity and thus capture value. The three domains reflect that contextual factors are important for entrepreneurship, e.g. the innovation support system and financial organisations but also that the entrepreneur as an individual is crucial. The theoretical section thus focuses on 3 elements, namely the characteristics of the entrepreneur, the strategic domain including evaluation and context, and the business model(s), leaving out the tactical domain for space reasons.

2.1 Characteristics of an entrepreneur

Much entrepreneurship literature emphasizes the characteristics of the entrepreneur as important for establishing a new firm and surviving the first difficult years. Factors like family background, human resources in the form of formal education and earlier work experiences together with the psychological profile or personality tends to be important for developing the commitment to pursuing an entrepreneurial opportunity. In their risk attitude entrepreneurs may be more optimistic in their assessment of opportunities, more willing to generalize even though they do not have much information on a subject and more likely to use their intuition for decision making (Shane, 2003). Together with a high self-efficacy, e.g. believe in own capabilities, entrepreneurs may be more likely to take the decision to start a new venture and also be more committed (Hindle, 2010).

A part of one's identity can be defined as being an entrepreneur (Nielsen et al. 2012). Three main motives may explain people's willingness to create a new venture (Bessant & Tidd, 2007). First, *lifestyle entrepreneurs* seek independency and a way to earn a living based on their personal values. Often they are not particularly creative or innovative (Bessant & Tidd, 2007). Second, *growth entrepreneurs* have the aim to become wealthy and influential. Their focus is on performance measures like profit, turnover, market size etc. Third, *innovative entrepreneurs* have a desire to create or change something (Bessant & Tidd, 2007). With the latter neither independency wealth nor reputation are the driving forces. In the words of Ziegler et al (1994) it may be the strong, yet in the literature often neglected, feelings for self-realization that are at play.

Solely focusing on the entrepreneur may reflect an approach where the intention to be entrepreneur is only stimulated by internal factors (Nielsen et. al. 2012). However, often external, contextual factors may stimulate entrepreneurship. In the next sub-section we look at factors in the entrepreneurial process that influence on the strategic domain.

2.2 The strategic domain: opportunity, evaluation and contextual conditions

In Hindle's (2010) model of the entrepreneurial process the strategic processes include elements like opportunity, evaluation of the opportunity both with generic and contextual procedures. Hindle argues that the ability to evaluate is the unique entrepreneurial capacity and can be summarized as 'the art of skilful dreaming' (p. 120).

In the strategic domain, it may be relevant to discuss whether a firm should adopt Michael Porter's strategic view which highlights external factors and positioning as a main element in a firm's search for their target customers (Porter, 1980). This is in contrast to the strategic approach focusing on resource-based internal factors (de Wit & Meyer, 2005). A third strategic approach is seeing the firm in a network perspective where the

interaction with external stakeholders plays a decisive role for the firm's strategic positioning.

These issues point to the fundamental discussion about the role of objectivism and subjectivism in entrepreneurship literature, where Sarasvathy (2001) points to two paradigmatic views causation and effectuation. This objectivistic approach is causal as it takes a point of departure in the objectives and how the entrepreneur will obtain them through the use of given resources (Nielsen et al, 2012). In contrast, in the subjectivistic approach the entrepreneurial process departs from the mobilized resources to obtain an effect. The process is not rational and goals, decisions and actions depend on the situation and thus change persistently.

A part of the environment is also a well-functioning entrepreneurial support system which has a broad participation of organizations (new and incumbent firms, knowledge organizations, financial companies, and public authorities etc.) as well as institutions i.e. the rules of the game as reflected in a set of common habits, norms, routines, established practices, or laws that regulate the relations and interactions between individuals, groups, and organizations (Edquist, 2007).

For a firm like Kunz in the creative fashion industry where the strategy is not to compete on price but differentiate on features such as design, the brand becomes of paramount importance. Creating recognition and awareness of the brand is thus essential. However, the brand is in this situation – and is the case in general in the fashion industry - very much embedded in the person Kunz. This may cause problems because it is difficult to distinguish between the person and the firm, thus also making it a challenge to involve other employees in the core firm processes at any level, and not least to be assessed by the entrepreneurial support system and potential investors too.

The outcome of the strategic processes is according to Hindle (2010) the business model. In the following subsection we will look more into that topic.

2.3. Business models

Where strategy copes with the overall vision and mission for a company, business models are basically customer-oriented and they *"*describe the rationale of how an organization creates, delivers and captures value*"* (Osterwalder & Pigneur, 2010), see figure 1.

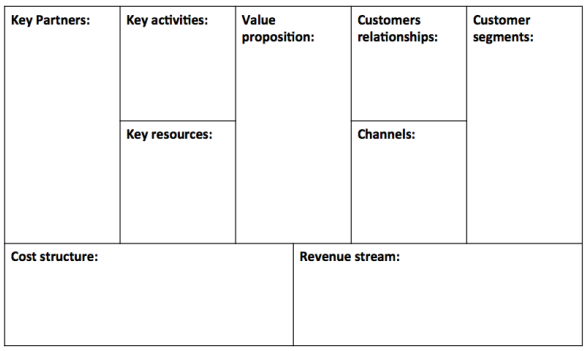


Figure 1. The business model canvas of Osterwalder & Pigneur

The value proposition reflects that the value customers can obtain from buying or using the product or service is at the heart of the business model. However, the business model also links the customer interface with the internal infrastructure management by taking into account which key resources, partners and activities actually deliver value for the customers. Furthermore, the business model includes the financial aspects by looking at the revenue stream and the cost structure.

In our case it is not only interesting to analyse how we can understand the present business model of KUNZ but also to include the dynamic aspects as the business model is evolving in an on-going process depending on which possibilities opens up for Kunz at different points in time. As a part of the business model it is also necessary to identify KUNZ's most relevant stakeholders and which role(s) they are playing for instance as moral support or as access to financial, human and social resources so important for survival and growth.

3. DATA AND METHOD

We present a longitudinal case study of *La Maison Justian Kunz***,** an entrepreneurial micro-firm in the Danish creative fashion industry which we have followed closely from early spring 2013 up till present (April 2015).

Our data stems from multiple interviews, observations, video-recordings, workshops and historical data.

4. THE KUNZ CASE

Our case is a Danish fashion firm, established in the city of Kolding by Justian Roman Adsbøl Kunz. Formally, the company was registered on April 19th, 2011 with the Danish Commerce and Companies Agency with the official name of *La Maison Justian Kunz*. At that time the owner of the firm, Justian Kunz, of Danish nationality, had just returned to Denmark after more than ten years in Italy, initially having pursued a modelling career, while also undertaking an apprenticeship as a tailor and thus pursuing a career within the Italian fashion industry. Amongst other positions during his years in Italy, this led to a position as a costume assistant for the Italian costume designer Flavia Cavalcanti, and he also launched KUNZ's first individual clothing line called *Justian Kunz*. In the spring of 2011, Kunz decided to return to Denmark to establish a Danish fashion house, yet with an ambition of becoming recognized on the international fashion scene.



Image 1: The owner of *La Maison Justian Kunz*, Justian Kunz.

With his own wordings Justian Kunz is 'a creative, strong-willed and hard working person who lives and breathes for his profession", or as he also refers to himself "a passionate soul" (Interview with Kunz, May 2014).

From the point of view of Tidd & Bessant's (2007) three types of entrepreneurs, Kunz can be characterized as the innovative entrepreneur who has a desire to create or change something. In this context it may be useful to distinguish between at least two subtypes of innovative entrepreneurs: a) the technology-based entrepreneur and the creative, artistic-based entrepreneur. The former is well-described in the literature, and the outcome includes much tangibility in its expression. Thus, making it easier for others to grasp the opportunity and how it may be commercialized and also fits into the entrepreneurial support system in terms of obtaining financing. In contrast, the creative entrepreneur develops for use 'living art' in a craftsmanship way. The outcome is still tangible but a major part of the value comes from immaterial, intangible meanings that may be difficult to measure, thereby also difficult to evaluate whether it may be a sustainable business opportunity eligible for funding or investment.

4.1. Business models

The business model reflects how an organization creates and delivers value for its customers in order to capture value for the company itself. The image below depicts the business model of KUNZ:

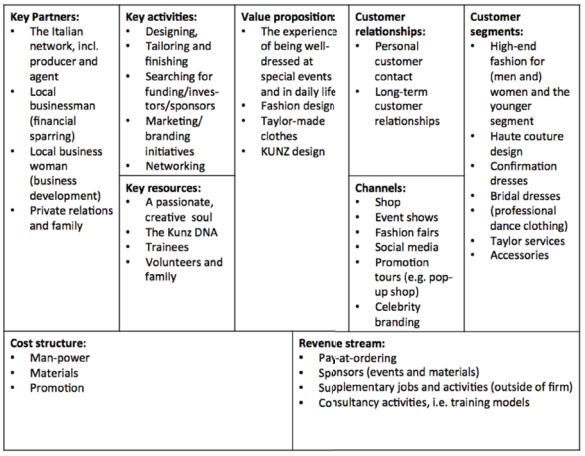


Figure 2. Business model canvas of KUNZ, spring 2015

Kunz has different product lines targeting different customer segments. However, the number and the content of the product lines have changed much since the entrepreneurial start. From the beginning Kunz included the product line *Justian Kunz,* which offers high-end fashion for men and women. However, within the first year in business in Denmark, Kunz extended his initial product line to encompass three more lines: *Atelier Kunz* (haute couture design) *Just Couture* (fashion for the younger more hip segment), and *White* (confirmation dresses). During 2012-13 two more product lines were initiated that of a bridal line (to be included in *White*) and professional dance clothing for men and women (no official name), the latter however ended after a short trial and test period. In 2014 the main focus returned to high-

end fashion for mainly women. In addition to the product range mentioned above, Kunz has since the start-up offered his tailoring services for individuals at large as well as for people with special needs (e.g. handicapped). Accessories such as handcrafted jewellery are also offered. This variety of product lines and customer segments reflects a highly creative craftsman but also that the target segments and business models have not yet been settled.

Key aspects are not only identifying appropriate target segments but also key partners and key resources that can ensure the vital financing and access to suppliers for the production. These issues will be further developed in the next subsection

During the first 2 ½ years as an entrepreneur, Justian Kunz supplemented his income with a part time job as a local bartender, and as a student enrolled in the Danish educational system (in Denmark students can receive students grants from the government for studying at high schools, universities and other formal educational institutions when they are 18 years). These actions were at the time necessary to make ends meet and to further continue pursuing his vision of becoming a Danish fashion house with an aim to retail his collections in all regions of Europe.

In spring 2014 Justian Kunz had several meetings with business consultants from the Danish entrepreneurial consultancy system to complete a visionary business plan suitable for presentation at so-called springboard and business angel meetings as a means to attract potential investors. However, financing did not show up from these meetings. In the words of Kunz, the consultants expressed he was an 'interesting case', but no one showed an understanding for his line of business. Instead Kunz found alternative financing in the form of prepayment of orders for clothing, especially his confirmand line, which has kept his firm running in 2015. This alternative financing was discovered through a local businessman within KUNZ's personal network.

Since the start up of the firm, it has been a constant challenge to get hold of employees due to lack of financial ressources, and the 'organizational setting' of the firm is constantly changing as illustrated in figure 3.

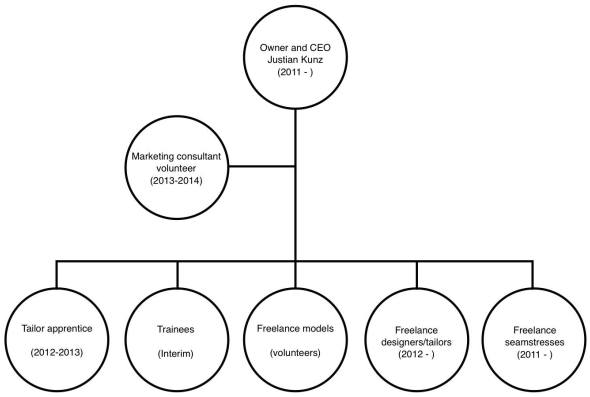


Figure 3. Organisational setting of the KUNZ firm, 2011-2015

Except for the Italian seamstresses and the tailor apprentice, the majority of people working for Kunz on an ad-hoc basis (some for a couple of days, others for one or two months) have been volunteers, either because they believe in his ideas or benefit in some way from their cooperation with him, e.g. personal branding, networking or obligatory traineeships. This points to the fact that KUNZ takes a strategic position to be predominantly network-oriented in his strive to survive as a firm.

At the time of writing, Kunz finds his firm at a dead end, still struggling with making ends meet, and financial funding has not yet emerged. The feedback to the KUNZ business plan was merely referred to as 'the most beautiful business plan' the innovation system had seen, after which they asked for permission to use it as a prime example of a business plan template. In addition it seems that KUNZ is stuck in the entreprenurial transition phase with his network approach.

5. DISCUSSION AND CONCLUSION

Tushmann & Reilly III (1996) talk of the ambidextrous organizations where there is both a need for focusing on operation and at the same time not forgetting the continuous need for innovation and development. However, the two target areas require different management styles, skills and knowledge of leaders and employees which makes it appropriate to talk about how a firm can embrace both logics to not end up in lock-in situations where core capabilities have become core rigidities (Leonard-Barton, 1992). It seems that the KUNZ case is a prime example of a lock-in situation. The firm struggles to survive the entrepreneurial phase, and at the same time, the

public innovation system and private investors find his firm interesting, but not willing to invest in the firm. So far Kunz has demonstrated a strong entrepreneurial behaviour and willingness to pursue new innovative ideas, but with a fuzzy product line, which changes according to opportunities arising, and it is difficult to showcase a 'core product', which is tangible enough for investors. The strongest product Kunz is offering at present, besides his own creative innovative entrepreneurial personality, is perhaps the confirmation dresses, but this income is not enough to survive the entrepreneurial transition phase in a longer perspective.

Further, Dunn & Jones (2010) defines business logics as the "cultural beliefs and rules that shape the cognitions and behaviors of actors". In the life cycle model it may reflect that challenging the logic may be difficult and it calls for finding new ways to break existing structures and new ways of thinking entrepreneurship. It seems that new ways of thinking on the part of the established innovation system and potential private investors could be beneficial, if a 21st growth paradigm, which encompasses the truly innovative and creative entrepreneurs like KUNZ. Perhaps one such path could be to explore hidden opportunities by taking a network approach and thus calls for revisiting conventional business modelling, which we argue is too customer-oriented. The present growth paradigm, which prevails in the Danish entrepreneurial community at large, may cause too many entrepreneurial lock-in situations, which could otherwise potentially be avoided.

ACKNOWLEDGMENT

Thank you to Justian Kunz, who has most kindly and openly allowed us access to his firm at all times, shared thoughts and challenges on both an informal and formal level, and provided us with continous detailed documentation of his business development processes.

REFERENCES

Bessant, J. & Tidd, J. (2007). *Innovation and entrepreneurship*. Chichester: John Wiley & Sons.

Buur, J. & Matthews, B. (2008). Participatory innovation. *International Journal of Innovation management* 12, 3, 255-273. DOI: 10.1142/S1363919608001996

CESFO (2013). *Årsrapport*. Center for Entrepreneurskab og Småvirksomhedsforskning, University of Southern Denmark.

Chesbrough, H. (2006). Open innovation: A New Paradigm for Understanding Industrial Innovation. In: *Open Innovation. Researching a new paradigme,* edited by H.Chesbrough, W. Van Havebeke & J.West, Oxford University Press

Danish Business Authorities (n.d.). *Role of the authority*. Retrieved January 29th 2014, from http://danishbusinessauthority.dk/creative-industries.

De Wit, B. & Meyer, R. (2005). *Strategy Synthesis concise version Resolving strategy paradoxes to create competitive Advantage.* Hampshire: South-Western Cengage Learning s. 100- 127

Dunn, M.B. & Jones, C. (2010). 'Institutional logics and institutional pluralism: the contestation of care and science logics in medical education, 1967-2005', *Administrative Science Quarterly*, vol. 55, pp. 114-149.

Edquist, C. (2005). Systems of Innovation: Perspectives and Challenges. In Fagerberg, J., Mowery, D. & Nelson R. (Eds), *The Oxford Handbook of Innovation*. Oxford University Press.

Europe2020 (n.d.). *Sustainable growth - for a resource efficient, greener and more competitive economy.* Retrieved April 2, 2015, from http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/priorities/sustainable-growth/index_en.htm.

Gartner, W. B. (1995). 'Conceptual framework for describing the phenomenon of new venture creation'. *The Academy of Management Review*, vol. 10, no. 4, p. 696-706.

Hindle, K. (2010). 'Skillful dreaming: Testing a General Model of Entrepreneurial Process with a specific Narrative of Venture Creation'. In *Entrepreneurial Narrative Theory Ethnomethodology and Reflexivity,* ed. W. Gartner, pp. 97-135, SC: Clemson University Digital Press.

Horizon 2020 (n.d.). *Hvad er Horizon 2020?* Retrieved April 2, 2015, from http://ufm.dk/forskning-og-innovation/tilskud-til-forskning-og-innovation/eu-og-internationale-programmer/eus-forsknings-og-innovationsprogram-horizon-2020/hvad-er-horizon-2020.

Just, U. (2013). *Iværksættere vil lykkes lidt mere end de fleste.* Retrieved January 7, 2013, from

https://dadk.facebook.com/BrandUniverse/posts/10151804096803920

Leonard-Barton, D. (1992). 'Core capabilities and core rigidities. A paradox in managing new product development', *Strategic Management Journal*, vol. 13, pp. 111-125.

Mainemelis, B. & Ronson, S. (2006). Ideas are born in fields of play: Toward a theory of play and creativity in organizational settings. *Research in Organizational Behavior,* 27:81-131.

Nielsen, S.L., Klyver, K., Evald, M. & Bager, T. (2012). *Entreprenørskab i teori og praksis. Paradokser i spil.* Kolding: Iværksætterakademiet IDEA.

Osterwalder, A. & Pigneur, Y. (2010). *Business model generation*. Chichester: John Wiley & Son.

Osterwalder, A., Ben Lagha, S. and Pigneur, Y. (2002). *An Ontology for Developing e-Business Models.* In *DSIage*. Lausanne-Dorigny.

Porter, M.E. *(1980) Competitive Strategy: Techniques for analyzing industries and competitors. New York: The Free Press*

Sarasvathy, S. D. (2001). *Causation and Effectuation: Toward a Theoretical shift from Economic Inevitability to Entrepreneurial Contingency*, Academy of Management Review, 26, 2, 243-263.

Shane, S. (2000). 'Prior knowledge and the discovery of entrepreneurial opportunities'. *Organization Science*, vol. 11, no. 4, p. 448-469.

Shane, S. (2003). *A general theory of entrepreneurship: The individual-opportunity nexus.* Cheltenham: Edward Elgar.

Tidd, J. & Bessant, J. (2013). *Managing innovation. Integrating Technological, Market and Organizational Change.* Chichester: John Wiley & Sons, 5th edition.

Timmons, J.A. & Spinelli, S. (2009). *New venture creation: Entrepreneurship for the 21st century.* New York: McGraw-Hill.

Tushman, M.L. & O'Reilly III, C. (1996). The ambidextrous organization. Managing evolutionary and revolutionary change. *California Management Review,* vol. 38, no. 4.

Value Connect. (n.d.). Retrieved November 20, 2013, from http://www.valueconnect.dk/.

Ziegler, M., Ziegler, P. & Rosenzweig, B. (1994). *The republic of Tea: the story of the creation of a business as told through the personal letters of its founders.* New York: Currency Doubleday.

Slums: Creative Clusters of the Informal Sector

Gaurang Desai

American University of Sharjah
gdesai@aus.edu

Abstract — The emergence of cities as critical nodes for globalization, the ready availability of cultural and utilitarian infrastructure and the benefits of clustering make Creative Industries a largely urban phenomenon. As the process of globalization intensifies, the concept of creative cities has reached developing countries. While this is to be welcomed there are several deficiencies in the way it is currently being approached. This is primarily due to an inability to contextualize global concepts and policies to situated forms of creative practice. Policy making is also hindered by the absence of research on alternate forms of creative practice, its dynamics and how creative processes emerge in the informal sector. The aim of this paper is to bridge this gap by presenting an alternate view of urban slums as Creative Clusters of the poor.

Keywords **–Creative Cities, Creative Clusters, Situated Creativity, Informal Sector**

1. INTRODUCTION

The creative industries have been the subject of growing academic interest (Hawkins 2001; Florida 2002; Schuster, 2000). In recent times, this interest has evolved into a concern for identifying optimum social and urban environments to support the growth of the creative industries. A management and economics led approach sees a causal relationship between investments in cultural and utilitarian urban infrastructure and, a conducive environment within which a creative class of workers can ideate and collaborate in a 'plug and play' of ideas leading to the development of new products and services (Florida 2002, 2008; Florida et al., 2008). Another approach has been the adaptation and reinterpretation of industrial clusters (Porter 1998, 2000; Markusen 1996) into 'creative industry clusters' in the hope that it would bring together complementary practices of cultural production which could augment the process for follow-on innovation (Pratt, 2000, 2002; O'Connor, 2004, 2005; Tay, 2005). As the process of globalization intensifies, the concept of creative industries and cities has found a new audience in developing countries. While this is to be welcomed there are serious deficiencies in the way it is currently being approached. Developing countries have complex production ecologies where fordist manufacturing often co-exists with handicrafts and other flexible modes of production centered on the internet. The inability to contextualize global concepts and policies to local forms of creative practice then, represent a unidimensional and top-down approach to policy making. The aim of this paper is to redefine creative cities in developing countries as inclusive environments and to highlight alternate forms of creative practice, investigate its dynamics and how creative processes emerge in the informal sector. It will do so by presenting an alternate view of urban slums as Creative Clusters of the poor.

2. Re-defining creative cities

The creative industries in developing countries are often narrowly defined. This is because

policymakers tend to prioritize the economic and social production of goods/ services related to 'weightless' industries such as software development and new media over all else. The popular argument for this is that these industries help to overcome geographic disadvantages due to its reliance on the World Wide Web (Quah 1996a, 1996b, 1997a, 1997b; Coyle 1998; Carincross 1998; Pratt, 2000). The supply and density of the creative workforce servicing these industries is however, very low. As a result, policy measures are directed towards attracting creative talent to specific urban locations in an attempt to;

- reduce costs (by concentrating infrastructure in these locations) and;
- providing the creative workforce with a stimulating work environment so that they may collaborate and also compete with each other in the development of innovative goods and services.

The predominant strategy aimed towards supporting the creative industries then are the development of creative clusters (Mommaas, 2004; Storper and Scott, 1995; Scott, 2000). In India and the UAE for example, this has taken the form of software technology parks and media parks/ cities. As a result, the terms creative clusters and creative cities are used interchangeably and the mere presence of the former is seen as an essential (and sometimes exclusive) ingredient for building creative cities.

This is however an inadequate definition as it fails to include alternate forms of creative practice such as the informal sector and the high arts. Furthermore, the growing support at the policy level for other forms of creative practices which are not reliant on the internet such as high end manufacturing, raise an important concern; why do policymakers prioritize one form of creative production over others? According to Hartley (2007, 2010), this maybe a consequence of the historic evolution of the creative industries. The term *creativity* was traditionally associated with the arts and widely considered to be engaged in the creation of high culture while '*industry*' remained predisposed to mass production and the creation of a mass culture. The resulting ambiguity over the term "creative industries" when it first emerged and what it included, led policymakers to lay emphasis to only a part of this new construct - the term *industries,* rather than a holistic meaning of the term. For, it was easier to build upon the already well codified knowledge of promoting 'industries' through policy measures. As a result, *culture* was grafted on to the familiar concept of industrial clusters (Zheng & Chang, 2013) leading to the prioritization of the organized sector over the informal. The increasing sophistication of this policy as it migrates to a globalized environment has exacerbated the divide between formal and informal forms of creative practice. In the Indian state of Andhra Pradesh for example, the informal sector was found to have contributed an equivalent amount to the Gross State Domestic Product (GSDP) as software development (Central Statistical Organization, 2006) and yet received no benefits from the government while local software firms secured free power and water supply, tax incentives and large tracts of very expensive real estate at a fraction of the cost.

There is a need therefore for redefining the term creative industries and creative cities as well as the relationships between them.

According to Hartley (2007, 2010), "a creative city is one where something new struggles to emerge from the disruptions and tensions caused by the clash of opposing ideas". This suggests that the concept of creative cities must be inclusive so that it actively promotes a rich variety of sometimes contradictory ideas and knowledge; top-down vs bottom-up; formal vs informal and; global vs local. Accordingly, a creative city in developing countries can be defined as one 'which builds a cluster of clusters' (Hartley 2007) for the;

- Creative industries – which lay emphasis on creative entrepreneurship for media and software companies (among others)

- The cultural economy – which includes the high arts including artists, singers, musicians and the public institutions and academies where these arts originate and;
- The informal sector – which includes communities that self-organize and use creativity to solve complex problems including making a living.

For, it is the differences and clash of ideas between them that allows for change and innovation.

Having defined creative cities as inclusive environments, the next section will focus on the under-explored dimension of creative practices in the informal sector. It will do so by identifying creative activities in a slum and investigating its contextual dimensions including; the identification of its creative workforce, the infrastructure to support it and the ways in which creative processes emerge in the informal sector. It will do so by documenting a qualitative study of the Dharavi slums in the Indian city of Mumbai.

3. Context: Cities in developing countries

The island city of Mumbai is the commercial capital and economic growth engine of India. Originally composed of seven small islands, land reclamation and infill carried out during the 18th and 19th century integrated these islands into a continuous peninsula (Deshpande and Arunachalam, 1981). Beginning as a seaport on the west coast of the Indian peninsula, Mumbai has steadily diversified its economic base to include value-added manufacturing and financial services. The country's central bank, the Reserve Bank of India and two of India's largest stock exchanges, the Bombay Stock Exchange and the National Stock Exchange are all located here. Mumbai accounts for one-tenth of factory employment and value-added manufacturing, while the port handles more than one-third of the total value of foreign trade (Deshpande, 1996), making the Brihan Mumbai Municipal Corporation one of the richest, with a budget of more than USD 1.2 billion (Mohan & Dasgupta, 2005), exceeding the budget of nine States and Territories in the Union of India.

This economic growth is sustained by and in turn, drives the steady influx of migrants from rural and regional centers of the country. Consequently, the Mumbai Metropolitan Region (MMR) is one of the fastest growing regions of India. Its population increased from 7.7 million in 1971 to 18.3 million in 2001 (Census of India, 2001) and is projected to increase to 22.4 million by 2011 (MMRDA,1999).

This in-migration combined with poor land supply due to some of the most extreme topography and excessive government interventions in the form of regulations are the main reasons for the city's housing crisis. The increasing mismatch between demand for land and housing through in-migration and poor supply have resulted in Mumbai having some of the most expensive real estate prices in the world. Unable to afford such exorbitant prices or access formal financing, a large number of the urban poor are forced to live in slums.

4. Slums: Creative clusters of the poor

While slums are commonly perceived as places of poverty and despair, they are in fact the collective response of the poor to secure their future in an uncertain environment. Slums facilitate the wellbeing of residents and new migrants by providing them with;

- accomodation,
- employment and,
- an opportunity to identify and collaborate with fellow creatives

A study of the slums at Dharavi in central Mumbai helps elaborate.

4.1 Creative enterprises & the built form

Infamously termed as the largest slum of Asia, city records from 1985 place its population at 300,000 within an area of 425 acres (Warning, 1995). Located at the edge of coastal mangroves and hemmed in by major roads and railway lines at its periphery, the slum was originally a swamp which was reclaimed by

regular infilling by a steady influx of migrants into the city.

Today, Dharavi houses an eclectic bunch of migrants with varying skills and competencies who are drawn to it primarily due to the availability of cheap housing, employment opportunities and proximity to public transport. The various job opportunities within the slum include leather tanneries, design and crafting of custom made leather goods and accessories (Figure 1), design and stitching of ready-made garments for exports (Figure 2),



Figure 1. Leather dyeing

plastic and metal recycling, food industries and World Health Organization certified sutures for surgery.



Figure 2. Design and stitching of garments

One of the reasons for this agglomeration is that unlike the formal sector, manufacturing units in the informal sector do not pay multiple federal, state and local taxes. Small units operating out of a slum also escape strict environmental scrutiny that the formal sector faces. Slums and squatter settlements like Dharavi offer a competitive advantage by reducing overheads such as rent, taxes and policy restrictions. In doing so, slums set themselves up as ideological counterpoints to industries in the formal sector. It is this difference and clash of ideas that faciltates innovation. And, it is the ability of cities to accommodate variety and complexity of each ideology that makes them 'creative' (Hartley, 2007).

A 1986 survey of Dharavi by the National Slum Dwellers Federation (NSDF) puts the number of such small and medium sized businesses at 1044 units while a study by the Society for Human and Environmental Development (SHED) estimates their numbers at 1700 units with a cumulative annual turnover estimated at between Rs 1500-2000 crores. These figures demonstrate not only the thrift and ingenuity of the residents but also the flexibility afforded by the slum architecture.



Figure 3. Incremental building of dwellings

As mentioned earlier, land is a scarce and valuable commodity in Mumbai which also plays a central role in the slum economy and the formation of creative enterprises. It is not surprising then, that one of the key skills that creative entrepreneurs possess is the ability to minimize business costs through the maximization of land use and the use of innovative forms of tenure.

The first step towards building a creative enterprise is to have capital. In the case of recent migrants, this involves saving money by reducing expenses including the cost of renting. On the other hand, established residents try and increase size/ capacity of

their dwellings so that they may be partially leased. This neccessitates not only an economic interdependence between established residents and newer migrants but may also assist in the formation of a creative enterprise by bringing together both, capital and skilled workers together in one location.

The absence of clear titles and a regular income makes access to housing finance difficult. As a result, residents often build dwellings in an incremental and staged manner (Figure 3). Incremental building provides them with the flexibility to match incomes to the process of building development. Also, since a large proportion of residents are self-employed, they have no fixed income. This variation in incomes coupled with a reluctance to take on long-term debt, habituate residents to flexible spending patterns. During periods of lean business and/ or incomes, residents often resort to short-term loans from relatives or private moneylenders . These loans are repaid through a downward adjustment of monthly expenses so that repayments may be prioritized. Similarly, dwellings are improved in quality and size only over a period of time when savings have been made.

One of the strategies adopted to supplement income and increase savings is to rent out a part of the dwelling to newer migrants. Rental tenure is a result of an informal understanding between the leaser and the lessee, outside the legal and institutional framework. It is common practice for recent migrants to co-occupy rental accommodation, sub-let or, rent a single room in an owner occupied house. The form and nature of renting is often dependent on issues such as affordability, access to essential services or proximity to employment opportunities, etc.

Also, sharing of rental property allows the tenants to share rent and deposit costs. This is especially true in the case of recent migrants who face severe financial difficulties till they manage to secure a job. Besides, sharing also provides peer support in times of financial or social stress. Consequently, sharing of rental properties is often based on ethnic linkages, common places of origin or, occupation.

As most structures within the slum are built incrementally, they are also easily modified depending on the evolving function and use. A part of the structure for example, can be quickly altered to accommodate a new business or even be leased to others. In such cases, the lower level with access to the street is put to commercial use while the family uses the upper level for residential purposes. The street then becomes a shared and polyvalent space which can be temporarily appropriated during working hours for production activities. This inversion of space creates very interesting architectural typologies and a hierarchy in spaces.

Since most enterprises have limited capital, bidding for large projects becomes difficult. One of the ways this is resolved is by pooling economic and infrastructure resources together by distributing the manufacturing process of a single product into multiple modular sub-assemblies with the output of one unit forming the input for another business. For example, ready-made garments involve embroidery (Figure 4), stitching (Figure 5), ironing the finished garments and packaging. Units focussed on each of these stages come together and collectively bid for large projects. The garment then moves from one unit to the other for value addition till it is ready for delivery as a finished product. This process helps de-risk businesses by limiting the need for external financing and allows the distribution of costs by maximizing the utilization of space through the creation of complex tenures.



Figure 4. CNC embroidering unit



Figure 5. Garment stitching unit in the slums

Having identified creative activities in a slum and the instrumental role that the slum dwellings play in supporting creative enterprises we will now identify the creative workforce and the ways in which creative processes emerge in the informal sector.

4.2 Dynamics of creative processes

In a slum, creative processes emerge from the interplay between three distinct domains; creative entrepreneurs; creative communities and; creative workers. Before we proceed with an elaboration of the relationship between the three in the context of a slum, it is necessary to define and also distinguish one from the other.

Defining creative entrepreneurship

The city is the source of inspiration for creative entrepreneurs. Entrepreneurs visualize ways in which various forms of creative knowledge can be packaged together to develop a unique commercial product. In doing so, entrepreneurs play an important role of providing finance and threading multiple skills/ knowledge together. They have the ability to take risks and test new forms of creative outputs by bringing them to the market. There are two visible models of entrepreneurship in the informal sector; a top-down model wherein an entrepreneur assembles his own team for contract manufacturing and; a more organic, bottom-up model involving gifted creatives who reconstitute teams to create their own ventures (Figure 6).



Figure 6. Creative entrepreneurship: Design of leather bags

Defining and distinguishing creative workers & creative communities

Creative workers have a deep interest in their practice regardless of their organizational affiliation or the commercial value of their work. It is common for creatives to collaborate with each other cutting across organizational affiliations in an attempt to learn from each other and improve their practice. A good example of this are do-it-yourself (DIY) artists who pore into a range of online content, upload their works on the internet for peer assessment, attend various maker fairs and collaborate with other DIY'ers to improve their practice. In most cases, the reward of developing something new far exceeds monetary rewards that the work may generate. Creative work is also very 'situated'. That is, it draws heavily upon the rich context of its cultural and immediate physical environments, be it a city, district or even a slum. This is why creative outputs such as fashion products differ from one place to another (e.g.; fashion products from Paris vs Singapore).

Creative communities on the other hand, mediate relationships between creative entrepreneurs and creative workers through a codification of commercial and creative knowledge. This allows projects to integrate both perspectives; the creative and the commercial

Relationship between Creative workers, communities and entrepreneurs in a slum

The slum has several specialist communities, each dominated by workers who share a common religion and/ or place of origin in the rural hinterland. For example, the design and crafting of leather artifacts is dominated by Muslim migrants from the northern state of Uttar Pradesh, while those in textiles and ready-made garments are from Bihar. This is primarily due to traditional practices and/ or religious sensitivities. It is inappropriate, for example, for Hindu's to work with material that is derived from animal remains (leather). On the other hand, some creative workers practice and perfect a craft over many generations resulting in a unique style/ craft that may be considered superior or more 'authentic' than others.

As mentioned earlier, the origins of these communities lie in skilled migration. Early migrants to the city have minimal resources leading to an eventual transition into shared accommodation in the slums. These not only provide them with shelter but also act as instruments of orientation and recruitment. Fellow residents help the new creatives identify the various industries operating out of the slum and also provide details for whom to contact for employment.

Constantly on the lookout for new opportunities, entrepreneurs assimilate these new recruits in ongoing projects. While their skills do not necessarily coincide with these projects, they nevertheless provide entrepreneurs with insights into the nature and complexity of their craft as well as help entrepreneurs value their work in monetary terms. It also helps them judge the new recruit's attitude to work and their ability to work in teams. They remain engaged in these projects till the city's evolutionary cycles eventually lower barriers and provide opportunities for the introduction of their craft. For example, the textile and ready garments industry in Dharavi first emerged in the 1960s after strikes by labor unions led to the steady decline and closure of large textile mills in Mumbai. When presented with opportunities, entrepreneurs are quick to seize upon them by including the new creatives work as value addition for ongoing projects or by starting a new line of products. The newly hired creatives then begin the process of building a creative community by inviting skilled friends, relatives and acquaintances from the hinterland to work alongside them in the slums. This model works well for the entrepreneurs as the latter's expertise is vouched for, by lead recruits. On the other hand, the new migrants benefit from the convenience of slipping into a cluster of expertise that ensures gainful employment and ready accommodation. As mentioned earlier, almost all community members share rental accommodation in a bid to reduce expenses. This allows them to collectively experience work, everyday struggles and leisure activities. Furthermore, prior familiarity with fellow creatives and/ or the fear of being ostracized 'back home' should they behave unethically make most creative communities in the slum a tightly knit unit.

Since most creatives share a common language and place of origin they interact freely with other groups that may be co-located in the slum. Here, they trade new ideas, trends and valuable skills to improve their craft and it is these interactions that provide creative workers with the opportunity to get noticed among peers allowing for upward mobility. This mechanism also influences group dynamics, allowing it to be reconstituted for undertaking new lines of work. In some cases, entrepreneurs may recruit emerging talent to start a new venture centered on innovative new forms of creative outputs. These interactions are also extremely helpful when seeking alliances to bid for large project. This is a virtuous cycle which replenishes entrepreneurial spirit and the continuous upskilling of individual talent through the inner workings of a creative community which in turn drives the scope and variety of creative works undertaken in the slum.

The creative community now begins to take a definite shape and form. Typically, each group

is structured around a core group of master artisans who collectively codify artistic and commercial knowledge while individual workers work on improving their practice. Managing the conflicting demands of creativity and commercial requirements provides each group with a unique identity. Accordingly, some groups are recognized for the consistency of their outputs while others are recognized for craftsmanship, constant innovation or meeting tight deadlines. In this way, creative communities ensure the quality and diversity of the informal creative industry in the slum.

5. Conclusion

As the concept of Creative Industries is relatively new, the conception and implementation of policy in the developing world is premised on models derived from the developed world. Consequently, its focus remains restricted to the formal sector or indigenous crafts while overlooking creative enterprises within the informal sector. Policy making is also hindered by the absence of research on the types, nature and dynamics of creative enterprises in the informal sector.

This paper bridges this gap by presenting a qualitative study which documents the complex creative economy centered on the design and production of fashion apparel and leather goods. It also documents the entrepreneurial strategies employed by the urban poor to de-risk and grow their creative enterprises. More work on this topic is required. However, it is hoped that this paper will highlight the need for undertaking more studies on the informal sector which can then inform the process of policy making.

Based on this study the following recommendations can be made:

1. Policymaking must be inclusive so that it includes both, the formal and the informal sector.
2. The role of housing and real estate in supporting the creative industries especially in the informal sector requires re-consideration. The planning of cities must move from an exclusive emphasis on economics to one which also includes the social and the cultural.
3. Financial lending must be tweaked so that the informal sector can gain access to financing.
4. Policy making must not happen in a vacuum. It must be adequately informed by reliable data. Therefore, there is an urgent need for more studies to be undertaken in this area.

REFERENCES

(2001) Census of India, Office of the Registrar General. (Ed.), Government of India.

(1999) MMRDA Regional Plan for Mumbai Metropolitan Region, 1996 - 2011, Maharashtra Government Gazette, Konkan Division.

Caincross, F (1998). *The death of distance: how the communications revolution will change our lives*. Boston: Harvard Business School Press.

CENTRAL STATISTICAL ORGANIZATION (2006) State Domestic Product and other aggregates. IN IMPLEMENTATION, M. O. S. A. P. (Ed.). New Delhi, Government of India.

Coyle, D. (1998). *The weightless world: Strategies for managing the digital economy*. New York: MIT Press.

Deshpande, C. D. & Arunachalam, B. (1981). In M. Pacione, M. (Ed.), *Problems and Planning in Third World Cities* (pp. 327-331). London: Routledge.

Deshpande, L. (1996). Impact of Globalization on Mumbai. *Globalization and Mega-city development in Pacific Asia. United Nations University. Hong Kong*.

Florida, R. (2002). *The Rise of the Creative Class*. New York: Basic Books.

Florida, R. (2008). *Who's Your City? How the Creative Economy is Making Where to Live the Most Important Decision of Your Life*. New York: Basic Books.

Florida, R., Mellander, C. and Stolarick, K. (2008). Inside the black box of regional development—

human capital, the creative class and tolerance. *Journal of Economic Geography, 8*(5), 615-649.

Howkins, J. (2001). *The Creative Economy: How People make Money from Ideas*. London: Allen Lane.

Markusen, A. (1996). Sticky places in slippery space: A typology of industrial districts. *Economic Geography, 72*(3), 293-313.

Mohan, R. & Dasgupta, S. (2005, Jan 15-21). The 21st Century: Asia Becomes Urban. *Economic and Political Weekly*. Retrieved June 12, 2015, from http://www.jstor.org/stable/4416078

Mommaas, H. (2004). Cultural clusters and the post-industrial city: towards the remapping of urban cultural policy. *Urban Studies, 41*(3), 507-532.

O'Connor, J. (2004). "A Special Kind of City Knowledge": Innovative clusters, tacit knowledge and the "Creative City". *Media International Australia,*112, 131-149.

O'Connor, Justin. (2005). Cities, Culture and 'Transitional Economies': Developing Cultural Industries in St. Petersburg. In J. Hartley (Ed.), *Creative Industries* (pp. 244-258). Oxford: Blackwell.

Porter, M. (1998, Nov-Dec 1998). Clusters and the new economics of competition. *Harvard Business Review*. Retrieved June 10, 2015, from https://community.dur.ac.uk/p.j.allen/HBS_Clusters.pdf

Porter, M. (2000). Location, competition, and economic development: local clusters in a global economy. *Economic Development Quarterly,* 14(1), 15-34.

Pratt, Andy C. (2000). New media, the new economy and new spaces. *Geoforum, 31*(4), 425-436

Pratt, Andy C. (2002). Hot Jobs in Cool Places. The Material Cultures of New Media Product Spaces: The Case of South of the Market. *Information, Communication and Society, 5*(1), 27-50.

Quah, D. T. (1996a). The invisible hand and the weightless economy, Centre for Economic Performance. *Occasional Paper No 12, April*.

Quah, D. T. (1996b). 'Growth and dematerialisation: why non-stick frying pans have lost their edge'. *Centre Piece, CEP, LSE, October*.

Quah, D. T. (1997a). The weightless economy: Nintendo and heavy metal.*Centre Piece, CEP, LSE, February*.

Quah, D. T. (1997b). 'The weightless economy: the mass of evidence'. *Centre Piece, CEP, LSE, June*.

Scott, A. (2000). *The Cultural Economy of Cities*. London: Sage.

Schuster, Mark J. (2002). Sub-national cultural policy--where the action is: Mapping state cultural policy in the United States. *International Journal of Cultural Policy, 8*(2), 181-196.

Storper, M. & Scott, A. (1995). The wealth of regions: market forces and policy imperatives in local and global context. *Futures, 5*, 505-526.

Tay, J. (2005). Creative Cities. In J. Hartley (Ed.), *Creative Industries* (pp. 220-232). Oxford: Blackwell.

Warning, C. (1995). Participation and intervention in slum and squatter settlements improvement programmes: Experiences from slums in Bombay.*Center for Development Studies and Activities*.

Zheng, J & Chan, R. (2013). A Property Led Approach to Cluster Development: 'Creative Industry Clusters' and Creative Industry Networks in Shanghai. *Town Planning Review, 84*(5), 605-632.

Bali Creative Industry Center (BCIC) as Ecosystem Model for Developing National Competitiveness

Agus Windharto
Faculty Of Design and Creative Industry
Institute Of Technology Sepuluh Nopember, Surabaya - Indonesia
aguswindarto19@gmail.com

***Abstract* ---** The world economy has shifted rapidly from high dependence on natural resources to dependence on the capacity of human knowledge, science, technology, art, culture and creativity. It means that creative industries must be supported by the reliable Information, Communication, and Technology. Creative Industry is a new economic concept that conduct activities depend on creativity, innovation and information communication technology as the main factors. This phenomenon shows that it takes a different approach to encourage the growth of the creative economy, between developing and industrial countries.

Indonesia as a country of art and culture is very diverse and valuable, but currently the ecosystem to develop creative talent into creativepreneur is not run properly. The aims is to find a method that could build a good ecosystem for creative people through integrated activities in BCIC: capacity building such as workshops and training, entrepreneurship, the development of new product innovation, and the promotion for creative people through the exhibition and appreciation of design. The methods are synergizes quadro helix: business, academia, the creative community and the government to build an ecosystem for creative people. The result of this research is the state of the art in developing models. In 2015, BCIC will generate 20 new entrepreneurs, 60 creative talents by training and workshop, 80 new design and 40 prototypes.

The International Conference of the Creative Industry (ICCI) 2015 is supported by BCIC through rattan craft workshop and exhibition. The creative work as well as provide the opportunity for all parties involved in international networks. ICCI is an international conference organized each two years by ITS (Institute of Technology Sepuluh Nopember) Surabaya, the aims to accommodate and discuss the latest issues in creative industries are those of the various parties concerned the creative industry from various disciplines. The 3rd ICCI is going to be held on 11-12 August 2015 in BCIC and were attended by 179 participants from 14 countries (South Korea, Australia, Denmark, United Arab Emirates, Brazil, Thailand, Japan, Portugal, the Netherlands, Taiwan, Singapore, the USA, Malaysia and Indonesia). Furthermore, ICCI could become reference for policy makers, current issues and challenges.

***Keywords*: Bali Creative Industry Center- Ecosystem**

1. INTRODUCTION

The creative industry in each country is strongly influenced by difference contexts: traditional or modern, contemporary or cultural heritage, the local wisdom or the latest technologies. Knowledge of differences context could influence the policies and strategies. Policy to develop the Creative Industries at the Ministry of Industry began

with the publication of the Ministerial Decree number 130 year 2009 on the Development of Software and Multimedia Content, Minister of Industry No. 131 of 2009 on the Fashion Industry Development and Regulation of the Minister of Industry No. 132 of 2009 on the Industrial Development of Crafts and Art Goods Some rules are meant to develop the creativity of communities in the development of the industrial sector.

As one of the efforts of the Ministry of Industry to continue to drive the growth of the fashion industry and the craft is to provide a means of education and development, to the Minister of Industry has issued Decree No. 146 year 2014, the Empowerment Center for Education and Training Industry Denpasar as Creative Industry Development Center, or the so-called Bali Creative Industry Center (BCIC). The minister's decision give a mandate to the Directorate General of SME to develop creative industries sector crafts and fashion that has added value and competitiveness.

In the Minister of Industry referred, in particular, the Government has the task to: Develop Roadmap Creative Industry Development Center (Bali Creative Industry Center) together with related parties as a center of industrial growth Craft and fashion, Creative Digital (Animation, Multimedia Content and Interactive Game) and creative talent development; Creative capacity-building activities, development, design, consultancy, dissemination, and promotion of BCIC; Coordination and development of Creative Industries together with the Ministries / agencies, local governments, universities, Chamber of Commerce, Association, and practitioners / Performer.

Develop a business incubator for the creative craft industry, fashion and Creative Digital. The Ministry of Industry has done a few things: Facilities and Infrastructure, Roadmap Creative Industry Development Center in Bali (Bali Creative Industry Center), which will be BCIC management guidelines.

Program enhancing competitiveness as one of the efforts to encourage the development of creative industries in Indonesia, which is derived from the following activities: creation, research, development and utilization of natural resources and abundant human resources, local wisdom, excellence and increase networking technologies for products and creativepreneurs in crafts, fashion and design. Promoting, seeking seeds through other activities: competition, training, product development workshops, and seminars as well as business incubator

Program activities mentioned above in order to facilitate and motivate SMEs Creative, designers, universities and communities to develop innovative products.

The government policy in line with the Presidential Decree number 28 Year 2008 regarding the National Industrial Policy, Directorate General SMEs got the mandate to develop five specific SME clusters: precious stones and jewelery, pottery and ceramics ornamental, essential oils, and two clusters of creative SMEs namely craft and fashion.

Follow up of the policy has been issued President of Republic Indonesia Instruction number 6 year 2009 on Creative Economy, Development 14 economic sectors of Creative Industries.

Ministtry of Induatry Decree 130 year 2009 on the Development of Software and Multimedia Content, Ministry of Industry No. 131 year 2009 on the Fashion Industry Development and Regulation of the Minister of Industry No. 132 year 2009 on the Industrial Development of Crafts and Art Goods. Some rules to develop the creativity of communities in the development of the industrial sector.

Development and utilization of natural resources and abundant human resources, local wisdom, excellence and increase networking technologies for products and creative entrepreneurs in the field of crafts, fashion and design. Promoting, seeking seeds through other activities: competition, training,

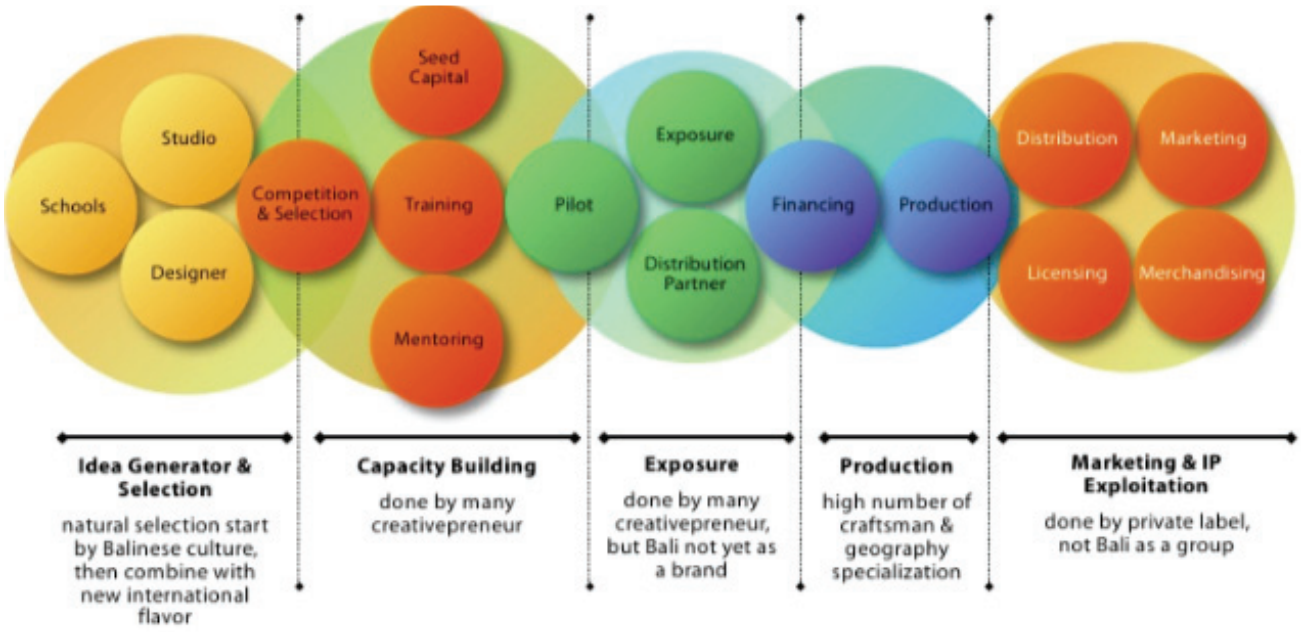


Figure 1. From Mind to Market Diagram, 2009, Andy S. Budiman

product development workshops, incubators and seminars and develop a national network.

Purpose and Objectives

Develop National Creative Industry Center in Bali, Improve quality of creative talent and competitive products. Increase networking, promotion and national branding, Synergize Quadro Helix: Creative Industry, Community, Education and Government

2. THEORITICAL FRAMEWORK

Bali as Creative Magnitude of the world tourism destination has a creative indurtry real sector that has grown since the last ten years. Driven by the tourism, supporting creative businesses has been grows globally, among others, Architecture, imterior, graphic design, craft, fashion , animation , multimedia , performing arts and culinary.

Government Investment in BCIC

Infrastructures building and land 12,000 meter squares consist of: office space, craft workshop, promotion- exhibition, training center, design clinic, showroom, display, creative media, lobby hall, café, restaurant, hotels and parking area.

1. Promotion and exhibition for creative talent or creative work by organizing various seminars, awards, marketing communication, Branding, access to market information
2. Networking to international creative community, ICSID, ICOGRADA, IFI, APF, JDF, etc. Strengthening Indonesian designer community, HDII (Indonesian Interior Designers Society), ADPI (Indonesian Industrial Designers Alliance), ADGI (Indonesian Graphic Designers Association), IPF (Indonesian Packaging Federation), HDMI (Indonesian furniture designers society), APPMI (Indonesian fashion designers association)
3. ICT facility hardware, software, content, Network, multimedia, creative content and animation.
4. Research and development of natural material: Bamboo, Rattan, Wood, natural fiber and stones - rocks, trend, color and life style,

5. Product development and prototyping: Product, craft, packaging branding and fashion
6. Access to financing start up creative business, Mental model and business models, to generate creativepreneur
7. Quality of creative talents by training, workshops, Mentoring, Internships
8. Professional certification level design expertise ranging from beginner, intermediate and expert recognized National Regional and International
9. International creative camp, appreciation award, talent scouting and mentoring young designers.
10. Indonesia design directory, organization, centers, educational, foundation, vendor materials, equipment, etc.



Figure 2. Creative Industry Ecosystem

Institutional framework

a. Establishment Indonesia Design and Network Center: System Integrators among government - industrial - businesses and universities (Quadro Helix Indonesia Design Center as a National Branding, Design Showcase Event, Clinics, Training, Apprentice, Convention, Directory, Digital & Materials Library, Event, Network & Promotion Center

b. Establishment of the National Design Council as representative of the stakeholders in charge of developing policies, code of ethics, strategic planning and various other rules. A place to meet and dialogue between communities, professional associations of design, industrial design services users and colleges

c. Capacity building of creativepreneur SMEs and creative talent. Creative business incubator to forming mental models, business models, this program can be held at the college or in Indonesia Design Center.

d. Promotion program for young designers or student enhancement soft skill and portfolio.

e. Industrial Standard for product and services

f. Creative camp, designer in developing the local materials and design in collaboration

RPJMN (National Development program) 2015 – 2019

1. Improved Design Promotion:
2. Improved Design Ecosystem

a. Increased Ecosystem, Actor, Education, Media, regulation, financing, production, Promotion, Distribution, Marketing, Design Management, and Knowledge Management

b. Design and Consultation Clinic for SMEs, Industry and Society

c. Regulatory Policies, Incentives, taxation for creative entrepreneurs beginners

3. IPR policy in the field of design

a. Facilitation of capacity building, registration, and intermediation

b. Policies industrial design, copyright, cultural traditions

c. Intangible Asset enhancement works - works protected design of national and international law

d. Policies for Improving Human Resources
e. Curriculum design improvements that emphasize soft skills and creativity
f. Billing policy rate designers (industrial design, visual communication, packaging, fashion, and interior), published by Bappenas, INKINDO, Association
g. Product development Policy for exportation Natural Resources
h. Mapping potential downstream policies and natural resources that can be exploited by the designers

3. METHODOLOGY



Figure 3. Quadro Helix Synergize

1. Creativepreneur: Creative Business, Creative Industry
2. University/ School: Curriculum, Lecturer, Student, Studio/ Labs, Certification, Research/ Innovation, Hardskill/ Softskill
3. Community, Alliance: Networking/ Promotion, Apprentice/ Internship, Ethics/ Intermediary, Nurturing Young Designers, Certification
4. Government: Policy/ Regulation, Infrastructure, Facility, Events

4. DISCUSSION

1. BCIC program has been started in June 2015 so there are a lot of weakness and imperfections.
2. Starting with the planning and management of the program, followed by activities of marketing communications, branding and socialization. Then ITS do cooperation with BCIC to organize ICCI that supported rattan workshop and exhibitions. The next program is to increase the capacity of creative talent through training. For the development of SME products it also held clinics design and manufacture of prototypes. In order to search for creative talent, the BCIC organized a competition craft and fashion and develop creative talent into creative preneur through business incubators.
3.Difficulties encountered in implementing the program due to limited time, but in line with the considerable support of various parties, which is proof of the quadro helix it is expected that all BCIC program could be performed well.

5. CONCLUSION

BCIC have big support and participation of central and local government, Universities, Creative Community and Creative Industry. This program is very useful for creative talent, fresh graudate, and creativepreneur. As a program, this activity should be carried out for at least 3 years in order to forming models, systems and sustainable community.

6. ACKNOWLEDGEMENT

Acknowledgement submitted to Allah SWT as the source of all knowledge, to Ministry of Industry Republic Indonesia, Faculty of Design and Creative Industry ITS, Faculty of Art and Design ITB, Creative Community and SMEs in Bali and East Java that already give support to ICCI 2015.

REFERENCES

Road Map BCIC 2015-2019, Ministry of Industry Republic Indonesia, Directorate General Small and Medium Industry.

Agus Windharto and team, (2014) **Creative Industry Blue Print (Subsector Design) 2015-2020**, Ministry of Tourism and Creative Economy Republic Indonesia.

Andi S Budiman (2009); **Bali as International gateway of Indonesias**

The Emergence of Marine Design in Asia

Yoo Sang Wook
Pukyong National University, South Korea
yooswook@pknu.ac.kr

Abstract — "Futurist, Alvin Toffler used to identify the Industrial Revolution in the late 18th century to three steps, in the last suggestion was about the coming era of marine technology. Thus, the ocean has unlimited possibilities that can be utilized in tourism service industry and Asia's marine environment is realize this possibility, and holding the best condition. But Asia's maritime industry development rates are quite weaker than the United States and the European country that be marine industrialized countries so there are requires a diversified approaches.Current maritime industry is unlike analog paradigm of the traditional methods, it's reflecting the evolution period of 'Digital Future' maritime industry policy that open and enterprising of 'Design Platforms' that fused with all areas of digital features. It's make a possibility for another area of marine industry and creation of the world. Also if establish a plan to develop linkaged contents and through design bridge, marine designs can be networked related fields, I think it would be greater power to push development of Asia's marine industry."

Keywords **– Marine Design**

The Kupi Culture Project

Joanne Taylor
Architecture University of Technology Sydney (UTS)
hello@thekupiculturepro ject.com

***Abstract* —** The Kupi Culture project is a social enterprise working between Banda Aceh, Indonesia and Sydney, Australia. Joanne will be discuss how the Kupi Culture project re-thinks the traditional boundaries of practicing architecture by applying design thinking, empathy, cross-cultural collaboration and a human centred approach to the process of co-creating unique design outcomes for the city of Banda Aceh.

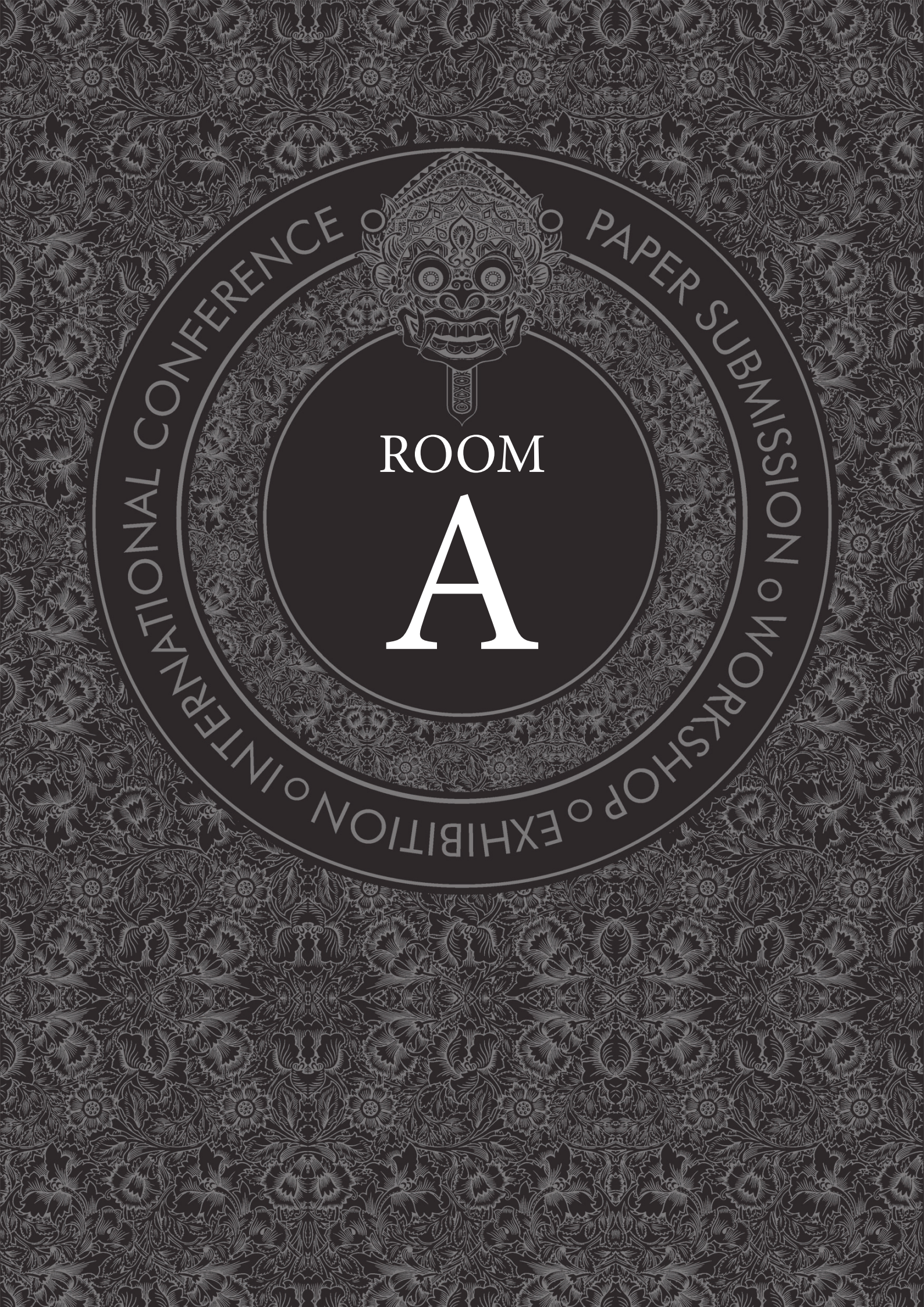
***Keywords* – Kupi Cultur Project**

Design and Craftsmanship

Eduardo Romeiro Filho
Departamento de Engenharia de Produção
Universidade Federal de Minas Gerais
Laboratório Integrado de Design e
Engenharia do Produto
romeiro@dep.ufmg.br
55 31 3409 4892

***Abstract* —** The relationship between Industrial design and craftsmanship is not recent. For a long time different authors have been studying the effects of the transition from traditional production systems to industrial processes. In developing countries, local production systems are suffering from competition from imported and industrialized goods. This situation presents a serious problem and a challenge to local manufacturers. In some circumstances interaction between traditional producers (e.g. craftsmen) and principles of the industrial design can improve local companies in terms of profit, working conditions and the reduction of environmental impacts. Beyond this, the adoption of innovative solutions that result from these interactions can contribute to local development. Based on these principles, this speech presents some results of ten year's research conducted in Brazil. This research regards different approaches to interaction (or intervention) between a Design Research Group (linked at a Brazilian University) and diverse Small and Medium Enterprises (SMEs) based in traditional technologies and craftsmanship.

***Keywords* – Design, Craftsmanship**


INTERNATIONAL CONFERENCE
PAPER SUBMISSION
WORKSHOP
EXHIBITION

ROOM A


INTERNATIONAL CONFERENCE
PAPER SUBMISSION
WORKSHOP
EXHIBITION
icci
2015

Analysis on Cultural Color in Traditional Textile & Culinary of Sumatera

Mita Purbasari
Binus University, Jakarta
mitawahid@gmail.com

Abstract —*An Analysis on cultural color is an approach to know color from cultural side. Unlike other color studies, which look at the color for its psychological aspect, therefore this color research aimed to provide insight of local colors based on cultural. Johannes Itten's theory of color provides a base of thinking in this research. The theory will be reflected into the cultures of Indonesia, and this time focusing on the Sumatera Island (Aceh Darussalam, Medan, Padang, Bengkulu, Palembang, Lampung). The research will examined cultural colors that is found in traditional culinary and textile, including traditional clothes, bridal apparel, and bridal decorations, because these products touch the people day to day and therefore forms an undeniable ties with the society, so they represents the identity of the culture itself. The colors are part of the users identity. Research method is qualitative, covers collecting data from literature; interview the experts (historians and art practitioners), visiting cultural centers especially the ones associated with textile and culinary. The outcome of the research will be presented in a form of morphological matrix cultural on color. Matrix of analysis will be held in argument and study proposal, where students can utilize, cultivate, and maximize the practice of color in visual communication to achieve harmony and unity.*

Keywords – Cultural Analysis, Local Color, Morphological Matrix

1. INTRODUCTION.

Analysis on cultural association over colors is an approach to get to know the culture's colors. Unlike the previous color studies, which take a look to the psychological aspect of color, this color research aims to provide an insight on local colors based on culture.This research is a continuation from research of Java local color study (Jakarta, Bandung, Yogyakarta, Semarang, Surabaya), which was conducted last year. The research aims to develop a part of courses materials in Visual Communication Design.

Geographically, the research focused on the island of Sumatera, which will be presented by the big cities, such as Aceh Darussalam, Medan, Padang, Bengkulu, Palembang, Lampung. As a big city, these cities have experience in handling multiple problems, interaction with external sides. Usually they have their own characteristic that will be a unique point to explore. The scope of cultural color examined is the textile and garment products, such as traditional customs, the particular fabrics from the region and typical regional cuisines (food and drink). The reason is because textile products are reflection of culture that is most closely related with the society, therefore the textile colors have its own identity value. The slogan of "We are What We Eat" acquainted to culinary, being a mirror image of the cultural actors itself. Some artifacts also will be discussed in this research. The color theory of color expert Johannes Itten serves a base of thinking in the analysis of the association of cultural color.

Color takes part in creating meaning and to communicate visually without using words. Color can speak and be a media for problem solving in communication. Red face and ink writing can be captured quickly as an expression of anger. This kind of thing applies universally, but color can also used to describe things, as they are, for example the blue color of the sky in local area. Blue sky in the Jakarta might look a bit more greyish than in coastal and inland areas. Color can also be used without reference to objects that were observed to connect human being to a more abstract or symbolic meaning. In Jakarta, there is color called *janda* (widow), which is in purple family color. No one knows for certain why this color represented for widow. One of the speculative reasons is related with the habit of widow *dangdut* singer who fancies wearing these kinds of color and the other one is this color considered as seductive. Color also able to convey mood, feeling, and atmosphere. Connotative colors have specific symbolic value depending on its culture. For example, in Indonesia, yellow has a culture connotation as cowardice; in China is the kingdom (Darmaprawira, 2002:42-43)

Color can talk and be a media for a communication problem solving. Red face and ink writing can be captured quickly as an expression of anger. This kind of thing applies universally, but color can also used to describe things, as they are, for example the blue color of the sky in local area. Blue sky in the Jakarta might looks more greyish than in coastal and inland areas. Color can also be used without reference to objects that were observed to connect human being to a more abstract or symbolic meaning. In Jakarta there is color called *janda* (widow), which is in purple family color. No one knows for sure why this color represented for widow. The reason was might because widow dangdut singer often uses these kinds of colors or the reflection of this color is seduction. Color can be used to convey the mood, feeling, and atmosphere. Connotative colors have specific symbolic value according to culture. For example, in Indonesia, yellow has a culture connotation as cowardice; in China the connotation is the kingdom (Darmaprawira, 2002:42-43).

Human resources received against the reaction of the color is nearly the same, but every people have different interpretation of meaning. Most of the nature of color can be understood in relation to the environment where they are located and interpreted through the observer and user color. Some colors contain the same meaning in different culture, for example some colors have a same meaning in similar culture.

Color grouping can be done through some several ways, such as object, psychology, environment (natural environment), organizations, and more. The research this time is based on culture. It is due for some reasons, namely the lack of results of color research that based on cultural aspects (mostly based on psychology aspects), lack of the government attention of the Republic Indonesia to the arts and culture, meanwhile, Indonesia is rich in diversity of culture, and less of Indonesia young children's knowledge today, about the strengths of their culture. The color will be categorized in 6 (six) colors basic in the color circle Johannes Itten (red, yellow, blue, orange, green, and purple), and also neutrals colors additionally (black, white, and gray). This research will be focused only in 6 big cities in Sumatera Island, and does not cover the possibility will be forwarded to the other major islands in the next research.

This research closely explaining local color codification, include meaning of the colors in its application on art objects. Color of both in visual and verbal, had a meaning as a society identity that tell philosophy, character, mannerism, pattern of life, a norm, and culture. The objective of Sumatera color research was to find colors identity of Sumatera based on textile and culinary that can be used for many design purposes, such as interior design and environment, visual communication design (logo, publishing), product design.

2. LITERATURE& THEORY

Many color research have been conducted by color experts and users. Color research on Ovahero society, Southwest Africa that had been done by Hugo Magnus (ophthalmology specialist from Germany). He stated that color naming is different to color perception. Primitive society like Ovahero often creates color naming based on surrounding objects, such as colors on livestock. Ovahero society did not prioritize the existence of color perception (Leeuwen, 2011: 43-44). This resulted in different naming of the same color in various society, because the existence of the special colored objects are not similar.

Harold Conklin's research on Hanuhoo society in Philippine explained that the color naming happened because the communities have special words which describes two certain special

conditions on one object. *Latuy* (wet and fresh) describes green color on newly cut bamboo and *Rara* (dry and refine) describes red brownish on dry out and mature bamboo (Leeuwen, 2011: 44). This means colors can be classified based on a different context.

Some studies of color and culture that had been done by some lecturer in Asia and Western described that the relationship between colors and emotional are complex. Color emotion is influenced by age, gender, and the background of human culture (Gao, et.al, *COLOR research and application*, 2007, 32 (3): 223). The same color can be named different because people have different experience on that color. For example, color *jambon* in Betawi society revered to color of pulp guava fruit, but *jambon* has been forgotten today. Young Betawi called that color by pink.

Johannes Itten was an artist from Swiss, who developed his own color theory based on Isaac Newton's and other color theories. Itten developed Concept of Color Cords, according to Color Wheel Pro.com, and modified color wheel that had been insert into computer system. Itten's color theory is not only considered color contrast but also its emotional effect. Itten's color theory had been created when he taught in art school "School of Applied Arts" Bauhaus, Weimar – Germany, then the artists and designer continue to refer and use his theory until today (Moriaka, 2006: 18). Itten color theory explains color formally, not only about psychological aspect, but also the effect that resulted when the colors are juxtaposed with other colors. Through the research, Itten designed seven methodologies to coordinate colors in order to use hues. These contrast add another variation in connection with the intensity of hue (contrast can be obtained because light, middle, and dark value.

In addition, Itten was the first person that realized not all people match use the same color, so often raise difficulties to choose fashion. Then he grouped into four types of people, where the using of color associated into season: spring, summer, autumn, and winter. The colors grouping based on season, and called as Seasonal Colors. Need to remember that Itten lived in four seasons country, which is different than Indonesia.



Figure 1. The application of seasonal colors palette according to skin and hair tones. (*http://wordsonhome.blogspot.com/2014/07/seasonal-colour-palettes-introduction.html)*



Figure 2. Johannes Itten colors grouping based on season.
(*https://unifiedspace.wordpress.com/2011/05/19/finding-your-dominant-colour-personality)*

Indonesia local color study that had been done by Yusuf Affendi, then used by Sulasmi Darmaprawira on book "*Warna: Teori dan Kreativitas Penggunanya*" (Color: Theory and User Creativity) explained the structure of Indonesia local colors, such as Java society colors (Yogyakarta, Solo, Pekalongan, Cirebon), Minangkabau, and Bali.

3. DATA & METHODS

3.1. Data

Digital technology is currently very role in life, including in the aspect of visual communication design. Camera and computer in visual communication design covers the efficiency of the working process until to the preservation work design. Color as one of the media and design element that are quite important as it not only provides aesthetic value, balance, but also

delivering a message either in denotative (real) or connotative (implicit).

In the search for and use of colors, the most important way is how we conceptualize the right color language itself, compared other language we understand. All color theory in understanding language theory is included and how we talk, hear, or read, color explains a lot of how we understand the world.

The special colors have different association and emotional effect, resulting in color dimensions (value, intentitas, and temperature) gives the different effect for the viewer. Provide contrast in value produces a precision effect and objectivity. For example, white in Europe means happiness and celebrations, while in China means death or grief. Among the different culture, some basic colors in different time have a opposite meaning (Feisner, 2000: 121-122).

The eye naturally recognize contrast and color, especially the colors that found in the rainbow spectrum (red, orange, yellow, green, blue, indigo, and violet). The perception of other colors requires deeper thinking to recognize. Because human being are capable of seeing the whole possible color, then color's perception evoked by the dominant of wave spectral light. It is the reason why the eye almost always interested by something that easy to see (Stone, 2008: 46).

3.2. Methods

Classroom research will use qualitative methods of deduction where colors theory of Johannes Itten as a base of color using (used in teaching material of Color Theory courses). Then based on it, researcher will pay attention to the relationship between Itten's theory and the application of color in the six big cities in Sumatera, especially the cultural matters. Several stages to be performed in implementation:

1. Object formal study.
   The phenomenon of color as viewed from Johannes Itten's color model.
   Formal object: Formal Object Literature Study, Taxonomy (Morphology), and Analysis of morphology creation process in the class.
2. Object material study.
   The spectrum colors in Java that can be observed based on Johannes Itten color model.
   Material object: Colors observation in Sumatera Island, Classroom / Studio Practice.

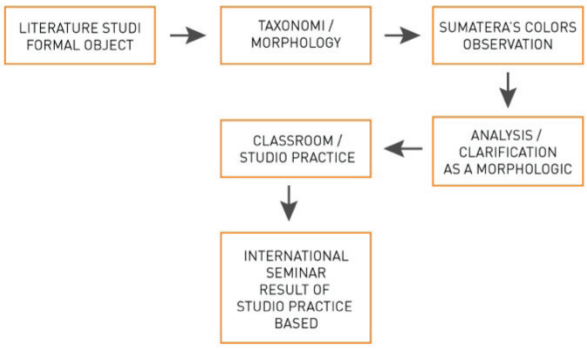


Figure 3. Stage of Research Methodology

This research was suistanable from the previous research, which colors are being the object of obervation. The main difference was research geographical location. The first research activity was conducted a literature study in Sumatera's tradition and culture, both related to habits and objects (artifacts) that become a part in daily life in community, to had a basic images about the object research.

The next step was collecting data visual of Kalimantas's traditional textile in photography. And also conducted interviews with craftmen as a information sources. The photographs data was selected to avoid repetition then compiled into one part. From the photograph compilation was noted 10 colors most dominant appeared in traditional textile into the morphological matrix. The colors in matrix was analysed by using color theory. According to textile as a medium, the colors can be classified into subrtractive color, and then create the CMYK formula. The color matrix then was used in classroom research as a material in teaching and student project.

The final stage of the research was published the research result, through participation in art and culture seminars as well as publication in journal.

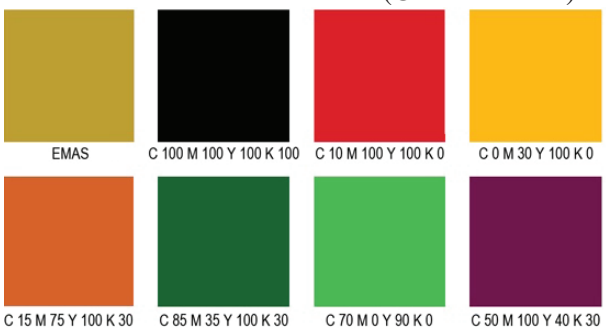
4. RESULT & DISCUSSION

4.1. Result

Color Scheme

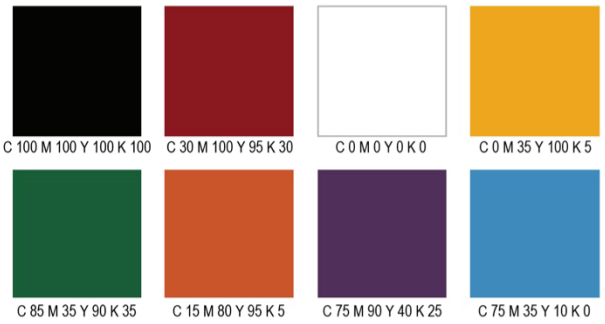
The data in the form of culture visual culture of every region was composed in such a way so it created color scheme. 8 colors for Aceh Darussalam, Medan, and Padang, and 10 colors for Bengkulu, Palembang, and Lampung. This color scheme is obtained from dominance of colors that appear in image composition.

Aceh D's cultural color scheme (CMYK format)



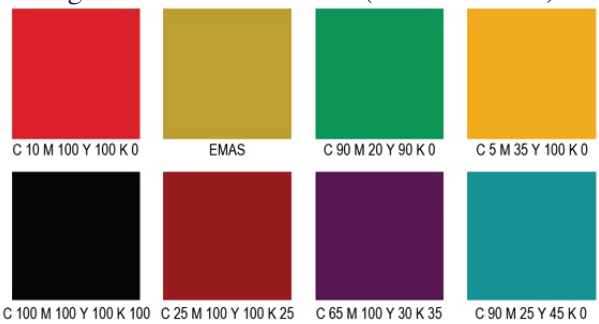
Cultural or art elements of Aceh society that orientation to indigenous culture and law by Islamic syariah. Before Islam entranced Aceh, then the this culture was influented by Hindu and Buddha, while in hinterland the influence of animism and dinamisme were very strong. The remains of old belief is still can be seen in Aceh society life till today, although they had been moslem for many centuries ago.Main colors of Aceh Darussalam society include: gold, black, red chilli, yellow, and orange. Supporting colors include: dark red, dark green, light green, and dark redish purple. These colors are dominate almost in the whole Aceh' textile (songket). Aceh's food colors are not as bright as textile, might because it natural dyes and use in traditional ceremony (rituality). The bright colors might come cause influenced by spreading of Hinduism and Buddhist from India. This area traversed frequently by traderes from India and China. These two countries influenced Padang, Sumatera Barat of color using in textiles and culinaries.

Medan'sculural color scheme (CMYK format)



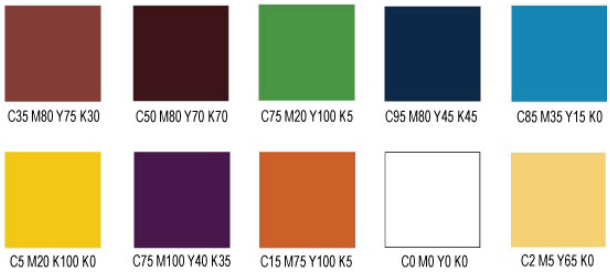
Medan color scheme was represented by Batak culture (Tapanuli) in genaral has main colors: black, brown redish, and white. In Batak Toba society, the three colors called *Tolu Bolit*. Some colors in few number that often appear on Batak's textiles and culinaries are yellow, orange, green, and blue. The three main colors are used almost in the entire of textiles that uses for ceremonies, start in *ulos* untill architecture. Ulos in customes was believed to have powers which is capable to protect body. Colors in ulos have their own meaning: white (chastity and honesty), red (heroism and bravery), black (sorrow), and yellow (wealthty and fertility). The three main color of Batak contains simbolic meaning accourding to Batak Toba believe that is in the area. These tree colors are directed to comprehension of religious aspect. Black as a symbol of the low world, the world of syaiton. Red and brown colors are presented of middle world where human and nature live in, and white as an azure world, the world of gods.

Padang'scultural color scheme (CMYK format)



Padang color scheme which was represented by Minangkabau community, dominated by bright colors such as red, gold, green, yellow redish, black, maroon, dark purple redish and turqouise. These colors always adorn almost all of the textile. It can be seen in Minangkabau wedding gown and traditional fabrics / textiles. Bright red color commons be found in Minangkabau traditional textile, represents of braveness and spirit of its community. Minangkabau culinary color dominates of red that tends of spicy and also strengthen of braveness. Black color often uses for clothing by men to describe a leadership, according to Minang's proverb, *hitam tahap tapo, putiah tahan sasah* (black stand wrought, white stand wipe). Green color can be found on Minangkabau textile and culinary describes of peacefulnees in order of community's harmonious life. While the influence of bluish on turquoise color explains of community manner of behavior, which respect their culture.

Bengkulu'scultural color scheme (CMYK format)



Bengkulu's textile is batik *Basurek*, has many and strong colors. Started from fabric that made by fibers of wood and *lantung* roots, then along to technology and Bengkulu community mindset development, then they made batik finally (Dinata, 2010: 2). Before Islam entered to Bengkulu, colors that dominated *basurek* batik generally are black, blue, red, brown, yellow, and yellowish. Black or blue *basurek* batik usually uses for dead body and stretcher. Red, maroon, brown, yellow and yellowish color are used for cultural ceremony such as wedding. *Basurek* colors tend strong but not striking. Blue on basurek is a symbol of natural color, such as ocean, sky that indicates of universe. Unlike Aceh and Padang's colors that strong, bright, and striking, Bengkulu's colors tend to dull. Based on 7 contrast Itten color's theories, color combination of basurek dominated by contras colors combination then can be set into contrast hue. Colors on *basurek* tend strong but not striking. Based on Itten's color grouping on seasons, basurek colors can be found in autumn and summer color category that has similarity with weather and season in Indonesia.

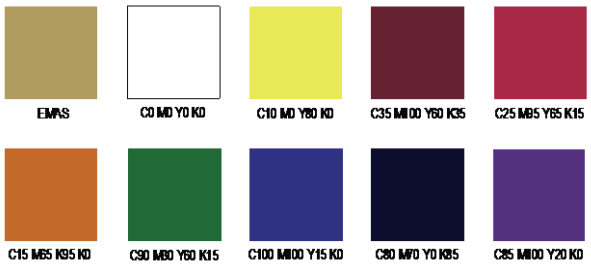
Palembang cultural color scheme (CMYK format)



One of Palembang traditional textile that very famous is Songket Palembang. Songket has influenced by China (Tiongkok), that's why generally songket has many bright colors that describes cheerfulness and joyfulness of South Sumatera society. Songket is very rich with decoration thread gold, even songket that made the basis of gold. That's why the primer color of songket is gold, then dark red, blue (indigo), yellow, green, orange, and purple. Colors that dominant in songket is gold and dark red, both hues symbolize the golden section of Sriwijaya kingdom and influence of China in the past time

Just like Bengkulu color, the color scheme of Palembang shows strong color, but the difference is Palembang's color is more vivid and has higher color contrast.

Lampung cultural color scheme (CMYK format)



Tapis is famous and know as Lampung traditional textile. It is a woven textile, which embroidered gold thread extremely beautiful, normally used in traditional ceremonies (wedding ceremony). Colors in Lampung's art (textile and food) use a lot of gold (honor), white (sanctity), yellow (splendor), red (bravely). Tapis has a bright and strong colors, and use a lot of white.

New Color Application

The color scheme of the 6 big cities in Sumatera Island applied to food or drink packaging. Student in the classes had been asked to recoloring the packaging of food or drink that had been chosen became shades of Aceh Darussalam, Medan, Padang, Bengkulu, Palembang, and Lampung. Twelve (12) type kinds of packaging had been spread out into 6 areas to be created color combinations of those cities.

4.1. Discussion

These are 6 images of packaging that has been chosen (Aceh Darussalam, Medan, Padang):







Recoloring of the Packaging using the matrix

Medan





Aceh Darussalam





Padang







These are 5 images of packaging that has been chosen (Bengkulu, Palembang, Lampung):





Recoloring of the Packaging using the matrix:
Bengkulu





Lampung





Palembang



5. CONCLUSION

In general, Sumatra's cultural color scheme can be divided into 2 groups. First the strong and bright otherwise known as vivid with gold combination, which belongs to Aceh, Medan, Padang, Bengkulu, Palembang, and Lampung. The second, belongs to Medan and Bengkulu. Medan's cultural color scheme, which tends to look darker, based on community believe of nature powers and myth. Together with Bengkulu which appears to be duller than others. The presence of gold is not visible in the second group.

In Itten's color wheel, cultural colors of Aceh, Padang, Palembang, and Bengkulu sit on primary and secondary spot. While for Medan and Bengkulu, the colors can be found on the tones for the primary and secondary ones. In Itten's seven contrast theory, the combination of the cities shows the contrast of hue. While in seasonal color scheme, the colors can be belong to category of autumn and summer palettes.

Through recognizing color schemes of every regions in Indonesia generally and of Sumatera island in particular, can be utilized to assist students in applying it to various visual communication media –not limited only to packaging- but alsoto logos, company profiles, publications, et cetera. Meanwhile, the color scheme can be constructed into basic color modules which can convey certain atmosphere or mood of certain object what are useful for vast

color users community (architects, interior designers, fashion designers, painter, artist). In interior design, interior designer can use these color schemes to create local atmosphere according to the intented design, so that the local content can be introduced. And for the larger member of community, these color schemes are not just another new knowledge to them, furthermore can induce love Indonesia and also especially to the regions, resulting to a sense of pride on becoming a part of this country. With this sense of pride, then we can ensure the preservation of tradition and the building of nation's image.

Being knowledgable on a culture through applying the suitable ambience, is best understood and possesed by color users in a way to build local content, through visual communication medias. Therefore users not only enjoy their preferred artworks, more than that, it leads to the sense of belonging and pride of the culture wealth of their nation.

It is encourage that this research can be continued to the other major cities in Indonesia which represents certain unique areas, and in the end, we will recognized and have a sense of belonging to local color characteristic on each culture in Indonesia.

REFERENCES

Journal article

Gao, Xiao-Ping, John H. Xin, Tetsuya Sato, Aran Hansuebsai, Marcello Scalzo, Kanji Kajiwara, Shing-Sheng Guan, J. Valldeperas, Manuel Jose Lis, Monica Billger. (2007). Analysis of Cross-Cultural Color Emotion, *COLOR research and application*. 32 (3): 223-229).

Book

Darmaprawira, Sulasmi. (2002*). Warna: Teori dan Kreatifitas Penggunaannya*, Bandung: ITB

Fraser, Tom, Adam Banks. (2004).*The Complete Guide to Color*, United Kingdom: Ilex Press Ltd.

Feisner, Edith Anderson. (2000).*Colour: How to Use Colour in Art and Design*, London: Laurence King Publishing.

Leeuwen, Theo Van. (2011). *The Language of Colour*, Oxon: Routledge.

Stone, Terry Lee, Sean Adams, Noreen Morioka. (2006), *Color Design Workbook: A Real-World Guide to Using Color in Graphic Design*, London: Rockport Publishers, Inc.

Van Hagen, Ernst. (1970).*Itten, The Element of Color*, New York, Cincinnati, Toronto, London, Melbourne: Van Nostrand Reinhold Company.

Article in a published proceedings

Wahidiyat, M. P. (2013). Cultural association analysis on color , Cultural Association Analysis on Color, *Proceedings of International Conference on Creative Industry 2013*(pp. 351-358), Surabaya: Institut Teknologi Sepuluh Nopember.

Article from an online magazine or news

Dinata, S. (2010). Batik Basurek. Retrieved November 7, 2014, from http://elib.unikom.ac.id/files/disk1/457/jbptunikompp-gdl-septyandin-22827-2-unikom_s-i.pdf.

Ma'arif, J. (2013, May 14).Batik Basurek, Bertahan di Tengah Gempuran Teknologi. *bengkulueksprress.com*. Retrieved November 7, 2014, fromhttp://bengkuluekspress.com/batik-besurek-bertahan-ditengah-gempuran-teknologi/

Muslim Women's Identity In The Midst Of Urban Society As Represented In "Hijab" Movie Poster

Puspita Sari Sukardani, S.T.,M.Med.Kom
The State University of Surabaya, Indonesia
puspita.sukardani@gmail.com

Abstract — This paper identified Muslim women's identity who lived in an urban society in the poster of "Hijab" movie. A film poster, a creative industry product, serves as a means to promote the film to public that consists of concise visual messages formed by pictures, texts, colors, and visual symbols. This poster is not only capable of persuading public, but also delivering an informative as well as communicative message.

One's identity can be represented through fashion statement, a nonverbal communication, which is allowed to be treated similarly to that of spoken and written languages. Fashion represents social status symbols of its consumers using its visual context. "Hijab" movie claimed that the meaning of hijab had shifted radically from its traditional contexts i.e. faith/ religion and stereotypes to high urban cultures i.e. modernity, trend, and high social status.

The objective of this paper was to describe visual symbols in the poster that had been analyzed using a visual cultural approach in the discourse of visual text analysis. This approach required a method of analyzing the poster from its denotative and connotative aspects, and Indonesian socio-cultural context. The process of reading its visual image was conducted by interpreting visual signs expressed by film casts, visual symbols, colors, fonts, and background.

Keyword — **Representation, Visualization, Visual Culture, Fashion, Hijab, Identity**

1. INTRODUCTION

This study identified Muslim women's identity who lived in an urban society in the poster of "Hijab" movie. Author's primary interest in this study object is to reveal how social realities shift in the meaning of hijab as part of a fashion culture that is going on in the community where it contains social values and culture, so the author was eager to investigate in-depth how Muslim women's identity in urban society represented in Film posters Hijab.

As one of the results of the creative industries which produce signs and communication meaning, movie poster is serve as media campaign and foremost dealing directly with the target audience in conveying the message information before film's launching. Movie poster is an effective promotional tool because it's messages generally spread on a massive scale. The messages visually communicated and packaged briefly through a visual object that includes the display of images, text, color, and visual symbols. In the primary purpose as

a promotional tool, the movie poster should be able to influence the audience, can convey persuasive, communicative, and informative messages. A movie poster is a cultural and visual products, therefore, in the purpose of representative manner it's context of meaning is an interesting study. Movie poster's visualization is not only to promote the film, but also embeded with a certain culture symbolic and society value.

Social changes occurred and make the social class and social life the of the the urban society changes, raising a new social layer called middle-class society. Urban society's middle class can not only be seen from their economic status, but their culturally lifestyle become part of the social's diverse. Just as in the popular book Leisure and Culture in Transition were written by Thomas M. Kando, middle class's lifestyle tend to be synonymous with how they spend their leisure time such as shopping, travel, and especially fashion.

Urban communities have their own way in the process of consumption and lifestyle formation which is considered that a symbol of identity is more important than its functional value. The identity symbols understood as part of modernity, some of which manifested in the selection of fashion, how the association, appetizing food, or selecting the residence. This is further supported by the ease of urban area's facilities and infrastructure that are closely related in influencing them.

The existence of the urban middle class especially in Indonesia, the emerging phenomenon of the rise of religious fervor and increased adherence to Islamic people who are enjoying prosperity. Hefner (in Hasbullah, 2007) stated that the increase in community economic impact on the occurrence of a disappointment to the decline of moral and social disintegration. Therefore, trigger a revival of Islam, especially in urban areas where Islam is seen as key to maintaining ethics and discipline society amid modernization and social damage in the surrounding order. Although the revitalization of Islam spread throughout the community, but the Islamic movement grew stronger in the urban middle class. One phenomenon that marks the existence of the urban middle class leading to the orientation of Islam is marked by an increase in the popularity of the hijab and the development of fashion hijab as part of the fashion culture.

Fashion essentially serves as a cover, protection, modesty, and attractiveness. Now the fashion is already a part of the lifestyle, because through the fashion one can demonstrate the quality of their lifestyle. In the context of non-verbal communication form, a fashion is an analogous which is can be treated with oral and written language. Umberto Eco stated "Speaks Through Fashion" which meant that clothing represents what someone is doing through a context like the words written and oral. Fashion represents what a person is able to do through a visual and functional context that can be used as a status symbol of the wearer.

At the level of the identity's meaning, most urban communities seeking an understanding of Islam that fits their lifestyle in which they wish to remain religious but did not leave modern elements. The concept was later adopted by the majority of Muslim women who eventually poured into their consumerism to the Muslim hijab and the fashion in which it became part of the lifestyle and growing following the demands of fashion.

Referring to the existence of the movie poster that contains many social phenomena as outlined in the form of symbols, then in the Hijab movie poster as an object of this study, there are a fashion hegemony construct a new culture in which the hijab is seen as a particular form of fashion and the shifting of the actual meaning of the hijab's streotype change symbolically. The hijab trends grow rapidly and provide a view of the significant changes in the social life of the community that were previously considered only as a symbol / identity of a religious into a culture that is synonymous with modernity and a certain social status.

The main objectives to be achieved in this research is to describe the visual symbols are communicated in a Hijab movie poster, then analyzed via visual culture approach in the tradition of visual text analysis. In the analysis of visual texts as a part of the tradition of semiotics, the sign in a visual product of mass media is not only shaped by the facts in the community but also a construction by the media. Any signs that appear or are displayed in the visualization can be interpreted in depth to be able to determine the extent to which social reality that occurs in the community.

2. LITERATURE AND THEORY

2.1. Lifestyle As Symbols of One's Identity in Urban Communities.

According to Chaney (2011) lifestyle is describe as a characteristic of a modern world or commonly called modernity. Lifestyle is a typical way of life lived by a particular social group in which there were expressive behavior and can be identified by patterns of action that differentiates one to another. Meeting the needs of a constructive nature to a symbol of an identity, urban communities compete with one another for the sake of getting a certain social status in their environment.

Urban communities is associated with a region or a place where there is typical of a society that exists on the situation or atmosphere because of being or inhabit a geographical territory called urban. Bouman in Santoso (1997: 39) says about the presence of pattern and way of life are not free and dependent on others, heterogeneous in terms of culture, and the presence of foreign cultural influences were assimilated into the day-to-day culture in the nature and characteristics of urban society.

2.2. Fashion As A Non Verbal Communication Tools.

Manifestation of appearances consumption is forming through the clothing. According to Barnard (2009) fashion serves to communicate the social position of the wearer to become the most significant way to construct, experience, and understanding social relations.

Fashion can be interpreted as an attempt to understand a form of culture that is represented by the image displayed. To interpret a fashion, it is necessary to know the signs that function in a number of different levels in seilogical sign. At the denotation level of meaning, fashion understood through what is displayed by the image that in fact looks. While at the connotation level we can understand that fashion is described as a word or image that makes people think or feel, or as an association that a word or an image is to someone.

The interpreted sign is varies for each person such as sex, gender, age, social class, occupation, and race. Fashion means of identity construction, a symbol of one's status, and a reflection of culture brought.

2.3. Hijab In The Pop Culture Perspective In Indonesia.

Geographical, political and social environment, and culture of the Muslim people of Indonesia makes they are more dynamic and more minimalist in wearing hijab.

Research conducted by Raleigh (2004) mentions that the development of the hijab as a popular culture in Indonesia was one of which is influenced by a religious context where Indonesian people now want to be seen as a person who is more devout and religious. Hijab has become a popular culture, within the meaning of the hijab as a commodity, and experiences enjoyed by Indonesian women for gaining pleasure from the act of fashionable hijab.

According to research conducted by Saluz (2007) Islamic practice differences makes the difference in the style of hijab. There is no consensus on a standard hijab should be. The appearance of the stylish hijab arising from the hybridization process, that is a process of interaction between the local with the global culture, hegemony and subaltern, central to the periphery. Therefore, a stylish hijab

phenomenon should be viewed from different perspectives are interconnected in which the religious dimension must be associated with social and cultural dimensions.

Hijab is originally a symbol of religious connotations, but now quickly has undergone and lost its religious connotation because the process of hybridization. Until at last hijab is only used merely to establish the identity.

2.4. Visual Culture and Representation.

Visual culture is a product of popular culture, which can simply be said as a visual object. Visual image culture simply defined as material historical heritage, buildings and pictures, join the media on the basis of time and various performances, which are produced by human labor and imagination featuring aesthetics, symbols, rituals or political ideology, and or-function practical function and which leads to the sense of sight to important developments (Rose, 2003: 15).

Sturken (2004: 38) stated that compositional analysis in visual culture is used to view the image or visual composition called compositional interpretation. Compositional interpretation on the still image to view the image over the image itself and not on purpose, or usefulness ('what they are') which has a component in the form of things that are contained in the visual elements (content), color (color), the organization of space (spatial organization), light (light), and expression (expressive content).

3. DATA AND METHODS

Object of research that will be analyzed is the Hijab movie poster. Hijab is a film by Hanung Bramantyo starring Addya Zaskia Mecca, Carissa Putri, Tika Bravani, and Natasha Rizki. At the time of conducting research to decipher the symbols and visual signs shown in the poster of the film, the author have never seen the Hijab movie Hijab before, and do not know how exactly the way the story of the film Hijab.



Figure 1. Hijab Movie Poster

The research methodology in used is textual analysis to analyze the elements of denotative, connotative, and contextual social culture in Indonesia. Visual reading of the image on the Hijab movie poster is investigated by reading the visual signs displayed by movie characters, visual symbols, colors, fonts, background, as well as other supporting visual elements.

4. RESULT AND DISCUSSION

Hijab movie posters which is interpreted in this study visualized using photographic techniques and illustration accentuation. The whole visualization describe as though the stage of puppet show that is a background silhouette of a metropolis, a curtain opens at the top, and there is the main characters in the middle of the stage are controlled by the hands upper them. Each characters are visualized with a different expression from one another, and they stood dynamically on a wood stage as if facing towards the audience which in this case is the poster's reader.

Furthermore, to be able to understand the meaning of Hijab movie posters in more depth, then the visual signs reading process visual are divided into several visual elements, namely as follows :

4.1. The Open Curtain And Polkadot Patterns As A Symbol Of The Modern Luxury.

In the visual poster there is a curtain that is generally used as a sign to open or close a acting or music show. The most frequently encountered curtain show color is a dark red, while the visualization of the poster show curtain depicted having light golden brown color and patterned multicolored dots or more popularly called the polkadot.

In the visualization of the Hijab movie poster, curtin show depicted with the golden brown. Brown is the color that comes from the warm color tones and gives the impression of natural and simple but has a much stronger humanist effect. A slightly golden brown in color adds to the luxury's impression. The curtain also has aesthetic elements visualized form of additional colorful dots pattern with a matching color namely dark brown, orange, and golden yellow.

The meaning that can be read through the curtains show visualization is, that the picture of the lives of Muslim women in urban society are no longer merely as housewives or just indulge in the house, but has started to open up to the outside world activities. In urban society, the influence of the association in the neighborhood and pop culture brought by the media, indirectly making paradigms of urban Muslim woman is more liberal and modern. Construction evolving paradigm is that Muslim women who live in urban areas must be possessed extensive knowledge and intelligent, willing to open up and adapt to social change, have a long association, and have a good taste of choosing goods. Golden brown color in the curtains open can be interpreted as a symbol of a new establishment related to the status of the Muslim woman as a group of middle class socio-economic ability which is above average. Colorful polkadot pattern with the slightly pastel color can be read as a symbol of pop culture and modernity which can provide meaning that the daily lives of Muslim women who live in urban society have theirself actualization through activity or profession that is close to the creative world, media and modernity, such as graphic designers , photographers, stylists, makeup artists, fashion designers, artists / celebrities, socialites, and so on.

4.2. Holding Hands Control Behind The Curtain Cords As A Cultural Symbol of Patriarchy.

In the Hijab movie posters there is a visualization of a pair of hands behind the curtain and was holding a control device made of wood and rope that extended to the hand linked to each of the main female character.

The connotative contextual from the pictures above that the visualization of hands which take control of women in leading roles is that the life of a Muslim woman in an urban society constructed by cultures that terms with modernity. Hegemony cultures unconsciously and control paradigm of the urban Muslim woman. Modern lifestyle hegemony has been entered and formed a consumptive patterns that believes as a stair to climb a social status.

Holding hands control also can be interpreted as a wife should serve her husband and has become a nature that a Muslim woman must obey and follow the orders of her husband.

4.3. "Hijab" Title's Visualization, Font Selection, Color, and Typography Elements Used As Symbol Of Modernity And Contemporary Culture.

The film's title is also used as the main title of the poster. "Hijab" using fonts from the Sans Serif style. With bevel effects to provide 3-dimensional impression on the Hijab word and strengthen to attrack the attention. Under the hijab word says "*sebuah film dari Hanung Bramantyo*". Hijab word is surround by a square frame and has a proper elements contained neon lights around. Above the

square frame are visually five star-shaped in different size.

In denotative, visual styles used in 'hijab' word along with the visual element, is a visual style that tends to be used in the retro style era around 1980-1990s. And lately broadway-style and retro things often to be used as a visual reference for designing a visual work or work of typography. Sans Seriff is a type of font to reflect modernity and contemporary elements.

Retro style influence not only appears on visual work, but if it refers to a lifestyle and fashion trends the last few years, it can be seen that the trend back to the golden era of the stage classic shades entertainment and glamor. Pop culture as a culture that always keeps changing to follow the development of technology and society, played an active role in bringing back the era of classic retro visual or more commonly known as the Shabby Chic style. Shabby chic style is spared adopted by Muslim women in urban society who worked as a fashion designer, and it poured into fashion in massive form, and a new dressing tastes are becoming a trend among the urban Muslim woman.

4.4. Jakarta's Silhoutte As A Symbol of Indonesian Modern Culture Center.

Visualization of Hijab movie poster background is illustrated with Jakarta's icon among the high-rise skyscrapers buildings. It use the color of blue, pink, grey, and be depicted with slightly reddish colored as gradation effects.

As the capital of Indonesia, Jakarta has a promising metropolitan life appeal. Being a largest city in Indonesia, there is a central government and central creative industries. All things in creative industries are produced and developed in Jakarta, as the film industry and creative visual growth rapidly. The culture which was develop in jakarta become such a referrence to other people outside.

Pop culture is a culture that was born and raised in big cities. Jakarta as the big city with easy access to facilities and information technology makes pop culture develops very fast and rapidly. Lifestyle and hedonism makes Jakarta's middle class increasingly in demand and exist, thus they have various activities and professions which identycal with lifestyle.

4.5. The Identity Through Fashion and Urban Muslim Women Stereotype Appearance.

To understanding the urban Muslim women stereotype, and how do they show their identity through representations fashion, as well as the adoption of pop culture patterns and lifestyles, can be observed from the following visualization:

4.5.1. Zaskia Adya Mecca Appearance

Zaskia visualized as a feminine Muslim woman. She worn a light blue dress and a long blue chest veil with a red printed detail. Its seem simple at first glance, but her hijab clothes are truly dynamic with modern cut. It used a good material and mostly can be bought only in a boutique.

In the Middle East countries, many Muslim women wearing a long skirt hijab and a dress everyday, for those today's fashion styles adopted by selecting the colors and materials are more varied and quality. As a representation of the identity of Muslim women in urban areas, Zaskia's appearance shown that elements of modernity still be adopted and become part of everyday life. Although her choice is wearing a skirt, which in Islam is the best outfit worn by Muslim women, but it visualized on contemporary track.

Though urban Muslim woman wants to be called religious to wear the hijab, but they did not leave an element of modernity in appearance. In Islam there is the term hijab Syar'i appearance that is where the hijab worn cover the chest and length as well as loose or tight. Hijab worn by Zaskia in the visualization of the poster adopt provisions Syar'i religiously, but culturally Syar'i appearance is still offset by the impression of a more modern

and fashionable. It shifts the meaning of the hijab as previously only as a mere cover nakedness but today is sensed as the needs of an increasingly diverse fashion trends from time to time. Hijab as a form of fashion choices are guided by the need for social status and views of the community to see to what extent the religious level of the wearer.

4.5.2. Natasha Rizki Appearance

Natasha visualized as women who were not worn a veiled. Natasha was wearing a striped colorful short skirt above the knee, and wearing a blue sleeveless top. Shoulder-length hair neatly cut and blow, worn a blue strappy wedges shoes matching the clothes she was wearing.

As a country that recognizes the existence of five religions and beliefs, Indonesia is a country that respects all citizens in running the daily life of a day in accordance with religious affiliations. In Indonesia, although most of the people are Muslim, but the freedom to dress as long as it remains respected in accordance with the norms and ethics. Similarly, as a Muslim that respect, the decision not to wear the hijab in everyday appearance is part of respect for religious freedom for everyone.

A fresh and minimalist clothes styles worn by Natasha is can be interpreted as part of the adaptive development of pop culture in the urban area which is those who like fashionable dressed, choice of clothing model is simple and minimalist, but use materials that are not cheap. The fashion statement as if she had become a representation of its own identity, and in the context of urban Muslim woman looks like it is still much adapted as part of fashion and lifestyle.

4.5.3. Carissa Putri Appearance

Carissa looks is visualized more modern and chic with light blue blazer top paired with a matching blouse inside. In contrast to Zaskia and Natasha, Carissa visualized using pink trousers and wearing red high heels. Hijab that worn by Carissa is patterned pashmina tribal colors and has a silk material.

From the Carissa appearance, it can be read that Muslim women who live in urban society are those who love high fashion. Combine blazer previously synonymous with work clothes, trousers and trendy hijab is a way for them to be regarded as perpetrators of high fashion. Carissa visualized using blazer, that if once blazer synonymous with work clothes, but now has shifted that wearing a blazer as everyday clothing is considered something cool.

Similarly, the use of hijab pashmina as an option. If the first shaped used for hijab is rectangular, then the hijab trend here is dominated by a pashmina over rectangular. Carissa pashmina colorful pattern and geometric shapes detail is one form of the development of the visual culture which is applied to the textile material. Textiles that have aesthetic details for the middle class Muslim women is a form of social and economic class representation.

4.5.4. Tika Bravani Appearance

Tika appearance is visualized somewhat boyish impression, she wear a light brown blouse combined with a dark brown jacket. For the bottom Tika worn maroon long pants and shod boots with a matching color with the jacket she was wearing. Hijab style worn by Tika is a stylized close only part of her head, or better known by the name Turban.

In urban society life, many turban hijab style displayed by some Muslim women. Basically turban hijab is a cloth wrapped around the head like a turban to form a circle. As part of the modern hijab, turban has been chosen by many Muslim women because it is easier to use, and it is commonly used by Muslim women who has not been too long in wearing hijab as thought as the turban is the transition from non-hijab to full hijab slowly. Those assumptions often encountered especially among middle-class Muslim women who still want to maintain the appearance of modernity and in accordance with the today's lifestyle.

From Tika's appearance it can be interpreted that the actual tendency of urban middle-class

Muslim women who have a high enough intensity activities. Therefore they prefer to wear something support their activity easily, so many of those like wearing a pants to more practical way.

5. CONCLUSION

Hijab developments that occur in urban society not only as a popular culture but evolved into a status symbol to indicate the wearer's social position. In this case hijab widely adopted and popularized as part of a fashion element by a Muslim woman who came from middle social group. Identity developed among the Muslim women are distinguishable through several determinants, is example from factor income, education, occupation, and marital status.

Life style adopted is accentuate the prestige and moderate Islam. Their activities considering whether to bring prestige recognition of society, especially the equal / the group with their social class the group of middle social classes. Due to their labels as middle-class Muslim women in urban areas, the form of Islam that they practice in religious life everyday is a moderate form of Islam. So in everyday life, the nuances of Islam that they show tend to be more dynamic and open to social change and a growing popular culture.

One of Islam moderate style is also poured into the style of dress and how to consume fashion. The dress style which displayed is more fashionable and accentuates the beauty. Some Muslim women displayed identity and represents their social position in the community.

The use of hijab symbolic capital, can be understood as the planting of Islamic values and social values of the group. The symbolic capital is a combination of economic capital and cultural capital. Economic capital is understood by them is how equality or equality in spending leisure time and lifestyle. While the cultural capital is how the hijab veil construct meaning true where hijab is no longer understood as a symbol of religion and religiosity, but also as a symbol of socio-economic status. Hijab considered is the need for fashion not only the value of the function merely as a cover nakedness.

REFERENCES

Barnard, Malcom. (2009). *Fashion As Communication*. London : Routledge

Chaney, David.(2009). *Gaya Hidup (Lifestyle) : Sebuah Pengantar Komprehensif*. Yogyakarta : Jalasutra

Kando, Thomas M. (1975). *Leisure and Popular Culture In Transition*. St Louis, Missouri : The CV Moby Company

Rose, Gillian. (2003). *Visual Methodologies*. London : Sage Publications.

Santoso, Thomas. (1997). *Sosiologi dan Politik*, Surabaya : Penerbit Pusat Penelitian UK Petra

Sturken, Marita and Lisa Cartwright. (2001). *Practices of Looking*. New York : Oxford University Press, Inc.

Saluz, Claudia Nef. (2007). *Islamic Pop Culture in Indonesia. An anthropological field study on veiling practices among students of Gadjah Mada University of Yogyakarta*. Arbeitsblatt Nr.41, Insitut fur Sozialanthropologie, Universitat Bern.

Hasbullah, Moeflich, (2007). *Teori Habitus Bourdieu dan kelas Menengah Muslim Indonesia*. KHAZANAH : Jurnal Ilmu Agama Islam, Vol.3 No.10, Juli-Desember 2007. Retrieved from http://moefarticles.wordpress.com/page/8/

Raleigh, Elizabeth. (2004). *Busana Muslim dan Kebudayaan Populer di Indonesia: Pengaruh dan Persepsi*. Skripsi Universitas Muhammadiyah Malang. Retrieved from www.acicis.murdoch.edu.au/hi/field_topics/liz raleigh.doc

The Development of Visual Identities for East Java Regencies towards the Global Trade Era

Octaviyanti D. Wahyurini
10 Nopember Institute of Technology Surabaya, INDONESIA
oyndwi.NL@gmail.com

Agus Windharto
10 Nopember Institute of Technology, Surabaya, INDONESIA
aguswindarto19@gmail.com

Abstract —The Global trade era is not affecting the Indonesian national business and economy only; in fact, it is also giving an impact through out the municipalities. Each municipality in Indonesia will be competing each other to attract more investors, visitors, students and skillful workers. The Regency of Gresik, the Regency of Sidoarjo and the Regency of Bangkalan will also take a place in this competition. These three municipalities are within Surabaya Metropolitan Area that have been projected to support the City of Surabaya. These three municipalities will be urged to be more competitive yet aggressive to face the global trade era. One of a strategic way that could win the competition is by implementing City Branding strategy. A city branding strategy should be supported by appealing visual identity that resonates city's value to both its native inhabitants and potential visitors.

This paper will discuss a study in developing city logo for the Regency of Sidoarjo, the Regency of Gresik and the Regency of Bangkalan within city branding strategy with morphological matrix methods. It starts with mapping cities' excellence and competitive values that will conclude into core brand of each cities. Sidoarjo will be projected as a city with the advantages of small and medium enterprises, comfortable place to live, and potential fishery. Gresik will be projected as a city with the values of religious city, eco-industries, and potentials on nautical sectors.

Keywords – City Branding, City Brand Identity, Global Trade

1. INTRODUCTION

The implementation of Law No. 34 of 2004 on Regional Autonomy has provided an opportunity for each city and county in Indonesia to manage the finances of their respective regions. This law also encourages every city and county to develop their potentials. It creates competition between cities and counties in attracting the attention of investors from home and abroad, skilled workforce, and tourists who will then have an impact on increasing revenue (Wahyurini & al, 2009). In order to win the competition among cities and regions, city branding strategy has been adopted by several cities and municipalities in Indonesia. Some cities in Indonesia that have implemented this strategy are including Jakarta with the slogan "Enjoy

Jakarta", Surabaya with "Sparkling Surabaya", Jogjakarta with "Jogja Never Ending Asia" as well as Solo with "Solo Spirit of Java". Each city branding is highlighting the potential of the Regency, and packed in a comprehensive strategy. City branding is not only exclusivelyto be applied for major cities, but it is adaptable to Regencys and municipalities. Local governments should take advantage of the current trend of world tourism that is shifting from visiting the glamour cities such as New York and Paris; into visiting exotic and isolated places in developing countries(Brown & Katz, 2011). In East Java, some cities have acknowledged the importance of this strategy in order to improve local competitiveness. Sidoarjo regency which has been known as the City of shrimp, Petis City, City of Delta, is developing a new city branding strategy, namely Sidoarjo Culinary City. This is inspired by the diverse local culinary potentials in Sidoarjo. Gresik, known as the City of Santri and the City of Pudak. While Bangkalan, famous for its culinary tourism potential and batik fabrics. However, these Regencies do not acquire a comprehensive city branding strategy that is supported by an attractive visual identity. City branding strategy is closely associated with the city logo (Wahyurini, 2012). Logo as a visual identity is an important asset in addition to the natural potential of a city, monuments, historic buildings, and buildings of other cities (Warnaby & Medway, 2010, p. 211). City branding logo is anembodiment of the positive values of the city that manifested in visual identity. City branding strategy that is supported by a conceptual logo conveying the local values and benefits will be effectively able to create awareness and loyalty to the city. Development of a city branding logo has to be seen as a participatory practice in the manufacturing process which involves elements of society a city / county as the local government, community leaders, community, academics, and entrepreneurs (Wahyurini, 2012, p. 84). Thus, city branding logo that will be implemented is expected to accommodate the aspirations of diverse societies (Lau & Leung, 2010, p. 134).

This research is to make an evaluation of the actual visual identity branding cities in East Java. The elements of the evaluation will include a logo, typography, color, shape and super graphics The Regencies under this study were Sidoarjo, Gresik and Bangkalan. The object of this study construct visual identity elements to support the city branding campaign. This study will be a compliment for previous city branding research that have been done previously by the authors. Cities that previously studied are including the City of Surabaya, the Regency of Ponorogo and the Regency of Ngawi. This research is expected to make recommendations to local government of Sidoarjo, Gresik and the Bangkalan government in generating city's visual identity towards city branding purposes.

2. RESEARCH METHODS

This research applied a mixture of case study research and action research; utilised in a hermeneutics approach that draws on a critical lenses (Crouch & Pearce, 2012). Utilising case study methodology will be allowed for the analysis of current city's Medium Term Development Plan, and evaluation on current city branding strategy. The action research methodology draws on the development of city's visual identity for Sidoarjo and Gresik, with morphological matrix method.

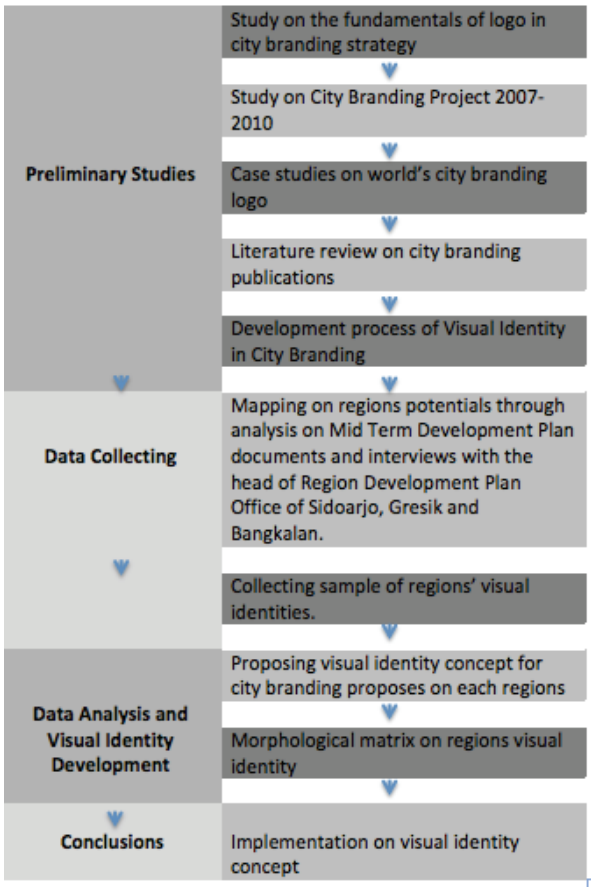


Figure 1. Research Flow Charts

3. DISCUSSION

3.1 Sidoarjo's Potentials Mapping and Proposed Visual Identity

The study of visual development of the concept of identity in city branding strategy for the Regencies of Sidoarjo, Gresik and Bangkalan carried out through the method of document analysis Medium Term Development Plan (RPJMD) and Long Term Development Plan (RPJPD). The study also drew upon interviews with the head of Research and Development of three Regencys. Regencys of Sidoarjo, Gresik and Bangkalan are three counties that directly adjacent to the City of Surabaya, within the area of Surabaya Metropolitan Area (SMA). The SMA has a vision of sustainable development on national strategic area. In terms of physical infrastructure, Sidoarjo is growing rapidly, followed by Gresik and the most disadvantaged among them is Bangkalan.

Sidoarjo Regency directly adjacent to the south of Surabaya, which is in sub-district park Waru, and has been functioning to provide settlements for the urban community in Surabaya. 74% of the population aged over 19 years, high school education, and worked in the private sector (Sidoarjo, 2010). The seven potential use of area in Sidoarjo includes ie settlements, wetland and inland fisheries / marine, industrial (warehouses, industrial zones and industrial facilities), public facilities, trade and services, public facilities, and military special area (Sidoarjo, 2010).

In the document of Mid Term Development Plan of Sidoarjo for year 2010-2015 the development of Sidoarjo area will be focused on three main areas, namely; 1) Area of Food Crops, 2) Inland Fisheries and Marine Regions and 3) Small Industries Development Zone and Medium. The concept of Food Crops area development is to utilize the fertile lands and lands that are not converted to non-food. It was therefore considered as the need for the development of food horticulture centers. The development of Inland Fisheries and Sea region will be an extension on the land for inland fisheries, marine fishery revitalization, utilization of marine fishery resources, and conservation of coastal dunes (Sidoarjo, 2010). Development of Small and Medium Industries region in which existence are evenly distributed in every district in Sidoarjo; will be focused on cluster arrangement of each type of industry.This plan is expected to affect the competitiveness of industrial products, as well as increase employment for the local community.

Lapindo mudflow disaster in 2007 has reduced the competitiveness of Sidoarjo in large industrial and residential investment. Many investors from capital industries or society that were willing to purchase a land property in the area of Sidoarjo be in doubt. This is caused by concerns raised that Lapindo mudflow disaster will have a direct impact to their business/residence. This situation challenges the Government of Sidoarjo to re-mapped their regional potential, which one of them is by launching multiple small business centers.

The small business centers are including Kampung Batik Village in Djetis subdistrict, Kampung Village Shoes Mojosantren in sub-district of Krian, Snacks Kampung Village and Kampung Krembung in Kedungsumur sub-district, Shrimp crackers in sub-district of Jabon Kedungrejo. In addition, there areother small business centers such asfish processing in Kalanganyar Sedati, Bags and Suitcases in Kedensari, Kludan in sub-district of Tanggulangin, and Crafts metal in Ngingas Waru.

From the analysis above, it was concluded that the Sidoarjo requires a city branding strategy that is able to spark the potential and advantages of Sidoarjo. These advantages are Army and Marine Fisheries and the centers of small enterprises in Sidoarjo. In addition, the infrastructure development by Sidoarjo has provided the opportunity to be equal with Surabaya city, not just a supporting city. This spirit and vision can be mapped into visual keywords, namely: fisheries and land / sea, a business center, and the city of the future advanced and convenient for the citizens.



Figure 2. Sidoarjo logo alternative 1

This logo above is picturing Sidoarjo as the future city that moving forward, with the visualization of skylines that drove rapidly through times. The vibrant colors are to convey the spirit of Sidoarjo to be thriving and autonomous city.



Figure 3. Sidoarjo Alternative Logo 2

The next logo is visualizing Sidoarjo as a city with the strong small business center and heavy industries into symbolic way. These symbols are assembled in a circle that form 'S' letter, as for Sidoarjo.



Figure 4. Sidoarjo Alternative Logo 3

This logo is conveying Sidoarjo as a city with strong local small business, which one of them is Jetis Batik. The terracotta logogram is a simple form floral motif that is a signature of Jetis Batik pattern. The combination of elements within this logo is conveying Sidoarjo's vision to be a progressive city by improving city's potentials.



Figure 5. Sidoarjo logo alternative 4

The last alternative is re-incarnation of Sidoarjo highly recognized symbol; the fish and the shrimp. This colorful version is to communicate Sidoarjo as an inspiring city with various yet fresh potentials.

B. Gresik's Potentials Mapping and Proposed Visual Identity

Gresik is a regency that is coincident with Surabaya. This situation gives effect to Gresik, such as urbanization, poverty, rapid modernization, and changes in land use. Another issue that arises is the uneven distribution of the population, and only

concentrated in urban areas. In addition, the location of which coincides has the possibility to the raise of social problems such as drug abuse, promiscuity, divorce, etc. (Gresik, 2005).

Nonetheless, the Gresik is a very religious society, that promotes religious values in every aspect of their lives. Mannered and religious behavior as a reflection of the area of origin of one of the famous Wali Songo: Sunan Giri. Islamic culture becomes an advantage to Gresik people in how to counteract the negative things that can give a bad influence on their young generation.

Gresik has always been a potential investment destination in East Java, to both local and international investors. Nature resources such as limestone mountains and phosphate, makingthe national giant cement enterprise; PT Semen Indonesia,builttheir plant in Gresik. Other state-owned enterprise; PT Petrokimia Gresik; is one industry that is always close to people of Gresik. Gresik is also very attractive to foreign investors, including the German automobile company Volkswagen; which is moving the factory from China Mainland to Gresik. In addition, the US company Freeport plans to build a smelter in Gresik as well. The impact of rapid industrial development is also a concern of Gresik Region Goverment. The emphasis on environmentally sustainable industry is being the future direction city's development.

Based on interviews with the Head of Section at the Regional Planning Agency, Gresik Regency Government is projecting the development of marine resources as sources of new economic growth. Gresik marine sector are include marine transportation, fisheries, tourism, maritime industry, marine construction and marine services. The existence of Teluk Lamong as an extension of the Port of Tanjung Perak Gresik makes the maritime sector significant. The government is also planning a comprehensive development in Bawean Island as a flagship project in marine tourism sector.

From the description above, we can conclude three key words to Gresik; namely religious (Islam), marine / maritime, and industrial / profitable investment destination with environmentally sustainable industries.



Figure 5. Gresik Alternative Logo 1

This logo is portraying Gresik as an industrial city with maritime strength. It is visualized in factory icons and ocean waves that supported by major local industries such as Semen Gresik and Petrokimia Gresik. These symbols are united to form environmentally 'adiwiyata' city.



Figure 6. Gresik Alternative Logo 2

This logo is projecting Gresik as a strong and advanced maritime city with great tradition and spirit of the local people. It symbolized with Gresik's icon; the garling building. Blue color is to represent the maritime value, and green color is to represent environmental city, and gray color is to convey a strong and sturdy city.



Figure 7. Gresik Alternative Logo 3

This alternative logo is visualizing the various characteristic of Gresik. The industrial character is symbolized in smokestacks, maritime represented in ocean wave, and the Arabic-styled typography is to portray the religious value. These values are compiled in harmony as a city with a gate that is to bridge prospective investments.



Figure 8. Gresik alternative logo 4

This logo is formed in icons that are representing Gresik as an industrial city with strong tradition. The tradition element is portrayed in Gresik traditional house, while the industrial potential is symbolized in icons of office buildings and factories. These icons are compiled as a bridge to prospective investment. This alternative is also supported by powerful maritime elements.

C. Analysis on the Regency of Bangkalan Destination Branding Strategy

Bangkalan is a very strategic area, as is the gateway to the island of Madura and East Indonesia. With a vast place, Bangkalan has huge prospect for settlement, trade and services, agriculture and military areas. Bangkalan has mapped its land use as a protected area and cultural area, as well as a new economic driver of the region(Bangkalan, 2013). The projected regional economic drivers are including the Bridge Street area, Industrial Area and Port Socah, and Regions of Container Port Tanjung Pandan Fur. All three of the region will be a strategic economic region, namely the development of light industry and fertile crops in the Bridge Street, where ports and industrial Socah will be integrated in this area. Theaccess road construction from the District Klampis and Arosbaya with the Suramadu Bridge Street area through the development of Tanjung access road fur Pandan through interchange Burneh (Bangkalan, 2013).

Based on an interview with Safril Hidayat, the Head of Economic Affairs at Planning and Development Board of Bangkalan Regency Government (August 24, 2014); local government's vision to develop this region is as a result of a study conducted by the Japan International Cooperation Agency (JICA). The development of three strategic areas is supported by the new growth centers such as the area of education, and other economic centers at the district level.

In 2010, the Department of Industrial Product Design ITS conducted a research to develop city branding strategy for Bangkalan. This research concluded that, although the physical infrastructure of Bangkalan is not as advanced as Sidoarjo and Gresik, the local government has a clear vision for to the regional development. This has led to an awareness of the importance of city branding strategies in an effort to improve regional competitiveness in the future. This study also proposes the concept of city branding strategy development Bangkalan, namely: Be the Part of the Future; or in Indonesian: Be part of the future.

The concept is to convey the vision and mission Bangkalan development in the future, asa favorable investment destination anda promising new economic growth areas (Kabupaten Bangkalan, 2010). This concept also illustrates the good will of the local government; a new era as the region Bangkalan will be advancing infrastructure, strategic economy, with welcoming, friendly and professional people.



Figure 9. Bangkalan's destination branding identity 2010



Figure 10. Bangkalan's destination branding identity 2010

Research on the development of Bangkalan destination branding is equipped in a comprehensive branding strategy through integrated marketing communication (IMC). These activities are divided into two major phases, which are internal campaign to the community and stakeholders, and the stages of campaign to external parties. Internal socialization on destination branding is actualized in the launch of destination branding Bangkalan through flower parades and Gebyar Bangkalan. For external socialization will be in the form of official branding website, marketing kits, and merchandise. The study was then accommodated into regional development strategic plan by the government of Bangkalan (Kabupaten Bangkalan, 2010).

IV. CONCLUSION

Sidoarjo, Bangkalan and Gresik local governments have not establish a policy that is related to the implementation of city branding strategies. The city branding should be recognised as an effort to develop and to create the area as a destination for investment and tourism. The document of Long Term Regional Development Plan of each regions and from visual data taken by the research team are the evidence to support this claim. In fact the city branding activities that supposed to be exposed anywhere in the region were very limited. City branding activities can at least be recognised from the slogan, visual identity, logo, promotional activities, regular events, and others.

However, the goverment of these three regions are very aware of the importance of city branding strategy as an effort to improve regional competitiveness. Currently, the Research and Development Planning Agency of Sidoarjo regency is working with a research group from Airlangga University to formulate Sidoarjo city branding strategy. Hopefully, the studies from both Airlangga University and ITS will provide valuable recommendations to the formulation of Sidoarjo city branding strategy.

In contrary, Bangkalan is better prepared in formulating city branding strategy. The study team DKV ITS has been embodied in the master plan of Bangkalan region. The results of this study covers integrated branding strategy; ranging from the promotion/ advertising, logo design and visual identity, event planning, brand launch, website design, merchandise design, and marketing tool kit. Thus, Bangkalan can quickly implement this strategy.

The research method conducted in this paper is still limited to methods of mapping city's potential based on documents of the Region's Long Term Development Plan (RPJPD) and the Region's Medium Term Development Plan (RPJMD); as well as interviews with the head of Regional Planning and Development Board. The results of this study could be more accurate if it comes to the method of focus group discussions involving the local government, community, academia and stakeholders of each region. Thus, it should be validaeedThe formulation of city branding strategy is expected to involve the community, academia, and stakeholders. Therefore, the result is able to reflect the aspiration of its people and stakeholders, and not one-sidedly

imposed by by the local government. Thus, the strategy will gain a support of all parties that will lead to a successful implementation of city branding in the future.

V. ACKNOWLEDGMENT

We would like to express our greatest gratitude to Mr. Farid Evendi from the Government of Gresik Regency, Mr. Syafril Hidayat from the Government of Bangkalan Regency and Mrs. Silfiati from the Government of Sidoarjo Regency; for all their supports and contribution to this research.

REFERENCES

BOOKS

Crouch, C., & Pearce, J. (2012). *Doing research in design*. United Kingdom: Berg Publishers.

JOURNALS

Brown, T., & Katz, B. (2011). Change by Design. *Product and Innovation Management,*(28), 381-383. http://dx.doi.org/10.1111/j.1540-5885.2011.00806.x

Lau, F., & Leung, A. (2010). Chongqing's City Branding: The Role of Graphic Design. In D. K. Dinnie (Ed.), *City Branding: Theory and cases* (pp. 131-137): Palgrave Macmillan, Ltd.

Warnaby, G., & Medway, D. (2010). Semiotics and place branding: the influence of the built and natural environtment in city logos. In G. J. Ashworth & M. Kavaratzis (Eds.), *Towards effective place brand management: Branding European Cities and Regions* (pp. 205-221). Cheltenham: Edward Elgar Publishing.

PROCEEDINGS

Wahyurini, O. (2012). *The Significance of City Logo in City Branding Strategy.* Paper presented at the the 5th WSEAS International Conference on Cultural Heritage and Tourism (CUHT'12), University of Cambridge, United Kingdom

REPORTS

Bangkalan, P. K. (2013). *Rencana Pembangunan Jangka Menengah Daerah 2012-2017*. Bangkalan: Pemerintah Daerah Kabupaten Bangkalan.

Gresik, P. K. (2005). *Rencana Pembangunan Jangka Panjang Kabupaten Gresik 2005-2025*. Kabupaten Gresik: Badan Perencanaan Pembangunan Daerah Kabupaten Gresik.

Kabupaten Bangkalan, P. D. (2010). *Portofolio Penyusunan Masterplan City Branding Kabupaten Bangkalan*. Bangkalan: Badan Perencanaan Daerah Kabupaten Bangkalan.

Sidoarjo, P. D. (2010). *Rencana Pembangunan Jangka Menengah Daerah Kabupaten Sidoarjo*. Sidoarjo: Badan Perencanaan Pembangunan Daerah Kabupaten Sidoarjo.

Wahyurini, O., & al, e. (2009). *Visual Communication Design 4 Project: City Branding of Ngawi*. Industrial Product Design Department. Sepuluh Nopember Institute of Technology Surabaya Indonesia. Surabaya.

Jurig (ghost) in Comics Sunda

Myths & Tradition in Popular Culture Products

Kankan K.
Department of Design and Fine Arts
Bandung Institute of Technology
ququlunuan@gmail.com

Prof. Dr. Setiawan Sabana, M.FA
Department of Design and Fine Arts
Bandung Institute of Technology
setiawansabana@yahoo.com

Dr. Iwan Gunawan
Depeartement of Urban Arts and Cultural
Industries-Jakarta Institute of Art
iwanxguna@gmail.com

Abstract — In Sundanese people, many artifacts with a variety of forms, exist comes to tell about the habits, customs, norms, values, and even myth. *Jurig* (ghost) in Sundanese society is a phenomenon between myth and reality. Belief in the creatures that are considered immaterial-spiritual influencing people's lives, this material much raised in popular media such as comic. This study describes the descriptive packaging myth and tradition in comics, in this case as a form of creativity from a comic artist with the theme of the hidden world, as the influence of beliefs and cultural background surrounding.

The conclusions are; *jurig* image in the sundanesse comic is a representation of the concept, the view, and the belief in the existence of its creature. However, the picture would be a perceptual image, which is present in the mind based on an external reference, or maybe the image is the mental picture that is present in the comics, influenced by a belief in the presence of these creatures. Creativity is relates to how a person's sensitivity in capturing the stimulus, which comes from something close to life, even more stimulus raised is something that is immaterial.

Keywords – Comics, Creativity, Jurig, Sundanese, Tradition.

1. INTRODUCTION

Ghost-specterpresents with varied tales, concepts, and unique incarnations in every culture. The differences exist due to experiences, myths, cosmology, and cultural backgrounds shaping every region.

In Indonesia, the phenomena of supernatural beings existence with all attached attributes has been the part of their society life, including in Sunda. *Juringkang* (in Sundanese language) is a term for posture in which the position of whole body moves from sitting position to standing position in a sudden because of surprised yet terrified. This term is specifically applied to the spirit-ghost called *Jurig* (Danadibrata: 2009: p.300). It illustrates a belief existing in Sundanese society on the physically-absent spirit yet presents in language. Four of five Sundanese believe that this spirit exists and presents in their surroundings. The other one does not believe because he has not yet seen it, however he believes that others or his near relatives feel, see, and experience a contact and interaction with this spirit. Prior to the coming of Islam with its faith on supernatural beings, the belief on *jurig* has existed long ago. In many sundanese customs from giving birth, circumcision, to morgue operation, there are many ways to prevent difficulties or failures in their daily activities that are assumed to originate from the disturbance of supernatural beings. This affects the society's point of view

and frame of mind. In addition it affects on artifacts where the products of culture present the belief, including one product of the popular culture named comics.

This research discusses a comics with supernatural beings theme. It relates closely to the belief and faith of the sundanesee regarding the presence of the beings. The preferred comics is *Kawin Ka Kunti* (Marrying *Kunti*) that is drawn and told by Duds. The comics tells a slice of story of a young Sundanese man who marries with supernatural being (*kuntilanak*). It is a quite interesting comics due to its closely-related theme to sundanese traditional lifes, the belief on the existence of supernatural beings, and at the same time it exposes the similar elements.

Intertextuality shall present between spoken literature in sundanese traditional society and the comics as the text of the modern popular culture. Therefore, it is crucial to study this phenomena since similar studies are rarely completed, though the research on intertextuality of work of arts is quite robust.

2. LITERATURE & THEORY

2.1 Belief on Supernatural Beings among Sundanese Traditional Societies in their Traditions and Customs

Tradition contains various habitual practices, the activities performed by the elders, ancestors or forefather of particular community addressed for certain intention. Tradition is consciously preserved since it is assumed to contain good values that keep the society away from any unwanted occurence. Tradition is preserved as a preparation for particular event. According to RS Etty, Sjamsuri & Malik (2012: p.231) the manner of *tarapti* that is tightly performed by the ancestors is such local wisdom that raises up the spiritual values (p.231). Losing it means that the society loses their legacy and identity.

In Sunda, several traditions are being performed by some parts of the society. This term is known as *talari* which means that it is a hereditary habit from the elders, that the society needs to revive the spirit of the tradition as a form of pride and identity of Sundanese tribe. This revival is marked by presenting various traditional and cultural events such as art performances, traditional ceremonies in commemoration of one's cycle of life; pregnancy, giving birth, circumcision, marriage, and morgue operation, to be blended with Islamic belief. The event is made in such a way to meet the current condition.

There are unique things in every traditional event performed in sundanese society. Some of the traditions, prior to or after the coming of Islam, relate with the belief on holly spirit, to Allah, angels, (after the coming of Islam) or other supernatural beings such as *karuhun*, that is the ancestor or forefather who is no longer living yet is believed to present in spite of their different world from ours, or other non-physical beings that are assumed to present in our surroundings. Sukarman (1962: p.25) terms it as supernatural beings. To be said so due to its soft and smooth characters, so smooth that it is not visible. This happens because sundanese that views the nature as unity of three worlds. In sundanese script (Darsa & Ekadjati, 2006: p.140), *kropak* 422, contains old Sunda cosmology (the combination of Sunda-Hindu & Budha) saying that the universe is divided into three worlds: *sakala* "real world" is inhabited by the creatures that have body and soul, static, human is one of them, plants, and other visible things, dynamic and static. *Niskala* "supernatural world" is inhabited by various non-phyisical beings with subtle elements, gods and goddess, nymphs, *apsari-apsara*, neutral spirits called *syanu, bayu, sadap,* and *hedap*. Last one is *jatiniskala* that is the true supernatural world inhabited by The Mighty One called *Sanghyang Manon*. The Creator Existence is called as *Si Ijunajati Nistemen*, boundary creator yet is not limited by it. This description is supported by Sumardjo (2011: p.33) that stands on three patterns, through rhyme interpretation that Sundanese views the universe in 3 worlds: upper world where the gods and goddess live, middle world where humans live, and under world where evil spirits and other supernatural beings. It is believed that between the worlds, there is a man who has the ability to connect

the three worlds called as *kuncen*, or caretaker. Some call him as wizard, yet rarely people call him that but as "smart person" or "person with high ability", that makes as if real world and supernatural world was not a far world. He is felt to present in society hand in hand in a wanted yet unwanted relationship because he is assumed to be terrifying for his great power. Below is the illustration regarding the concept of supernatural beings in Sunda.

There are two supernatural beings; *lelembut* and *lelembutan*. *Lelembut* is supernatural beings that are not originated from human, whereas *lelembutan* is originated from human (Sukarman: 1962, p.27). Their nature is good and bad. The good one protects whereas the bad one disturbs. However, there is also those who only show their physical appearance. In their living category, they live in land-ground (forest, mountains, caves, cemetaries), sky, water (river, lake, ricefield, pond, swamp, and well), at tree (banyan, frangipani, *frangipani, ylang,* etc). Some of them are *ngageugeuh* (staying and ruling over) particular place. Some are quite cultural, meaning that they are believed and therefore there exists various customs and tradition to keep them away.

2.2 Intertextuality

Luxemburg in Nurgiantoro (1994: p.50) argues that intertextuality is defined as writing and reading in one "intertext" of particular tradition, culture, social, and literature in the form of texts. Etymologically, Ratna (2010: p.214) describes intertext as originated from the word *inter* and *text* that can be defined as relation or cohesion of one text to other texts. Basically, the theory is originally used in the literature, yet the line, color, plane in art drawing, series in tone, and style in architecture can also be said as forms of texts. Therefore, the theory is expanded in the art science including in the cultural study (Ratna: 2010, p.215).

3. DATA & METHODS

3.1 The Comics of *Kawin Ka Kunti*

In the 1980s, sundanese stripped comics were published in series in *Giwangkara*. One ghost themed comics was *Kawin ka Kunti* (Marrying *kunti*). The comics published in Giwangkara in 1986 told about the life of a poor young man named Udan who travelled seeking for religious knowledge, through which his life changed. Udan turned into religious man who has the ability to see supernatural beings (*jurig*). He helped many societies who were disturbed by ghosts, and at the same time helped the ghosts, one of which was *kuntilanak* who in turned was becoming his wife, Romlah. Romlah became *kuntilanak* because she died when giving birth to her baby, her spirit rambled to finish her world issue when she had been alive. Udan helped her by inserting needle (nail) in Romlah's head that made her change into beautiful woman. In their journey, they got married and got a kid named Hadisah. One day, Hadisah looked for fleas on her mother's hair and saw a glittering thing on her mother's head. She wondered what that was and kept remembering that thing to her dream. Unfortunately, in her dream, Hadisah dropped the neddle, which in the real world was actually the pulling out of the needle. This made Romlah changed into her previous condition, *kuntilanak*. Udan's family was covered by great sadness. On one occasion, Udan inserted the Quran into *Kunti's* hollow back that turned the *kuntilanak* into a flashing light that flew away to the sky.



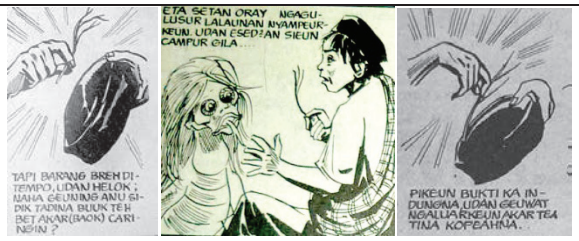
Figure 1. Kawin Ka Kunti Comic. Source: Giwangkara (1987)

This comics is chosen for its peculiar theme that closely relates with the belief and life of the sundanese society. In addition, the story reveals romantic life of the sundanese that is rarely found in other sundanese comics. This research is qualitative-descriptive. Intertextuality theory is used in this research.

4. ANALYSIS

Table 1. The Analysis on Hypogram and Transition Work:

No.	*The Custom and Belief on Supernatural Beings in Sunda and Sundanese Spoken Literature (Hypogram)*	*Kawin Ka Kunti comic (Transition work)*
1	*Kuntianak* figure is a women with long hair covering her back. Her back is hollow. According to Sundanese belief, she is terrified with net and betel (Sukarman, 1962: p .32). People depict *kuntilanak* as woman with long hair and hollow back similar to *lesung* (cavity) (Soeganda, 1982: p.33).	 *Kuntianak* figure, her hair hang loosely with hollow back. In the pieces of dialog in the 3rd picture, it is mentioned: "*Geus kitu sep qur'an diseusepkeun kana gorowong dina tonggongna...*" ("After that the Quran is inserted into the hole in her back").
2	Originally, *kuntilanak* is a woman who dies because the baby in her womb is difficult to be delivered (Danadibrata 2009: p.375). On the contrary, Soeganda (1982: p.33) argues that *kunti* is actually originated from the dead woman when pregnant or when delivering the baby, the spirit will then become *kuntilanak*.	 There is a dialog"*Sabalikna manehna, maot dina waktu ngajuru lantaran bajina hese kaluar*!" she died during her delivery because the baby is difficult to be born!
3	Mustapa (2010: p.27) says that customarily in performing morgue operation to woman who dies when delivering the baby or when pregnant, the sleeve of the shroud must be sewed, the needle is pricked to the cloth and is buried together with the body. This is performed in order to avoid the dead body of becoming *kuntilanak*.	 In this scene, it is shown that the needle inserted into Romlah's head has turned her into human, however when it is pulled out, it makes her change again into Kuntilanak.
4	*Kuntilanak* lives in headwater where people take a bath, in the trees at the river bank, and in land where *kuntilanak* loves the trees with fragrant flower such as *Cempaka, Pacar Cina, Kenanga,* or shade trees that is covered by other plants or rootsthat can be used for swinging since *kuntilanak* loves playing swinging (Soeganda, 1982: p.34).	 Through the setting/background of this place, it is shown Kuntianak lives in the cemetery filled with large trees.

5	Soeganda (1982: p.33) says that there is a magic spell to keep *kuntilanak* away: *"Sangiang Sangandangan, Sangiang Sagendér Upih, ulah rék sinigawé ka urang manusia, manusia madia-pada, aing weruh ngaran sia, Nyi Godru, Nyi Buludru, Nyi Dangdang Saérang, Sang Suing Kaléandap, bek mati Sang Kunti-Anak, hurip ku Sang Anak-anak, Si Lunggupung ngaran indung, Ki Daleungdang ngaran bapa, anta maja anta guna, babu dayang sabrang kélong."* in RS, Etty, Sjamsuri & Malik, (2012: p.190) there are *jampi* to avoid Kuntianak, the spells are: *"Bismillahirrahmaanirrahiim sitéké putih sitaka putih sitoko putih aing nyaho siperbakat ratu sia nu sakeclak putih"*	 It is the scene where Udan pulls out amulets and reading spells at his best.
6	Woman who is in her young pregnancy is given an amulet by *ma dukun* (wizard) in the form of belt made from cloth containing *panglay* (*Zingiber cassummanar*), *palias*grass (*Pogonatherum crinitum thumb*), and a little of frankincense. The cloth used is the cloth that has been spelled the account of Abdul Kadir Jaelani. It functions to deny the disturbance from supernatural beings and calamity (Soeganda. 1982: p.20).	 The illustration of Udan's amulet which originally was the hair of *jurig bobongkong* and is turned into the root of a banyan tree.

The results of the analysis show that *Jurig Kuntianak* present in the comics as a work of transition has relevance with the belief and customs in Sundanese which is present through spoken literature. Customs, traditions and belief in traditional Sundanese are raised and constructed by the illustrator into comics form through iamge and text. Comics become transformation works in which it absorbs the hypogram elements.

This comics also presents the visualization of *jurig* (ghost) which is derived from spoken literature and the belief of sundanese. *Jurig* as immaterial being, invisible, absent, and intangible is illustrated by illustrator which backgrounds in Sunda, in the form that can be seen by eyes as a graphic. With the background of the Sundanese view towards *jurig*, it enables the ambiguity to occur in the view and the understanding of reality, presentation and representation. The images on the comic allow not only the graphics, but also could be an idea or ideas, perceptions or even a simulation.

In view of the presentation as a reality presented in front of people without a form of technological mediation (Piliang, 2004: p.56), most western people assume that ghost can be presented through technological equipment. In contrast to the Sundanese, they see *jurig* not only as concept, but also present. There is no need any technological equipment to ensure that Jurig is present. This means that just like the soul of the Sundanese, they assume supernatural beings as something real, present immaterially. For the Sundanese, *jurig* and its presence are part of spirituality.

Jurig as reality itself is something that is not visible to the naked eye. Its appearance is not always wanted, but it also sometimes appears either wanted or not. According Piliang (2004: p.56) reality is just like a dynamic geographical map, the elements are always changing and transforming. the reality is now discovered in the form desperate (discontinuity), cracking (rupture) and turning points (reverse): extremity, fatality, banality, and promiscuity: disorder, unpredictability, uncertainty, and randomness, which in these conditions are found crosses, hybridity, confusion, collision, overlapping, mixing, hybridity which creates a very complex reality. By this description, is *jurig* Sunda included into reality? it is now being debated about its

definition whether reality is something that can be captured by the senses (sense), or simply a physical (Piliang: 2004: p.56). For those who have never interacted with *jurig* but believes in its existence, is there in this case *jurig* a reality for him or for the terminology of reality itself. If *jurig* is a reality, then the image of *jurig* that is in the comics Sundanese as a representation of the concept, the view, the trust of *jurig*. However, in its description, it can be a perceptual image, which is present in the mind. However based on external sources, what is illustrated may be the result of observation, observation and interviews, experiences and even spiritual journey results as outlined in the illustrated form. However, it is also possible that image is the mental image which is present in illustrator, because the belief he has. Those two views illustrate a condition how comics leads the readers to an abstract world.

Through this comics, it is depicted that sundanese tradition and custom as well as the faith and thought exist as if they are inseparable parts. The using of spell together with the pray in Islam builds up the strong character specifically identifying Sunda tribe with the strong faith on Islam. Islam is accepted as the faith in sundanese society.

Comics is the product of popular culture. When traditional elements are inserted into it, it can be particular characteristics of particular region. At the same time, it gives uniqueness and richness to the comics itself. The comics of *Kawin ka Kunti* is one of the examples.

Reading this kind of comics gives peculiar experience to the existing sundaneses who live near with sundanese custom and tradition. It provides them with romanticism and the feeling of missing on the things related with Sunda and sundanese.

Conclusion

1. The comics of *Kawin ka Kunti* presents the figure/visualization of *Kuntilanak* by referring to the belief and custom of the sundanese.
2. Islam as a faith collides with the local custom and tradition and is acculturated without any friction among the sundanese society
3. Custom and Tradition are interesting themes to be raised in the product of popular culture
4. Creativity does not merely relate with the creation of new things. Through the analysis in this research, it is discovered that creativity also relates with the development of the existing work into a new form of work.
5. Creativity also relates with the issuance of abstract thing, untouchable yet can be close enough to the life of the human as the doer.

REFERENCE

Danadibrata, R.A. (2009). *Kamus Basa Sunda*. Bandung: Kiblat Buku Utama &Universitas Padjajaran.

Darsa, U., & Ekadjati, E., (2006). *Gambaran Kosmologi Sunda*. Bandung: Kiblat Buku Utama

Mustapa, H.H. (2010). *Adat Istiadat Sunda*. Bandung: Alumni

Nurgiantoro, B. (1995): *Teori Pengkajian Fiksi*. Yogyakarta: Gadjah Mada University Press.

Piliang, Y.A., (2004): *Posrealitas: Realitas kebudayaan dalam era postmetafisika*. Yogyakarta: Jalasutra.

Ratna, N. K., (2008). *Teori, Metode, dan Teknik Penelitian Sastra*. Yogyakarta: Pustaka Pelajar.

RS, Etty Dkk. (2012). *Jangjawokan, Inventarisasi Puisi Mantera Sunda*. Bandung: DISPARBUD JABAR.

Surjaman, U. *(1962). Kepertjajaan Orang Sunda terhadap "Machluk Halus". Depok: FSUI, Universitas Indonesia*.

Sumardjo, J. (2011): *Sunda Pola Rasionalitas Budaya*. Bandung: Kelir

Soeganda, R.A.P. (1982). *Adat Istiadat Sunda*. Bandung: Penerbit Sumur Bandung

The Development of Visual Identity Design System for Strengthening The Brand of Academic Institution

Case Study: Sepuluh Nopember Institute of Technology (ITS)

Sayatman
Department of Industrial Design,
Sepuluh Nopember Institute of Technology
ITS Campus Sukolilo Surabaya – Indonesia
e-mail:sayatasik@prodes.its.ac.id

Abstract — Visual identity is a sign that graphically contains certain characteristics that portray an entity it represents. Visual identity in an entity is a very important aspect, in addition to being part of the property of the legal entity, also serves as a means of identification, differentiation and the means to build a positive perception of the entity. Visual identity system is typically formed by visual elements such as letter mark, picture mark, color identity, layout or the result of a combination. The combination of these elements which then would form a visual identity system that integrated and meets function ideally. Sepuluh Nopember Institute of Technology (ITS) as the leading technology institutes of higher education in Indonesia is appropriate to implement the design of visual identity system that is integrated as part of efforts to achieve the vision and mission of ITS in strengthening institutions of international repute brands and environmentally sound. Basically ITS already has a visual identity attributes such as logos, symbols and colors as set out in statute. However, the application still needs to be designed the concept and development of the visual identity system design in a more detailed and comprehensive. This study aims to develop a visual identity system design concepts in a more integrated ITS as part of efforts to strengthen institutional branding.

Keywords: Visual Identity, Design System, Branding, ITS.

1. INTRODUCTION

Visual identities is a sign language that graphically contains certain characteristics that portray an entity it represents. The entity may be an institution, organization or even personal. Visual identity in an entity is a very important asset as a sign of ownership, quality assurance, to prevent impersonation or piracy. In addition to being part of the property of the legal entity, also serves as a means of identification, differentiation and to build the perception entities.

Visual identity is not just a logo or emblem course, broader than it is a combination of logos and other graphic elements:(letter mark), image (picture mark), color identification (color identity), layout (basic layout) or the result of a combination. Blend is then if managed and well developed visual identity will form an integrated system and strengthen the branding entity institution represents.

Sepuluh Nopember Institute of Technology (ITS) as an entity leading technology institution of higher education in Indonesia are appropriately implemented system more integrated visual identity as part of efforts to increase brand institute in achieving the vision and mission into a university of international repute and environmentally. Through the implementation of an integrated identity system it is expected to be a characteristic that reflects the culture and identity of the institution.

2. METHODS

2.1 . Data Collection

The initial stage is data collection through literature, existing studies and field observations. Literature study obtained from several documents that regulate the identity of ITS. Eg ITS Statute and Draft Regulation on the Statute of the State Universities.

Existing studies and field observations conducted as an audit of the implementation of the logo and visual identity system in the ITS today as an entry point and reference the development of visual identity system design concept further .

2.2 . Classification and Mapping

This is the stage of identifying information and analysis of data to understand more about the object of research. The scope of this phase include:

- Identification and Categorization object of research
- Data Analysis
- Mapping the concept and design of the visual identity system

2.3 . Concept Development System Design

Is a concept formulation stage and identity system design criteria that will be developed at a later stage. Outcome of this phase is the planning concept logo design and visual identity system and the planned application in a variety of media in accordance with its corporate program in an integrated manner. The scope of the study include :

- Design Concept
- Design Criteria
- The concept of media planning implementation.

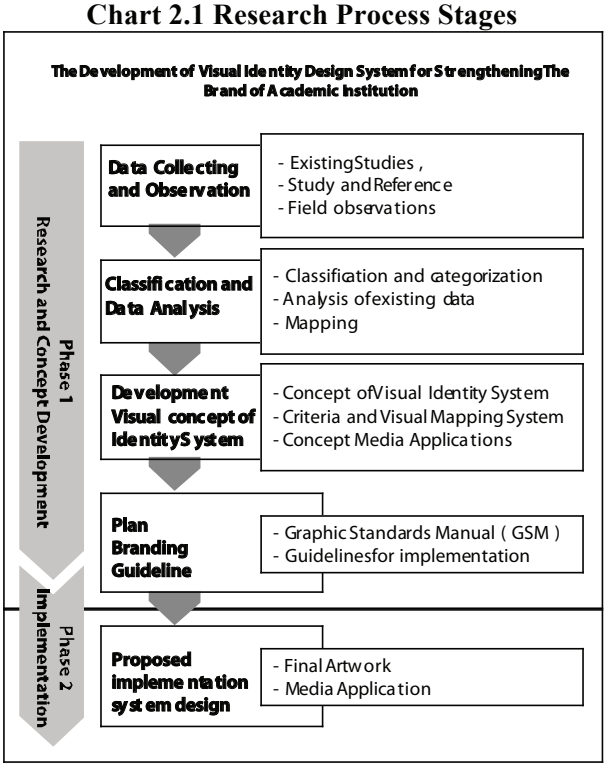
2.4 . Draft of Brand Guideline

Unity of the visual system that is applied consistently in each media would be a distinct identity for an entity it represents. Yet still other attributes needed to maintain the consistency of the application of the logo on various media. Therefore this stage emphasizes the visual identity guidelines for the use and examples of its application in various media in an integrated way.

2.5 . Visual Design Implementation System

An advanced stage of design development programs visual identity system. The focus of this phase of the research is on the implementation of the system design and refinement to obtain a more comprehensive final design as part of branding ITS.

Chart 2.1 Research Process Stages



3. THEORY

3.1 .Visual identity

Visual identity is a combination of logo and visual system that is made into a coherent whole to convey the message of a company, person, object or even an idea[1]. In a corporate entity, the identity of the company known as corporate identity, usually consisting of from identity verbal and visual identity, where the purpose of the overall corporate identity is so characteristic of the entity known by all parties.

[1] Morioka, Adams. 2004 Logo Design Workbook-A Hand on Guide to creating Logos. USA: Rockport Publisher, inc, p.18.

Visual identity system is a graphics system designed to encapsulate an integrated visual identity in a variety of applications. In practice, the visual identity system formed by the logo and its supporting visual elements such as color, images, fonts and layout . Visual elements are then designed in an integrated manner as a design and this is a system which will then form the visual identity system.

3.2. Brand

Brand has a deeper meaning than just a logo. If the logo is a physical object that can be seen, the brand includes a whole, both physical and non-physical form. If likened to a man, the logo is the face of a person, identity is physical appearance, behavior and communication, then the brand is the whole soul of man that includes the logo in it[2]. In other words, the brand is a summary of the essential values of an entity. While branding is the activity of building a brand. Make identity including logo is branding activities, because the logo itself is a basic foundation for the process of establishing the identity of the organization/ company. The whole implementation of the visual system , including all forms of publicity and advertising done by the company based on the logo, where the whole system is a form of imaging that is desired by the company to the audience.

3.3. Corporate Identity

Corporate identity can be interpreted as a symbol of a company or institution that includes: visual identity, attitude, personality, shape and style of working procedures and system activity relationships. It is also meaningful as a statement of the position of the institution is something between institutions similar. It can be concluded that the corporate identity is a guideline for a company or agency to work or behave.

As noted by Landors Associates, a corporate branding firm, that the identity of an entity include two things:

1. The characters real (tangible), eg such as products, facilities and resources.

2. The characters are not real (intangible), for example: the vision, mission, corporate philosophy. Both are then combined and visualized into a distinctive and represent these characters. Visual it is present in the form of a logo that has elements of a name, symbol and color.



Figure 3.1. Application of logo and visual identity system PT Garuda Indonesia Design by Landor Associates (http://landor.com/#!/work/case-studies/garuda-indonesia)

Consistent use of color in the visual identity system is very important. Inconsistent use of color can reduce overall identity system function. Color Chart guide or Pantone Matching System is absolutely necessary in the reproduction of the logo and visual identity.

4. IDENTIFICATION AND ANALYSIS

4.1 . Visual identity ITS (the Statute)

Some literature is available as reference in this study were: 1) Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 49 Year 2011. 2) The text of the Draft Regulation on the Statute of the

[2] Rustan, Surianto, S.Sn.2009. Mendesain Logo. Jakarta: PT Gramedia Pustaka Utama.

State Universities Law Firm Institute of Technology proposed in Kemendikbud. In both documents the statute, particularly on Identity mentioning that ITS has a visual identity has been established, among others, are: logo, emblem, flag and banner. Here are excerpts sounds provisions of the statute relating to the visual identity owned by ITS.

Symbol ITS referred to are as follows :



Figure 4.1 ITS Symbol
(Source : Document Statute of ITS , 2011)

Logo ITS as referred to in the form of a white emblem in the shield , ITS writing in blue, shaped decisively, artistic and simple, as well as writing the Institute of Technology in blue. Logo ITS referred to as follows:



Figure 4.2 ITS Logo
(Source : Document Statute of ITS , 2011)

ITS has a rectangular flag with a ratio of length versus width of 3 : 2 dark blue and light blue, the left top there is the symbol of ITS.

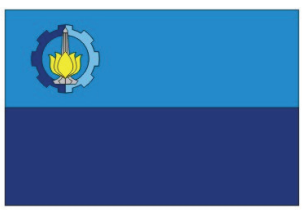


Figure 4.3 ITS Flag
(Source : Documents Statute of ITS)

ITS has Pataka rectangular with a size of 60 cm wide and 120 cm high, dark blue and light blue with fringed edges golden yellow thread length of 10 cm, and contains the symbol of ITS diameter of 40 cm.

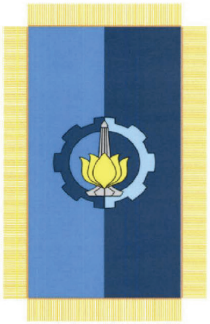


Figure 4.4 ITS Pataka
(Source : Document statute ITS)

Besides identity is also still exist other identification such as Hymn ITS, Academic clothing and fashion almamater. Clothing academic as mentioned in the statute ITS consists of a fashion leader, a great teacher clothing and fashion graduates. The academic fashion is in the form of toga, hats, necklaces and other attributes. Of all the institute's identity, the provisions concerning the procedure and its use is governed by regulations rector.

4.2 Existing studies on ITS Visual Identity

a. Flag

As part of the identity of the institute, ITS flag is often used in official ceremonies, such as the anniversary and graduation ceremony. ITS flag is also used as an identity of participation in activities that bring the name of the institute.



Figure 4.5 Photos existing 2 Flag ITS
(Source : Document researcher)

The use of shapes and colors on the flag are both become inconsistent due to be reversed from the proper color of the symbol, which is dark blue on the right and blue on the left. This may be because it follows the inverse of the background color.

b. Sign System

There are several types of sign systems on campus ITS, among others: The first type of identification sign, the instructions that are informing/identify a room, building or a specific area. Both types of information sign, which is a pointer that informs a facility features a building or area, can be a sketch or map to help visitors get to know the area of ITS and where they are located. The third is the kind of direction directional sign, which informs the user that, the direction of an area.



Figure 4.6 Identification Sign System (Source : Document researcher)

Other types of sign systems that are often found in the environment ITS is a direction around the pedestrian or crossroads in the campus. This marks quite help the pedestrians or motorists to find a place that wants its target. However, the concern is the frequent presence of "extra" on the left side of his right hint impressive mark system is not well designed and tend not to pay attention to the aesthetic aspects of the environment.



Figure 4.7 Photo Direction Sign System at ITS
(Source : Document researcher)

c. Vehicle Operasions

Operational vehicles is one of the supporting mobility and means of transport in carrying out its activities on campus or outside the campus. There are several types of operational vehicles owned ITS, among others; campus bus, car laboratory operations, car Campus Security Unit, etc. Operational vehicle also is part of the "media advertising" which carries the stamp ITS wherever he went. Because it is mobile, then the media is easily identified by the public, so the potential for operational car branding identity cultivated a more comprehensive manner.



Gambar 4.8 Photos existing ITS vehicle operation, clockwise : Bus , car Campus Security Unit (SKK)
(Source : Document researcher)

d. Office Stationery

The need for media correspondence and administration office is a medium that is often used in day-to-day activities of the ITS. Purposes such as letterheads, envelopes, stamps, business cards, name tags are the media commonly used in routine administrative activities in the ITS, good for mailing in internal and external parties in ITS. Visual identity system also allows applied in the appearance of scientific reports of students so as to facilitate the identification and classification of groups and types of reports based on specific categories.



Figure 4.9 Office Stationery, and Student Scientific Reports
(Source : Document researcher)

e. Media Information and Promotion

Visual identity system is very likely to be applied in media publications used ITS, either in the form of printed, electronic media and the internet. Some examples of media information already possessed ITS is currently,

among others; ITS website (www.its.ac.id), ITS Point Bulletin, Journal, etc .

f. Merchandise

In addition to these media earlier, there is also the shape and type of applications that gimmick or merchandise potential for cultivation as a reminder and branding ITS. These merchandise are many and diverse range of media types and can even be developed in the new media are more creative. So in the end all the assets owned media applications can be managed as a means of strengthening brand indentity ITS.

5. THE CONCEPT OF VISUAL IDENTITY SYSTEM

Mapping Visual Identity System ITS

ITS as an entity attribute college would require support in carrying out daily activities. Ranging from the need for administrative purposes the office that is internal to the needs of other promotional media that are external. Some media groups are frequently required applications, among others:

1) Graphic Element, is the application of visual identity system that can be applied to a variety of media that require a touch of graphic elements as identity, including logo, colors, supergraphics, logotype, layout, etc.
2) Printing Element, a visual identity system applications on the print media including office stationery for the purposes of the administration offices and printing matter for the purpose of institute.
3) Employee Uniform and Apparel, is the application of the visual identity system on clothes and uniform academic community in the ITS environment. Some examples of its implementation, for example; ITS batik uniforms, uniforms Campus Security Unit, employee clothing, jackets, etc.
4) Media Promotion, the application of the system of identity in the media promotion or publication of the institute, among others, for example: brochures, posters, website, catalog, magazine, internet, etc.
5) Merchandise, application identity system media are used to reminder as well as a gift to consumers or stakeholders, such as shirts, hats, pins, ballpen, umbrellas, etc.
6) Sign System, the application of the visual identity system on the existing sign system in the interior and exterior environments. Including signposts, identity marker system building or other marks required.
7) Vehicle, is the application of the visual identity system on operational vehicles institutes, for example; campus buses, cars and motorcycles campus security unit, car operational laboratories, etc.
8) Editorial Style, is the application of the system of identity on a variety of media applications related to the style of writing, editorial formal publication or media presentations that can characterize ITS.

From the analysis of the identity matrix system application needs, then the categorization obtained as follows :

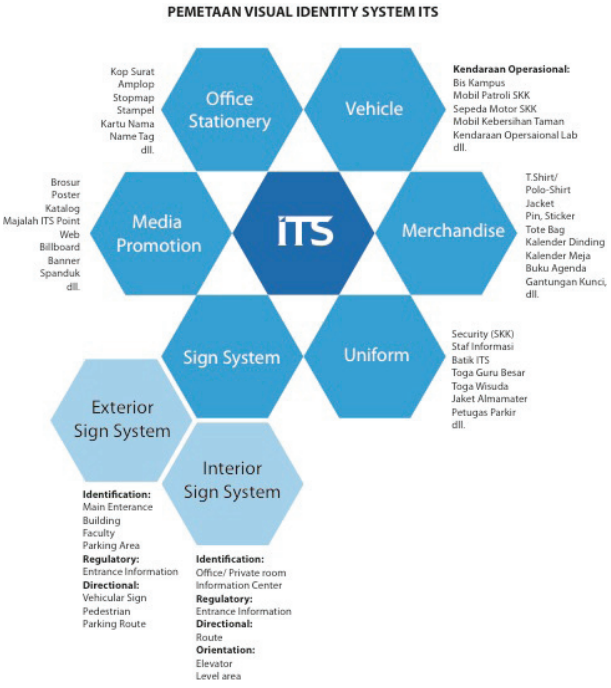


Figure 5.1 Mapping Visual Identity System ITS
(Source : Document researcher)

Corporate Colour

Color is one important element in the visual design. Aside from being a visual appeal, color also can be an effective means of identification of an entity. So that we can recognize an entity of color identity. There are two kinds of color schemes used in the ITS 's visual identity, the

colors on the logo and corporate colors. Here is the color of ITS identity derived from the color of the emblem contained in gear. These colors will then be developed into super graphic and become part of the visual identity system.



Figure 5.2 Corporate Colour ITS taken from the color of the symbol.
(Source : Document researcher)

Supergraphic

Supergraphic is a visual element that becomes part of the identity in addition to the logo, usually consisting of the elements of color, form, or a combination thereof. In addition to strengthening the visual identity, supergraphic also serves as an aesthetic element and forming the unity of the graphics system. If the use of logo tend to be monotonous and constant, then super graphic relatively more flexible in its implementation, so it can be processed to be a harmonious graphic system.



Figure 5.3 Design Alternatives Supergrafis

6. DEVELOPMENT OF VISUAL SYSTEM

System design identity in its application will be united by the graphic element (logo, colors, supergrphic, logotype, layout) which can be applied to a variety of media that require a touch of graphic elements as identity, for example:

1) Printing Element, a visual identity system application on the print media including office stationery for the purposes of the administration offices and printing matter for the purpose of institute.



Figure 6.1 Application examples of Visual Identity System in Stationery Set

2) The application of the visual identity system on clothes and uniform academic community in ITS. Some implementations, for example; batik uniforms, uniforms campus security unit, employee clothing, jackets, etc.

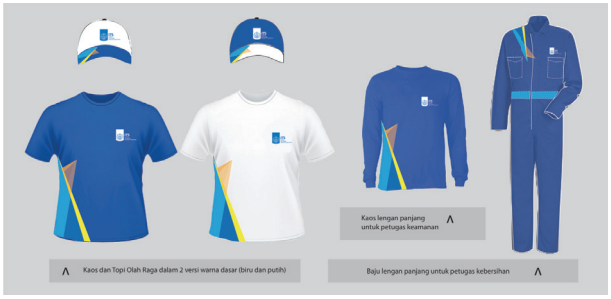


Figure 6.2 Application of Visual Identity System in Uniform

3) The application of the system of identity in the media promotion or publication of the institute, among others, for example: brochures, posters, website, catalog, magazine, internet, etc.



Figure 6.3 Application of Visual Identity System in Media Promotion

4) The application identity system media are used to reminder as well as a gift to consumers or stakeholders, such as shirts, hats, pins, ballpoints, umbrellas, etc.



Figure 6.4 Application of Visual Identity System on Gimmick

5) The application of the visual identity system on the existing sign system in the interior and exterior environments. Including signposts, identity marker system building or other marks required.



Figure 6.5 Application of Visual Identity System on Sign System

6) The application of the visual identity system on operational vehicles institutes, for example; campus buses, cars and motorcycles campus security unit, laboratory operational car, etc.



Figure 5.9 Application of Visual Identity System in Vehicle Operations

6. CONCLUSION

Visual identity in an entity is a very important asset as a sign of ownership, quality assurance, to prevent impersonation or piracy. In addition to being part of the property of the legal entity, also serves as a means of identification, differentiation and the means to build the perception entities.

Required concept and design more comprehensive identity system in order to create consistency in the in each application system that is more integrated visual identity.

7. ACKNOWLEDGMENT

This article is part of research publications beginners. Funded through PNBP ITS fiscal year 2014. I express my gratitude to all those who have contributed in completing this study.

8. REFERENCE

Aaeker, David A. Building Strong Brands, The Free Press, New York.1996.

Arnston, Amy E, *Graphic Design Basics*, Holt, Rinehart and Winston Inc, 1988

Balmer, John, M.T & Edmund R. Gray." *Corporate Identity and Corporate Communications: Creating a strategic advantage*,"Corporate Communication. 1998

Berryman, Gregg, *Note on Graphic Design and Visual Communication*

Clarence P. Hornung, Handbook of Design & Devices. New York: Dover Publication Inc,. 1959.

Henry Dreyfuss, Symbol Sourcebook. New York : Mc. Graw Hill Company. 1972.

Herman Zapft, *Manuale Typhographicum. London* : The MIT Press. 1970.

Lillian Garret, Disain Visual. Penterjemah Budihardjo Wiryodirdjo dan Bambang Dwiantoro. Yogyakarta: Fakultas Senirupa dan Disain ISI. 1986.

Morioka Adams. 2004. Logo Design Workbook- A hands on Guide to Creating Logos.USA: Rockport Publishers, inc.

Murphy, John and Michael Rowe. *How to Design Trademarks and Logos*. Ohio: North Light Book, 1998.

Pilditch, James, *Communication by Design*, McGraw-Hill,1970

Rustan, Surianto, S.Sn.2009. Mendesain Logo. Jakarta: PT Gramedia Pustaka Utama.

Swann, Alan, 1987. *Basic Design and Lay Out*, Phaidon – Oxford

Wiryawan, Mendiola B. 2008. Kamus Brand A-Z. Jakarta: Red & White Publishing.

Digital Imaging in Product Packaging

Didit Widiatmoko Suwardikun
Telkom University, Indonesia
widiatmokodw@gmail.com

Mohamad Tohir
Telkom University, Indonesia
mt.fauzy@gmail.com

Yanuar Rahman
Telkom University, Indonesia
vidyan@gmail.com

Abstract **—**Product packaging consists of two components, the physical packaging and labels, which contains text and images that can act as a main focal point, communicate package contents, and as a differentiator from the competitor's product. The picture on the packaging is made in order to attract attention. Starting from usingmanual illustrations then use of photography which closer to reality, so it can represent the product clearer. Photos become the mainstay for representation, but with the discovery of photo processing software, then any image can be created with digital imaging process, now the image is no longer as a representation of events to be believed. Visual phenomena according to Berger, at almost every moment, play an important role in our lives; our visual experiences are tied, directly and intimately to our intellectual and emotional ones. While In Simulations, Baudrillard argued that the hyperreal was generated in effect by computer software or analogous systems. Through observation of the packaging sampled based on the criteria, the use of the image fills 30% of the total surface of the packaging. The results of the expert interviews and a questionnaire to 100 consumers showed that for the age group 18-25 years; see pictures as constructed images, in contrast to older age groups more likely to trust the pictures as a reality. The benefits of these results for the design of packaging images for teenager segmentation should be more creative with the insight or attentive needs of the target group.

Keywords- **Digital Imaging, Constructed Reality,Packaging**

1. INTRODUCTION

Packaging also plays a role in addition to informs the content and to persuades and attracts prospective buyers. Therefore packaging should have appeal for viewers, so the visual appearance of the product packaging can also be a reason for consumers to buy. Display illustrations or photos and typography must be treated creatively to shape the attractiveness of the packaging. Designing the packaging is a work in the field of two-dimensional to three-dimensional application. The issue for packaging designers is how to combine illustration, typography or photography to transform ordinary photos become more appealing. With digital imaging all of these issues become easier and various ideas can be created in a short time. Digital imaging properties that can combine multiple images and make it look as if the real cause of augmented reality, so that excessive reality can make viewers interested but also questioning at the same time because of the things in the real world may not be combined, using digital imaging becomes visible sense. The problem is how the role of images created by digital imaging on the packaging.

2. LITERATURE AND THEORY

Packaging is the last ad seen by a potential buyer when he reached the stage of action, "Visual problem solving is at the core of packaging design, creative skills from conceptualizing and rendering to three dimensional design. (Klimchuk&Krasovec 2006:34). Visual problems for the packaging design is to make an impressive image to prospective buyers, which brings together some of the photos, adjust color and create superimposed with lettering, all of these can be addressed digitally. With digital process by using parts from two or more images to create one final image was one of the first big advantages of digital imaging." (Perkins, 2005:10).

Visual phenomena at almost every moment, plays an important role in our lives and that our visual experiences are tied, directly an intimately, to our intellectual and emotional ones. We gain a great deal of information about others and about ourselves on the basis of visual matters." (Berger, 1998:15).

The end of the spectacle brings with it the collapse of reality into hyperrealism, the meticulous reduplication of the real, preferably through another reproductive medium such as advertising or photography. Through reproduction from one medium into another the real becomes volatile; it becomes a fetishism of the lost object which is no longer the object of representation, but the ecstasy of denegation and its own ritual extermination, thehyperreal (Baudrillard, 1993:54). Hyperreality is detached from notions of mimesis and representation. The important point to all this is that the hyperreal doesn't exist in the realm of good and evil, because it is measured as such in terms of its performativity" (Lane, 2000:86).

Computers in the spirit of the age has made a drastic change in the pattern of human life, the generation born in the computer and internet age, is the internet generation, ageneration which born between 1982 and 2003it is linked directly to the emerging digital technology of the 1980s and 1990s with which this generation grew up. They never knew a world without computers and the Internet. They are Technology savvy, having grown up with the technology, which affects everything they do and buy. They prefer to learn by doing rather than being told what to do or reading text or Manuals. They are visually literate, they prefer visuals, graphics, and images of any kind, such as icons, videos, and photos. They communicate visually by capturing images with mobile phones or video cameras, then sharing them through social Medias. (Berk, 2010:8)

3. DATA AND METHODS

Samples were selected based on product's criteria, i.e. products that are on display near the cash register, assuming a high frequency of purchase of this product, so that almost everyone who interacts with minimart knows about this product. Populations of all the products are displayed in the minimarket, selected two samples are assumed that the product is a lot of consumers. The first product is chocolate with a particular brand. The second product is a cigarette, because these are drawing a warning, which is intended for consumers in order to quit smoking. Both the packaging of these products uses digital imaging to create a visualization package. Measured in this case is the consumer response to the display image. Selected 100 student respondents, aged 18-25 years, 64 men, 36 women.Results from the 100 questionnaires distributed, the response to the visualization of chocolate packaging (see figure 1), 57% said that does not comply with its content, 36% said that chocolate packaging describes its contents, the remaining 7% said that they do not know. About massive cashew image evenly on the surface of the packaging, 63% said that it is digital imaging

while the remaining 16% said that they do not know. (Nugraha, et al., 2014:34)



Figure 1. Chocolate packaging.



Figure 2. Cigarette packaging.

Their response to cigarette packs pictorial dreaded disease (see picture 2), 64% said that it is not related to its content, 19% said that it is dealing with the content, the remaining 17% that they do not know. About the horrific disease picture on the packaging, 68% of them said that the picture is the result of digital imaging. 21% said that it is normal photography, while the remaining 11% said that they do not know. (Nugraha, et al., 2014:36). Result of visual analysis. The visualization of the packaging is 100 percent chocolate brand packaging surfaces absolutely no pictures of Cacao, almost the entire surface of the packaging illustrates the details of cashew nuts on a massive scale across the surface of the packaging. Brand name, ingredients, barcodes is made above picture grains of cashew nut digitally. Visualization of cashew nut granules in the surface of the packaging is made with roasted with the perfect color, and the color evenly on all items. Visualization of cigarette packs, from 100 % of the surface of the packaging, 30 % is filled with images of diseased human organs as a result of smoking. One of them is a chest image on the sides so it shows diseased lungs that broken and rotting. The remaining 70 percent of the surface is filled with logos, barcodes and colors & textures brand identity.Interview result to graphic designers. Digital imaging is a revolution in graphic design visualization. For example creating a poster manually takes 3 days, while using a computer only takes 45 minutes. All tools in a computer, not necessary to use an airbrush, Letter set, and poster paint. Combining photos very easily, as well as adjust the lighting. Results of the interview to the minimarket cashier, the number of the chocolate buyer is high enough, one day it can reach 15 chocolate bars. Similarly, buyers of cigarettes a day almost 30 packs, more young men, and very few women buy cigarettes.About chocolate packaging, despite the lesser amount of cashew nut that not as pictured on the packaging, the consumers still continue to buy it because its well-known brand. As for the cigarette packaging, although no pictures warning consumers continue to consume these products because they assume that the warning image is modified by digital imaging, not the actual event.

4. RESULT AND DISCUSSION

Chocolate packaging, Cashew nut has been known, this nut has a savory taste and tender texture. Cashew combined with chocolate

makes a flavor combination, the sweetness of chocolate that blends with savory cashews favored by consumers. Creative approach on the package is to strengthen the image of the beans with repetition and enhanced ripe color to attract consumer tastes. Even after the packaging is opened and turned out to be not as much as the amount of cashew nut in packaging picture, people still eat them. Here is the role of the full-cashews image that was originally created to attract attentionthat has become a visual code for a brand of chocolate.

Cigarette addicts are very loyal to their favorite brand, so it does not matter what the packaging pictures, as long as his penchant brands are clearly, then he will buy it. If we watch movies on television at midnight, almost every 10 minutes is interspersed with ads for cigarettes of various brands that broadcastedrepeatedly. Due to government regulations, cigarette ads are banned to show images of people being smoked cigarettes. As a result the cigarette advertisements are made very attractive by displaying extreme adventure activities, beach parties, cooking sumptuous meals, which are essentially associated with cigarette brand, It makes viewers remember the brand. Remember the brand will greatly affect the purchasing process shortly, in addition to mood and interesting displays. Although the Government put a picture of a horrific disease because of smoking with the aim to warn people about the dangers of smoking,but in reality the cigarette addicts still continue to purchase, to smoke and do not care about the image warning. Answering to a questionnaire from the age group 18-25 significantly says that the horrific disease picture on cigarette packaging is modified. They perceive visually but not believe it; they feel that the picture of blackened lungs is imaging results digitally. Similarly, on the packaging of chocolate, the number of grains of ripe cashew nut massively covered all areas of the packaging is no longer something to be proven, but it has become a visual codes for a particular brand chocolate .Visual perception in this case is still ongoing, but no longer the perception of reality, so it is no longer valid argument of "seeing is believing", but a reproduction of a medium that becomes unstable, the picture is no longer an object of representation, but rather a fetishism of the lost object.

5. REFERENCE

Journal article

Berk, R. A. (2010). How do you leverage the latest technologies, including Web 2.0 tools, in your classroom? International Journal of Technology in Teaching and Learning, 6(1)

Book

Baudrillard, J.(1993), Symbolic Exchange and Death, Sage Publication – London.

Berger, Arthur Asa (1989) Seeing is Believing, Mayfield Publishing Company - California.

Klimchuck, Marianne A. & Krasovec, Sandra A., (2006) Packaging Design, Successful Product Branding from Concept to Shelf, John Wiley & Sons, Inc., Hoboken New Jersey.

Lane, Richard J. (2000) Jean-Baudrillard, Routledge, Taylor & Francis Group, London and New York.

Perkins, Michelle (2005) Practical Guide To Digital Imaging, Amherst Media, Inc., Buffalo, NY.

Report

Nugraha, A.,Religa, A., Multahada, M., Isnaeni, R., Darma, S.,Ardhy, S. (2014) Pengaruh Gambar Pada Kemasan, Laporan Matakuliah Seminar, DKV FIK-Telkom University, Bandung.

Typography As Brand Image To Small And Medium Enterprises

Peter Ardhianto
Soegijapranata Catholic University,
Visual Communication Design, Indonesia
peterardhianto@unika.ac.id

Abstract —Typography is one of basic elements in Visual Communication Design. Almost every promotional tools and media are using typography as a message conveyor. It is also has become an important yet attractive branding feature from Small and Medium Enterprises (SMEs) or *Industri Mikro, Kecil dan Menengah* (UMKM) in Indonesia. Nevertheless, the lack of knowledge and understanding from the SMEs on how to build their brand has been camouflaged by the use of typography to represent a brand. There are at least 11.610 of Small Medium Enterprises available in the City of Semarang nowadays. This usage of typography as a brand representation is shown from packagings of apparel products, snacks, and processed foods comes from local plantations. These products will not be able to compete with any other modern day packaged products if not interfered by the knowledge on how to build a brand using visual communication design. The purpose of this research is to provide brand building knowledge bridging for SMEs in Indonesia. There are several tendencies that can be found from this research; (1). Most of the character of the typography being used is not conveying the character and content of the product, (2). The typefaces being used is not readable and having low legibility, (3). Product information is not using typography, (4). The typefaces being used are tend to copy other typefaces used in other product.

Keywords – i.e. **Brand Image, Typography, SMEs in Indonesia**

1. INTRODUCTION

Small and Medium Enterprises is playing quite an important role in current Indonesia economy. Many of these SMEs boosts regional revenues. Even so, products generated by SMEs in Indonesia can not compete well with global products. This is happening because the SMEs does not know how to introduce their products.

Typography is often being used by SMEs to represent their brand. The ease of choosing an electric typefaces or fonts from personal computer has built an instant brand building mindset among the SMEs business owners, especially on how to label their product. These fonts can easily be found in almost any packaging of a product comes from SMEs. According to Julianti (2014,15), packaging is used as a medium to increase the value as well as functional feature of one product. This lack of brand knowledge and understanding has created a trend of a deficient, scanty, and poor packaging design among Indonesian SMEs. Yet, a well-designed packaging should be able to represent an informative and qualitative

business profile of any SMEs, let alone from the usage of the right typefaces and typography.

A crucial element to be examined from this research is how typography being used to represent a business profile. Observation is used to acquire primary data of SMEs product in Semarang, as well as interview with the Head of Bureau of Cooperatives and Small and Medium Enterprises Semarang City to obtain data regarding the increasing amount of SMEs. A literature study is generated to explore how typography and packaging supports one and another, as a ground theory to observe the usage trend of typography on SMEs product packaging in Semarang.

2. Typography being used on an SMEs product packaging is part of brand building process.

Typography is a design element (Tinarbuko, 2009, 25) that can not be separated from an SMEs product packaging. Therefore it can be said that typography is providing a significant function to leverage brand building process of SMEs products.

As stated by Syamsurizal (1992, 15), branding is a process of image embedding inside the mind of customers. Along that process, it requires a specific interest and attention generated by business owners. There are many things can be considered as a materials to build a brand. Almost every activities done by business owners are part of image construction process. By interviewing Mrs. Yuanita Rani, Chief Section of Entrepreneurships of Bureau of Cooperatives and Small-Medium Enterprises Semarang, on April 6th 2015, a number of 11.610 SMEs are located and in operation within the jurisdiction of Semarang city. The majority of these SMEs are food related business owners. This staggering amount of SMEs is supposed to be a constructive asset for competing against overseas products. Then again, with no strong brand, an SMEs product will be doubted by the customers (Julianti, 2014, 24).

Based on observation in SMEs Expo and Exhibition on April 22nd 2015 in Semarang Cityhall as well as studying literature of Semarang's SMEs product catalogue in the past three years, it can be concluded that typography is a main feature of design being used to represent a brand. This being confirmed by Mr. Yoga Tamtomo, Chief Section of Production, Technology and Marketing of Bureau of Cooperatives and Small-Medium Enterprises Semarang, on an interview conducted on April 6th 2015.

From the above case, therefore a typography is confirmed as the main tool to communicate a brand to its audiences. There are four trends of typography usage that can be seen as phenomenon from SMEs packagings:

2.1 The Typography character is not representing the character of the product.

Every typeface family has its own character. There are at least four categories; (1). Serif, (2). Sans Serif, (3). Script, and (4). Decoratives (Anggraini dan Natalia, 2014, 58-63). First indication shows this categories are not known by the business owners.knowing the character of the product and choosing the right typeface for this product is important (Klimchuk&Krasovec 2007, 88). For example, the character of cassava products have a strong character, but less precise by implementing a script typeface that has the character of beauty and softness.



Figure 1. The Typography character is not representing the character of the product (Documentation 2015)

2.2 Low readability and legibility from the typography.

Two main principles of typography are readability and legibilty (Rustan, 2011, 74). In the case of SMEs products, the layout of the typefaces has creating a confusion for the customers to understand the products being offered.Typeface, scale, placement position, layout, color and design everything must be serves to communicate the personality of the product(Klimchuk&Krasovec, 2007, 100).



Figure 2. Low readability and legibility from the typography (Documentation 2015).

2.3 Typography is not used to inform the product.

A product requires an information shown on the packaging of the product (Julianti, 2014, 14). In packaging design, typography is the main medium to communicate the name, function, and the factthe product for consumers(Klimchuk & Krasovec, 2007, 87), especially a food related product from SMEs. The very least informations need to be shown on a packaging are expiry date, production date, flavor, ingredients and netto, to reassure the customers on buying a specific product.



Figure 3. Typography is not used to inform the product (Documentation 2015)

2.4 Typefaces being used are a copy of other existing product.

There are no variations among one product category, produced by SMEs business owners. This has lead to a phenomenon where many SMEs are copying the type of the font being used by their competitors to boost the product sales. Whereas packaging can also act as a distinguishing feature in a product marketing (Julianti, 2014, 12).A brand name and the name of product is what makes consumers related to a product mentally and emotionally, so that typography which was used should unique and distinctive belonging to that product (Klimchuk&Krasovec, 2007, 97).



Figure 4. Typefaces being used are a copy of other existing product (Documentation 2015).

3. RESULT

Typography play a very important role in leveraging brand building process for SMEs. Business owners of Small and Medium Enterprises need to have an awareness about this importance, especially concerning the image of their products. The usage of typography on an SMEs product packaging should consider the degree of typefaces' characteristic similarity from any other competing products. Other than that, the usage of typography as an informational conveyor should be taking into consideration. Copying other products' typefaces will not do any good for brand building process of an SMEs product. Readability and legibility also need to be thought carefully, for these two main feature of typography are determinant factors.

This research is a preliminary research, conducted to identify the usage of typography as a brand image building factor of an SMEs product. Therfore a further research about the relationship of typography being used by Small and Medium Enterprises in Indonesia with other design elements is needed to provide guidelines for Indonesian SMEs to compete with other global products.

4. REFERENCING

Book:

Anggraini, Lia dan Kirana Natalia. (2014). *Desain Komunikasi Visual; Dsar-dasar Panduan untuk Pemula*. Bandung: Nuansa Cendekia.

Dinas Koperasi dan UMKM Kota Semarang. (2011). *Katalog Produk Unggulan UMKM Kota Semarang. Semarang*: DINKOP Kota Semarang.

Dinas Koperasi dan UMKM Kota Semarang. (2012). *Katalog Produk Unggulan UMKM Kota Semarang*. Semarang: DINKOP Kota Semarang.

Dinas Koperasi dan UMKM Kota Semarang. (2013). *Katalog Produk Unggulan UMKM Kota Semarang*. Semarang: DINKOP Kota Semarang.

Julianti, Sri. (2014). *The Art of Packaging: mengenal metode, teknik, dan strategi pengemasan produk untuk branding dengan hasil maksimal*. Jakarta: PT. Gramedia Pustaka Utama.

Klimchuk, Mariane Rosner dan Sandra A. Krasove. (2007). *Desain Kemasan; Perencanaan Merek Produk Yang Berhasil Mulai Dari Konsep Sampai Penjualan*. Jakarta: Penerbit Erlangga.

Maharsi, Indiria. (2013). *Tipografi: Tiap Font Memiliki Nyawa dan Arti*. Yogyakarta: Center for Academic Publishing Service.

Rustan, Surianto. (2011). *Huruf Font Tipografi*. Jakarta: PT. Gramedia Pustaka Utama,

Syamsurizal, Dick. (1992) *Branding: alternatif alat pemasaran potensial*. Bandung: Humaniora Utama Press.

Tinarbuko, Sumbo. (2012). *Semiotika Komunikasi Visual.* Yogyakarta: Jalasutra.

Interview:

Mrs. Yuanita Rani, Chief Section of Entrepreneurships of Bureau of Cooperatives and Small-Medium Enterprises Semarang. Pemuda Street No. 175 Semarang. Interview conducted on April 6th 2015.

Mr. Yoga Tamtomo, Chief Section of Production, Technology and Marketing of Bureau of Cooperatives and Small-Medium Enterprises Semarang. Pemuda Street No. 175 Semarang. Interview conducted on April 6th 2015.

Construction and Beauty Culture in Television Advertising (Case Study Pond's White Beauty Ad)

Putri Dwitasari
Sepuluh Nopember Institute of Technology Surabaya
putri_dwitasari@yahoo.com

Nurina Orta D
Sepuluh Nopember Institute of Technology Surabaya
nurinaorta@gmail.com

Abstract —In modern times like now, television advertising becomes an important part that can not be separated from our life. This media can be a device that culture plays an active role in the process of social construction. One of the most frequently aired ads on television is advertising beauty products for women. In the advertisements of beauty products, the figure of actor (female) became an important part of offering and represents the image of the product. Almost all the existing advertising model on the product is a woman with a beauty standard that is constructed by advertising in particular product Pond's White Beauty. Seeing this phenomenon, the research was conducted to analyze how the value of beauty is constructed through television advertising audio-visual elements Pond's White Beauty product which aired in 2000-until now by reviewing the elements of audio, visual and filmic dramatologi contained therein and to know what the beauty of cultural values It does appear that in terms of the prevailing culture of beauty in today's society.

In achieving these objectives, this research used a descriptive qualitative approach with content analysis method. The analysis will be divided into two stages, where stage 1 is to analyze the audio visual elements in advertisements such as picture (models, objects, plot), color composition, typography, motion and interaction as a visual element, while the audio sounds (verbal words (dialogue), voice over / narration, jingles / music and sound effects) with the field of advertising study and analyze advertising dramatologi filmic elements that include points of view cameras, picture size, lighting, and setting with the field of cinematography. This study will be used to analyze the technical aspects contained in the ad Pond's White Beauty which will identify the ad to the criteria of shooting a scene through camera movement perspective. Broadly speaking, the first step is to find how beauty is constructed in the audio visual elements of advertising. Then do the discussion stage 2 which analyzes the cultural value of beauty what is produced in its ads by synchronizing the results of the analysis of phase 1 with theori. All of the study will be enabled to support the effort to answer the problem in the research.

Pond's White Beauty through the visualization ads continually provide knowledge and awareness to an audience about the meaning of beauty that is constructed through the media. Construction of beauty in its ads use a physical attribute that is white and slim body as a global idea. Gradually, this will form a cultural

pattern of beauty that make up a particular representation, where the beauty of cultural values showed a pattern of cultural femininity of women. Demonstrated through stereotypical femininity trend in display ads, especially on the lead actors will be limited options for women picture of beauty that is white and slim as a standard of ideal beauty and also self actualization. Construction then developed in the community as the current popular culture.

***Keywords*–Beauty Construction, Beauty Culture, Television Ad**

1. INTRODUCTION

Advertising is a product of popular culture. Meaning contained in it requires a critical reading as an advertisement may affect the behavior of the audience, especially in beauty advertising. Beauty products in its visual advertisement especially Pond's White Beauty indicate that only fair skin women considered beautiful. By having fair skin, women can get a sense of being loved by men. Fair skin woman also look more beautiful and attractive to the opposite sex. This rose certain social inequality towards Indonesian women that are generally olive-skinned that make they believe that female with darker skin tone is un-pretty and won't able to attract the hearts of the opposite sex. According to Aquarini, the concept of white skin is not suitable if communicated in Indonesia, because Indonesia's own Malayan Mongoloid lines which skin tone is fair to medium but not white. They call their skin bright or medium brown, so it can be said the Indonesian people into the mixed category.

In advertisement, these products mostly portrait women which is slim and fair skinned. Patterns associated with femininity makes the beauty product manufacturers have consciously construct a picture of the ideal woman as the global idea. It is indirectly formed stereotypical ideal form of a beautiful woman and into the gap for women categorized as "beautiful" and women who are "not pretty". Ideal feature is used as a standard in terms of assessing their beauty and other people around them in society.

Looking at the phenomenon described above, this study was conducted to analyze how beauty is constructed through elements audiovisual television advertising products Pond's White Beauty by reviewing the elements of audio-visual and drama-logy filmic contained therein as well as to determine the cultural value of what beauty is captured from ads in terms of the culture of beauty prevailing in today's society.

2. DATA AND METHODS

Descriptive qualitative approach is used to determine how beauty is constructed through audio-visual elements of television advertising that is displayed by means of reviewing the elements of audio, visual and drama-logy contained therein and capture the beauty of cultural values that arise in terms of beauty culture that occurred in Indonesian society today. Qualitative research is used because it is considered able to analyze social reality in more depth. Study visualization of advertising will be removed by using content analysis method (content analysis) with two stages. Stage 1 for analyzing the audio-visual elements in the advertising picture (models, objects, storyline), color/composition, typography, motion and interaction as visual elements, while the audio sounds (verbal (dialogue), voice over / narrative, jingle / music and sound effects) to the field of advertising and analyzing drama-logy filmic include camera angles, picture size, lighting, and setting the science of cinematography. This science will be used to analyze the technical aspects contained in the advertisement Pond's White Beauty to make it easier to find how beauty is constructed through the elements forming the ad. Stage 2 analyzes the value of what beauty culture captured in the ad (via displacement of the

camera viewpoint) to synchronize the phase 1 result to analyze the theory of beauty culture.

3. RESULT AND DISCUSSION



Picture 3.1 Screenshot Pond's *White Beauty* ads

The use of women with ideal standards of beauty that are white and slender in a beauty product advertising, so far it seems it has not moved from the depiction as such in the development of culture. This ad is more incentive to carry the picture of beauty and the beauty of women. Beauty constructed towards the audio-visual elements slowly becoming the standard of beauty in the community. Beauty requires clear white women flushed and the slim construct even women themselves. This leads to women trying to achieve the standards made by the media, solely in order to be accepted and recognized by the community.

Based on the analysis that has been done, the following is the result of any display that appears, giving rise to a construction of beauty in Pond's commercials that aired from 2001-present:

- Women as the main character portrayed perfectly with the ideal body (white skin and slim body) as users of products and focus the camera.
- Motion and interactions describe the activities in accordance with the storyline ads. The model's body is exposed well.
- The colors used on the background or character costumes are mainly pink to support the product image.
- Material used in the ad is part of the supporting scene or atmosphere in the storyline, including the use of product packaging.
- Typography is not widely used in the many frame, only appear at the end of the ad to explain the tagline and brand of Pond's White Beauty.
- Jingle / music used in advertising overall Pond's as background music and supporting atmosphere.
- Sound overall effect is not widely used.
- Narration or voice over as a description of the product description.
- Dialogue mostly covered or delivered through the expression of actors and music.
- The storyline / Slice of Life techniques in the form of a love story (romance) relevant in the lives of female teenagers. Therefore, if observed carefully in its advertisement, emotional message related to romance inserted to make it more relevant to the teen audience. Overall, the story is actually trying to say is that with white skin, women will be loved.
- Tend to exploit the use of eye-level viewpoint (parallel to the object)
- Displays facial expression through the close-up image size, medium close up until the big close-up for eyes, smile and views are always directed forward so that his face looks good advertising model.
- Supported by high-key lighting on the face area of the model to appear more bright and clear.
- Setting Preferred inclined at an outdoor placement in accordance with the theme of the story is lifted.

Based on the results of the construction of the meaning of beauty described above, synchronized with the theories been described previously, it will produce a pattern of beauty culture that make up a particular representation, where the value of the beauty culture show patterns that stereotype women femininity, women's ideal image, and a culture to worship the body. The tendency of cultural patterns is exactly what is shown in the Pond's ad from 2000 to 2013, in which a woman must reach the standard of femininity in order to gain recognition and attention from both the environment and the opposite sex. Male figure always appears as a major part of the story.

From 2014-present, stereotypical female beauty remains by using Raisa as the brand ambassador, but the construction of beauty should be achieved is no longer just to get the recognition and attention from the opposite sex, but more the emphasis of self-actualization. Beauty serves as a force for advancing women. New ideal constructed then developed in the community as popular culture today.

In popular culture, the female body is used as a sign and image to represent object, product or design intended to construct a mass society, where the phenomenon of women image lately become a major discourse in the media advertising. It is obvious that the representation of women, the definition of beauty and perceptions of beautiful women is basically shaped and constructed and continues to change from time to time. Ideal images are constantly construct, implant and disseminate by the media, slowly but surely has turned into a mass standard of beauty in the minds of most women.

4. REFERENCING

Boggs, Joseph M. (1986). *Cara Menilai Sebuah Film*. Jakarta: Yayasan Citra

Priyatna Prabasmoro, Aquarini. (2003). *Becoming White: Representasi Ras, Kelas, Feminitas dan Globalitas dalam Iklan Sabun*. Yogyakarta: Jalasutra.

Priyatna Prabasmoro, Aquarini. (2006). *Kajian Budaya Feminis Tubuh, Sastra dan Budaya Pop*. Yogyakarta:jalasutra.

Sobur, Alex. (2006). *Analisis Teks Media*. Bandung: PT. Remaja Rosda Karya.

Thomas, Russel J., Verril, Glenn, Lane, W. Ronald. (1988). *Kleppener's Advertising Procedure*. New Jersey: Prentice Hall Inc.

Tilaar, Martha. DR. (1999). *Kecantikan Perempuan Timur*. Magelang: Indonesia Tera.

Wolf, Naomi. (2004). *Mitos Kecantikan, Kala Kecantikan Menindas Perempuan*. Yogyakarta : Niagara.

Character Education in Indonesia Children's Picture Books

Kartika B. Primasanti
Petra Christian University, Indonesia
primasanti@petra.ac.id

DesiYoanita
Petra Christian University, Indonesia
dy-nita@petra.ac.id

Abstract **—**The history of children's book industry in Indonesia showed that it develops along with the development of information, technology, and reading culture. However, in Indonesia, report showed that severalchildren books considered inappropriate for children. The industry has a responsibility to provide not only affordable books but also developmentally appropriate books for the little ones.The purpose of this study was to provide a reference for children's book industry regarding appropriate book for children by examining character education portrayal depicted in the published books. The study discovered character education portrayal in selected Indonesian children's picture books through a research question: "How Indonesia Children's Picture Books depict Character Education?" To obtain this purpose, the researcher conducted a semiotics procedure to examine five selected books with 15 stories in each book. The result showed that there were two components of integrated character education, *person-oriented quality* and *environment-oriented quality,*incorporated in each story with different emphasis.The *person-oriented quality* was described through characteristics embedded in Indonesia's culture, such as humility, politeness, self-finding. The *environment-oriented quality* was portrayed through social and cultural elements by presenting several characteristics, such as tolerance, mutual cooperation, and respecting others. These components wereportrayed through three semiotics components: narrative, visual, and semiotics. However, the findings indicated that the authors and illustrators used narrative codes more intensely than other components (i.e., visual images and semiotics codes) to display the concept of character education. That is to say that in Indonesia children's books industry, the practitioners have not yet concerned in using visual and semiotics components as significant approach to deliver character education.

Keywords **–**Character education, Indonesia children's picture book, semiotics, children's book industry

1. INTRODUCTION

Character education is embedded in every nation. In Indonesia, people believe that school is the most effective place to form children's character. Raihani (2011) in the study of tolerance education as part of character education in Indonesia stated, "Government, educationist, and researchers have made some tremendous efforts to ensure that school is a place of effective tolerance education," (p. 23). However, multiple changes in Indonesia's curriculum showed that Indonesia's education system is focusing on curriculum content and textbook rather than character education (Kaymakcan & Leirvick, 2007 in Raihani, 2011, p. 24). Thus, children are lack of space to experience in-depth learning from literature and their surrounding to discover what it means by living with life values. Using recent education curriculum model, both students and teachers are too busy due to the assignments and grades they must

accomplished. Thus, character education would only be a discourse in school realm. However, without a mature character education, the development of media and technology in Indonesia school setting is just another problem.

For many years since Indonesia has been established, this country has stored a rich value on building human resource through its various stories. Nevertheless, this country prefers oral tradition than reading culture (Sahetapy, 2011). Therefore, when media and information technology develops, the values of life inherited in its stories decreased. Thus, examining a strategy in promoting character education is a pivotal element on children development, which educators, parents, and the industries that support education must accomplish. Although media provides a more attractive audio-visual illustration, examining contemporary approach to character development reveals a need to explore character education on Indonesia children's picture books to provide a reference for book industry, education institution, educators, and family, regarding appropriate books for children.

2. LITERATURE AND THEORY

This research study was inspired by previous study conducted by Primasanti (2014) entitled *Character Education in Caldecott Children's Book from the 1900s to 2000s*. Using a semiotics approach, this research examined the depiction of character education in 21 selected Caldecott winning books. The result was that character education in the chosen books pictured by two components of character education proposed by Farelly: personal quality and interaction with environment. Even though the books' authors and illustrators adapted all semiotics components, they used visual image more intensely than others. The findings also indicated that the authors and illustrators tended to describe character education in the United States context through a cognitive perspective. The uniqueness of this research was that it found the Caldecott children's book display character education by using developmental approach. That is to say that the character in the story experienced a developmental stage to show the reader what it means by achieving a good character. Even though this research study presented complete and in depth analysis, the findings could not be used in other context. Thus, the researchers adapted the idea to examine character education in Indonesia children's picture books.

Erikson-Knowles argued that moral development is a life-long process (Farrelly, 1993). Acccording to Erikson-Knowles, the character education was categorized as the interaction of a person and environment, which included a moral dimension (Primasanti, 2014). Different from other approaches, Erikson and Knowles presented bipolar interaction between a person and an environment. Farrelly (1993) stated that this is the most appropriate method to teach moral to children in this era because it's uniqueness to support a person to be more active in playing his or her role in an environment.

"A mature moral character" is the primary goal that would be reach by adopting Erikson and Knoweles' theory (Farrelly, 1993, p. 78). To obtain this purpose, Farrelly proposed two concepts, which were developmental goals and socio-cultural goals. The developmental goals were known as person-oriented goals. In this concept, there were three components: vital, cognitive, and self. The vital component is defined as (a) physical development which was defined as developing physical and sexual maturity as the component of full human identity, for example health, sexuality, sports, and art; and (b) affective development which addressed one's sensitivity to moral matters such as right or wrong, for example friendship, compassion, respect. The cognitive goal is defined as (a) intellectual component, which was evident with the development of a capacity to make moral judgment. There were several example themes of this aspect such as moral dilemma and conscience; (b) self-concept which discussed about how one became a self-aware, self-chosen, and self-accepted person in a relation with others (e.g., inferiority complex, identity versus roles); (c) awareness of others related to how one developed a capacity to be aware and sensitive to others and situations (e.g., view of others such as parents, sibling, rivalry, manipulation, intolerance); and (d) awareness of the transcendent, promoted development of a vision of life in which one made moral choices (e.g., religious belief, astrology, cults, universal human values). Finally, Gorman (1992 as cited in Farrelly, 1993) defined self-goal as " … developing toward a self who can hope, will, imagine, act competently, be committed faithfully, can love and contribute to a loved one and to humankind and to achieve wisdom" (p. 79). The themes emerged from this component, such as hope, will, purpose, competency, fidelity, love, caring, and wisdom (Primasanti, 2014).

The second concept was a socio-cultural goal, otherwise called environment-oriented goal (Farrelly, 1993 as cited in Primasanti, 2014). This concept has several components, such as social, cultural, and ecological. Farrelly (1993 as cited in Primasanti, 2014) described that the social component explained how one develops the capacity to share values in a social environment (e.g., interaction with students, teachers, communities, racism, democracy). The cultural component is regarding the capacity to share values in a cultural environment (e.g., languages, belief systems, sports, arts, mathematics, and media). The ecological aspect addressedthe process to promote capacity to share values through interaction with the natural environment (e.g., concern for air pollution, global warming, and destruction of forest).

Promoting Moral Development through Children's Picture Book

Literature presents natural resources that can be used by parents, teachers, and educators to encourage children's moral development (Lamme, Krogh, & Yachmetz, 1992; see also Wynn, 2008 as cited in Taylor & Scott, 2013, as cited in Primasanti, 2014). When reading a book, children experience an opportunity to involve in various different activities, such as observing the illustration, analyzing the characters, and relating to the life experience and setting.

Young children have no broad field of experience and frame of references on developing their moral behavior. Thus, they need to look up to models to be identified with. It is not possible for teachers or parents to wait until the children experience a real life example so that they can behave in a certain situation. Ganea et al (2008 as cited in Primasanti, 2014) stated that 15 and 18 months olds will be able to observe labels both from pictures to objects and from objects to pictures from a book. This shows that books willencourage children to connect with the reality. However, the problem is that they have no idea to interpret the moral part by themselves. This is the role of parents and educators to point out the character education from a book. Therefore, children can learn, discuss, and criticize the message.

Children picture book is a first door to explore many things children never saw before. Therefore, in a country where reading is a culture, such as in the United States, reading children picture book is a common activity parents will encourage their children to participate in. Children in America under age three have participated in book interaction several times a week (Rideout et al, 2003 as cited in Ganea, 2008). Primasanti (2014) added that both parents and educators admit that when their children involvein reading picture books experience, they will develop their ability to engage with reality. Children at younger ages tend to have a strong focus on themselves. As they grow up, they need to learn about their environment such as their family, their school, and their world. Children picture book will give them opportunity to hear how characters in books behave and why. Then, they can compare those actions to their own.

Ganea (2008) explained, "Picture are symbols which represent entities from the real world, a term we used to refer to unmediated experience of real objects, people, and events" (p. 46). Sympson (2004 as cited in Primasanti, 2014) suggested,"Picture book has become more significant to describe the narrative" (p. 31).A picture should describe the whole story. Reading children's picture books helps children transfer information from books image and real world image. Research studies discussed that young children experience language and literacy skill improvement when they read children's picture books (Burke, 2002; see also Ganea, 2008; Park, 2006).

Regarding character development on children, picture book provides a way to guide the children understand various characters, good or bad, in life. Lamme, Krogh, Yachmetz (1992) discussed the importance of children picture books to teach"self-esteem, responsibility, sharing, truthfulness, solving conflict peacefully, respecting and appreciating other, ecological values, diligence, perseverance, patience, and unconditional love" (as cited in Primasanti, 2014). In a story of Happy Prince by Oscar Wilde, the student can discuss why the statue of the prince lost all the valuable things in his body. They might notice the picture of an ugly statue. The statue has given away his possession so that the people can live prosperously. From this logic, children learn about an unconditional love. Furthermore, Martilotta (2013) argued that using children picture book is the most effective way to teach character on public school as well regarding the budget cut and other policy.

Selecting Appropriate Books

In America and Japan, people believe that literature is the most effective method to teach character on children (Taylor and Scott, 2013). Taylor and Scott's research study also demonstrated a need to apply contextual moral development approach by using children picture books. The research study indicated that Japanese and American educators gave feedbackdifferently when addressing cultural questions.

As proposed by Turiel and Gilligan(1983; 1998, as cited in Keefer, 2006)on their study regarding contextual-based moral development theory, parents and educators should select books to teach character carefully. There are several ways to select books that is appropriate for children (Helterbran, 2009). First, teachers and parents should consider the culture, background, ethnicity, gender, religion, and other cultural aspects of their chi children. Second, teachers should master the books, including its characteristics, such as the main characters, the purpose of the books, and the settings. Third, teachers and parents should be able to identify the part which develop moral dilemma where students can learn from. Fourth, teachers and parents should find elements, which relate to children's lives. Fifth, teachers and parents should consider the affection developed in the story. Thus, children will be able to relate the story with their own experiences and learn from it.

Problems of Using Children Picture Books

There will be no problem in using children picture books to foster character development on children both at home or at school in a developed country such as the U.S., where reading is a culture. In the U.S. and other developed countries, reading is a habit from the early age. Schools have incorporated reading activities in their school programs, including reading time, reading center, reading assignment with the parents, and reading in a circle time with the teacher. Nevertheless, there will be various problems to implement the strategy in a developing country such as in Indonesia.

First, in a developing country such as Indonesia, reading is not a culture (Sahetaphy, 2011). Reading requires time to be alone. This kind of activity is a little bit difficult to be done in Indonesia which is a collectivist country. This country is closer to oral tradition than reading tradition. What children learn from school is activities-based learning. Even though there is a reading-based learning, the school does not provide literatures for the students to learn at home. Moreover, in pre-school, there are few activities which encourage students and parents to engage with books. Second, the number of children picture books in the school, library, or at home is limited. Human development index 2012 showed that Indonesia was in the 124 position of 187 countries in the world in meeting basic need of citizen including education (Library is Indonesian Basic Need, 2013). In a developing country such as Indonesia, children picture books are considered expensive (Kamil, 2004). Not all parents can buy books and read them for their children because of the low education and socio-economic condition they have to face.

Another problem, in a developing country such as Indonesia, audio-visual media is more attractive and cheap. The spread of television entertainment is wider day by day in Indonesia. Children in remote area easily get television programs than books. In addition, audio-visual media is more attractive for children and parents who are not well educated. Moreover, watching television program is cheaper than buying children picture book. These factors influence the willingness of educators and parents in Indonesia to use children picture books to teach character on children. A practical solution for the problem of using children picture book in developing countries is promoting and creating children picture books through communities, library, and schools so that it can be distributed to marginalized people as well.

3. METHOD

This research will be conducted through a textual analysis to discover depiction of character education in Indonesia children's picture books. A semiotic analysis used to examine several children's picture books published after 2000. This time limitation is selected to cover the novelty and relevancy of the literature.

The preliminary observation of Indonesia children's picture books in a bookstore showed that there were few children's picture books, which represent story from Indonesia, except those which are categorized as Indonesia folklore. Furthermore, there were few of them written by Indonesian as well (Personal Interview, Pandu, Gramedia Bookstore officer, December 10th, 2014).

Unfortunately, few schools bought the books for their library from a bookstore. As the consequence, the researchers found only nine books represented at least two of this study criteria: 1). Literature must be mostly used and owned in schools; 2). Literature must be potential to teach character or morality; 3). Those can be easily accessed by teachers and students; 4). Those are included as best-seller in bookstore. The researchers decided to use only two criteria of selection because there were no book represent all four criteria.

Because the nine books consist of several short stories, the researchers design several criteria to select the stories, which would be observed. These criteria were designed in regard to adjust the material with the focus of this study, which was to explore Indonesia children's picture books. The criteria to choose the stories to be observed: 1). The story should be an original story written by Indonesian author; 2). There is a morality on the story or morality is the main theme of the story; 3). There is more than three parts illustration or visualization accompanied the written text; 4). The main character is human being. Out of nine selected books, based on those criteria, the researchers chose five books. From the five selected books, the researchers picked minimum three stories from each book to be observed.

4. RESULT AND DISCUSSION

The researchers intended to explore character education portrayal in the selected books. This research study adopted Hoge's definition of character education, which is "a conscious effort to influence the development of desirable individual qualities or traits" (2002, p. 104). Having reviewed this concept, the researchers believed that each person has certain traits or qualities, which characterize one's cognitive, affective, and behavior regarding morality. Through a text analysis, the researchers found a picture of efforts to impact individual qualities that develop from the selected books. These efforts were to develop person-oriented quality and environment-oriented qualityas proposed by Farrelly's concept of Integrated Character Education.

The researchers noted all the stories from five selected books underlined development of person-oriented quality and environment-oriented quality with various emphasis. In addition, all three semiotics components were used to depict the uniqueness of character education in Indonesia context.

DongenguntukKarinda.This book represents the collection of short stories from a famous Indonesia children's magazine named *Bobo*. This book consists of 128 stories that have been published separately before. All the stories were edited by KussusaniPrihatmoko and illustrated by IwanDarmawan. From this book, the researchers selected three stories based on the criteria: *Kupula dan Kupuli, Opo Dawi yang Bijaksana, and Kisah Une dan Hembo*. In DongenguntukKarinda, the authors and illustrators underlined the person-oriented quality by showing self-respect, loving good, and one's will. These characters were displayed through narration. The narration exposed the characters' physical appearance, purpose, competence, pursuance of hopes and dreams, intimacy with God, and value of life. Through the plot of the narration, each story represented a development on these aspects.

Cerita Rakyat Nusantara 2012. This book represents the collection of short stories, which are considered Indonesia folktale. This book consists of 15short stories. All the stories were written by Dian K and illustrated by YolYulianto and Aji Mei S. The researchers have selected four stories from this book: *SemangkaEmas-Cerita Rakyat Kalimantan Barat, Pak Lebai Malang-Cerita Rakyat Sumatra Barat, Raja Mintin,* and *Tonamalangi.* In *SemangkaEmas*the person-oriented quality was depicted through the narration, describing two opposite characters: good and bad. The good character was humble, kind, loyal, even though he was poor. The opposite character was characterized as greedy, jealous, and judgemental. The visualization presented two types of characteristics with semiotics codes expressed in the facial expressions. From the environment-oriented quality, the researchers found visual and semiotics codes were created as decoration to support the narration. In *Pak Lebai Malang, Raja Mitin, and Tonamalangi,* the researchers found person-oriented quality was exposed more intensely because these stories describe an individual experience in the midst of society. The environment-oriented quality was described through social and cultural aspects, especially exploring cultural inheritance, such as family possessions, ability, or supernatural power, which inherited from their ancestor. The narration was dominating the semiotics role in picturing character education in this book.

*DongengdanCerita Rakyat Nusantara Paling Melegenda.*Similar to the previous book, this book represents the collection of Indonesia folktales. This book consists of 34 stories, which has been told from generation to generation. All the stories were written and illustrated by AjengRestiyani. Based on the assigned criteria, the researchers selected three stories:*DongengProvinsi Bangka Belitung-Si Penyumpit, DongengProvinsiJawa Tengah-Timun Mas, DongengProvinsi NTT-Bete Dou No Mae Loro.* This book did not incorporated visual image to deliver the moral message. In these three stories, the researcher and illustrator tried to make sense the morality through narration. Moreover, they put visual image just as decoration.

*Cerita Rakyat Nusantara 2014.*It depicted the main character as one who achieve morality through their deeds. They would be considered doing morality when they performed moral awareness and moral value. It showed that though various trials the character found that life is meaningful. However, the last book entitled IndahnyaNegriku portrayed the person-oriented quality through the development of cognition. The characters were illustrated as people who gain knowledge through the journey presented in the book. Farrelly (1993) categorized this as intellectual growth.The most stood out aspect of all books was intimacy with God, which depicted through traditional worship, prayer, the appearance of gods, reward and punishment from a spiritual power, and special revelation for the character.

IndahnyaNegriku. This book displays the collection of short stories from several famous, yet authentic places in Indonesia. This book consists of 6 stories. All the stories were written by FitriKurniawan and WatiekIdeo and illustrated by Ferry Magenta. From this book, the researchers selected onlytwo stories because of the similarity: *SusuKuda Liar dari Sumbawa* and*PesonaDanauSentani di Papua*. Both stories develop person-oriented quality by describing several key characters, who possess certain traits that can be used as role model. The theme emerged from this story, such as self-awareness, self-fulfilling, loving the goods. From the environment-oriented quality, the author and illustrator emphasized on multiculturalism, tolerance, mutual cooperation, and valuing friendship.

Besides emphasizing on person-oriented quality, all books also emphasizedon the environement-oriented quality.Farrelly explained this quality by one's interaction with the environment, which covered several themes, such as valuing friendship, respecting tradition, and maintaining natural resources (1993). All books represented all the theme with various emphasis. Those which considered folklore or Cerita Rakyat performed "respecting tradition" more intensely. One book, which underlined information about Indonesia, represented "valuing friendship" and "maintaining natural resources" deeper than other themes.

The researcher has conducted a semiotic analysis to explore the portraits of character education through *denotation,connotation,* and *myth* found in the narration, visual, and semiotics codes of the texts. The result indicated that the authors and illustrators used the plot of the narration more intensely than visual, and semiotics codes to emphasize characteristics of teaching value in their books. This finding seemedillogical regarding the fact that reading culture in Indonesia considered low. In addition, all books incorporate *myth* as the most dominant tool to represent character education. In semiotics approach, *myth* is a dominant ideology hidden in a text. It is usually related to the representation of belief. Through the selected books in this research, character education was represented by incorporating *myth* as the tool, which mostly used in the text. The authors and illustrators told the stories by present believes, which developed in Indonesia culture, such as passing wealth from a king to his descendant, the wicked would be punished by gods, or the power of brotherhood. Incorporating these values in Indonesia children's book is makes sense because Indonesia is rich of folklore.

5. CONCLUSION

The purpose of this semiotics study was to discover character education portrayal in Indonesia children's picture books. The findings indicated that the authors and illustrators were aware of theimportance of having *person-oriented qualities* as well as*environment-oriented quality*as two main character education aspects presented in their books. Both qualities have been presented through the selected books with different emphasis. However, because mostof the main characters in the selected books are male and female, the *personal quality* aspect was depicted from both male and female perspective. Intellectual growth was depicted intensely from only one book, while

others put emphasis on the other personal qualities, such as physical appearance, purpose of life, competence, pursuance of hopes and dreams, intimacy with God, value of life, moral knowing, and moral awareness. In addition, this study found that the selected books presented a gradual process of achieving certain values, such as meaningful life and moral knowledge. Regarding the representation method, the findings showed that the authors and illustrators used narrative, visual, and semiotics codes to depict character education. However, the plot narration was used more intensively than other aspects. The visual images did not deliver certain message. They were used to support the flow of the narration and stimulate imagination. In other words, the visual images were just decoration in each story. In addition, the author and illustrator incorporated *myth* as the most dominant component to depict character education. It was makes sense because the selected books were considered Indonesia folklore.

The findings showed that even though Indonesia children's books have depicted character education from various emphasize, they needed to be developed by incorporating the other semiotics component, such as visual image and semiotic codes. The findings should become a recommendation for children book industry to increase the number of children books which have rich yet meaningful illustration for children to learn what it means by character education. Thus, book industry plays an important role to develop the idea of incorporating visual images and other aspects of character education in children's book in appropriate and effective depiction so that the reader would be easily catch the character education. .

ACKNOWLEDGMENT

This research was supported by Research and Community Service Institute, Petra Christian University.We thank to our colleagues Mr. Priyowidodo, Dr., for insightful comment for the manuscript. We would also like to show our gratitude to all the children in Indonesia becausethey are the future, inspiration, and motivation to develop the field of education.

REFERENCES

Burke, A. M. (2002). Using the art in picture books to develop character in dramatic role-play.

Farrelly, T.M. (1993). A new approach to moral education: The integrated character education model. *Journal of Correctional Education, 44*(2), 76-82. Retrieved from: http://www.jstor.org/stable/41970957

Memorial University of Newfoundland (Canada), ProQuest, UMI Dissertations Publishing, 1-13.

Ganea, P.A., Pickard, M.B., DeLoache, J.S. (2008). Transfer between picture books and the real world by very young children. *Journal of Cognition and Development, 9,* 46-66. doi: 10.1080/15248370701836592

Helterbran, V.R. (2009). Linking character education and global understanding through children's picture books. Kappa Delta Pi, 45(2), 70-73.

Hoge, D. (2002). Character education, citizenship education, and the social studies. *SocialStudies, 93*(3), 103-109. Retrieved from:http://search.proquest.com/docview/274778684?accountid=8624

Kamil, H. (2004). The growth of community-based library services to support education in Indonesia. Information Development, 20(3), 93-96. doi: 10.1177/0266666904045321

Keefer, M. W. (2006). A critical comparison of classical and domain theory: Some implications for character education. *Journal of Moral Education, 35*(3), 369-386. Retrieved from: http://taylorandfrancis.metapress.com/link.asp?target=contribution&id=N813646355282698

Lamme, L. L., Krogh, S. L., & Yachmetz, K.A. (1992). Literature based-moral education: Children's books & activities for teaching values, responsibility, & good judgment in the elementary school. Phoenix, Arizona: The Oryx Press.

Library is Indonesian Family's Best Friend: Family is the Early Reading Raiser. (2013). Retrieved November 15, 2013 from National Library of Indonesia in http://www.pnri.go.id/en/BeritaAdd.aspx?id=92

Martilotta, B., Suzt, F. (2013). More than just a good book: Employing U.S. Department of Education guidelines to teach character education using literature. Liberty

University, ProQuest, UMI Dissertations Publishing.

Park, J. Y. K. (2006). Facilitating young children's second language development through picture book sharing. (Order No. 3206959, The University of Kansas). *ProQuest Dissertations and Theses,* 140-140. Retrieved from http://search.proquest.com/docview/305320197?accountid=8624. (305320197).

Raihani. (2011). A whole-school approach: A proposal for education for tolerance in Indonesia. *Theory and Research in Education, 9*(1), 23-39. Doi: 10.1177/1477878510394806

Sahetapy, B. (2011, October 15). Reading culture: The long journey to becoming a developed nation. *The Jakarta Post.* Retrieved from: http://www.thejakartapost.com/news/2011/10/15/reading-culture-the-long-journey-becoming-a-developed-nation.html

Taylor, S. T., Scott, J. (2013). Nurturing young children's moral development through literature in Japan and the USA. *Research in Comparative and International Education, 8*(1), 38-54. doi: 10.2304/rcie.2013.8.1.38

Wedha's Pop Art Portrait (WPAP): Developing Design Style Through Community

Gusti Mohammad Hamdan Firmanta,
DKV – UPN
East Java, Indonesia
gusti_hamdan@yahoo.co.id

Angga Kusuma Dawami
Magister Student of Institut Seni Indonesia (ISI) Surakarta,Central Java, Indonesia
elite3.4rmy@gmail.com

Abstract — Indonesia has become the witness of WPAP (Wedha's Pop Art Potrait) design style's birth and popularity. Visual phenomenon of this style is easily visible both in real world and online. The numbers of the WPAP fans are increasing more and more by now. The research found that the popularity of WPAP design style closely connected to the roles of the WPAP fans community. Therefore comes a question, how is the role of the community concerning to the popularity of WPAP design style? This research is conducted in qualitative method, and it uses analytic description method to explain the answers to the prior question. The result found from this research shows that WPAP fans community has 3 roles: as the producer, the distributor, and the consumer itself. The great loyalty given by WPAP fans community also helps the vast spreading of this design style in Indonesia. The result shown in this research confirms the great influence of community to the development of a visual style.

Keywords – WPAP, WPAP community, community management, design style

1. INTRODUCTION

WPAP is a visual style which established by Wedha Abdul Rasyid (64 years old) in 1990, and used to be named as "Foto Marak Berkotak / FMB" (Rasyid, 2011:32). Along with Wedha's solo exhibition on October 28th, 2008, WPAP was officially announced and starts to spread as a design style.

Since then, the visual phenomenon of WPAP is strongly visible all over Indonesia. In June 20th, 2015 Google search engine found more than 498.000 articles and images concerning to WPAP design style. The style also can be easily found in many activities such as music events, wallpapers, festivals, general election campaigns, and also official statehood events. In April 18th – 25th, 2015 the WPAP design was introduced as one of the Indonesian cultures to the 60th of Asia-Africa Conference, held in Bandung, West Java.



Figure 1. WPAP Design at Asia-Africa Conference, Bandung, West Java (source: www.sebandung.com accessed in April 26th, 2015 at 09.00 am)

The popularity of WPAP as a design style is closely connected to the roles of the WPAP fans community

that massively spread the style both in Indonesia and overseas. The main idea discussed in this research is how big is the roles of the community concerning to the popularity of WPAP design style.

The qualitative research uses analytic descriptive method to describe how the community supports WPAP to growth. Data collection was conducted by literature studies, observation, and interview. The scope of the research is limited to the communities organization aspect which contributes to the WPAP design style development.

2. ANALYSIS

2.1 WPAP and the History of the Fans Community

WPAP is a design style of digitaly processed human self-portrait. WPAP basically divides human portrait into several facets filled by solid colours (no gradation colours). The facets must be formed in straight line, no curve permitted.



Figure 2. Examples of WPAP (Source: WPAP community documentation)

As a founder of WPAP, Wedha dreamed that someday Indonesia's name would come into international discussion about pop art (Rasyid, 2011: p.109). For such purpose Wedha suprisingly trained and guided his fans to create their own WPAP (source: curation of Agus Dermawan for 1st WPAP community exhibition in September 27th, 2010).

The training activities resulted in the exhibition of various WPAP artworks created by WPAP fans in Grand Indonesia, Jakarta, on September 27th, 2010. This event also marks the declaration of WPAP community. The idea to form a community for WPAP was proposed by Itock (47 years old). Itock thought that WPAP design style has a big opportunity to be popular (source: interview with Itock at May 18th, 2015).

Itock informed that the organization of WPAP community was formed 3 months after the declaration. As the organization formed, the community activities to promote WPAP are massively held by doing various exhibitions and tutorials.

WPAP community organization runs well enough to increase the spreading of WPAP community throughout Indonesia. The members used to be only a few people, and now they are reaching more than 40.000 members spreading from Aceh to Papua. (source: www.*facebook*.com/groups/belajarwpapyuk/ accessed on June 10th, 2015). To accommodate the activities of the community member, the organization then formed 14 chapters which identified geographically.

2.2 The Roles of WPAP Community

WPAP community members give real contributions in spreading WPAP design style. The research found their contributions are:

a. Direct involvement in tutorial process
b. Holding exhibitions regularly
c. Provide facilities in community activities
d. Funding
e. Ease bureaucracy
f. Relating a support system for developing WPAP

Support system is a formal or informal network of goods, services, personnel, and organizations that sustains an entity in its survival and growth. (source: www.businessdictionary.com/definition/support-system.html, accessed on June 20th, 2015). Borrup (2011: p.8) explained that the stronger an organization, means greater support system relationship with the organization.

On WPAP's phenomenal development study case it can be assured that the available support system supports the WPAP community's activity. In funding sector, the community is being supported by government, business community and sponsors. Academically, this community is being supported by associations and art community. In publications and promotion sector, WPAP is being supported by the media, while in exhibition opportunity and facility is being supported by event organizers.

2.3 The Loyalty of Community Members

In many cases found that members community are loyal. Fournier and Lee (2009: p.105) gave an example how Harley Davidson could turn its extinction into top brand because the existing of its community. That was why Harley Davidson

committed to build a brand community: a group of ardent consumers organized around the lifestyle, activities, and ethos of the brand.

A loyalty of community members also appears in WPAP community. Based on their interest on WPAP design style, they sacrifice many things for WPAP. Itock is an example of member who had given his loyalty to the community. His principle is "biar tekor asal kesohor" (financial loss is fine, as long as WPAP could become famous). Itock often support the funding by himself for the sake of WPAP community's development.

As Itock leads the organization of WPAP community, he also established a business based in WPAP design, named "House of WPAP" – afterward will be shortened with "HOW" in this writing. Through HOW, Itock transform the activities of community into commercial works. WPAP artworks are printed and being sold in form of clothing, marchandize, wallpaper, and many more.

HOW also plays the role as an artist management which mostly marketing WPAP artworks for several purposes, such as events, environment graphic design, general election campaigns, etc. Commercial activities in HOW are managed seriously and professionally. In producing an artwork demanded by client, HOW involves WPAP community members, so that they can gain additional income from the artwork they make.

Aside from HOW, Itock also established Pop Art Cafe - then it will be shortened with "PAC" in this writing. As a business in culinary sector, PAC also plays the role as some kind of office for the WPAP community. There are a lot of activities in PAC, such as meetings, workshops, gatherings, etc.Itock is not only gain profit for himself from HOW and PAC, he also let the profit goes for the community purposes so that WPAP community has enough fund to runs its programs.

2.4 WPAP Community Management

Maintaining a sustainable community is not an easy thing. The character of its voluntary membership without being binds by any obligations makes all members can easily quit any time they see fit. To take care of this, WPAP community designs a Human Resource Management (HRM) for its organization. The HRM mentioned is made as a semi-formal management. Itock realized that HRM can not be applied in strict pattern to such organization.

Concerning to HRM, one of the important element in community is human (Cascante and Brennan, 2012: p. 295). Having a great number of membership is not enough to make WPAP possible to be well developed. Frank dan Smith (1999: p. 8) explained the most important thing in HRM is to have the right people in the right job, supported by the right skill and the right knowledge as well. When the right people suddenly quit or being inactive provides a challenge for the community comittee. To solve this problem, HRM manager must have both ability and knowledge to manage its members, just like how a profit-oriented organization managed their HRM.

In WPAP community, HRM is well organized by Itock as the leader of the community. His prior experience in leading a profit-oriented organization helps him to lead this WPAP community organization. That is how WPAP community can survives and even grows further in the last 5 years.

2.5 WPAP As a Product

WPAP design style as a visual product is being massively produced by the members to be marketed by them, too, to another candidate of WPAP fans community. Thus, members play roles as the producer, the distributor, and also the customer of the style at once. As a producer, members create WPAP artworks by themselves; as a distributor, they give tutorial both formally or informally. As a customer, the members are enjoying WPAP design style as an artwork they love. Marketing WPAP design style from its fans community, through the community, and for its own community is considered effective enough, because in this case the style have no necessity to look for another customer as its target.

3. CONCLUSION, AND FUTURE RESEARCH AGENDA

WPAP design style was born and popular in Indonesia. WPAP can be seen in many medias, online as well as offline. The roles of WPAP community lead by Itock greatly influenced the community's sustainability by now. Itock's experience to organize a profit-oriented organization helps him to manage WPAP community and drive it into a profit organization. The profit gained from the activity of WPAP

community is then being used to fund the organization.

The development of WPAP design style is a proof of Wedha' commitment to make WPAP rises in international pop art discussion. Members welcomed Wedha's commitment, and turn it into activities, such as tutorial and exhibiton which are being held regularly. WPAP as a product are at the same time being produced, distributed, and consumed by the fans itself. The members of WPAP community plays the roles as the produser, the distributor, and also the customer at at the same time, and it helps WPAP design style spread increasingly.

This reasearch can be applied by another visual art community as a pattern in developing the visual art. A research about why WPAP should be considered as signature of Indonesia is needed as the reference about how strong is WPAP as a developed design style.

ACKNOWLEDGMENT

Gusti would like to give his very big thank to Allah SWT., his parents, wife, Mr. Wedha and WPAP Community, DKV UPN Jatim, Mr. Angga as partner, Mr. Prasetyo, Mrs. Astri as proofreader, and Mr. Aryo Bayu.

Angga would thank to Allah SWT., ayah and ibu, Mr. Gusti as partner, and all of his relatives.

REFERENCES

Bhattacharyya, Jnanabrata (2004). Theorizing Community Development. *Journal of the Community Development Society*. Volume 34, No. 2 : pp. 5-34

Borrup, Tom. (2006). *The Creative Community Builder's Handbook*. New York: Fieldstone Alliance.

Cascante, David Matarrita; dan Mark A. Brennan (2012). Conceptualizing Community Development in The Twenty-first Century. *Journal of Community Development*. Volume 43, No. 3: 293-305

Fournier, Susan; dan Lara Lee. (2009). Getting Brand Communities Right. *Harvard Business Review,* April 2009:105

Frank, Flo and Anne Smith. (1999). *The Community Development Handbook, A Tool To Build Community Capacity*. Canada: HRDC

Rasyid, Wedha Abdul. (2009). *Wedha & WPAP, Pop Art Asli Indonesia* (1st ed.). Jakarta: Elex Komputindo Kompas Gramedia

Ratna, Nyoman Kutha. (2010). *Metodologi Penelitian Kajian Budaya dan Ilmu Sosial Humaniora pada Umumnya*. Yogyakarta: Pustaka Pelajar

Sugiyono (2008). *Metode Penelitian Kuantitatif Kualitatif dan R dan D*. Bandung: Alfabeta

10 Wajah Baru Bandung sebagai Peringatan Konferensi Asia Afrika Ke-60. (n. d.). Retrieved April 26, 2015 from http://sebandung.com/2015/04/10-wajah-baru-bandung-sebagai-peringatan-konferensi-asia-afrika-ke-60/

Support System (n. d.). Retrieved April 28, 2015 from www.businessdictionary.com

Search WPAP (n. d.). Retrieved June 20, 2015 from www.google.com/search?q=WPAP&ie=utf-8&oe=utf-8

Mascot or Character Design as a logo on "Sour Sally" Brand

Riky Azharyandi Siswanto
Telkom University,Indonesia
riky@tcis.telkomuniversity.ac.id

Novian Denny Nugraha
Telkom University,Indonesia
dennynugraha@tcis.telkomuniversity.ac.id

Arry Mustikawan Soemantri
Telkom University,Indonesia
arry@tcis.telkomuniversity.ac.id

Abstract — It is used to believe that logo has to following the logo manual guide, which is expected that the logo user will not stretched, changed the colour, or even rotates the logo. Yet today, digital medias has developed and gives Graphic Designers a various opportunity to be creative in designing a logo. Designers should not always make a static logo with a strict logo form but they can create a dynamic or even a logo that "alive" as a character. By focused on analysing a logo of an Indonesian local brand called "Sour Sally" which using a mascot as the logo, the aim of this research is to prove that a logo is no longer always to be in a still image, but also can be in dynamic form. The research is also tried to verify that logo can be anything as long as the identity can be maintained.

Keywords – Branding, Character Design, Design, Logo, Mascot

1. INTRODUCTION

Logo has been used for over decades ago as a mark for brands, organizations, or nations. According to the graphic design's history a logo is originated from the printing method in two-dimensional form in still image. Yet today, digital medias have developed and gives Graphic Designers a various opportunity to be creative in the process of designing a logo. It is used to believe that a logo has to following the manual guide therefore the logo will be used and applied in correct manner without any little mistake or error, which is expected that the logo user will not stretch, changed the colour, or even rotates the logo.

There are many local brands in Indonesia that using mascot as their identity, such as: Hoka-Hoka Bento, Taro Snack, Richeese Factory etc. However, they just using the mascot as a bit element in their logo or only make them in a usual logo formats and some of them are still using the mascot as secondary brand identity not as the main logo. Compared with Sour Sally, Sally the character is more than just a mascot, it applied as mascot and also used as logo as it is without any logo formats convertion. Sour Sally it self is a frozen yogurt product originally from Indonesia, which was established in Indonesia in 2008. Sour Sally branches currently spread in Jakarta, Bandung, Surabaya, Bali, Medan, Palembang, Makassar, Semarang, Solo, as well as in Singapore. In 2015 Sour Sally decided to re-brand their identity as they added up some of new menus of their well-known frozen yogurt and the new logo start to be installed in several brances. Sour Sally is one of the examples of a successful brand that utilize mascot as their identity. However, the mascot is no longer used as the part of renewing their image.

This research tried to proof that Designers should not always make a static logo with a strict logo form yet they can create a dynamic, motion or even a logo that "alive" as a character. This method could maximize the logo function on brand because the brand can be easily gaining more emotional attachment to the consumers.

2. MATERIAL AND METHODS

This research is using qualitative method that focusing through collecting some relevant data in order to gain a theory in mascot or character design as logo. The analysis has been done trough the

content analysis by doing some studies on theory, history, chronologies, and content development.

The aim of this research is to find out the possibilities of "character design" or "mascot design" can be used as a logo for a product or company. In order to answer the question, it is needed to collects some basic theories of logo and branding.

Characters: Character is one of illustration form that is designed to be look like a human, animal or creature including the attributes like characteristics, physical, fashion, facial expression even faith. Therefore, character design is beyond visual. because, it is also creating a character's motives that fits the audience. (Lester, 2000)

Identity: Rustan (2009) in his book gave an analogy on identity: "Imagine if we meet a new friend. First thing first, we will memorize he or she visually and physically. Whether the face, the hairstyle, and the way he or she dresses. Then we will see the behaviour, is he or she polite or rude. Visual identity gave brands more humane, by giving them "faces" and personality just by using a logo". Rustan (2009) gave an analogy on the relationship between logo and brand. It is clear that a logo is the main attribute that visible physically just like how we recognize people. Through a logo, every non-physic attributes can be illustrated as the soul of the brand. Such as company's vision and mission, corporate culture, and corporate value. Therefore, logo design process supposed to be based on corporate entity and personality as the result the logo that designed is represented from company's "soul"

3. RESULTS AND ANALYSIS



Figure 1. Sour Sally new logo

As Sour Sally change their logo and no longer use the character of Sally, they made the logo into more contemporary look with just using typography with a little "Sally" element in the logo which is the smile and the green cheeks.

The research focuses on the strength of former logo and mascot of Sour Sally brand. There are four theories that related to branding and logo that is applied in order to answer the research question. Every theory is used to compare the artefact that is Sour Sally's mascot logo.

Theory 1.

"A logo is usually a graphic image that may or may not incorporate a business's name or initials. It is closely associated with corporate image and corporate identity. The purpose of a logo is to allow consumers to instantly recognize and associate with the organization and its product or services." (Gregory, 2003)



Figure 2. Sour Sally former logo

Analysis:

According to the theory by Gregory (2003), a logo is "usually" a graphic image. By using word usually, it means that a logo should not always to be in graphic image or 2 dimensional. Yet, it can be something beyond 2D format. However it is also possible to use the 2D format for printing application such as packaging, brochures, business card, etc. Figure 2 above shows the former main logo of Sour Sally brand that use in graphic formats, which can be printed for many purposes on many surfaces nowadays. The theory also states "***the purpose of a logo is to allow consumers to instantly recognize and associate with the organization and its product or services."***

Gregory (2003), pointing out logo as an identification element to allow customers to easily recognizes and associate the brand as the main function of a logo. To sum up, Gregory's theory is focus on the function of a logo, which is identity function. What he trying to explain in another word is "a logo can be anything, as long as it is used for identify the brand and it is allow consumers to instantly recognize and associate with the organization and its product or services.

Theory 2.

"The subject matter of a logo need not match the subject matter of the business it represents. The only mandate in logo design is that they be distinctive, memorable and clear" (Rand, 1994)

Analysis:

The theory states that a logo should be the representation of the business subject matter. It also should be distinctive, memorable and clear in order to identify and to make people easily remember the brand. Sour Sally character was designed to represent company's "soul". It was a visualisation of the characteristic of the product that is frozen yoghurt. "Sally" was designed based on the product characteristics of sweet, girly, fun, innocent, and the taste is also represented on the brand name Sour Sally.

Table 1. The table shows how Sour Sally product characteristic (keywords) is represented on "Sally" character.

Product Characteristic (keywords)	How it represents on "Sally" character
Sweet	The word sweet is visualized on the character that always happy, smiles, and innocent.
Sour	Represented on the brand name Sour Sally.
Fresh	Freshness is an emotional feeling. Therefore, in order to visualize it gesture is chosen to illustrate Sally as a character that always happy to give the consumers some fresh experience.
Low fat	Another word that represents "low fat" would be "light" And it is visualized on the light lines and strokes that used to illustrate the character. The skinny body and legs of the character also represent the lightness.

It is clear that Sally character is designed based on product keyword. Therefore, the character is tried to be as closed as possible to the product characteristic in order to represent the business subject matter. As the result the character is memorable, distinctive, and clear to be used as logo.

Theory 3.

"Company is like human being. They have personality, culture, and principals. Yet for some people they are seems "cold" and have no personality with out any alive signs." (Napoles, 1988)



Figure 3. "Who is Sally?" introduction to the brand on the former website www.hellosoursally.com

Analysis:

The key point on this theory state that personality, culture and principals are the crucial aspects in a brand or company in order to give some live sign therefore,. However, Napoles (1988) argue that some people often feel "cold" when they sees company image. This is the hole that Sour Sally's brand try to fill. They created a character to give a live sign. Therefore, people can "warmly" know the brand.

On the Sour Sally's website (see figure 3) they introducing Sally as a character with personality by introducing "Sally" as a little girl that has bright eyes and always happy. The former website also facilitate visitors to play a role game as "Sally". The game is a gimmick to access the information instead of just proving still menu.

We can conclude that by using mascot as logo and introducing the company with personality can give more benefits to the company to penetrate the market therefore the brand can be more easily known and remembered inside peoples mind.

Theory 4.

"A brand is simply an organisation, or a product, or a service with a personality." (Ollins, 2005)



Figure 4. Sour Sally's paper cup designs

Analysis:

The theory emphasizes "personality" point as key to describe a brand's understanding. Ollins (2005) states that a logo plays a crucial role to give a "soul" into an organisation or a products or service in order to identify amongst another brands. By using mascot as a logo a brand can be more known as a personal instead of just a commercial brand, people will remember the brand like they remembering a person or character. Figure 4 shows the design of Sour Sally's frozen yoghurt paper cup. The cup is designed in 3 different sizes, small, medium, and large. The most interesting point on the cup design is in how "Sally" illustrated to interacted with the paper cup sizes; Sally looks like sitting down on the small size and normally stand up on the medium size while the large size show that how big is the cup so "Sally" can jump. Ollins (2005) tried to argue that brand is like a living creature with characteristic that need to be visualized and by using character as a logo, the concept can be maximize rather just using still image for logo. Sour Sally's character has matched the theory, which is believed that it is highly potential to be developed as a new form of logo design formats.

4. CONCLUSION

The function of logo is to identify and to define between one brand to another. According to Ollin's (2005) quotes that brand is an organization, a product, or a service with a personality. From that statement it is possible to develop more varieties on logo design and strategies. Because nowadays, logo can be anything beyond a still image due to the wide range of visual communication medias.

Sour Sally's mascot was designed using the same method as creating logo. It started from the keyword and then translated in visual form. Sour Sally has been successful building their image with the mascot and this research already proved that Sour Sally mascot could be used as a logo. Sour Sally is one of the examples of a successful brand that utilize mascot as their identity. However, the new logo is no longer used the mascot. It is suggested that they are supposed to consider still using mascot due to the strength of the company's identity. It is also expected that in the future, there are more research regarding character design as logo. Further research in methodology of designing character for logo is suggested in order to develop this area of research.

4. REFERENCES

Gregory, Thomas. (2003). How to Design Logos. Symbol and Icons; Cincinnati, Ohio; How Design Book.

Napoles, Veronica. (1988). Coporate identity Design. New York; John Wiley & Son, Inc.

Ollins, Wally. (2005). wally ollins on brand New York; Thames & Hudson.

Rand, Paul (1994). *Design, Form, and Chaos*. New Haven: Yale University Press

Rustan, Suryanto (2009) mendesain logo. Jakarta; Gramedia

About Sour Sally. (n.d.). Retrieved January 10, 2015, from http://www.yoursoursally.com/about.html

Image source:

Figure 1. Retrieved March 16 , 2015, from http://id.wikipedia.org/w/index.php?title=Berkas:SourSally.jpg&filetimestamp=20150314090418&

Figure 2. Retrieved January 10, 2015, from http://www.yoursoursally.com/about.html

Figure 3. Retrieved January 3, 2015, from http://soursally.better-b.mobi/

Figure 4. Retrieved December 3, 2014, from http://blog.sribu.com/2012/11/23/peran-desain-maskot-untuk-kesuksesan-sebuah-brand/

Beauty Construction of Camera 360 apps in Indonesia

Luri Renaningtyas

Petra Christian University, Surabaya

cocolatos@petra.ac.id

Aniendya Christianna

Petra Christian University, Surabaya

aniendya@petra.ac.id

Abstract **—** A smartphone beautification app has been released for quite some time, it is called Camera360, an application that enhance the facial feature and skin of one's self photograph. Users can apply some effect to their liking, such as changing the facial skin to become whiter and smoother, or changing the shape of the face to look thinner or enlarge their eyes. This shows that the media can act as an extension for perpetuating an ideology, in this case a construction of beauty. Interviews and experiments were conducted to 10 women from Jakarta, Bandung and Surabaya, they take their daily self pictures and enhance it using Camera360. The images will be analyzed based on theories that related to gender studies and techno-cultures. This study aims to enrich the discourse on Indonesian beauty myth within the spectrum of techno-cultures.

Keywords **– Gender, Beauty, Technology, Media**

1. INTRODUCTION

The idea of women's ideal body and beauty has long been subjected to various transformations. This transformation is relatable with the effort of reconstruction and exploration. The myth of beauty has become a very significant part of women's representation over time. Beauty and femininity formed and perpetuated through various occurrences. In short, the myth of beauty is one of the community's efforts to promote how 'to be an ideal woman'. The ideal of beauty is often growth with the support of certain groups of the dominant society (which is patriarchy). It could open the possibility of idealization and legitimation to the myth of female's beauty.

The development of information and communication technologies encourages a lot of changes. One of which is the change in postmodern public's understanding of text/media, which is dominated by the concept of figural signification. This concept states that image/visualization is dominating the public's perception of media content. Its trait is the emphasis on consumption and production of visual forms.

In relation with this construction of beauty, a smartphone beautification app has been released for quite some time. It is Camera360, an application that enhance the facial features and skin of one's photograph, in order to look smoother, whiter, or thinner by scaling down the chin or even dilating the eyes. This shows that beauty can be constructed by media that act as an extension for perpetuating an ideology.

This gender discourse techno-cultures based context, raises a question what kind of beauty Camera360 is constructing? Furthermore, is this application suggest women to be objectified and oppressed under the influence of ideological powers or is it suggesting the opposite way? Interviews and experiments were conducted to 10 women from Jakarta, Bandung and Surabaya; they take their daily self pictures and enhance it using Camera360. After that, we analyze the role of Camera360 for women in patriarchal society using theories that related to gender studies and techno-cultures. This study aims to enrich the discourse on Indonesia's beauty myth in techno-cultures.

2. LITERATUR AND THEORY

The cultural approach with the theory of gender is applied in this study, exposing women as objects and men as subjects. Women are judged by their appearance as described by Yasraf Amir Piliang (Piliang, 2010, p.329-337). He associates women, capitalism, culture, technology and media. His thinking may be the main basis in explaining the role of technology in shaping the commodification of women, as well as showing the relationship between technology, media, culture and gender. However Yasraf inclined to the western's economy and capitalism, whereas this study focusing on the cultural practice in Indonesia, therefore it needs to be sorted and adjusted into the cultural discourse in Indonesia, from the colonialism era until the era of visual culture when the new media emerges as outlined by Widjajanti Mulyono Santoso and Agus Sachari.

As a supplement, literature about visual culture of Indonesia by Agus Sachari also used to describe the condition of culture in Indonesia (Sachari, 2007, p.2-16). Theories and literatures mentioned above were used as a foundation to describe the role of technology and media in constructing the beauty myth among Indonesian's women.

3. DATA AND METHODS

The method in this research is quantitative and qualitative. Data gathered in the form of self photograph by setting up an experiment (quantitative) to 30 women, each of 10 people representing Jakarta, Bandung and Surabaya, aged 19-24 years old. Volunteers were asked to take pictures using camera's Selfie mode and to edit the photographs by applying any effects. After that, the same respondent was interviewed (qualitative).

Interview results strengthen the findings of visual tendencies that arise when analyzing the visual aspect from the experiment. Results of content analysis were used as a reference to formulate the concept of "beauty".

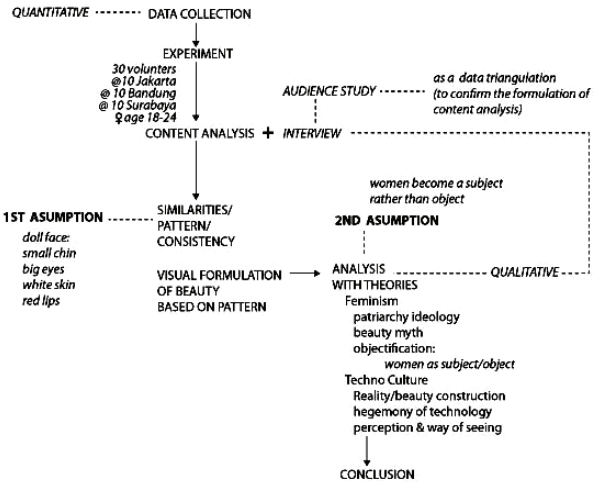


Figure 1. Research method schema

These formulations used as a basis to interpret the concept of female beauty in Indonesia, which is constructed through Camera360 application. The authors assumed that the images of doll face: thin jaw, big and round eyes, white skin and red lips will dominate the produced photos from Camera360 application.

After that, we examined further theories related to gender discourse in techno-culture based on context, cultural studies, and visual discourse in Indonesia to find the basic reason behind the emergence of Camera360 phenomenon. In addition, the analysis can also represent whether the application could possibly make women become objectified or just the opposite. It is assumed that women are no longer a passive object in the eyes of men, but with Camera360 the women are able to role as a subject who define and create the spectacle.

4. RESULT AND DISCUSSION

Based on 54 effects that has been applied to over 300 Camera360-edited photos, the content analysis shows that Skin Smooth has been used 185 times, Skin Tone for a lighter color skin for 96 times and Whiten for 75 times. The average number of Skin Smooth applied by 22 volunteers is 8.4 times. 7.4 times the average of Skin Tone used by 13 volunteers, and 5 times the average of Whiten to be used by 15 volunteers. These numbers proof that there is a high preference in those

three effects, therefore the concept of beauty in the mind of most volunteers are smooth, white or lighter skin.

Data from interviews also reflect what respondents thought about the standard of beautiful woman, which is white and smooth skin. Basically they prefer natural-looking results, focuses on skin color, they are rarely used effects that can change the shape of their face, the opposite as proposed in the first assumption about the tendency of enlarging the eyes or make their face look thinner.

Therefore based on the analysis above, the Camera360 constructed beauty in Indonesia is smooth, glowing white skin with no dark spots or and acnes. They can be obtained by applying Skin Smooth, Skin Tone and Whiten effect.

These results indicate the issue of women and beauty in gender discourse and techno-culture. Image of beauty with smooth glowing white skin is believed to be the ideal beauty for women in Indonesia. It is a long form ideology that woman should feel obligated to make them always look beautiful. And it still perpetuated through media exposure until now.



Figure 2. Photo Visualization of beauty constructed by camera360. Original (left) photo edited by applying Skin Tone, Skin Smooth and Whiten (right). Photo courtesy of Rere Samantha.

Based on Sachari's overview about the mindset of Indonesian society, since the days of colonialism the Caucasian European figures become ideal references for Indonesian people.

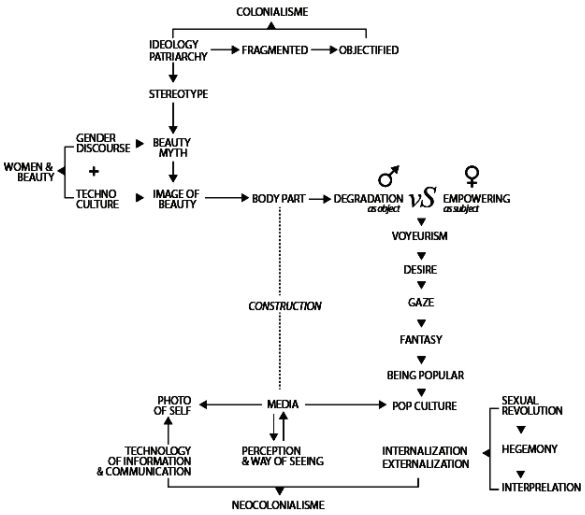


Figure 3. Framework of thinking

Unfortunately this fantasy about modernity and progress often achieved by Indonesian instantly without thinking about the future impact (Sachari, 2007:2-16). This includes the skin color that white is identified with progress and higher culture. This in the long run could affect the mindset and perspective of women in Indonesia, thus in the end they can feel as Thwaites, Davis & Mules said as interpellation (Thwaites,et.al, 2011, p.241), they take for granted these ideologies, so that the original characteristics of Indonesian tan-skinned women is fading away by the time being.

Based on this measure, beautiful woman is a white-skinned woman and they are required to always look beautiful, it is a myth that internalized within Indonesian women. There are many ways to fulfill this desire of beauty, and by the advent of new media such as interactive applications, these passions not only satisfied, but also multiplied. The convenience to enhance a lot of aspect from the image instantly by Camera360 features, have formed a certain mindset, a new behavior that gradually entrenched as more and more people accustomed by this standard of beauty.

As Daniel Miller exposed about sublimation in Yasraf explanation about internalization and externalization (Piliang, 2010, p.139). It is not necessary to be physically beautiful, virtual affirmations (internalization) from the virtual community are enough for some people.

Recognition that she could look beautiful by externalize herself by applying some effect to their own photo. A self-photograph could be considered as an 'assets' which is used as a virtual profile picture, uploaded to social media to be popular and appreciated by others, even on a certain occasion they got a lot of job offering as a presenter or model based on their uploaded picture in social media. For Baudrillard as exposed in Yasraf (Piliang, 2010, p.297) this is a new form of women empowerment, sort of what Widjajanti described as sexual revolution (Santoso, 2011, p.34). The women become the subject of her own, and the audience of her own.

In previous study on women and the media, many states women as a passive objects that consume textual media, without any tendency whatsoever; just to fill in spare time. However, in these studies, women have shifted into an active subject; consciously participate in the forming of meaning / textual media. Women consciously and voluntarily conduct a 'ritual' of a self photograph, enhance it a little bit with Camera360 before upload it to social media. In the end, the ideology of beauty became controlled by women themselves through the production of textual media. Women no longer referred as a prisoner of the text that appears as an empty and helpless individual. It turns out women are not a powerless mass, but also actively involved in forming the text they consume. Yasraf confirmed that the purpose is no other than to satisfy narcissistic desire in voyeuristic spectacle (Piliang, 2010, p.333).

Women (Camera360 respondents) have become passive objects of the dominant ideology, the myth of beauty that has been constructed over time. However, women at the same time also act as an active subject who negotiates on ideological disagreements that have been implanted through the process of editing her own self photograph with various enhancement effects that has been provided. But in general, all women accept and agree that beautiful skin is white and smooth.

This shows that the activity of women in textual media consumption is a fundamental aspect of the long struggle to find the true meaning of 'being a women' in the world of patriarchal hegemony, a world that has been largely constructed by the ideology of masculinity. Women are degraded because it is seen merely as objects without the need to find who she really is, her thought and personality. Women represented into a form of beauty that has no reference.

Thus in the advancement of information and communication technology, the existence of women become a paradox. Initial theory argues that women are often regarded as objects that are exploited, turns out by the birth of new media such as Camera360, it is not always the case. On one side, women can be empowered as the subject, but on the other side they as an object of voyeurism. They are demanded to appear attractive with smooth glowing white skin . This demand is either for herself or for others. As a result, women also become the object of technological hegemony, bound to continuously interact with new media such as Camera360. They experiencing interpellation, the state when a person is surrendered under the influence of media, she feels that the message is specifically addressed to her.

Within the gender discourse in techno-culture, where the technology subdues the society, it eventually transforms the culture itself. A Pop culture, when everything comes and goes based on what is popular in the society. The Society constructed by media, and media also influenced by the society. They overwhelmed by visual artifacts, that happen really fast, changing simultaneously, fragmented into components of which every part can be manipulated and no essence, thus they are temporary. As temporary as other beauty apps, like BeautyPlus, or Modiface MakeUp, they exaggerating beauty and doubles the spectacle.

In the end, studies like this could put women as the *observer* in aspects of their life. This kind of study is a form of public awareness activities against subversive ideology. Moreover the media nowadays are strongly influenced by capitalism interests which

frequently positioned women as a commodity.

In the future, the results of this study need to be compared with the observations of non-experiment photograph due to the results of the experiment that can't be 100% natural, because the respondent was conditioned on certain rules. The pattern that emerges from the results of experiments and natural observations could possibly be different.

ACKNOWLEDGMENT

Thank you to Petra Christian University for the funding of the research and as the main sponsor for the proceeding seminar. Thank you to volunteers from Jakarta, Bandung and Surabaya who are willing to participate in this study, particularly for Bias Bidari on Surabaya. Thank you for Agnesia Hermawan, the surveyor who helped gather volunteers from Jakarta, Bandung and Surabaya.

REFERENCES

Piliang, Y. A. (2010). *Dunia yang Dilipat: Tamasya Melampaui Batas-batas Budaya*. Bandung: Matahari.

Piliang, Y. A. (2010). Libidosophy:Kapitalisme, Tubuh dan Pornografi. In Y. A. Piliang, *Dunia yang Dilipat: Tamasya Melampaui Batas-batas Kebudayaan* (hal. 291-299). Bandung: Matahari.

Piliang, Y. A. (2010). Masih Adakah Aura Perempuan di balik Euphoria Media? In Y. A. Piliang, *Dunia yang Dilipat: Tmasya Melampaui Batas-batas Kebudayaan* (hal. 329-332). Bandung: Matahari.

Piliang, Y. A. (2010). *Semiotika dan Hipersemiotika: Kode, Gaya dan Matinya Makna*. Bandung: Matahari.

Sachari, A. (2007). Budaya Visual di Indonesia dan Permasalahannya. In A. Sachari, *Budaya Visual Indonesia* (hal. 2-16). Jakarta: Erlangga.

Santoso, W. M. (2011). *Sosiologi Feminisme: Konstruksi Perempuan dalam Industri Media*. Yogyakarta: Lkis.

Thwaites, T., Davis, L., & Mules, W. (2011). Ideology. In T. Thwaites, L. Davis, & W. Mules, *Introducing Cultural and Media Studies: Sebuah Pendekatan Semiotika*. Yogyakarta: Jalasutra. (Original work published 2002)

Follow Me ! The Power of Home Industry Promotion Through Social Media

Aryo Bayu Wibisono
DKV-UPN Veteran Jatim,Indonesia
aryobayuw@staff.upnjatim.ac.id

***Abstract* —** This paper entitled "Follow Me! Strength Promotion of Home Industry in Social Media" will discuss about the step and goal in home industry in persuading audience, and how to activating brand. This research is expected to contribute and give positive picture for creative people in Indonesia in general and the city of Surabaya in particular, about how to advertise home industry step-by-step and stabilize their brands in social media successfully. Therefore, this study aims to determine the central issues such as what is constructed through advertising style of each home industry so the have profits in online world. This research will use direct observation and in-depth interviews to collect data. It will taking samples at multiple perpetrators home industry in Surabaya, which already has a consumer and has been operated via online for one year or more. The samples are focused on food production sector, it is a first step that will be to examine the other sector of home industry. Books and journals also used as secondary sources to collect data.

Keywords – Home Industry, Promotion, Social Media, Advertising.

1. INTRODUCTION

The growth of Internet users in Indonesia, according to data provided by APJII (Association of Indonesian Internet Service User) increased to 139 million in 2015. Meanwhile, according to the Ministry of Communications (Department of Communications and Information) internet users who access social media from mobile phone in grew 55 million every month, and 28 million accessing on a daily basis to socialize with partners or families

The "social media boom" phenomenon is being perceived as the emergence of new markets that can be developed further in Indonesia. Home industry products can also use social media such as Instagram, Facebook, Path, and Twitter can also be used to introduce its products (Tsai & Men, 2011, p.76).

Social media promotion became a major goal for home industry in Indonesia, because most people nowadays are being affected by the presence of social media (Hasanudin., et al, 2011, p.21-29). Therefore, the booming of social media and the presence of online-marketing home industry greatly influenced the Indonesian economy (Syuhada & Gambbetta, 2013, p.447).

Within the study entitled "Follow Me! The power of home industry promotion through social media", the goal is to find out the promotion styles used by home industry businesses in Surabaya.

In addition, this study will also try to seek out whether the campaign steps created accordingly to the brand image built by home industries throught the social media. This study is expected to provide examples of appropriate promotion for the home industry in Surabaya, and to set out the first step of promotion research in the field of online and social media.

2. LITERATURE AND THEORY

To represent the product's image to audience, Indonesian home industries should pay more attention to the role of branding (Tjiptono, 2014). A strong corporate brand turns out to provide credibility to the audience (Kotler, 2006, p.61). The way that a picture or letter

mark shaped within a logo cannot be separated from how the brand is being promoted (Wheeler, 2009). This means branding has always been an important aspect in any product promotion (Davis, 2009, p.12-13).

Branding influence in marketing is very important, one of which is in advertising (Hackley, 2005, p.73-74). The principle of online promotion in social media was more or less similar, the role of brands and products to advertise is very important (Barbu, 2013, p.46). Each visual in a social media has its own messages to the audience (Timachef & Rand, 2001, p.160). In addition, the presence of visual aspect supports the word-of-mouth comunication on social media (Bulearca & Bulearca, 2010, p.298-299).

It is important to pay attention to typography, illustration, and photography in conveying messages to influence the audience in advertising (Suyanto, 2004, p.81-95). Typography and words have the "textual" role in visual advertising (Rustan, 2010). Illustration and photography creates product image through its visual aspect (Moriarty, Mitchell, & Wells, 2011, p.514).

Other media that also boost the promotion aspect is the packaging design (Morrisan 2010, p.76). A product packaging has 4 P's aspects in marketing, which are product, price, promotion, place (Ambrose & Harris, 2011, p.16). A products image can be seen on its packaging through the color, image and the shape of the packaging (Gobe, 2005, p.83-96). Thus,properly designed, a product packaging will have a clear positioning in the audience (Klimchuk & Krasovec, 2007, p.35).

3. METHODS AND DATA

This study uses primary data collection through in-depth interviews to owner of home industry (Goodeerholic, ByFirli Cookies and Bento-Bento) which was held for three weeks (25 May–12 June). To support primary data, conducted observation in social media and home industry offices for a month (10 February-17 March 2015). Literature, journals and other print media are also used as supporting data source. The results of in-depth interviews and observation of samples will be analyzed through SWOT (Strength Weakness Opportunity and Threat) (Kriyantono, 2012).

3.1 OBSERVATION AND ANALYSIS

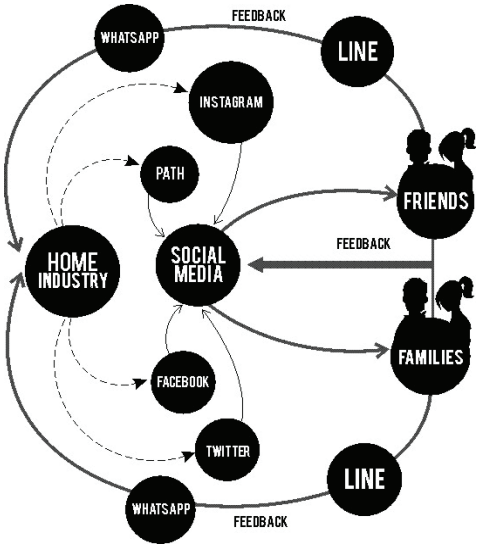


Figure 1. Distribution social media in home industry

Corporate	*Goodeer holic*	*By firli Cakes*	*Bento Bento*
Merk Relevantion			
Positioning	■	■	■
Vision, and Mission	■	■	■
Strong Name/Logo Choice	■	■	■
Branding	■	■	■
Social Media			
Facebook	■	■	■
Path	■	■	
Instagram	■	■	■
Twitter		■	
Visual Persuasion			
Packaging	■	■	■
Photography Product	■	■	■
Event	■	■	■
Website		■	
Visual Graphic	■	■	■
Endorse Product	■	■	
Time Upload			
Morning (07.00 – 09.00)	■	■	■

Daylight (11.00 – 13.00)			
Afternoon (15.00-17.00)			
Night (19.00-21.00)			
Chat Media			
Line			
WhatsApp			
Segmentation			
Men			
Woman			
Family			

High Level Low Level None

Table 1. Persuasive Methods Home Industry for (February-March 2015)

Strength	(1) Advertise with less-expensive costs (2) Transactions can be done anytime and anywhere. (3) Consumers can see the ads at any time.
Weakness	Limited human resources
Opportunity	Home industry which has a better level of education in marketing will have stronger branding or promotion
Threat	(1) visual ads still same with other industrial home (2) Newcomers

Table 2. SWOT Analysis

4. RESULT AND DISCUSSION

Social media advertising for home industry can be separated into two, the first one is through visual appearance in social media, and secondly through online chat which is used as the supporting media. Home industry usually make advertising through product photos or events they upload and updates in social media.

Uploading photos has become a trend in consumer. The consumer take pictures of the products they purchased and later being uploaded back in social media such as Path, Twitter, Instagram, or Facebook. This kind of consumer behavior in the social media can be categorized as ads (Kwon & Sung, 2011, p.5). Such way of advertising becomes the strength in attracting new followers, and supports the popularity of home industry on social media. This communication model is a very strong advertising campaign in social media, and because of the popularity of these styles it also enhance strong emotional bond between the customer and the home industry. Meanwhile advertising through online chat such as Line and WhatsApp is considered as an internal way of communicating for the home industry.

Another form of promotion that is also become the main focus for home industries is to enlist on popular events, such as bazaar and workshops (photography and business plan). Enlisting on an event is a way for the home industry to meet and communicate directly with consumers.

Actively advertising on social media also serve another function for home industry, which are to monitor consumers, and to measure to what extent the communication they build are considered of interesting to their followers. Because if they do not succeed in continually managing their page content on social media, their followers will decline, and in turns it will affect the sales of their home industry product.

Home industry in Surabaya has a huge market, especially in Surabaya itself and Indonesia in general. Promotional style using social media (Instagram, Path, Twitter, and Facebook) through visual, following the event, and communicating textually (Chat online) can be used as persuasion in advertising. But the advancing technology requires home industries to find more creative way of advertising, so that the advertising model implemented will differs them from the other home industries.

ACKNOWLEDGMENT

We would like to express our appreciation to Heru Subiyantoro, ST, MT. for giving us advice to fix this paper. We would particularly like to thank our family for giving us motivation, and also the following people in our Departement for their assistence in our data collection : Aris S., Aditya and Astri.

REFERENCES

Journal article, Internet-only journal

Kwon, S. Eun, Yongjun (2011). Follow Me ! Global Marketers' Twitter Use, Journal of Interactive Advertising, Vol. 12, No.1 (fall 2011). Retrieved 05 September 2014, from http://jiad.org/article149.html

Tsai, Wan-Hsiu Sunny, Linjuan Rita Men (2013, Routledge). Motivations and Antecedents Of Consumer Engagement With Brand Pages on Social Networking Sites 13(2). Retrieved 14 March 2014, from http://www.tandfonline.com/loi/ujia20

Bulearca, Marius, Suzana Bulearca (2010). Twitter : a Viable Marketing Tool For SMEs ?, Global Business and Management Research: An International Journal Vol.2 No.4. Retrieved 01 March 2015, from. http://www.gbmr.ioksp.com/

Book

Ambrose, Gavin, Paul Harris (2011). Packaging the Brand : The Relationship Between Packaging Design and Brand Identity. Switzterland : AVA Publishing SA.

Davis, Melissa. (2009). The Fundamentals of Branding. Switzterland : AVA Publishing SA.

Gobe, Marc (2005). Emotional Branding : *Paradigma Baru Untuk Menghubungkan Merek Dengan Pelanggan* "Emotional Branding: The New Paradigm for Connecting Brands to People. Jakarta : Erlangga.

Hasanudin, Joseph Kristofel, Putu. I. Mahatrisni, Nastiti Tri Winasis, Benadrus Satrio (2011). Anxieties/Desires : 90 Insight for Marketing to Youth, Women, Netizen, In Indonesia (1st ed). PT Gramedia Pustaka Utama

Hackley, Chris (2005). Advertising and Promotion : Communicating Brand. London : SAGE Publications.

Klimchuk, R. Marianne, & Sandra, A,. Krasovec (2007). *Desain Kemasan : Perencanaan Merk Produk Yang Berhasil Mulai Dari Konsep Sampai Penjualan* "Packaging Design: Successful Product Branding from Concept to Shelf". Jakarta : PT Erlangga.

Kotler, Waldemar, P. (2006). *B2B Brand Management.* Jakarta: Kelompok Gramedia.

Kriyantono, Rachmat (2012). *Teknik Praktis : Riset Komunikasi* "Practical technique : Research Communication", Jakarta : Kencana Prenada Media Group.

Moriarty, Sandra, N. Mitchell, W. Wells (2011). Advertising (8th Ed). Jakarta : Prenada Media Group.

Morissan (2010). *Periklanan : Komunikasi Pemasaran Terpadu* "Advertising : Integrated Marketing Communication". Jakarta : Prenada Media Group.

Suyanto, M (2004). *Aplikasi Desain Grafis Untuk Periklanan* "Graphic Design Applications For Advertising". Yogyakarta : Andi Yogyakarta

Timachef, Serge, & Douglas, E., Rand (2001). From Bricks to Clicks : 5 Steps to Creating A Durable Online Brand. Amerika : R.R Donnelley & Sons Company.

Wheeler, Alina (2009). Designing Brand Identity (3th Ed). New Jersey : Published by John Wiley & Sons, Inc., Hoboken.

Article in a Published Proceedings

Barbu, Oana (2013). Advertising, Microtargeting and Social Media.). Retrieved 25 April 2015, from http://www.sciencedirect.com/science/article/pii/S187704281406385X

Syuhada, Ahmad Anshorimuslim & Windy Gambetta (2013). *Online Marketplace for Indonesia Micro Small and Medium Enterprises* Based on Social Media, 4(1). Retrieved 10 April 2015; from http://www.sciencedirect.com/science/article/pii/S221201731300368X

Determining The Role of (Graphic) Design in the Creative Economy Roadmap of Surabaya

Rahmatsyam Lakoro
Institut Teknologi Sepuluh Nopember Surabaya
ramok@prodes.its.ac.id

Abstract **—** Within the last 10 years, Surabaya show symptoms of growth in the creative economy sectors that lead to economic independence. Led by young people aged 15-45 years, the creative sectors can generate optimism for the people of Surabaya- with all its potential to strengthen the knowledge-based sector and this creativity. A prominent feature of this group are (1) the creative worker is still young, (2) the type of business that is diverse and has a short life cycle, and (3) competition does not occur directly through the production quantity but creativity generates innovation in every product. Although not all sectors have been mapped by the Ministry of Commerce in 2008 evolved symmetrically, there are some potential, opportunities and challenges posed by the creative worker of this creative economy. What about the graphic design sector? Graphic design is like salt, is present in every dish to share giving a sense, but never be a special menu

Keywords **– Creative Industry, Graphic Design, Surabaya**

1. INTRODUCTION

Edna dos Santos (2010) describes the development of the classic Creative Economy definition evolved into a creative city as a tool for urban innovation, where the creative sector is positioned as a sector that brings vitality of the city (Landry, 2000); into the era of the creative economy in which people earn income from the idea (J. Howkins, 2001); as well as the rise of young children as a creative class that unexpectedly grew to one-third of reproductive age in the US. Characteristic of this group are: mastery of technology, the power of individual talents and social skills to be more tolerant in the face of diversity and cultural differences, known as 3T Theory: Technology, Talent, Tolerant. (R. Florida, 2002).

Creative Economy Development Plan for the city of Surabaya is structured for short-term 2014-2015 is an early view to provide recommendations for the creation of a comprehensive road map and is expected to run all stakeholders both from the perpetrators of the creative economy, academia and government as a facilitator and regulator . Can be further developed into a plan of action for each element of Surabaya

2. CREATIVE ECONOMY APPROACH

David Throsby (2007) introduced the classification model 'Concentric Circles' where the core sectors of the creative economy is an original idea of a creative product. Thorsby stated that the creative industries are the core creative arts (core creative arts) that exist in

the literature, performing arts , visual arts and music. This core forms which will be produced as a cultural product through the film, presented in a museum or library .

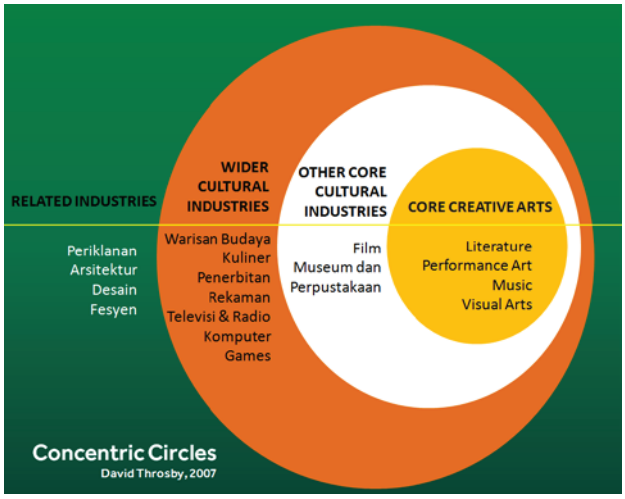


Figure 1. Concentric Circles, Davis Thorsby (2007)

Derived products categorized as wider cultural industry in the form of cultural heritage, culinary, publishing, recording, broadcasting, computers and games. Related industry to support the core industries including advertising, architecture, design and fashion in the outer circumference of the concentric model of this .

3. THE CHARACTERISTIC OF CREATIVE ECONOMY OF SURABAYA

Surabaya through the City Development Planning Agency (Bappeko) initiated a program of economic development of creative development in the city of Surabaya in a more thorough, gradual and sustainable. Surabaya Creative Economy Development Team in cooperation with various stakeholders such as the creative economy: the entrepreneurs, SMEs, academia, practitioners, the community and the city government seeks to define the direction of the policy that best suits the character of creative economic players in Surabaya. This program has been preceded by discussions Creative Economy Development Surabaya followed by the Focus Group Discussion (FGD). Thus, the Creative Economy Development Team Surabaya formulate the goals of this report as follows: (1) Mapping the potential of the creative economy and the core strength of Surabaya; (2) Describe the challenges that must be faced; (3) Identify opportunities to strengthen and develop the core strength of the creative economy of Surabaya; (4) Recommendation program; (5) Recommendations supporting infrastructure development. Several aspects need to be considered as a framework for understanding it was Performers Creative Economy, Infrastructure Supporting the Creative Economy, Creative Sector Diversity, as well as activity and collaboration. These aspects will be the glasses in an attempt to understand the creative economy landscape of Surabaya.



Figure 2. Derivation of Alberto Korda's photograph of Che Guevara that losing the control of authority

3.2 Creative Workers of Surabaya

Individuals drive the creative economy in Surabaya can be seen from various backgrounds. Industry consists of creative workers in the field of arts and crafts , product design, interior design , visual communication design, animation film producer, a producer of software, media workers television, radio and print media. Vocational and higher education that supports the availability of human resources in these sectors have a wide range of competencies. Intellectual Property Rights problems often become an important issue in this creativity -based industries.

3.2.1 Highschool and Vocational Education that Support Graphic Design Industry

The vocational secondary education there are 11 SMK (State High School Skills) in

Surabaya, and all have departments in accordance with the 15 subsectors of Creative Industries. The availability of agency data supporting creative people (creative pool) at the level of vocational education over vocational concluded that: (1) From 11 SMKN, all SMKN in Surabaya have majors related to the creative economy, mostly related with Graphic Design and Multimedia; (2) Equity has become a trend since 2009 when the President declared the creative industries in Indonesia; (3) Absorption alumni of SMK is a lot to fill small and medium industries in Surabaya and surrounding areas, while some also went to college concerned. Details for this dispersion requires further study; (4) The main concentration majors/ specialization is multimedia, design (visual communication design, interior design, product design); (5) Concentration of specialization is much contribute to the multimedia sub-sector.

3.2.2 University with Creative Industry Education in Graphic Design Field

In higher education, college education providers based on creativity, the universities have departments of Visual Communication Design or Graphic Design. It can be said that the creative human factors in Surabaya has (1) Participation Creative: many (militants but sporadic) spread has not formed a massive movement; (2) Creative Workers: empirically substantial but not yet comprehensively mapped; (3) Institution: vocational schools and colleges with the majors in the sub-sectors of the creative economy; (4) Creative Communities: moving sporadically, the expression of a particular interest of a community, the activities aimed at non-profit and social.

3.2.3 Creative Community of Graphic Design

Surabaya has adgi.sub (adgi is asosiasi desainer grafis indonesia/ indonesian graphic designer association, sub refers to Surabaya chapter) community that was developed by individuals, social institutions and businesses based. These communities often do collaborations when related activities in his community. Initiator of even this diverse communities ranging from business circles, practitioners, academics and even community activists often is a freelance investigator who works with social motives.

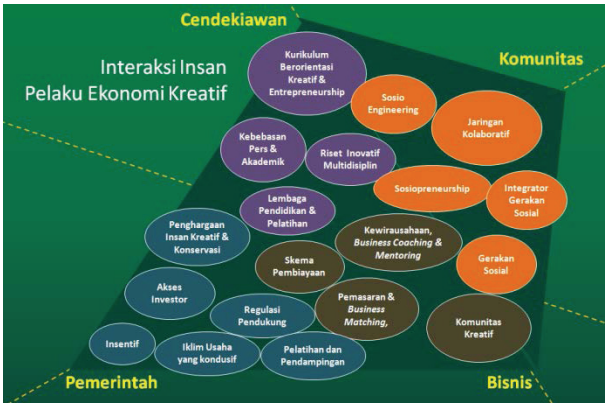


Figure 3. The Interaction between Creative Community, Government, Business and Academy as Quadrohelix

Adgi.sub has collaboration with governement of Surabaya and the students from university with graphic design field of study to help Small and Medium Entreprises improve their quality of design. The collaboration output come up with brand design, packaging system, branding strategy and marketing tools design.



Figure 4. Tatarupa is a collaborative activity between graphic design association with governmnt and university to improve SME's design quality

4. Strategic Recommendations

In the short and medium term could be recommended into some creative ideas of economic development in the city of Surabaya.

4.1 Recommendation for Creative Workers

Some things that are recommended for the HR aspects of the creative economy, among others: (1) Fostering creative culture in the productive age group of Surabaya city by strengthening the community, the development of joint events, education and organization. Some already running regular eg DIY Festival or Sunday Market; (2) The budget allocation for the education sector also accommodates the needs of human resource development of creative economic sectors, such as funding for the development of creative business incubators at vocational level; (3) development of creative business incubators in various levels, ranging from micro businesses, small to medium-sized. This activity can involve practitioners and academics for the selection process, mentoring and evaluation; (4) The provision of incentives is held in a certain period to initiate and trigger the creative human achievement Surabaya at the municipal level, the provincial, national or global, for example, through the grace of creative people yearly. Incentives can also be the licensing and access to capital; (5) Facilitating the issuance of bulletins and directories to update the data and the development of creative business economic actors Surabaya

4.2 Recommendation for Infrastructure

Recommendations for strengthening the infrastructure in supporting the sustainability of the creative economy in the city of Surabaya is as follows: (1) Required intermediary institutions as a representation of a variety of creative community in Surabaya to communicate with municipalities and stakeholders in bridging the aspirations and ideas of the various sub-sectors of the creative cluster. These institutions can also play a role in organizing collaborative activities between one community with another community in Surabaya; (2) Required Co-Working Place for the intermediary institutions can manage the needs of the entire creative community, as well as a place of intensive interaction between communities. Co-working place that has been initiate by the graphic design community called Nine established at 2015 with 3 graphic design start-up share the space of working (3) Development of Creative District Surabaya (Surabaya Creative District) for a display window of all creative activities in various sectors of the advantages, as well as provide space for promoting sectors emerging. As an initial step, the Surabaya City Government can facilitate through buildings Surabaya assets that have not been utilized as a temporary storefront

ACKNOWLEDGMENT

Thank You to the writing collaborator among the research of Creative Economy for The Board of Development Planning of Surabaya, Mr. Mohammad Cahyo Novianto and Mr. Kumara Sadana.

REFERENCES

_____, 2009, *Studi Industri Kreatif Indonesia,* Departemen Perdagangan Republik Indonesia

Gantchev, Dimiter, 2009. *The Creative Economy and Intellectual Property*, WIPO's Creative Industries Agenda, Creative Industries Division World Intellectual Property Organization, Bandung, Indonesia

Landry, Charles & Franco Biancini, 2000. *Creative City*, Demos , London

Dos Santos, Edna, 2008. The Challenge of Assesing The Creative Economy: Toard The Informed Policy-making, United nation Conference on Trade and Development, www.unctad.org.

Thorsby, David, 2007. *Modelling The Creative/ Cultural Industries*, Seminar of New Directions in Research: Substance, Method and Critique, Edinburgh, Scotland

Lakoro, Rahmatsyam & Mohammad Cahyo Novianto, Kumara Sadana, 2013. *Rencana Pengembangan Ekonomi Kreatif Kota Surabaya 2014-2015*, Badan Perencanaan Pembangunan Kota, Surabaya.

Traditional Food Packaging Design towards a Creative Industry Era: A Case study of East Java Food Packaging Development and Problem of Pudak, Jubung, and Getuk Pisang

Senja Aprela Agustin, ST., MDs
Sepuluh Nopember Institute of Technology Surabaya,Indonesia
senja@prodes.its.ac.id

Abstract **—** Traditional food packaging design of a certain city can be an icon of tourism souvenirs which are wanted by tourists. It carries the indigenous knowledge of natural materials as a response to the current issue of environmental design today. The packaging design becomes more important as the government began to list the culinary sector as one among 18 categories of Creative Industries because of its values and cultural identity. Unfortunately, currently, traditional food packaging design has not yet had a good brand identity yet. Thus, this paper presents our current research which focuses on traditional foods packaging design. Designing this type of foods is of challenging since the food's characteristics are moist and perishable (lasting for less than a week). Due to those characteristics, the products require the use of natural materials (botanic) and specific packaging techniques. Products namely Pudak and Jubung from Gresik and Getuk Pisang from Kediri are used in the case study. In order to design traditional foods packaging, consideration of cultural wisdom of traditional foods in meaning, natural material required, skills and knowledge of how to package the local natural materials especially those originated from East Java will be maintained as a primary packaging (which wrap food directly). In addition, this paper also presents approaches for design development of traditional food packaging, including the development of secondary packaging, the identification of visual identity and the study of packaging structure and materials. Some literature will be used to support the design methods such as brand development and packaging design; structural package designs, packaging design trends etc. The result is experimental design recommendation for SMEs and is expected to improve their competitiveness in the market.

***Keywords*–Traditional Snack, Packaging Design, Visual Identity**

1. INTRODUCTION

The pattern of food processing and traditional snacks in certain areas indirectly represents geographic, food sources, natural sources for packaging, and ways of the different consumption in Indonesia. The existence of traditional snacks is also still hunted by travelers as a souvenir in certain city. Traditional foods presented in this paper is the type of moist snacks aged less than a week, originated from East Java. Here are some examples of unique traditional snacks from East Java and their packaging design. The first is Pudak from Gresik, made from young coconut, rice flour, and sugar wrapped in frond of Bettel Nut (Pinang) pouch. Similarly, the other traditional snack is Jubung from Gresik, which is made from black glutinous rice, coconut milk and sugar which are steamed and sprinkled with sesame on top of it. This type of foods tastes sweet and sticky and wrapped in a stem nut cup. Last is Gethuk Pisang from Kediri made from plantain, jackfruit, sugar, salt, wrapped in banana leaves. The scent of banana leaves blends with Gethuk Pisang is a kind of natural packaging design.

Primary packaging design of traditional snacks of Jubung, Pudak and Gethuk Pisang which maintain the use of natural materials (such as frond of Bettel Palm, Banana leaves) are considered appropriate materials to maintain the delicacy and goodness of the snacks. Thus, the use of those natural materials for the primary packaging of Jubung, Pudak and Gethuk will not be replaced by other non-natural materials.



Figure 1. Traditional snacks Jubung and Pudak (Gresik) and Getuk Pisang (Kediri)

1.1 Problem statement

How to develop the visual identity and the secondary packaging design for Jubung, Pudak and Gethuk Pisang as the case study of traditional snacks?

1.2 Goal

The approach presented in this paper is intended to design secondary packaging and to develop the visual identity for East Java traditional foods. The design approach is expected to support the performance of traditional snacks packaging that have local identity and be able to compete in both national and international markets.

2. ANALYSIS

2.1 Understanding the characteristics of traditional snacks and packaging design

Knowing the food characteristics, the ingredients for food processing and the way to consume foods is of early stage to gather data required for designing traditional food packaging. The availability of natural material as the main material, looking for possibility of using eco-friendly material and production technique is also another important consideration in traditional packaging design.

a.Pudak-Gresik

Made from rice flour, sugar/brown sugar and coconut milk, this food is wrapped by an "Ope", the midrib of betel leaf which serves as its primary packaging. As for today, Pudak has three flavors: white pudak (white sugar flavor), brown pudak (brown sugar flavor) and pandan leaves flavor.

b. Jubung-Gresik

Jubung is a traditional snack made from black glutinous, white glutinous, sugar and coconut milk which placed in a small cup made from the frond of Bettel Palm (Pinang) and added by some sprinkling of sesame on it. As for the primary design packaging of Jubung, it makes use of a cardboard or a plastic tray which contains 6-8 pieces of Jubung in it.

c. Gethuk Pisang-Kediri

Gethuk Pisang is a traditional snack made from steamed Banana King and sugar wrapped in banana leaves then locked by a piece of stick to close it. One well-known brand that sells Gethuk Pisang is SARI Lezat which produced by POO brand.

2.2 A comparator study of traditional snacks packaging design from Yogyakarta, as an Indonesia tourism city

The study is conducted by mapping the excellent packaging design aspects taken from Bakpia, a local snack that has been growing in Yogyakarta. It is noted that packaging design prioritizes local identity and local culture through illustrations and photography, such as images of men dressed in traditional Java, images of Yogyakarta Tugu monument, images of teapots, etc.



Figure2. Some examples of Bakpia packaging design

2.3 A comparator study of an environmentally friendly local food packaging design from Japan.

In this approach, we conduct the study on the use of natural materials or looks like natural material in traditional packaging design in Japan. We notice that the local Japanese design has the power of aesthetics, eco-friendly and unique packing technique. Moreover, the design also emphasizes on convenience and low printing cost by using only 1-2 colors that combined with the basic material color which originally is already interesting.





Figure 3. Some examples of Japanese packaging design that have eco-friendly material and beauty look by using simple color and ilustration

2.4 Concept development of logo design of Pudak and Gethuk Pisang

Suitable concept for developing packaging designs is "memorabilia traditional snacks" to convey the traditional snacks of East Java which is still loved by society. This design concept will be translated into visualizations that have classic and retro impression equivalent with the traditional snack association it self. Miller and Aldridge (2012) said that, "Because of widespread, if misguided, perception that packaging was more sustainable in the past, vintage styling can be used to convey green qualities. For instance, soap may be wrapped in paper or have twine binding with a simple paper tag, creating a fresh, handmade image. Some manufactures make a virtue of presenting products, made and wrapped by hand, that often hark back to the past and to traditional methods of production" (p.102).

Retro feel could be shown by handmade illustration, color and typography using Serif typeface, such as Mrs. Eaves or Rockwell that have a small line attached to the end of a stroke in a letter. This typefaces is often used to convey a traditional-decorative feeling. As for the color selection, it is influenced by the characteristics of natural food ingredients such as chocolate and light green on coconut fruit, leaves, etc. Illustration such as picture of Jubung, Pudak, and Javanese women wearing kebaya and sanggul is regarded appropriate to describe the impression of "homemade food" and traditional.



Figure 4. Color scheme adaptation from food ingredients like Coconut





Figure 5. Some alternative logos for Jubung, Pudak and Getuk Pisang

2.5 Structural packaging designs alternative for Jubung, Pudak and Gethuk Pisang

Physical configuration is able to capture the visual identity of a brand. Structure and material are used as a place to store, protect and transport the product (Klimchuck dan Krasovec, 2007).

Thus, the packaging design has to answer six important questions as follow.

1. What is the product?
2. How is the distribution of products?
3. What about storage?
4. How to display?
5. Who are the target customers?
6. Does the previous design need to be fixed?

Here are some sketches of alternate designs that use secondary packaging that uses box dimensions for Jubung. Main design criteria for Jubung is separator between the cups Jubung often sticky when the clash could be a solution to the design, as well as the alternative to use handle for better portability. Materials may include bamboo baskets to cardboard.

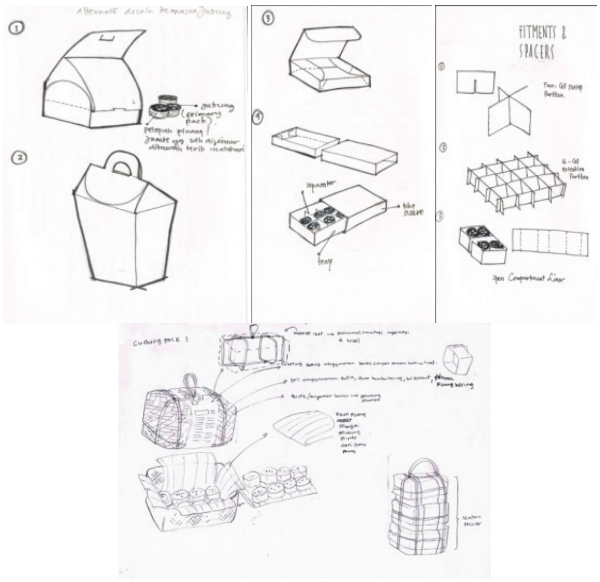


Figure 6. Some structural packaging design development for Jubung

Pudak characteristics required in a hanging position so that food stays good needs to be maintained. Label brand could use thick perforated cardboard. Label may also be wrapped around the rope strands the tightened five Pudaks together. Other design alternatives are hard and thick cardboard equipped with a hole for the handle.
This packaging design will be made in three variants, each is represented by the simple system graphic such as rope color for tie up five Pudaks to mark off. White for original flavor, brown sugar for Aren flavor and green for Pandan flavor.

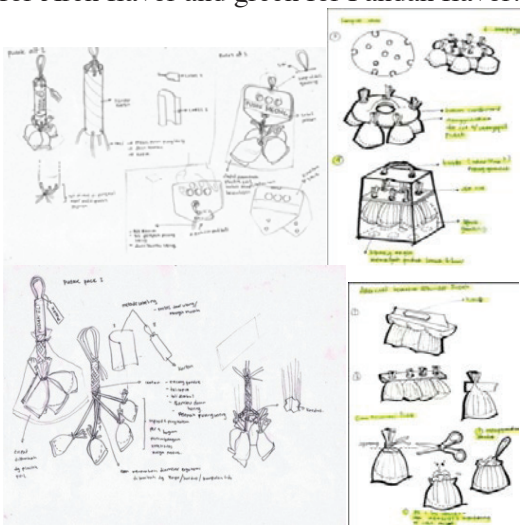


Figure 7. Some structural packaging design development for Pudak

The early primary packaging design for Gethuk Pisang, Jubung and Pudak will not be changed, as the design has represented the characteristic of the foods known by most people.

The alternative structure of the cardboard packaging design requires to be solid and compact in order to make it easy to bring some Gethuk Pisang. This packaging only requires to fold paper, without any glue or stapler. Low printing cost using only one color is the main consideration for this small industry.

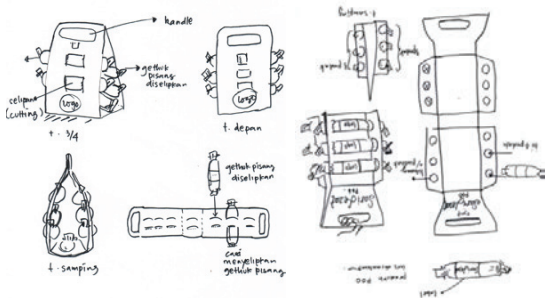


Figure 8.Structural packaging design development for Getuk Pisang

2.6 Digitalization of Sketches



Figure 9. Digitalization of three alternatives packaging design for Jubung



Figure 10. Digitalization of three alternatives packaging design for Pudak



Figure 11. Digitalization of three alternatives packaging design for Getuk Pisang

The next stage is to select designs which meet the design criteria. The criteria considers the characteristics of the food, the visual identity (logo, graphic images, colors and typography) of the food, the easiness and low printing costs for production, and the portability for bringing the food. After passing some design processes and having discussion with the brand owners about the structure of the packaging design which considers the food characteristics, three designs are selected to best meet the design criteria.

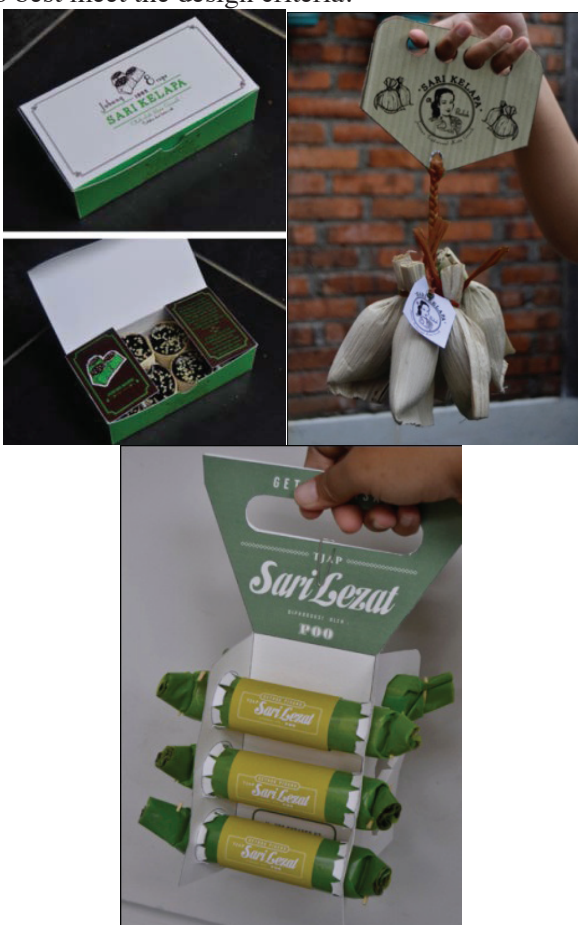


Figure 12. The three of choosen designs for Jubung, Pudak and Getuk Pisang.

III. CONCLUSION

Packaging design of traditional snacks of Jubung, Pudak and Gethuk Pisang which maintain the use of natural materials (such as frond of Bettel palm, banana leaves) are considered appropriate materials to maintain the delicacy and goodness of the snacks. Thus, the use of those natural materials for the packaging of Jubung, Pudak and Gethuk will not be replaced by other non-natural materials. This research generates brand visual identity system by creating a logo, graphic systems and graphic image. Another result is developing secondary packaging design which contains multiple products intended to a better portability to bring and consume the foods. Another result reveals that in order to design a good package, it is important to understand the product characteristics, the material and structural characteristic of the packaging, graphic images and the growing trends of packaging in today's market. Another design approach is to answer the challenge of packing design to be more environmentally friendly which also emphasizes on local cultural identity.

REFERENCES

Klimchuk, Marianne Rosner dan Krasovec, Sandra A. (2007) *Desain Kemasan: Perencanaan Merek Produk yang Berhasil Mulai dari Konsep sampai Penjualan*. Jakarta: Penerbit Erlangga.

Miller, Laurel and Aldrige, Stephen (2012) *Why Shrink-Wrap a Cucumber?The Complete Guide to Environmental Packaging*. London: Laurence King Publishing.

The Sundanese Traditional Packaging Design Concept: Enhancing The Value Of Sundanese Local Food

Kankan Kasmana, M.DS
Unikom, Indonesia
ququlunuan@gmail.com

Rini Maulina,M.Sn
Unikom, Indonesia
naminalina@yahoo.com

Abstract — In Sundanese society, food packaging comes in a very unique form and materials. The nature resources has been utilised as packaging materials to convey the Sundanese value and philosophy, in which makes the Sundanese traditional food packaging is presented beyond its modest form. Bandung, the capital city of West Java Province, which the majority of its inhabitants are Sundanese ethnics; has become the popular destination for tourism. This city has been famous of its Sundanese foods for years. Unfortunately, most of the foods are packed in the packaging that designed merely to protect and deliver the content; ignoring the characteristics that identifying the origins of the foods.

This research is discussing the concept of the Sundanese traditional food packaging in the life events of the Sundanese people that draw on descriptive methods. This research found that the packaging concept in Sundanese traditional foods shows closeness and friendliness to nature, and illustrating The Sundanese religious and spiritual belief. The designing of food package based on the traditional package concept of the Sundanese allows the improvement of Sundanese traditional foods to a higher level.

Keywords –Food Packaging, Sundanese, Tourism

1. INTRODUCTION

Food packaging has more important role in the tourism industry of West Java especially in Bandung city, where traditional food is also popular as souvenirs. Bandung is very strategic to introduce traditional food of West Java to the local and international visitors. Traditional food and its packaging are the reflection of local culture in Bandung which the majority are Sundanese. The Sundanese has multitude packaging concepts for traditional food that came from its culture. However, the current packaging design and its attributes are designed within protection and delivery aspects only. Moreover, it has failed to adopt the Sundanese tradition as it mostly relies on packaging machines, production considerations, and cost efficiency.

The previous study shows that the traditional Sundanese food and its packaging is becoming rare and only found in traditional ceremonies at certain occasions. In fact, the packaging of Bandung food souvenirs do not apply the concept of Sundanese value which has much meaning and philosophy associated with the traditions that show religiosity and spirituality of the Sundanese local wisdom. Therefore, the cultivation of food packaging design that based on the concept of Sundanese traditional packaging will allow the traditional Sundanese food to be recognised as Indonesian gems within the international level.

2. LITERATURE AND THEORY

2.1 Food packaging

The life view of Sundanese people towards the nature is reflected in the way of life, applies in their values and philosophy. One of them is in terms of food packing. Sumardjo (203, p.303) explains that Sundanese people have a way of expressing the concept of value and philosophy of

its people through the distinctiveness in food packing. Served on any events that are considered essential for community life, such as birth, circumcision, marriage, celebration, ritual, celebration of the start and end markers, memorial religious holidays, and even death. The distinctiveness comes from the diversity of material choice, packaging form and content of values and philosophy. Nature becomes material, inspiration, which is utilized, and maximized by society. This is due to the geological character in which cultural fields and rice paddies characterize the Sundanese. With the cultural background, Sundanese people have view/special philosophy of nature (Sumardjo, 2003, p. 303).

Rosidi (2006) outlines that the Sundanese assume the natural environment provides maximum benefit to mankind if it is preserved cared for and maintained properly and used only sparingly. He also adds if nature is overused especially untreated and not preserved well, there will be a disaster and misery. This view affects the way of life and how to treat the surrounding environment. As the evidence, there are many Sundanese artefacts that appear closely related to nature, including food packaging.

Traditional Sundanese food packaging is a form of artefact that presents in various aspects around the creators and users of the packaging, namely: the traditions, the culture and the mind set of its people. Traditional packaging is the packaging which is used in traditional food, the packaging typically presents in festive occasions or commemoration which is a life event of a society that is considered meaningful / valuable for the life. It is made from natural materials, such as leaves, bark, bamboo, fruit and even animal organs. The packaging materials that used typically are banana leaves, coconut leaves, teak leaves, hibiscus leaves, guava leaves, palm leaves and bamboo, cornhusk, pandan leaves, and hanjuang leaves. The bark that used is the bark from banana tree. As for trees trunk that is often used as a packaging material by Sundanese community is bamboo (Lutvia, 2012, p.7).

2.2 Food type and ingredients

According to Suriawiria (2009), Sundanese food is generally made of: Grains, Fruit, Tubers, Leaves / Shoots plant, Bark, Flour of Plant, overall Fish, Meat, Egg. He added that these foods according to their nutrition and nutritional content results are divided into three types namely food type which contains carbohydrates (grains and tubers) then protein (animal and plant) as well as minerals and vitamins (especially of plants) that the percentage is 65% of Sundanese food derived from plants, and the rest is derived from fish and meat. Sundanese people in their daily life know the food type that consists of main dishes (rice / *sangu* as rice), side dishes / complementary (*rencang sangu*), dessert (*bibilas*), and snacks or *cangkarang bongkang* (Adiati in Ekadjati: 2001 , p. 33), there is also a call opieun (snack). There are also other food that is known as light meal/*jajaneun*.

Sundanese traditional food which its packaging is found in many food types of *cangkarang bongkang*, it is the appetizer. But it is partly also on food type of *sangu* or *kejo*, *bibilas*, and partly on *rencang sangu*. The following are types of food names and packaging, the results of field surveys, interviews and completed by literature of Sabana and Adiati in Ekadjati, et al (2001), as well as Sasmita (2014) (see Table 1).

3. DATA AND METHODS

The approach that is used in this study is qualitative. This research aims to understand the social problems or man's problems, based on the creation of complete holistic picture, which is formed by the words, reports informants view in detail (Cresswell, 1994). In addition, descriptive method is used as the efforts to describe the findings of the research activities. Data is obtained through observation, interviews, and surveys to get a concept or model that can be applied to answer the problem formulation, so that it is suitable to the purpose of research. Stages of the research are as follows:

The research was began by collecting data about the research object in the form of traditional food physical evidence and its packaging, which is present at life events: birth, circumcisions, weddings and holiday celebrations / the research object is the traditional village in Bandung and Garut, in West Java, namely Kampung Cikondang-Pangalengan, Cireundeu -Cimahi, and Kampung Pulo.

- Interviews were conducted with traditional food experts with the elected head of Kampung Adat as well as the perpetrators of the packaging maker,
- The research was also conducted at retail stores of Bandung souvenirs seller. As well as the food producers of Bandung souvenir,

- Theories about packaging and traditions that support are obtained from literature in the form of books, journals, articles, as well as some data from Internet pages.

4. RESULT AND DISCUSSION

4.1 Concepts of Sundanese Traditional Packaging

Sundanese people appreciate nature to maintain the resources that it generates and they utilize the resources, it becomes life philosophy of Sundanese community and they apply it in everyday life practice. One is in the form of food packaging. Here is an overview of traditional packaging concepts that are present in Sundanese traditional food :

- Having a distinctive name to some packaging forms (*Takir, susudi kisa, kontrang, pincuk, posong, bungkus, cangkedong, incak, baralak, tiir, bongsang, besek, tengkor, urung, tiir, beungkeut*), the terms which strongly suggests Sundanese local wisdom
- Optimizing the use of materials which are derived from nature, various leaves, bark / bamboo, trees stem etc. This is an expression that nature was the inspiration at the same time the attitude to preserve the nature (Rohidi in Ekadjati et al, 2001, p. 10)
- The way of food been packaged which is typical and adapted to the type of food, whether it is liquid or dry. According to Sabana in Ekadjati et al (2001, p. 13) it is divided into 8 groups how to pack, they are: roll, fold, wrap, woven, wrap, assemble, pads, sticks.

- Environmentally friendly packaging, the material has a distinctive scent that affects the food smell, protects food, safe from harmful chemicals, it is unlike the plastic wrap that issued monomer carcinogenic that is harmful for body (Gusdinar in Ekadjati et al 2001, p. 31), On the surface, the leaf packaging contains waxes compound, anti-microbial (anti-fungal, anti-bacterial, anti-parasitic, anti-virus) (Gusdinar in Ekadjati et al, 2001, p. 31).

4.2 Sundanese Traditional packaging application concept on the Bandung Souvenirs packaging

Variety of food that is contained in the Bandung souvenir is included into the group of snack food or *cangkarang Bongkang* / *opieun* / *jajaneun*. Bandung food souvenir consists of several types, dry food such as various snacks in the form of chips, wet food such as various snacks of market snack, and some spicy food. The food which is popular as Bandung food souvenirs are Cassava Chips, Brownies Cake, Bolen Banana, Mie Kocok, Fries as Combro, Perkedel, Pindang, Dodol, Fried Oncom, Fried Tempe, Baso, Baso Tahu, Batagor, Seblak Chips, Mochi, Peuyeum etc. The packaging of the food can be used as a media to communicate Sundanese culture and City of Bandung to tourists. However, the packaging applied in Bandung food souvenirs has not dealt seriously. One of the packaging indicate a Sundanese traditional food in Bandung city, for example Batagor Riri, the packaging made from woven bamboo. Its identify Sundanese culture.





Figure 1. Batagor Riri packaged using *Incak*
personal documentation

Japan is as an example reference in applying traditional packaging on food. There is a lot of Japanese traditional food that is packaged by using techniques and materials that is utilized in natural ingredients. The traditional sense and the uniqueness of the food is strongly sparked through its packaging. The Japanese food packaging is distinctively delivering the identity of the region and the country. The examples are as follows:



Figure 2. Natto Traditional Food by Tengu-natto from Mito-well known in Ibaraki prefecture using grass stems material, to maintain the distinctive flavor of Natto. *(http://creativeroots.org/2010/03/traditional-japanese-packaging-designs/ accessed on 8 September 2014)*



Figure 4. Snack wrapped in bamboo grass called "chimaki sushi" Wrapped in additional plastic foil *(http://creativeroots.org/2010/03/traditional-japanese-packaging-designs/ accessed on 8 September 2014)*

From the overall picture, there is a concept that can be applied to Bandung food souvenirs packaging, by maintaining the natural wrapping materials which is derived from plants. It can be described as 1) using the original packaging forms such as wrappers; *pincuk*, 2) Raising and demonstrating the identity of Sundanese traditional food in Bandung city, 3) Adding graphic design elements to make packaging design be updated.

The research benefits to science by providing reference relates to traditional Sundanese food packaging with entitled with its concept, enriching the study of traditional Sundanese food packaging, documenting the Sundanese people intellectual property in terms of traditional food as the knowledge about it is more reserved in speech or verbal form.

The research benefits to practitioner are as follows: 1) Creating an applied concept on good packaging that can be applied and considered in the design of food packaging, 2) Raising the value of a good tradition that can be realized through food packaging, 3) Creating characteristics and face that are specifics for Bandung food souvenirs.

ACKNOWLEDGMENT

This research has funded by a grant from the Directorate General of Higher Education, the Ministry of Research, Technology and Higher Education, the Republic of Indonesia, and supported by Unikom, Bandung, Indonesia.

REFERENCES

Creswell, J. W. 1994. Research Design: Qualitative and Quantitative Approaches. CA: Sage Publications.

Ekadjati, E. S. Dkk.(2001): Kemasan Tradisional Makanan Sunda: Ungkapan simbolik & estetik senirupa tradisional sunda. Bandung: ITB

Klimchuk, M.R.& Krasovec (2002): Desain Kemasan: perencanaan merek produk yang berhasil mulai dari konsep sampai penjualan. Jakarta: Erlangga

Lutvia, V (2012) Estetika pada Kemasan Tradisional Sunda, Bandung: Unikom

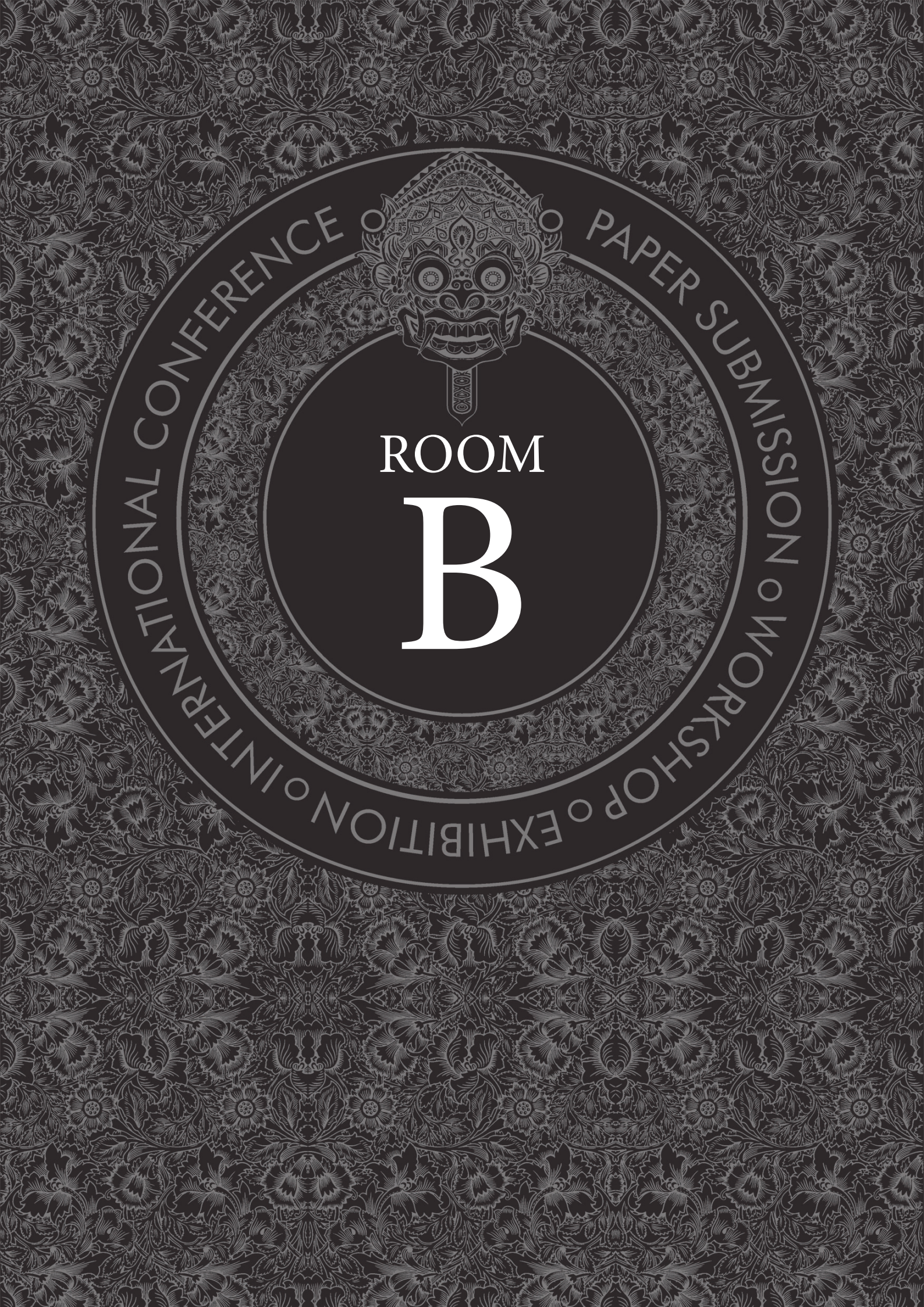
Rosidi, A. (2006): Kajian tentang Falsafah Sunda Pelat.http://ajip-rosidi.com/makalah/kajian-tentang-falsafah-sunda/ (diakses: 12 Oktober 2012)

Sumardjo, J. (2003): Simbol-simbol Artefak Budaya Sunda Tafsir-tafsir Pantun Sunda. Bandung: Kelir

Sutisna, M. (2013); Pengetahuan Teknologi Tradisional Orang Sunda. Bandung: Rumah Baca Buku Sunda

No	**Food Name**	**Packaging Name**	**Material**	**Category**	**Serving**	**Image**
1.	Bugis	Wrap	Banana leaf	*Cangkarang Bongkang/Opieun/Jajaneun*	Celebration and birth thanksgiving	
2.	Kelepon	Takir/Cangkedong	Banana leaf	*Cangkarang Bongkang/Opieun/Jajaneun*	On the counter/Market snacks	
3.	Ketupat/*kupat*	*Urung*	Young coconut leaf (janur)	Main dishes (*sang u/kejo*)	Eid Fitri, Eid Adha, also used in food such as kupat tahu.	
4.	Tahu Sumedang	*Bongsang/Karanjang*	Woven bamboo	*Rencang Sangu/Cangkarang Bongkang*	Daily food on the court	

Table 1. Types of food names and packaging. Source: the results of field surveys, interviews and completed by literature of Sabana and Adiati in Ekadjati, et al (2001).


INTERNATIONAL CONFERENCE ◦ EXHIBITION ◦ WORKSHOP ◦ PAPER SUBMISSION
ROOM
B


INTERNATIONAL CONFERENCE
PAPER SUBMISSION
WORKSHOP
EXHIBITION
icci
2015

The Role of Physiological Anthropology in Product Design: Laterality during Locomotion and Its Prospects in Design

Kadek Heri Sanjaya
Research Centre for Electrical Power and Mechatronics, Indonesian Institute of Sciences, Indonesia
kade001@lipi.go.id

Yoshihiro Shimomura
Humanomics Laboratory, Graduate School of Engineering, Chiba University, Japan
shimomura@faculty.chiba-u.jp

Tetsuo Katsuura
Humanomics Laboratory, Graduate School of Engineering, Chiba University, Japan
katsu@faculty.chiba-u.jp

Abstract —This article describes the importance of physiological anthropology in design especially to enhance ergonomic approach. The data to support this view is based on case study of laterality during locomotion followed by the possibility of its application in service and product design. Physiological anthropology whose keywords include human evolution and adaptation offers deeper understanding in man-environment interaction, as its measurement and analysis methods provide greater insight of a phenomenon, in accordance of its nature as basic science in opposite of the applied science of ergonomics. The study of laterality has been largely neglected in ergonomic studies to ease data collection and analysis. The use of instruments such as electromyogram (EMG), pressure sensors and motion analysis system provides objectively measured data which can be communicated between designer and engineer during product development. Our study on laterality during locomotion found that certain disadvantages possessed by left-handers and mixed-footers compared to right-handers and right-footers which represents the majority of human population, in locomotion as shown by greater asymmetry. This shows that left-handers suffer greater energetic cost during locomotion. The study of laterality is important for designing gait therapy and training program, for understanding neurodevelopmental processes, and for human-machine interface design.

Keywords – design, laterality, locomotion, physiological anthropology

1. INTRODUCTION

This article is divided into two section in general: to introduce the importance of physiological anthropology study and its advantages in enhancing ergonomic approach and to describe the study of laterality during locomotion as a case study of a physiological anthropology measurement and the possibility of its application in product design and development.

Physiological anthropology as a basic science introduces the methodology to study human based on their physiological characteristics, defined by keywords related to human evolution and adaptation, and take into account the great variation of humans. Modern humans or homo sapiens are divided into different races where each has its own characteristics. The most obvious example of the embodiment of this difference are body size and proportion or anthropometry, skin colour, hair colour, and the less obvious ones are

reaction to environmental condition such as sweating processes and circadian rhythm. This field also considers evolution in longer time such as adaptation since thousands years ago and evolution in shorter time such as the change in bodyheight among recorded populations in few hundred years. All of these things have consequences in design decision, however short sighted design tends to neglect these differences.

Physiological anthropology has a close interaction with ergonomics which has been commonly adopted in design. Ergonomics is a common terminology used in Europe (Sanders and McCormick, 1993). The word ergonomics was derived from ancient greek Ergon and Nomos and defined as a study on human aspects inside human's working environment based on analyses of anatomy, physiology, psychology, engineering, management, and design (Nurmianto, 1998). Human factors, the terminology very common used in the United States, focuses humans and their interaction with things they used in work and daily lifeaimed to enhance the effectiveness and efficiency of work and other activities as well as to enhance certain desirable values such as safety, less fatigue and stress, comfort, user acceptance, job satisfaction, and quality of life (QoL) (Sanders and McCormick, 1993). Human factors include the design and development of tools that facilitate the achievement of these goals (Wickens et al., 2004).

The earliest goal of ergonomic study was to improve productivity (Wignjosoebroto, 2003). The discipline of ergonomics which originally developed from a fairly narrow concern for human interaction with physical devices has grown into broader study in recent years (Wickens et al., 2004). The practice of ergonomics and human factors is goal-oriented rather than content oriented therefore it requires multidisciplinary approach and the discipline of ergonomics cannot be tightly defined (Wickens et al., 2004). Hence, we can point one distinctive aspect between physiological anthropology and ergonomics is orientation, where the former more content-oriented and the latter more goal-oriented.

Recently, the concept of user centred design has been widely applied in product design. Ergonomic consideration has a vital role on concept such as in universal design or usability in product development. The study of physiological anthropology reveals the physiological processes inside of the human body which is invisible to the observers by using measurement instruments such as force transducer, electromyogram (EMG), electroencephalogram (EEG), and electrocardiogram (ECG). The use of these instruments give greater advantage in objective measurements and produces data that can be communicated between design team and engineering team during product development.

The measurement methods provided greater opportunity to investigate laterality. Laterality is described as asymmetrical preferential use of limbs and sensory such as handedness, footedness, eyedness, and earedness (Schneiders, et al. 2010).The dependence of traditional ergonomic studies method on visible observation has limited most studies of laterality based on ergonomic viewpoint on handedness.Dessery et al. (2011) reported common mistakes in ergonomic studies to focus on the dominant limb due to assumption of humans' bilateral symmetry. In gait studies, the symmetry assumption is aimed to ease data collection and analysis (Sadeghi et al. 2000) however this assumption may miss important responses of locomotory system (Haddad et al. 2006). Thus, this article is aimed to introduce the importance of physiological anthropology in product design based on laterality during locomotion study, which may complement certain limitations possessed by goal-oriented ergonomic approach. Furthermore, the application of physiological anthropology knowledge in product design which enhances ergonomic approach will also be introduced in this article.

2. LITERATURE AND THEORY

The understanding of information on human physiological characteristics as basic science is also very useful in applied sciences andindustries (Sato, 2005). The development of physiological anthropology along with the advance of measurement methods have proven the importance of this field in explaining phenomena in various activities of human daily life and allow better understanding and more holistic approach of the subject (Sato, 2005).

In this field, there is a mindsetwhich assume that every person has his own special characteristics thus the idea of an ideal man irrelevant (Sato, 2005), in line with Darwin's evolution theory which stated that no two individuals are exactly alike. In living organism, a long evolutionary

process has brought varying functional, morphological, and behavioural characteristics due to differentiation of evolution process into various directions (Iwanaga, 2005). Thus, the measurement in physiological anthropology is based on individual measurements followed by statistical treatment of individual data in a group.

In our study, laterality is investigated based on physiological anthropology principle by analysing in each subject followed by statistical analyses. While most previous research has studied laterality, especially handedness based on population observations, probably due to greater uniformity among humans across different cultures separated by time and space.We consider individual variations carefully, and assume that even in laterality study, such variation exists. The study involving both handedness and footedness like in our study is likely will show this individuals variation to a greater degree because individuals would likely have different degree of handedness and footedness.

To understand how human body coordination is performed within the body is one of main concerns in physiological anthropology, thereforethe whole body coordination becomes one of the keywords of physiological anthropology (Sato, 2005). Understanding a phenomenon in a holistic approach is necessary to avoid misunderstanding on various physiological phenomena as independent phenomena separated each other (Iwanaga, 2005), which in reality they are coordinated each other.

Laterality, bipedalism and evolution

One aspect of laterality that has been widely studied is handedness. Handedness is found not only in human, but also found in other non-human primates (Braccini, et al. 2010; Leca, et al. 2010; Hopkins, et al. 2011; Duarte,et al. 2012). Based on finding where left-handed dominant was found in orangutans whereas on chimpanzees, gorillas, and bonobos right-handed dominated the population, Hopkins, et al (2011) proposed that the antecedents of right-handedness in human developed in African apes, after they split from the common ancestors with orangutans, and then after the split with chimpanzees, cultural influences resulted in greater proportion of right-handers in human (Uomini, 2009; Hopkins, et al. 2011). However, basically research on non-human primates showed inconsistent patterns across different populations and environments (Uomini, 2009). The most robust evidence of ancient handedness was found in Neanderthal population (Cashmore. et al, 2008; Uomini, 2009).

Locomotion is a common activity in living animal, characterised by movement from one place to another. In legged animals, the movement is usually conducted with certain distinct patterns of leg movement called as gait and their study is called as gait analysis (Stewart and Golubitsky, 2011). For years, biologists have concentrated on describing different types of locomotion types, and detailed descriptions exist for leg movement patterns and the anatomic features associated with different modes of locomotion (Cavagna et al., 1977). In bipedal humans, most common type of gait are running and walking.

Bipedalism has been associated with laterality. Observation on chimpanzees revealed that a bipedal stance without hand support will strengthen hand preferences, suggested that the combination of bipedalism and tool use may have helped in developing lateralization in human (Braccini, et al. 2012). Observation on Sichuan snub-nosed monkeys also found that foot preference was significantly evoked in bipedal action than in quadrupedal action, suggesting that bipedal posture could be a crucial factor in influencing laterality (Zhao, et al. 2008).

Population studies on handedness reported some drawbacks possessed by left-handers compared to right-handers as reported by Coren (1992). Left-handers were also found to have greater risk of accident than right-handers. Left-handers were 20% more likely to have an accidental injury when engaged in sports, 25% more likely to have such injury when at work, 49% more likely to have an accidental injury when at home, and 51% more likely to have accident-related injury when using a tool, machine, or other implement. Left-handers were also reported to be six times more likely to die from causes initiated by accident-related injury (Halpern and Coren, 1991).

3. DATA AND METHODS

In this section we describe the methodology used in our experiment from subject anthropometry data, laterality, EMG and pressure sensors, followed how we made systematic association between the experiment results and their application in design.

3.1 Subjects' Data

Participants in our experiment camefrom Chiba University student population as many as 17 healthy young adult males (age 28±5 years; height 169.9±6.9 cm; weight 64.6±7.3 kg). Subjects' laterality data showed that 11 subjects were found to be both right-handed (50.25±12.42) and right-footed (9.25±4.13), and 6 subjects were grouped into left-handers (-15.17±13.7) and mixed-footers (0.0±7.5). Laterality was measured with Waterloo Footedness Questionnaire (WFQ) and Waterloo Handedness Questionnaire (WHQ) (Elias, et al. 1998).

All of these data in more detail presentation are available in other publications (Sanjaya et al., 2014; Sanjaya et al., 2015).

3.2Instruments

Muscles activity were measured bilaterally from four muscles: tibialis anterior, soleus, lumbar erector spinaeand triceps brachii. EMG electrodes were connected to a Biopac MP 150 data acquisition system (Biopac Systems, USA). Ten FSR-400 pressure sensors (Interlink Electronics, USA) were attached bilaterally on great toe, 1st metatarsal, 3rd metatarsal, 5th metatarsal, and calcaneusadapted from a method used by Kiriyama, et al. (2005) in order to measure foot pressure and contact duration. All subjects wore the same footwear to standardise friction. Each trial session was marked by a visual display timer and light sensor (Kodenshi Corp., Japan).

3.3 Procedure

Subjects performed locomotion on a treadmill (SportsArt Fitness, Taiwan)in three speeds: 1.5 km/h, 3 km/h, and 4 km/h. Before the main trials, subjects were familiarised with treadmill walking. Each trial was performed in 1 minuteof which 10 seconds most consistent middle part was recorded. The trial was performed three times with three minutes rest was given between trials.

3.4 Data Analysis

Data analysis was based on one gait cycle by using foot pressure sensor as reference. We divided data into right and left side gait cycle, where data from left side muscles and pressure sensor were analysed according to left foot gait cycle, and data from the right side were analysed according to right foot gait cycle.

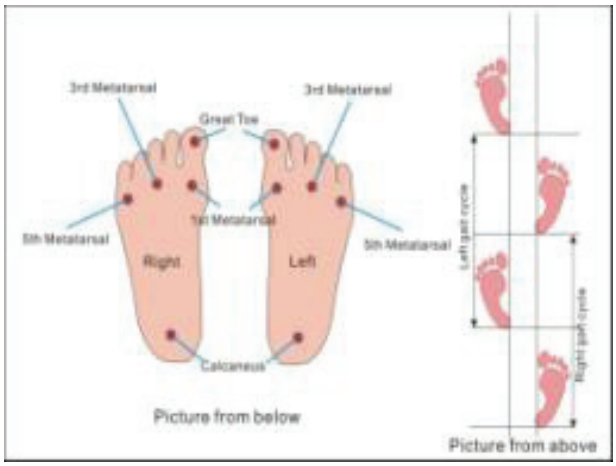


Figure 1. Foot pressure sensors attachment

To measure spatio-temporal change in symmetry of variables measured in left and right side, foot contact duration and cross-correlation function (CCF) was employed. CCF coefficients closer to 1 or time lag closer to zero mean greater symmetry (Nelson-Wong et al., 2009).More detail explanation of data processing and statistical analyses are explained in our other publications (Sanjaya et al., 2014; Sanjaya et al., 2015). Statistical significance was set at $p<0.05$.

3.5 Systematics Description of Experiment Results Application

As this article main intention is not the presentation of the experiment results, but to describe the prospects of physiological anthropology study into product design and development, we also provide several examples where this approach could be beneficial than the conventional ergonomic approach.

The explanation is based on literature searching to find references where the mentioned research methods are considered to be applicable. Therefore this article would be inline with product development.

4. RESULTS AND DISCUSSION

Gait cycle duration was found to be shorter with faster walking in all measurements ($p<0.05$). Gait cycle duration was found to be symmetrical which support a study by Golubitsky et al. (1999) on symmetrical gaits in various animals based of simple fractions of lateral phase shifts.

Asymmetrical stance phase duration was not observed. Both in LH and RH, stance phase

duration was found shorter with faster walking(p<0.05). These data are in agreement with previous studies which observed walking on treadmill, where stance phase duration was reduced from above 75% of gait cycle at 1 km/h to below 65% at 5 km/h (Lacquaniti et al., 2012).

Asymmetrical foot contact duration only showed by LH, especially in calcaneus at all speeds (p<0.05), and in 5th metatarsal at 3 km/h walking speed (p<0.05). LH showed significant increase in pressure symmetryof great toe when walking speed increased (p<0.05). RH showed significantly higher pressure symmetry of great toe than LH at 1.5 km/h and 3 km/h (p<0.05). In 1932, Lambrinudi described the main function of great toe is to support the metatarsal heads to take the full body weight when the heel is raised (Lambrinudi, 1932; Hughes et al. 1990). In this study, foot pressures sensor measured passive great toe dorsiflexion which occurs after the heel leaves the floor prior to push-off, as the toes are forced dorsally by body weight.

RH had significantly greater pressure symmetry of 1st metatarsal than LH at 3 km/h (p=0.02). LH showed significantly longer time lag than RH in 3rd metatarsal at 1.5 km/h and 3 km/h (p<0.05).When foot touches the ground, the foot pronates and then supinates (Hutton and Dhanendran, 1979), which is indicated by the 1st metatarsal touches the ground earlier than both 3rdand 5th metatarsal. The supination distributes body weight pressure from 1st metatarsal laterally. LH have asymmetrical timing of foot supination especially at lower speeds. The finding is in agreement with previous study on influence of walking speed on plantar pressures which found speed affected great toe, 1st and 3rd metatarsal, as well as heel, but not arc area and 5th metatarsal (Burnfield et al., 2004).In time lag of calcaneus, LH showed significantly longer time lags than RH at 1.5 km/h, 3 km/h and 4 km/h (p<0.05) indicating more asymmetrical timing of foot pressure.

LH showed longer time lag of soleus muscle activation than RH at 3 km/h walking speed (p=0.025).Soleus muscle which has role in ankle plantar flexion (Kendall et al., 1983) showed significant increase of symmetry between 1.5 and 4 km/h. The plantar flexor such as soleus has been reported to be important during support, forward progression and swing initiation, and also contributes to anterior-posterior and vertical ground reaction force during propulsion phase (Neptune and Sasaki, 2005).

Erectorspinae muscle showed greater symmetry from 1.5 km/h to 4 km/h in RH (p=0.007)and significantly greater symmetry of RH compared to LH at 4 km/h (p=0.005). The significant increase of erector spinae muscle CCF coefficient resembles that of soleus muscle. Erectorspinae muscle main role during walking is to preserve postural stability (Thorstensson, 1982). The humans foot has shape with narrow width and longer length, and comparatively less stable than non-human primates, however itis advantageous for speedy progressions (Kiriyama et al., 2005). Special treatment on foot, especially between toes and metatarsals head, was also reported to have effect on erector spinae muscle activation, since foot pronation affected internal rotation of the leg and ipsilateral pelvic tilt (Bird et al., 2003).

Application in gait therapy procedure

Asymmetrical walking has been associated with greater metabolic cost (Srinivasan, 2011). This study suggested the variability of walking on treadmill's effect on LH and RH. This fact will have further implication on the necessity of developing gait therapy procedure based on specific identification of patient's condition. In gait therapy for patients with deficiency, such as hemiplegic patients or children who bear cerebral palsy, the method used in our study probably can be applied as a complementary to the conventional balance test as described by Bohannon et al. (1984). While balance test only measured statically, before and after the therapy procedure, our method is probably able to measure in real time situation dynamically. However this assumption requires further research involving a significant number of patients with longer therapy period, since our study which was performed in relatively short time with normal patients cannot justify this assumption.Our experiment method also can complement dynamic test proposed by Holden et al. (1984) which measured velocity, cadence, step length, stride length, stride length to lower extremity length ratio, step-time differential, and stride-time differential.

Application in footwear design

Footwear was believed to be developed to protect the feet from environmental hazard such as sharp rocks and debris as well as cold. Based on fossils analyses, where less foot bone growth and shorter

and thinner toes were observed, footwear probably had been worn since 40,000 to 26,000 years ago. The oldest known shoes are sandals from approximately 7,000 or 8,000 BCE, which was discovered in the Fort Rock Cave, USA (Connolly, 2013) while the world oldest leather shoes were found in Armenia in 2008 and hypothesized to be as old as 3,500 BC.Since the Romans era, footwear has been regarded as a sign of power and status in the society (DeMello, 2009).

Physiological anthropology approach brings us to the earliest function of footwear for protection. To avoid confinement of bone and toes growth, footwear design should take foot anatomy and its development along with ages. The results of this study showed that contact duration, footsole pressure, and foot and ankle motion should also considered carefully in footwear design especially to optimize energetic cost with greater symmetry during locomotion without disregarding foot protection.

With regard to whole body coordination principle, foot and ankle movement during locomotion has been evidenced to affect other body parts such as leg and low back muscle activation. A bad footwear design may lead to musculoskeletal complaints not only on foot or ankle, but also on whole body. Asymmetrical foot and ankle motion which is showed in this study has been largely neglected in footwear design. To improve energy efficiency during locomotion, this feature should also being taken into account.

Walking speed is also an important aspect during locomotion. The fraction of stance phase and swing phase in one gait cycle which is related to energy flow, isone common representative of gait characteritics. Taking this aspect into account during footwear design is necessary. Our study showed that walking speed generates different foot pressure timing followed by different muscle activation magnitude and timing.

Application in Robot Design and Development

Locomotion is one of the most energetically demanding daily acitivities in human life which despite has been given great attention still is not well understoodespecially based on energy cycle principle (Bertram and Hasaneini, 2013). A good understanding of energy during locomotion will enable us to predict locomotion in various conditions such as walking in various gravitational force environment as well as to predict and design a walking robot.

McGeer (1990) developed a passive dynamic walking robotbased on natural dynamic mode of a two-legged machine. The robot which is comparable to human walking without any energy input or active control provided early evidence that passive walking effect as observed in human can be applied into robot development. The gait characteristics such as walking cycle and stability are easily calculated (McGeer, 1990). Our experiment method offer not only gait measurement method for a passive walking robot, but further, it also gives possibility to be applicable on a more sophisticated robot as part of sensory feedback and control mechanism.

A European initiative project to develop active robot called as Mindwalker project aimed to help patients with gait deficiency such as spinal cord injury patients is one example of the application biomechanics measurement methods into robot development (Sylos-Labini, et al., 2014).This robot processes information based on force transducer and motion analysis data to provide mechanism for assisted walking. This project so far does not incorporate muscle and brain activities feedback yet despite in long term the goal this project is to create walking assisting robot with greater autonomy to help patients. Our experiment methods developed into real-time feedback and control mechanism can be applicable in this kind of robot.

Conclusion

This article aimed to introduce the importance of measurement and analysis methods of physiological anthropology and their application in service and product design and development. As described in previous section, the discipline provide greater understanding for man and environment interaction than conventional ergonomic methods. Thus, design optimization can be achieved not only by better tools design but also by allowing better organization of researcher team behind the screen which is not known by the consumer.

ACKNOWLEDGMENT

We would like to thank Monbukagakusho as fund provider for this study as part of scholarship scheme. During the analyses of this article, Dr. Yoshika Takahashi and Dr. Lee Soomin also

provided great support and share of knowledge that we highly appreciated.

REFERENCES

Bertram, J. E. A., and Hasaneini, S. J. (2013). Neglected Losses and Key Costs: Tracking the Energetics of Walking and Running. *Journal of Experimental Biology, 216*, 933-938.

Bird, A. R., Bendrups, A. P., and Payne, C. B. (2003). TheEffect of Foot Wedging on Electromyographic Activity in the Erector Spinae and Gluteus Medius Muscles during Walking. *Gait and Posture, 18*, 81-91.

Bohannon, R.W., Larkin, P. A., Cook, A.C., Gear, J., and Singer, J. (1984) Decrease in Timed Balance Scores Test with Aging. *Physical Therapy*, 64, 1067-1070.

Braccini, S., Lambeth, S., Schapiro, S., and Fitch, W. T. (2010). Bipedal Tool Use StrengthenChimpanzee Hand Preferences.*Journal of Human Evolution,58*, 234-241.

Burnfield, J. M., Few, C. D., Mohamed, O. S., and Perry, J. (2004). The Influence of Walking Speed and Footwear on Plantar Pressures of Older Adults. *Clinical Biomechanics, 19*, 78-84.

Cashmore, L., Uomini, N., and Chapelain, A. (2008). The Evolution of Handedness in Humans and Great Apes: AReview and Current Issues. *Journal of Anthropology Science, 86*, 7-35.

Cavagna, G. A., Heglund, N. C., and Taylor, C. R. (1977). Mechanical Work in Terrestrial Locomotion: Two Basic Mechanisms for MinimisingEnergy Expenditure. *American Journal of Physiology, 2*(3), R243-R261.

Connolly, T. *The World's Oldest Shoes. University of Oregon*. Retrieved July 2013. Pages.uoregon.edu/connolly.

Coren, S. (1992).*The Left-hander Syndrome: The Causes and Consequences of Left-Handedness* (1st ed.). Toronto: Maxwell-MacMillan.

DeMello, M (2009). *Feet and Footwear: A Cultural Encyclopedia*. MacMillan.

Dessery, Y., Barbier, F., Gillet, C., and Corbeil, P. (2011). Does Lower Limb Preference Influence Gait Initiation? *Gait and Posture, 33*, 550-555.

Duarte, M., Hanna, J., Sanchez, E., Liu, Q., and Fragaszy, D. (2012) Kinematics of Bipedal Locomotion while Carrying a Load in the Arms of Bearded Capuchin Monkeys (Sapajus libidinosus). *Journal of Human Evolution, 63*, 851-858.

Elias, L. J., Bryden, M. P., and Bulman-Fleming, M. B. (1998). Footedness is a Better Predictor than is Handedness of Emotional Lateralization. *Neurophysiology, 36*(1), 37-43.

Golubitsky, M., Stewart, I., Buono, P. L., and Collins, J. J. (1999). Symmetry in Locomotor Central Generators and Animal Gaits. *Letter to Nature, 401*, 693-695.

Haddad, J. M., van Emmerik R. E. A., Whittlesey, S. N., and Hammill, J. (2006) Adaptations in Interlimb and Intralimb Coordination to Asymmetrical Loading in Human Walking. *Gait and Posture, 23*, 429-434.

Halpern, D. F, and Coren, S. (1991). Left-handedness: Behavioural Implications and Anomalies. *Psychological Bulletin, 109*, 90-106.

Holden, M. K., Gill, K. M., Magliozzi, M. R., Nathan, J., and Piehl-Baker, L. (1984). Clinical Gait Assessment in the Neurologically Impaired: Reliability and Meaningfulness. *Physical Therapy, 64*: 35-40.

Hopkins, W. D., Phillips, K. A., Bania, A., Calcutt, S. E., Gardner, M., Russell, J., Schaeffer, J., Lonsdorf, E. V., Ross, S. R., and Schapiro, S. J. (2011) Hand Preferences for Coordinated Bimanual Actions in 777 Great Apes: Implications for The Evolution of Handedness in Hominins. *Journal of Human Evolution, 60*, 605-611.

Hughes, J., Clark, P., and Klenerman, L. (1990). The Importance of The Toes in Walking. *Journal of Bone and Joint Surgery, 72B*, 245-251.

Hutton, W. C., and Dhanendran, M. (1979). A Study of The Distribution of Load under The Normal Foot during Walking. *International Orthop., 3*, 153-173.

Iwanaga, K. (2005) The Biological Aspects of Physiological Anthropology with Reference to Its Five Keywords. *Journal of Physiological Anthropology and Applied Human Science, 24*(3), 231-235.

Kendall, F. P, McCreary, E. K. (1983).*Muscles: Testing and Function*(3rd ed.). Baltimore:Williams and Wilkins.

Kiriyama, K., Warabi, T., Kato, M., Yoshida, T., and Kobayashi, N. (2005). Medial-Lateral Balance during Stance Phase of Straight and Circular Walking of Human Subjects. *Neuroscience Letters, 388*, 91-95.

Lacquaniti, F., Ivanenko, Y. P., and Zago, M. (2012). Patterned Control of Human Locomotion. *Journal of Physiology, 590*(10), 2189-2199.

Lambrinudi, C. (1932). Use and Abuse of Toes. *Postgraduate Medical Journal, 8*, 459-464.

Leca, J. B., Gunst, N., and Huffman, M. A. (2010) Principles and Levels of Laterality in Unimanual and Bimanual Stone Handling Patterns by Japanese Macaques. *Journal of Human Evolution, 58*, 155-165.

McGeer, T. (1990). Passive Dynamic Walking. *International Journal of Robot Research, 9*, 62-82.

Nelson-Wong, E., Howarth, S., Winter, D. A. and Callaghan, J. P. (2009). Application of Autocorrelation and Cross-correlation Analyses in Human Movement and Rehabilitation Research. *Journal of Orthopedic and Sport Science, 4*, 287-295.

Neptune, R. R., and Sasaki, K. (2005). Ankle Plantar Flexor Force Production is an Important Determinant of The Preferred Walk-to-Run Transition Speed. *Journal of Experimental Biology, 208*, 799-808.

Nurmianto, E. (1998).*Ergonomi, konsep dasar dan aplikasinya* (2nd ed.). Surabaya: Penerbit Guna Widya.

Sadeghi, H., Allard, P., Prince, F., and Labelle, H.(2000) Symmetry and Limb Dominance in Able-Bodied Gait. *Gait and Posture, 12*, 34-45.

Sanders, M. S. and McCormick, E. J. (1993).*Human Factors in Engineering and Design* (7th ed.) Singapore: McGraw-Hill.

Sanjaya, K. H., Soomin L., Shimomura, Y., and Katsuura, T. (2014). The Influence of Laterality on Different Patterns of Asymmetrical Foot Pressure and Muscle Activation during Gait Cycle in Manual Pushing. *Journal of Human Ergology, 43*(2). Publication in process.

Sanjaya, K. H., Soomin L., Shimomura, Y., and Katsuura, T. (2015). The Influence of Walking Speed on Muscular Activation Symmetry during Gait Cycle. *Proceeding of International Symposium on Human Adaptation to Environment and Whole-Body Coordination*, Kobe: JSPA.

Sato, M. (2005) The Development of Conceptual Framework in Physiological Anthropology. *Journal of Physiological Anthropologyand Applied Human Science, 24*(4), 289-295.

Schneiders, A. G., Sullivan, S. J., O'Malley, K. J., Clarke, S. V., Knappstein, S. A., and Taylor, L. J. (2010).A Valid and Reliable Clinical Determination of Footedness.*J. Phys. Med. Rehab., 2*, 835-841.

Srinivasan, M. (2011) Fifteen Observations on the Structure of Energy-minimizing Gaits in Many Simple Biped Models. *J. R. Soc. Interface, 8*, 74-98.

Stewart, I., and Golubitsky, M. (2011).*Fearful Symmetry' is God a Geometer?*(1st ed.). Cambridge: Dover Publications.

Sylos-Labini, F. et al. (2014) EMG Patterns during Assisted Walking in the Exoskeleton. *Human Neuroscience, 8*(423), 1-12.

Thorstensson, A., Carlson, A., Zomlefer, M. R., and Nilsson, J. (1982). Lumbar Back Muscle Activity in Relation to Trunk Movements during Locomotion in Man. *Acta Physiologica Scandinavia, 116*(1), 13-20.

Trinkaus, E., and Shang, H. (2008). Anatomical Evidence for The Antiquity of Human Footwear: Tianyuan and Sunghir. *Journal of Archaeological Science , 35*(7), 1928-1933.

Uomini, N. T. (2009) ThePre-history of Handedness: Archaeological Data and Comparative Ethology. *Journal of Human Evolution, 57*, 411-419.

Wickens, C. D., Lee, J. D., Liu, Y., and Gordon Becker, S. E. (2004).*An Introduction to Human Factors Engineering* (International ed.) New Jersey: Pearson.

Wignjosoebroto, S. (2003).*Ergonomi, Studi Gerak dan Waktu, Teknik Analisis untuk Peningkatan Produktivitas Kerja*(3rd ed.). Surabaya: Penerbit Guna Widya.

Zhao, D., Li, B., and Watanabe, K. (2008). First Evidence on Foot Preference during Locomotion in Old World Monkeys: AStudy of Quadrupedal and Bipedal Actions in Sichuan Snub-nosed Monkeys (Rhinopitecus roxellana). *Primates, 49*, 260-264.

Women Shoes Ethnic Design towards Aesthetic Impression

Primaditya
ITS,Surabaya
primadity@prodes.its.ac.id

Eri Naharani Ustazah
ITS,Surabaya
erinaharani@gmail.com

Kartika K. Wardani
ITS, Surabaya
tika@prodes.its.ac.id

Bambang M. Soewito
ITS,Surabaya
bb_mardiono@yahoo com

Abstract **—**The visual appearance of products is animportant factor of product success. Decisions are often made on the elegance, functionality and social significance of products based largely on visual information. Appearancesof product are important, and consumersnot onlypurchase a product. They also buy value in the form of entertainment, experience and identity. Three categories to describe cognitive response to product appearance:aesthetic impression, semantic interpretation and symbolic association.The scope of this research is the development of Indonesian traditional style women shoes that can be produced by craftsmen in SMEs through their production technology. The development of shoe design is very dependent on designer's creativityin looking at opportunities and associating it with current issues, as well as symbols and design styles.

This research focused on the improvement of the product, making production samples that completed with a branding study, where image of the products is important to attract the consumer's attention. Appealing graphic and packaging design with a specific designtheme,are intended to increase the image of Indonesian ethnic shoes equal to products from abroad.

A distinctive Indonesian characteristic can be appointed as the theme of unique women shoes design. With proper branding development,previous study has proven that an increasing value of theSMEs product to become classier. Thewomen shoes design with unique and distinctive character is significant in orderto win the global competition.This research is expected to become an example in the creation of design process to SMEs self-reliance in terms of developing and managing own design.Therefore, it will generate a greater value upon skill and creativity they have.

Keywords –Aesthetic-Impression, Branding, Ethnic,and Women Shoes

1. INTRODUCTION

Some regions in Indonesia have grown to be centers, even clusters, of shoe industry. Their existence, however, is becoming less important as they deal with issues of self-reliance, one of which is design. The development of shoe design highly depends on the designer's creativity in capturing a chance and relating it to current issues.

The scope of this research is on the development of Indonesian-character shoe design that can be produced by craftsmen in the form of small medium enterprises (SMEs) and by using their existing production technologies. This research is expected to raise the SMEs' willingness to build self-reliance in design development. The capability of shoes producers to create their own design will improve their competitive performance.

2. LITERATURE AND THEORY

2.1 Profit-less

SME'sshoes design is highly influencedby manufactured and imported products. What the SMEs did so far is reproducing the existing and the regarded-as marketable designs (Sutan, 2011).

The shoe producers thus far rely on imitating and reproducing shoe designs ofmajor, importer corporations. When the reproduction is made by the SMEs, it is likely that the sale trend of the brand would decrease while the price is getting lower. It could be claimed that the SMEscould only make a small profit as they failed to maximizethe added values of their products.

2.2 Design and Creation

The SME-categorized shoe producerstend to be working on products by order, by which the designs and specifications are determined by the clients. In other words, the SMEsentrepreneurs actually function only as "the tailor" as they do not produce their own design (Mas'ud, 2011).

2.3 Competition

Indonesia Footwear Association, based on their findings, shows that shoes SMEsentrepreneurs failed in making competitive performance. 50% to 70% of them cannot survive which led toclose the business or moving to another.

This research findings are expected tosupport existing SMEs shoe entrepreneursthat are struggling to be more self-reliant, improve their competitive performance and to build their own brand through their awareness of having self-designed shoe products.

2.4 Function and Life Style

SMEsentrepreneurs have not defined clearly their product positioning and differentiation as they produce the same type of goods that leads to their poor sales performance.Shoe products are not only about function but also life style. Therefore, a unique character of a design is a significant aspect that affects customer's decision.

AccordingEmotional Design theory Norman (2005):

"reflective design coversabout message, culture and about the meaning of a product. For one it is about the meaning of things, the personal remembrances something evokes. For another, very different thing, it is about self-image and the message a product sends to others. These questions are all cultural. There is nothing practical, nothing biological, about the answers. The answers are conventions, learned in whatever society you inhabit."

Norman cited in Pongsatha (2008, p.35) also added:

"Attractiveness is a visceral-level phenomenon, - the response is entirely to the surface look of an object. Beauty comes from the reflective level. Beauty looks below the surface. Beauty comes from conscious reflection and experience. It is influenced by knowledge, learning, and culture. Objects that are unattractive on the surface cangive pleasure."

3. RESEARCH METHOD

This research consists of two phases. First,it is an extensive literature studies and depth interviews with shoe entrepreneurs in order to enable the researcher to confirm the response of the market. Second phase is action research that drew on shoes prototype making. Information collected from the literatures and depth interviews areinstilling in design finishing stage.

3.1 Finishing the Draft Design

The design finishing process wasutilized in the availability of materials, accessories, technologies and skills belong to shoe craftsmen. It is projected into three variants foreach segment.

3.2 The Making of Shoe Prototype for Each Market Segment

The chosen draft designwere made into prototype as many as the number of required samples. The execution of the draft design was in collaboration with the SMEs' members.

3.3 Branding Studies and Development

Branding studies and development begun with the searching and creating for the brand. It was then continued with designing the logo and its application, i.e. packaging, tag line and products label.

3.4 Exhibition

Exhibition is part of marketing strategies output from branding studies. Beside introducing the results of the research to the public, this exhibition may become a strategy forcapturing consumers' feedback as well as a case study and exemplary model for other SMEs shoe exterpreneurs.

4. RESULT and DISCUSSION

4.1 Developing the Women Shoes Design

There was three prototypes resulted from post-test evaluation: kitten-heels for adult women, wedges for teenagers and high-heels for women with contemporary life style.

The general revision was on the correction of the pattern cut as based on the evaluation of the upper part it was found that the space for ankle is too narrow. For the high-heels, it was agreed to make the upper design simpler by omitting the strap.

The revision for the wedges design was to make the upper part more open as in the previous design it was fully closed, which is unsuitable for tropical shoes concept. Also, the shoelace was removed to make it easier and more comfortable to wear.

4.2 Developing Batik Design

Based on the final evaluation in the second year of this research, it was found that the mix and match of the batik design still did not meet the expectation as a harmonious combination between the batik design and other shoe elements. This is occurred, as the batik design applied to the shoes was too dominant as it was taken from ready-made materials attached to the shoe design. Hence, it cannot appropriately match with other elements. The batik motif became too dominant. To have an appropriate batik pattern, it was decided then to use self-produced batik materials with patterns thatis complementing to the shoe design.

The batik design was developed based on motif variants, coloring techniques and materials. The motif variants were still based on the survey of customer preference, that is, floral motif with color combination reference of 2013trend.

One of the most important elements that should be taken into account to create a harmony in design is scale.It is related to the comparison of sizes among the elements within the design. In this case, attention should be paid to the motif size-scale. The larger the motif size-scale of the batik, the more dominant its appearance would be. Conversely, the smaller the motif size scale, the easier it is merging with other elements of the design.Coming along with the decision to apply small size-scale floral batik motif, it was also agreed to use tie-dye technique.

The tie-dye technique can produce a smooth and soft color gradation. The combination of the small-size-scale floral-motif batik with the smooth color-gradation background would result in an appropriate mix and match between batik motif and shoe design.

4.3 The Making of Final Prototype

The prototype of final product sample was made up of cowhide leather, which had a better quality material compared to the former sample made up of goatskin leather. Cowhide leather is also available in more various colors suitable for the

concept of the design, tropical with bright colorful leather: red, orange and light blue.



Figure1. Prototype Final High Hells.



Figure 2. Prototype Final High Kitten Hells.

For each segment/ type, there are three batik variants and combinations.

4.4 Branding studies and development

Branding studies and development were begun with searching for and creating brand. Then, continued with designing the logo and its application study which includes packaging and tag line.

Logo and Packaging

Shoes with batik design are not something new as there have been such other products. To create afascinating and distinctive image, a smart branding concept is needed. The primary differentiating element would be on the type of batik applied for the shoes that have decided for exclusivity reason. This particular batik's motif was developed based on Madura's batik which has bright colors.

The name "La Bidda", which sounds classy, is derived from French and Madurese word. The word "Bidda" is from "biddeh", a Madurese word for "diverse" that is prefixed with an article "la", a French word indicating feminine character.

The branding concept of LaBidda is women shoes with distinctive Indonesian ethnic character coming up with tag line "Passionate Ethnic Shoes". It is distinctive for its use of exclusive batik materials specially applied to the shoes instead of using the ready-made materials. Also, La Bidda shoes are all handmade by craftsmen with limited production instead of manufacturer mass-production.

To give an exclusive image, La Bidda's package is made up of thick cardboard box with black color on the outside and red one on the inside. A side from the exclusivity reason, the black-red combination somehow represents Madura.



Figure 3. La Bidda's Packaging.

It is expected that packaging the product with appropriate exclusive design would raise the image of Indonesian ethnic shoes to be equal with foreign products.

4.5 Exhibition

The publication stage is arranged for the prototype of Indonesian character women shoes design as the final product. This is part of marketing strategies

resulted from branding studies. Beside introducing the results of the research to the public, this exhibition may become a strategy for capturing consumers' feedback as well as a case study and exemplary model for other SMEs shoe exterpreneurs.



Figure 4. Exhibition Location at Royal Plaza Surabaya.



Figure 5. InsideRadiya Kinan Tenant at Royal Plaza Surabaya.

The sampels of the shoe products with all the branding attributes are displayed in one of women clothing stores in Royal Plaza Surabaya. Royal Plaza Surabaya is the biggest and the busiest shoping center in Central Bussines District (CBD) of Surabaya built on 4.2 hectares of land with 150.000 square meters bulding area.

La Bidda's shoe products are displayed in a clothing store named Radiya Kinan. This store is chosen as it comes with concept and products that fitthe product of La Bidda. Radiya Kinan is selling women clothing for middle-up segment. The store sells only high-quality clothing products produced in limited number. The minimalist interior design of Radiya Kinan store gives an exclusive image to the displayed products.

CONCLUSION

The study found that Indonesian consumers still hold a view that the import products are better than the local ones. Based on the third stage of the Emotional Design theory, that is reflective stage, the image of import products then was included as part of elements of the product branding concept. Shoes with batik design are not something new as there have been such other products. To create a fascinating and distinctive image, a smart branding concept is needed. The primary differentiating element would be on the type of batik applied for the shoes as we have decided, for exclusivity reason, to produce it ourselves. The batik motif was developed based on Madura batik, which has bright colors.Packaging the product with appropriate exclusive design expectantly would raise the image of Indonesian ethnic shoes to be equal with foreign products.

The special characteristic of Indonesia can be raised as a unique and attractive theme for women shoe design. It was proven thatproper branding development studies can help the SMEs entrepreneurs to produce classy products as indicated by the positive feedback obtained from this research.

ACKNOWLEDGMENT

This research had become national program of research, budget year 2014. Financed by fund of STRANAS, budget year 2014, according to contract number: 07555.20/IT2.7/PN.01.00/ 2014.

BIBLIOGRAPHY

Journal article

Frey, Carol, MD.,*Foot Health and Shoewear for Women*, Clinical Orthopaedics and Related Research, Number 372, pp. 32-44, 0 2000, Lippincott Williams & Wilkins, Inc., 2000.

Goonetilleke, RavindraS ;Khalid, H.M., Lim, T.Y., and Lee, N.K. (Editors), *Designing footwear: back to basics in an effort to design for people*, *Proceedings of SEAMEC 2003*, Kuching All rights reserved, 2003

Hawes, Michael R., Sovak, Daniela, Miyahita, Mitsumasa, Kang, Sang-Jo, Yoshihuku, Yasuo, Tanaka, Shiro, *Ethnic Differences in Forefoot Shape and The Determination of Shoe Comfort*, 30 May 2007.

Hung, W. K., & Chen, L. L. (2012). *Effects of novelty and its dimensions on aesthetic preference in product design*.International Journal of Design, 6(2), 81-90.

Sanjog, J., S Karmakar, H Agarwal and Dattu C Patil. Article: Designing and Ergonomic Evaluation of a Shoe-Rack in CAD Environment.*International Journal of Computer Applications* 49(20):38-41, July 2012. Published by Foundation of Computer Science, New York, USA.

Wunderlich, Roshna E. &*Cavanagh,* Peter R. *Gender Differences in Adult Foot Shape: Implications for Shoe Design*, 2001.

Book

Berry, A. Rodriguez E, danSandee, H. 2001, *"Small and Medium Enterprises Dynamics in Indonesia"*, Buletin of Indonesia Economic Studies, 37 (3) 363-84.

Choklat, Aki, *Footwear Design*, Lawrence King Publishing, London, 2012

Denzin, Norman K., Yvonna S. Lincoln (2009), *Handbook of Qualitative Research*, California, Sage Publication, Pvt. Ltd.

Hallet, Clive & Johnston, Amanda, 2012, *Fabric for Fashion-The Swatch Book*, Lawrence King Publishing, London.

Iskandar, Neneng .2008. *Batik Indonesia dan Sang Empu*. Tim BukuSrihana.

Norman, Donald A., 2004, *Emotional design: why we love (or hate) everyday things*, Basic Books, New York.

Porter, Michael E. 1990. *The Competitive Advantages of Nations*, New York: The Free Press.

Ramelan, Tumbu ,Edisi: 2010, *The 20th Century Batik Masterpieces*, KR Communications

Prawiraamidjaja, Rahman. 2004. *Capita selectaekonomiperusahaan,* Bandung, Penerbit Alumni.

Samsi, SriSoedewi, Edisi: I, Februari 2011, *TeknikdanRagamHias Batik Yogyadan Solo*, Yayasan Titian MasaDepan.

Thesis

Pongsatha, S. (2008).*The effects of perceived web page aesthetic quality on reading comprehension performance*
.Ph.D University of Kansas, Ann Arbor.

Design of 4-Seater Passenger Electric Car: From Concept to Parts Design

Baroto Tavip Indrojarwo
Department of Industrial Design, Sepuluh Nopember Institute of Technology
baroto@prodes.its.ac.id

Andhika Estiyono
Department of Industrial Design, Sepuluh Nopember Institute of Technology
andhika@prodes.its.ac.id

Agus Windharto
Department of Industrial Design, Sepuluh Nopember Institute of Technology
aguswin@prodes.its.ac.id

Sabar
Department of Industrial Design, Sepuluh Nopember Institute of Technology
sabar@prodes.its.ac.id

Abstract – There are some challenges to apply electric car in daily activities. The first challenge is the lack of electricity infrastructures, the second is technology, and the third is the design. Numbers of conceptual electric cars have been produced, nevertheless, the design is not competitive enough compares to gasoline cars. This phenomenon has been responded by car manufactures to create more stylish electric cars, such as Mitsubishi i-MiEV, Peugeot i-On, Citroen C-Zero; Tesla Roadster and Nissan Leaf. However, this research found that the majority of potential customers were having weird impressions to current electric car designs. Therefore, it makes the current electric car designs is less attractive.

This research focuses on exploring electric car design. Function, technology and design are important factors in buying decision, other than brand, price and after sales service. This research aims to design electric passenger car which begins from design concept to overall design and the final phase is parts design. It will draw on 3D digital design modeling that can be develop to production phase.

This research is designed into three phases: 1) Concept: market survey and competitor analysis (MSCA), ergonomics study, passenger-engineering package analysis and sketching; 2) Overall Design: 3D digital modeling, physical modeling and technical drawing; 3) Parts Design: exterior parts design and interior parts design. This research can be continued in the future by prototyping phase that pervades parts making, tooling, integrating, finishing and testing of prototype. With 3D digital design method, it is possible to develop a new production concept by involving small and medium enterprises (SME) as parts manufacturer, whereas design blueprint from drawing to molds provided by this research result.

Keywords **– Electric Car, Overall Design, Parts Design**

1. INTRODUCTION

Technology of electric car has significant advantages compared to gasoline car. Electric car has no exhaust pipe, so that it has no emission and no sound pollution. Electric car is a low cost car (about 0.1 cents per km) compares to gasoline car (about more than 0.6 cents per km). Regardless, previous studies concluded that design and appearance of electric cars considered by consumers and experts has less attractive than gasoline cars.

Besides technology, brand, price and service factors, design is now become a prominent factor in car purchasing decision. Needs of electric car for daily activity purpose – as green, light and sophisticated car – would be highly considered as a choice for people in Indonesia only if they are presented in appealing design. Up to now, the majority of existing electric cars are not able to draw people's attention compare to gasoline car designs.

According to the phenomenon above, this research focuses on how to design electric car that can

compete to gasoline car design. This research aims to define concept, overall design and parts design that developed in 3D digital modeling as the main method.

This research problem is how to explore electric car design that would be appreciated by consumer and fulfilled market consideration. This problem then outlined as form and function aspects. Form includes style, proportion, composition and unity of exterior and interior. Whilst function includes aspects of comfort, safety and vision that will draw in ergonomics study.

This research is designed in three phases. Phase 1 is Concept that consists of MSCA, ergonomic study, engineering and passenger package analysis, engineering analysis and design sketching in 2D and 3D approaches. Phase 2 is Overall Design that built in 3D digital modeling of overall design. Whilst phase 3 is Parts Design that held by exploded body design , exterior part design and interior part design.

Results of this research are: design concept, design sketches, drawing, overall design (in 3D digital model), physical model, exterior and interior parts design (in 3D digital model). These results called car blue print that can be developed to prototyping phase including mold making, tooling, parts making, integrating and testing. At this prototyping phase, it is possible to involve several SME's as parts manufacturer that will be integrated to work together to build a prototype or even to produce in the future.

2. RESEARCH METHOD AND PROCESS

Phase 1: Concept aims to define type and dimension of car that meets consumer and market needs, especially in Indonesia. This research is called market research and competitor analysis (MSCA) that consists of: 1) research of type, dimension and design style to define consumer preferences of car; 2) typology research of similar type existing cars and 3) typology research of other type existing cars to describe their positive design characteristics that can be applied to this research subject. Result of these researches would be translated into design criteria as verbal concept. The design concept would be translated and visualized into design sketches.

Phase 2: Overall Design aims to make anthropometric analysis and engineering system analysis. Anthropometric analysis defines passenger and engineering packages that resulted in basic dimensions and configuration. Engineering system analysis defines type, dimension and lay-out of electric motor, battery system, drive train, structure type and material. The results then developed into 3D geometry of body and interior design. This phase produces: 1) 3D digital modeling, 2) physical scaled and 3) technical drawing.

Phase 3: Parts Design aims to make exploded body and interior into exterior and interior parts that derived from 3D digital model. This phase produces: 1) exterior parts design, 2) interior parts design; 3) mold designs of exterior parts; and 4) mold designs of interior parts. Output of this phase called 3D digital blue print that could be developed into exterior and interior parts making and it will be integrated to produce a prototype.

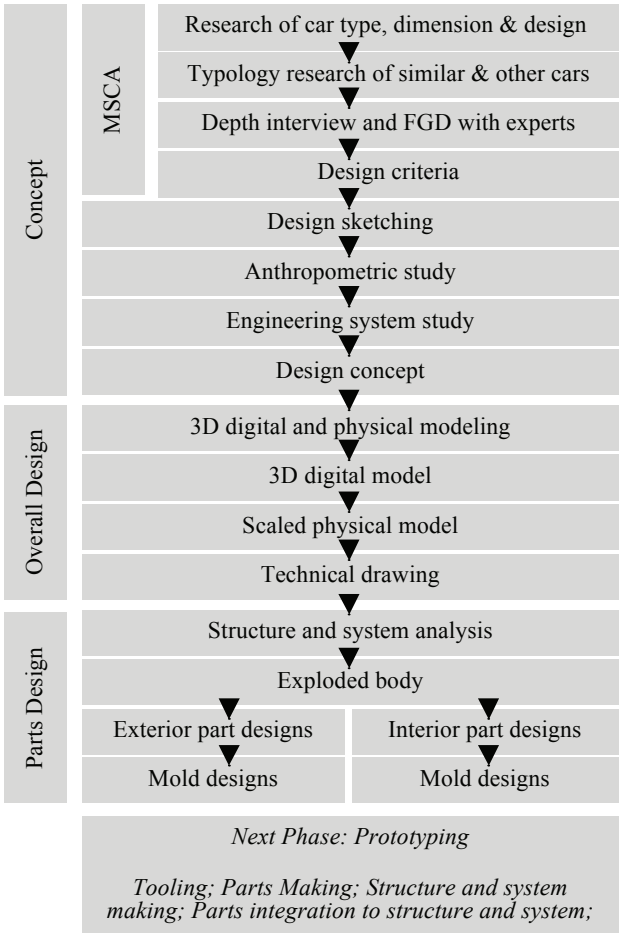


Figure1. Diagram of research method and process

3. RESULT AND DISCUSSION

Three phase of research: concept, overall design and parts design have resulted outputs that can be discussed below.

3.1. Concept

3.1.1. MSCA

MSCA is started by research of car type, dimension and design that is implemented by focus group discussion (FGD) method that held by 12 experts of car design and 2 hours discussion. Whilst the protocol research contents: function and utility, capacity or load factors, ergonomics factor, dimension and design or car styling. The result can be concluded as table below.

Table 1. Protocol and result of FGD

Protocol	Result
Function	Daily activity Comfort to use in city or inter city Maneuverable
Capacity	4 passenger Flexible trunk
Type of car	Hatchback or cross-over car; 4-seater ; 3 or 5 doors
Type of seat position	Medium height seat Comfortable to front passenger and driver (minimum)
Dimension	Compact size or not too small impression in highway environment
Style	Modern to futuristic Efficient and light image Smart image Sporty or athletic image Elegant image Friendly and green image
Physical characteristics	Vertical proportion: bottom is bigger than top body (e.g.: 55:45, 60:40, 65:35, etc.) Horizontal proportion: less than 30% of overall body length (bonnet is shorter than gasoline car) Shape of bottom body is wider than top Wheel hoses are big (hose height is about half of bottom-rear body height) Small, squinty and lines shaped lamps Natural and athletic body contour Side body lines tend to slant (front is lower than rear side)

The next study is typology research of existing cars that is held by depth observation to the best similar type cars (medium hatchback) that distributed in the recent Indonesia market. There are six cars that confirmed as research object: Honda Jazz, Suzuki Swift, Mazda 2, Ford Fiesta, Kia Rio and Peugeot 208. There are other cars that are not involved in this research, i.e.: Hyundai Grand Avega and Chevrolet Aveo since other six cars already represented their advantages. Result of this research can be described below.

Table 2. Result of typology study of similar car

Honda Jazz

+ 2000's form innovation: one-curve body from front to rear.

Good body proportion.

Young, dynamic and sporty look.

Good ergonomics for passengers and trunk, the best at this car class.

Flexible seat configuration.



\- Detail designs start to get older appearance: lamps, grill, air intake and bumper.

Interior material.

Suzuki Swift

+ Good body proportion.

Young, dynamic, beauty, witty and sporty look.

Neo-classical and clean style, so it's very different from others.



Good ergonomics for front passengers.

Simple style of interior design with hi-quality material.

Big wheel hose so supports sporty appearance.

\- Limited legroom of rear passenger and trunk volume.

Mazda 2

+ Good body proportion. Young and feminine looks.

Interior design appears to modern.



- Some details are complex line and curve.

  Legroom of rear passenger is small.

  Volume of trunk is limited.

  Wheel hose is small, so less athletic looks.

Ford Fiesta

+ Good body proportion and young looks.

  Interior design is sophisticated.



- Complex detail of rear lamp area.

  Limited legroom and vision of rear passenger

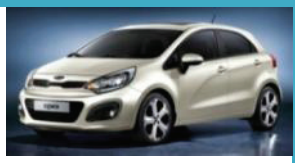
  Limited volume of trunk.

  Wheel hose (rear) is small.

Kia Rio

+ Good body proportion and contour.

  Young, masculine, sporty and dynamic looks.



- Limited vision for rear passenger.

  Interior design looks old than exterior with cheap material.

Peugeot 208

+ Good proportion of body.

  Young, elegant and beauty looks.

  Body contour is mild and natural.



- Figure almost similar to older models.

  Wheel hose is less small.

The typology research of other car type aims to search positive character designs of the best other type cars in order to adapt it to electric car design. Research objects pervades: 1) the best and newest design cars of other type cars that distributed in Indonesia market; 2) style of design as focus research whilst dimension is not considered; 3) type car of medium saloon, mini MPV and small SUV are not discussed caused of it designs are not unique to this research problem. Result of this research can be resumed below.

Table 3. Result of typology study of other car type

Best of cross-over: Nissan Juke

+ New and interesting style dominated with curve shapes.

  New order style of cross-over car: coupe rear side likes.

  Young and masculine looks.



- Body proportion and contour is weird.

  Syle is controversial and not general taste.

Best of medium SUV: Range Rover Evoque

+ New and interesting style with united lines and contour.



  Proportion is good, gallant, sporty and beauty; top body part is smaller than bottom part and wane from front to rear side.

  Wheel hose is large.

  Good detail design: squinty lamps and thin grill combine with strong fender and bumper

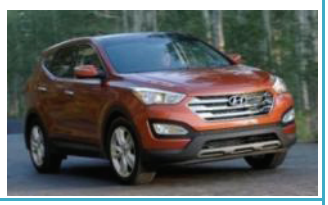
- None

Best of big SUV: Hyundai Santa Fe & Kia Sorento

+ Proportion is good, gallant, sporty and elegant; top body is smaller than bottom body.

  Wheel hose is large,

  Squinty lamps and thin grill combine with strong fender and bumper.



- Face is dominated with shiny material, especially grill.

Best of medium saloon: Honda Civic

+ Good proportion, elegant, unisex and rather sporty look.

  Body sculpting and contouring is mild and minimalist.

  New style at its era (2000's). Wheel hose is large.



- Overall design starts to get old.

Best of big saloon: Mazda 6 and BMW 5

+ Good proportion of body.

  Figure is gallant, elegant, young and sporty for big saloon.

  Wheel hose is large.

  Good body contour: masculine and natural.

- None




Best of medium MPV: Mazda Biante and Kia Carens

+ New style of boxy car: sporty and futuristic. Carens has young and dynamic look.

  Biante has innovation of head lamp continues from front to side like disappearing A pillar and vertical bottom lamps.

  Proportion of Carens is gallant and sporty look.

  Figures are different than other similar cars.

- Biante wheel hose is less large.

  Biante body proportion is too high.

  Front bumper of Carens is old fashioned.




Best of roadster: Peugeot RCZ

+ Proportion of body is very sporty, beauty, sexy, friendly.

  Form composition of curve body is very consistent and fluent.



Figure is very interesting and very different to other cars.

- None

Best of retro style car: Fiat 500 and Mini Cooper

+ Interesting neo-classic style combined with sporty and elegant proportion.

  Figures are very funny and beauty. Mini has advantage in sporty look.

  Composition of form is very consistent.

  Figure is very interesting and very different to other cars.

- None




The result researches above then developed into design criteria as basic concept. The design concept can be described as follows:

Table 4. Design Criteria

Element	Characteristic
Body posture	Gallant, sporty, smart and efficient looks.
Side fascia	Overall unity of curves and lines
Side proportion	Bottom body part smaller than top body part (70 : 30) Bottom lines of window slant front to rear.
Front fascia	Smart and efficient.
Rear fascia	Smart and efficient with lamp position at gallant/prominent hip or shoulder.
Body sculpture	Natural sculpture.
Wheel size	Hose is big.
Lamps shape	Lines shapes.
Side-proportion	Bonnet is shorter than gasoline car. Rear-bottom side is straight and rear-top side is slant.

3.1.2. Exterior Design Sketching

The verbal design concept then developed into visual concept by freehand sketching that produce 50 alternative designs. Step one of design sketching is 2D developing of side fascia as a main body figure that influences other fascia sides (front, rear and top). Step two is 3D sketching developed from 2D sketches in order to design front, rear and top fascia. The 3D sketching aims to make integrated form, shape, curve and line between side and other fascias by efficient method caused of a design philosophy that a car body is one united form that can be viewed from any views as one character. Result of 2D and 3D design sketches can be illustrated as follows.



3.1.3. Ergonomic (Anthropometric) Study

The design sketches then adjusted by ergonomic (anthropometry) study in order to design human factors, i.e.: comfort, safety and security of physical human body motion, vision, temperature and noise. Ergonomic study aims to produce passenger and engineering package that is space for passenger, goods carriage and engineering equipment.

This ergonomic study held by measuring 95 percentile of man (180 cm height) and 5 percentile of woman (150 cm height) of Indonesia human size in any positions refer to design criteria above. This ergonomic research produces dimension of car body that can be figured as follows.

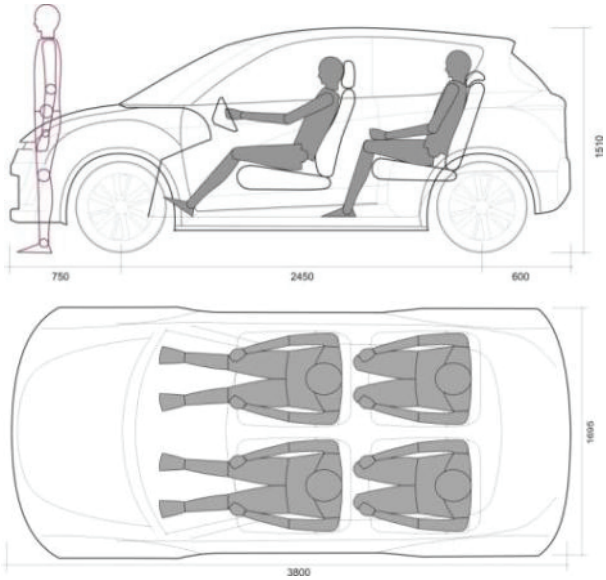
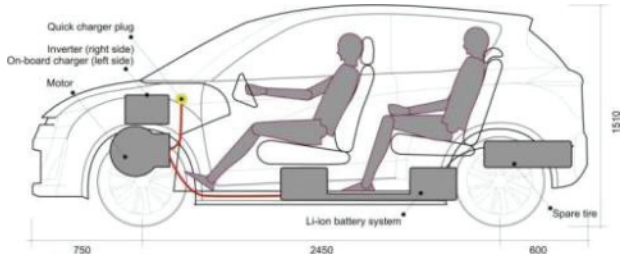


Figure 3. Ergonomics study by 95 percentile of man at top section

Ergonomics study results use to search optimum and efficient arrangement of engineering package lay-out. Main equipment of engineering package consists: battery system, electric motor, inverter, on-board charger and other mechanical engine equipment, i.e.: gearbox, braking system and AC system. Lay out of engineering package assumption can be shown as follows.



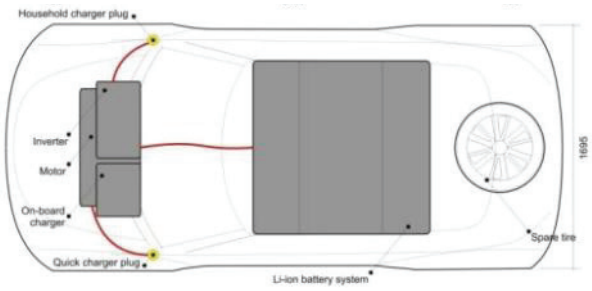


Figure 4. Lay-out of engineering package assumption from long and top section view

The result researches above then developed into basic dimension approaches that can be described at table below.

Table 5. Basic dimension

Element	Dimension
Overall L/W/H	3850/1700/1500 mm
Wheelbase	2450 mm
Wheel dimension	185 mm, 55 mm, 16' up to 215 mm, 55 mm, 18'
Front/rear tread	1480/1485 mm
Ground clearance	140 mm up to 190 mm

Engineering aspects that can be implemented to the design, research by electric and mechanic team can be described at table below.

Table 6. General engineering specification

Element	Specification
Motor	80 kW AC synchronous electric motor, 107 hp
Battery	24 kWh lithium-ion (Li-ion)
System charge	6.6 kW Onboard Charger
Distance cruise	160 km
Structure system	Tubular frame
Body structure	Monocoque
Suspension system	Front: McPherson Strut + Coil Spring Rear: Torsion Beam + Coil Spring
Gross weight	1480 kg
Curb weight	980 kg

Integration of ergonomics study and engineering package assumption produces general lay-out of electric car design. This lay-out provides ergonomic space for 4 passengers with optimum space at human body, leg and head room at any gestures. This lay-out also provides suitable arrangement of electric equipment. Design of body structure can also be developed clearly caused of this definitive lay-out.

3.1.4. Interior Design Sketching

After defines rough exterior body and ergonomic study result, the next step is interior design sketches, mainly for front part of interior. Result of front interior design sketches can be illustrated below.

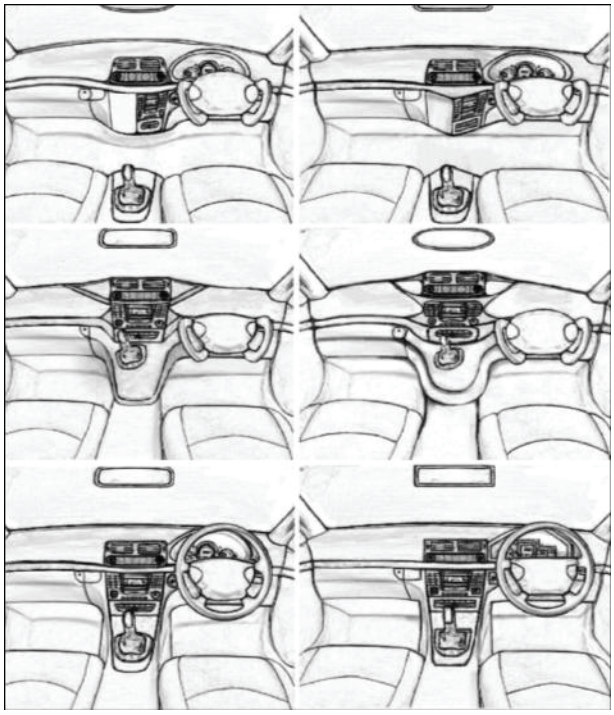


Figure 5. Interior design sketches

3.2. Overall Design

3.2.1. Digital Design Process

After the whole design concept accomplished, the design process continues to 3D digital modeling in order to build definitive shape and geometry of the car body. The modeling process can be shortly illustrated below.

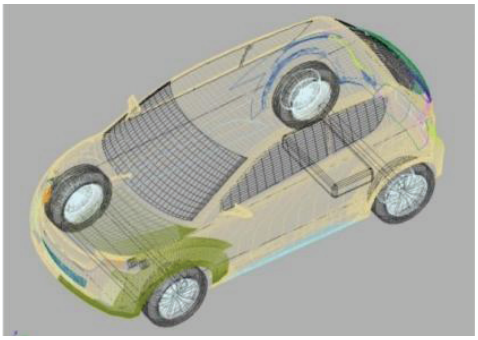




Figure 6. 3D digital modeling process produces the first exterior design

Vertical proportion of overall body is about 65 % bottom and 35% top with slant lines from front to rear about 5 degrees. Horizontal proportion of overall body is about 20% front (bonnet area) and 80% other bottom parts. It represents dynamic, young and smart design. Head lamp and rear lamp formed as squinty-line eyes of LED and located at edge of top of bonnet lines from front to rear body. It represents smart, efficient and sophisticated face. Shapes of front squinty-line grill, vertical front air intake and vertical rear bottom lamp hose are supported impression of dynamic, young, smart, efficient and sophisticated design. This final design result matches with the design concept in aspect of form, dimension and function of electric car.

After car design by the 3D digital modeling process accomplished, design process continues to review ergonomics factor in order to evaluate final shape with human factors and dimension. Ergonomics evaluation held by measuring of 95 percentile of man and 5 percentile of woman. This process of ergonomics evaluation to final electric car design can be shown as follows.

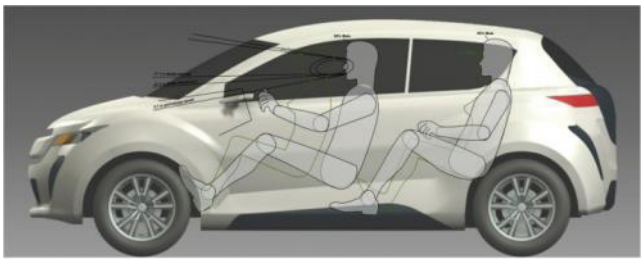


Figure 7. Evaluation of ergonomics study to define the final design

The design of electric car then virtually simulated to realistic environment in order to evaluate impact of appearance, form, dimension, scales, proportion, sculpturing and shading of the electric car body design. The virtual simulation can be illustrated below.



Figure 8. Virtual simulation of exterior design to realistic environment

The second development of exterior design pervades development of front and rear fascia, LED as day running light, side skirt, shark antenna and wheel design in order to emphasize young, efficient, modern and smart impression. The second design can be shown below.



Figure 9. The second development of exterior design

3.2.2. Interior Design

Digital modeling of interior design is developed from interior sketches. This step produces three types of interior design style, i.e.: 1) divided

display with middle console, 2) divided display without middle console and 3) united display without middle console. Digital modeling of types of interior design can be illustrated below.



Figure 10. Three alternative design of interior

According to design criteria, selected design is alternative design no. 2 that is interior design of divided display without middle console. This decision considered by optimum accommodation and unique looks of interior. The final/selected interior design can be shown as below.



Figure 11. Selected interior design

3.2.3. Exterior Design

The third model development produces new front and rear fascia. The third development is confirmed as the final design that produces two types of electric car: hatchback and cross-over. Each part and line of front, side, rear and top fascia has been formed to reach unity that dynamic, young, smart, efficient and sophisticated impression. The final design of hatchback type can be illustrated as follows.





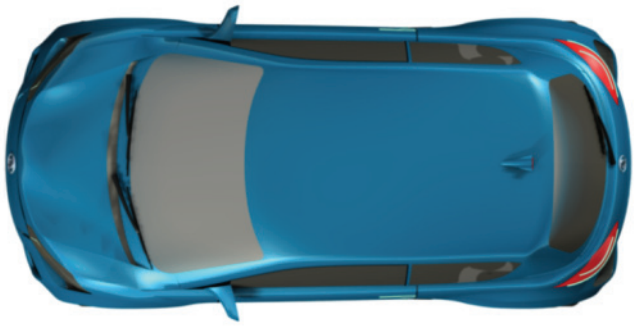






Figure 12. Design of hatchback type

The final design of cross-over is developed by increasing wheel dimension from 185/55/16R to 225/55/17R, so that is caused addition of ground clearance from 150 mm to 185 mm. According to that, the cross-over type represents more masculine and sporty as figured as follows.





Figure 13. Design of cross-over type

3.3. Parts Design

The final design then reviewed in order to make body exploding that results body parts. The electric car body divided into 21 body parts that might be integrated each other to form a shell structure. Exploding overall body to parts can be figured as follows.



Figure 14. Planning of body exploding





Figure15. Body exploding to exterior parts

3.3.1. Exterior Parts Design

Exterior part designed in full-scaled 3D digital model, so that the geometric data can be used as mold and master model. The main parts consist: side panel, front bumper, hood, rear bumper, side door, rear door and roof can be shown below.

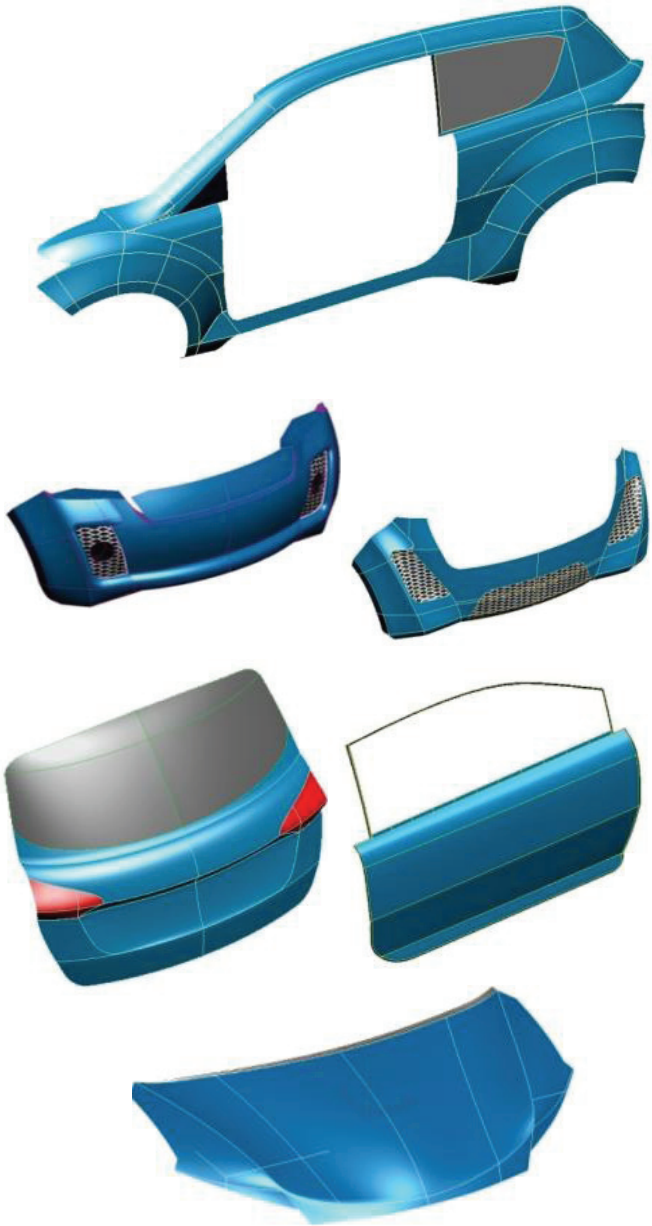




Figure 16. Full-scaled 3D digital design of main exterior parts

3.3.2. Interior Parts Design

Interior part is also designed in full-scaled 3D digital model. The main parts consist: dashboard, steer wheel and seats can be shown below.

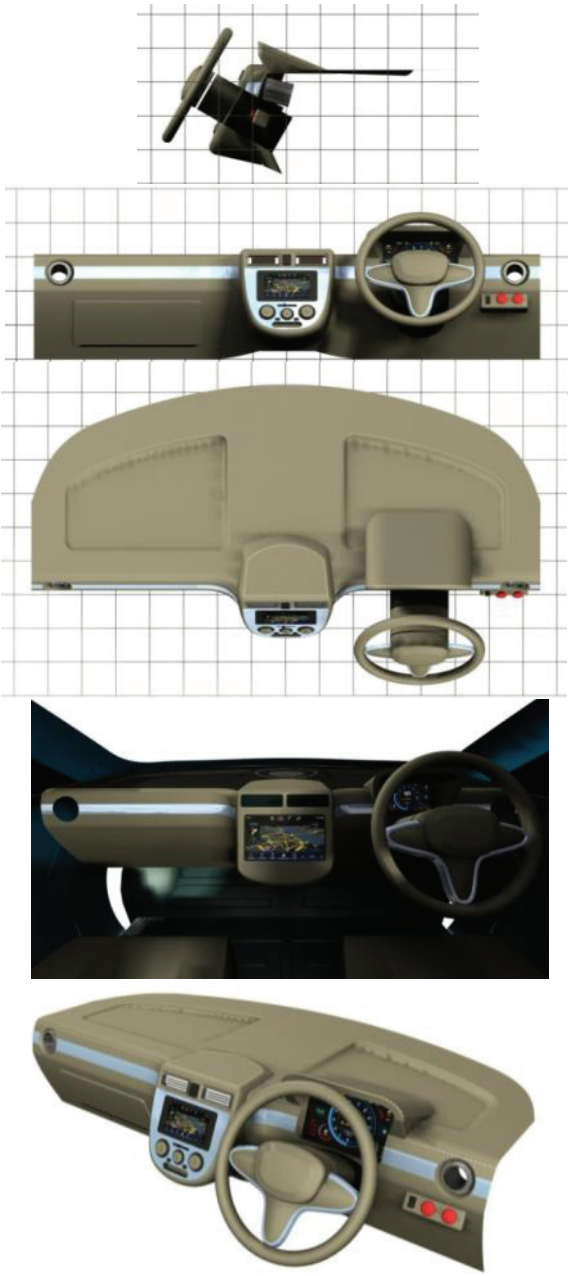




Figure 17. Full-scaled 3D digital design of main interior parts

4. CONCLUSION

Design of electric car as the research result is hatchback and cross-over car that has physical characteristic: 4-seater car, 2 or 4 side doors and 1 rear door. The hard points can be described as overall length: 3800 mm, overall width: 1695 mm, overall height: 1510 mm, wheelbase: 2450 mm, front tread: 1480 and rear tread: 1485. The hatchback wheel dimension is185mm, 55 mm, 16 inch and ground clearance is 150 mm; whilst the cross-over wheel dimension is 215mm, 55 mm, 17 inch and ground clearance is 185 mm.

The design of electric car can be figured: bonnet is mall about 20% of overall body length, proportion of bottom body to top body is about 70 : 30, top rear side of back door is slant curve and bottom rear side of back door is straight line. The front fascia can be described: headlamp is squinty built by LED projected lamp with LED line; slim top grill and U shape slim bottom grill; slant vertical air intake with C shape line of LAD lamp. The rear fascia can be described: lamp is squinty-horizontal to side body built by LED lines; proportion of bottom body to top body is about 70 : 30; slant vertical bottom lamp area with C shape line of LED lamp. The top fascia can be described as: rounded front shape, rounded rear shape, side body carved with curve shapes at each wheel hose by mild/natural lines.

Design method of this research based mainly on 3D digital modeling from drawing through physical modeling. The physical modeling has implemented by 3D digital model data that produced by CNC machine. This method decreases hand crafting involvement in model making. This method also deletes full scaled mock-up (1 : 1) that usually built by clay. This method skips one step in car design process in automotive industry, so that it can be efficient in process, duration and cost.

This research has produced several results: design concept, design sketches, drawing, physical model, overall design and parts design of exterior and interior in 3D digital model. This car blue print can be developed to prototyping phase that includes mold making, tooling, parts making, integrating/assembling and testing. At this prototyping phase, it is possible to make new production concept by involving several SME's as parts manufacturer that integrated working together to realize car prototype or even production in the future.

REFERENCES

Adatto, Richard S., Diana E. Meredith, Michael Furman (2006). *Delahaye Styling and Design*

Alias (2005). *Learning Design with Alias StudioTools: A Hands-on Guide to Modeling and Visualization in 3D (Official Alias Training Guide)*, Alias Learning Tools

Bell, Jonathan (2002). *Concept Car Design Driving Dream: Product Design (Interior and Industrial Design)*, Rotovision

Dewey, Adrian (2008). *How to Illustrate and Design Concept Cars*

Duffy, James E. (2007). *Modern Automotive Technology, Modern Automotive Technology*

Etherington, Rose (2008). *Peapod Electric Car by Chrysler*, Dezeen Magazine, 24 September 2008

Etherington, Rose (2011). *i3 Concept and i8 Concept by BMW*, Dezeen Magazine, 7 September 2011

Housley, Sarah (2009). *ZE by Renault*, Dezeen Magazine, 18 September 2009

Lamm, Michael, Dave Holls (2010). *A Century of Automotive Style: 100 Years of American Car Design*, Lam Morada Publishing

Leufstedt, Simon, 2009, Tesla Unveils Their New Model S Electric Car

Macey, Stuart (2010). H-Point: The Fundamentals of Car Design & Packaging

Nissan (2012). *Pivo 2: 360-Degree Swiveler Electric Nissan Concept*

Nissan (2012). *Nissan Effis Concept Car for Future Urban Lifestyle*

Nissan (2012). *Nissan Townpod Has Been Designed For Future Entrepreneurs*

Null, Roberta (2014). *Universal Design, Principles and Models*, CRC Press. London: Taylor and Francis

Taylor, Don & Ron Mangus (2001). *Custom Auto Interiors, California Bills, Nissan Nuvu City Car Concept with Futuristic Dashboard*

Percy, Larry (2008), Strategic Integrated Marketing Communication, Theory and Practice. Burlington, USA: Elsevier Inc.

Rabail (2011). *Best Electric Cars UK 2011 and Best Electric Cars in 2011*, http: www/autoreviews (access: 27 Maret 2011)

Tudoran, Liviu (2010). *iMove Electric Car Gives The Touch Of Apple Into Future Transportation*

Wardle, Geoff , Ralph Gilles, Freeman Thomas, Gordon Murray (2010). *Automotive Technology: A Systems Approach*, Jack Erjavec, Delmar Publishing

Implementation of Electric Bicycle Design and Environment-Friendly Energy Utilization

Chase Study : Bike Sharing-Institute Technology of Bandung

Arie Kurniawan, S.T, M.Ds
Institute Technology of 10 Nopember Surabaya, Indonesia
ariekrnwn@gmail.com

Dr. Dudy Wiyancoko
Institute Technology of Bandung, Indonesia
dudywiyancoko@gmail.com

Abstract — This research explores the development of a hybrid bicycle design by utilizing electric power, solar thermal energy sources and conventional stroke. Began with identifying problems of urban lifestyle and environment-friendly energy utilization, this research aims at providing an alternative solution to urban transportation design by utilizing technology and renewable energy easily and cheaply. Urban design issues were characterized by the increasing levels of motorcycle pollutants due to the fast-paced urban lifestyle who prefer to use practical vehicles. 20-inch wheel electric bicycle is selected, to provide a practical and simple design. Furthermore, these problems were analysed using 'form follow function' concept. We analysed technological aspects (such as the study of optimizing port charging, battery and electrical components), form aspects (such as the structure of bicycle frame and wheel, including their details), and usage aspects by studying user behaviours in a case study of Institute Technology of Bandung, Indonesia. The results of these analyses are design concept and design development process including sketches of bike design exploration and a 1/1 scale model. This model was then evaluated based on its performance by applying a simulation process to real users so that the design can be improved for industry purpose. We hope that the result of idea and design of this research can be applied to a residential or university environment with a green and eco-friendly concept by bicycle industries in Indonesia (or or other countries with similar situations).

Keywords –: ***Lifestyle, Eco-Transportation, Electric Bike***

1. INTRODUCTION

The development of technology and design to meet mobility needs of users makes a bicycle as a healthy mean of transportation. This phenomenon leads to the emerge of an electric hybrid bicycle. An electric bike with a hybrid motor can be operated by a human power or battery to support the high mobility of a user. An electric bike, that can be manually driven or electricity driven with a battery, has some advantages such as: not causing pollution, not consuming fossil fuels and not noisy. Besides, an electric bike is safer and needs a lower operational and maintenance costs compares to motorcycles.

An electric bike relies on batteries as its power source to drive a motor. A source of Indonesia electrical energy is used to charge the battery. This power source comes from state electrical connection generator. Nevertheless, the majority of these generators use fossil fuels. A consideration of using energy wisely is needed to maximize the role of electric bicycles as a healthy mean of transport and environmentally friendly product.

Modern society in Indonesia is faced with the need for mobility that is fast, easy and practical. Electric bicycles as the implementation of product design require some policies in energy consumption as well as to meet the needs of the community. The research design is based on the problems that exist in the community with the Institute Technology of Bandung. Institute Technology of Bandung as a social arena part of urban society can lead to understanding and awareness in utilizing electric bicycles as a healthy and environmentally friendly transportation. The researchers take formulation of the problem as follows:

How to ideal design an electric bicycle as a healthy transportation that can meet the mobility needs in the area of Bandung Institute of Technology campus

The purpose of this design research project is making a real product of an electric bicycle design as a healthy and environmental-friendly transportation that can be implemented in the case study of Institute of Technology Bandung, Indonesia.

2. LITERATURE AND THEORY

This research is based on the policy designers in producing electric bicycles as a healthy transportation by promoting the functional aspects and taking into account the positive impact on the appreciator.

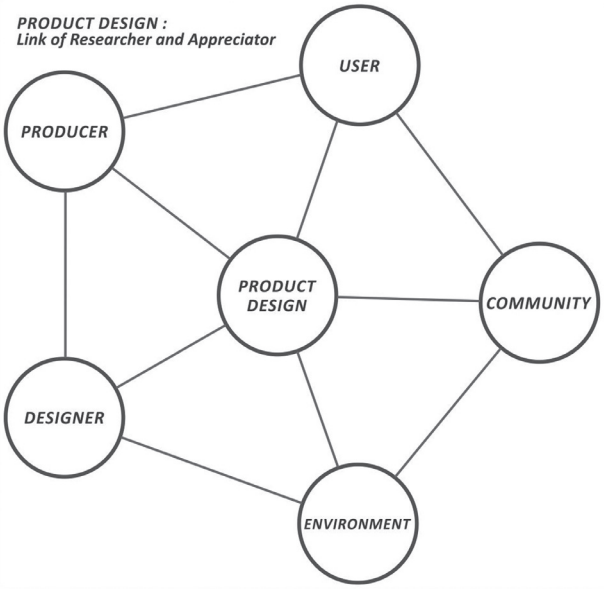


Figure 1. link of researcher and appreciator

The electric bike uses a simple construction of a diamond structure with the 20-inch wheelbase. Target users of electric bikes are unisex adult users. Design electric bicycles resulting from process steps ranging from the determination of the specifications following the operational area, the size of the geometry, maximizing comfort and driving position, to the management of electrical devices. The shape of a bike shape follows the function of each stage of the analysis process. In the product design process adopted to produce shapes 'form follow function'.

Electric bikes use a brushless hub electric motor hybrid-type. That selection the ease, convenience and support in the process of a short research (William and Oman, 2006). Hybrid Motor-electric is engineered technology in the design of the bike. Bicycle and pedaled to operate with battery power at any time be able to drive an electric motor. While the concept and the energy cycle in charging the battery power are engineered to maximize the utilization of existing energy.

3. DATA AND METHODS

To produce electric bicycle design with product design approach is to do research for the fulfillment of value functionality. In the electric bike can be a maximum value functionality taking into account aspects of robustness, comfort (healty aspect), secure and aesthetics. In the process of generating electric bicycle design, design attributes of major concern is the simplicity and robustness of the bike frame. Bike frame is a main body of work brings together a bike bicycle components and electrical devices (Wiyancoko, 2010).

3.1 Technical Specifications of E-bike

Specifications are affected by the operation of electric bicycles which are influenced by the characteristics of the terrain/track, the characteristics of users and management of Technical engineering.

Institute Technology of Bandung as a case study has a conventional campus bicycle infrastructure with an average distance of 2,5km. ITB campus wide 286.830m2, the density inside the campus of the Institute of Technology Bandung reach 10,65m2 / student and the distance between the building is the reason the use of electric bikes with 20-inch wheel base. Institute Technology of Bandung does not have a bicycle track and the number of pedestrians on campus reaches 98%, it is a concern to specify the maximum speed electric bicycles. Speed of electric bicycles is also influenced by the degree of maximum slope of the road at the ITB campus area by 15 degrees. If the

user in the developed countries there is a maximum speed of electric bicycles electric bicycle on the highway, while at ITB speed of electric bicycles can be obtained with the motor's ability to carry the burden of student (Kurniawan, 2014). Speed electric bicycles to ITB at 25 km / h.

The contours of the terrain in the region of ITB relatively heterogeneous and wavy while the wheel base used is 20 inch, therefore the electric bike in Bandung Institute of Technology with adult users should use the suspension system to maximize comfort.

Characteristics of the terrain and desired speed caused specification requirements of electric motors, batteries and gear ratio in electric bicycles. After conducting experiments and calculations obtained specifications electric motor 36V / 10A, 360 Watt motors, torque of 13.2 Nm, 100 rpm paddle wheel rotation and motor rotation required is 450 rpm (Kurniawan, 2010; Francise, 2008).

User characteristics with the majority of users are students influence the shape and position of the drive. In other words, contrary to the design of the bike and maneuver comfort that also consider the ergonomic and anthropometric users.

3.2. Bicycle Geometry

The shape and size of the geometry to determine the utility value in the cycling of the comfort and safety of driving. The need for mobility in increasingly congested urban areas, the electric bike frame geometry election with 20-inch wheels deemed more appropriate. Bicycles with wheels 20 "apart easily in care are also more practical and efficient in operational and placement of parking.

Selection of electric bicycle construction determines robustness and comfort in driving. Diamond structure is a simple construction for the design of electric bikes (William and Oman, 2006)**.** The structure of the diamond is a diamond-shaped structure that has the strength and reliability in utility bike. This structure is composed of two main triangle support the body that has the power riders on two wheels running point.

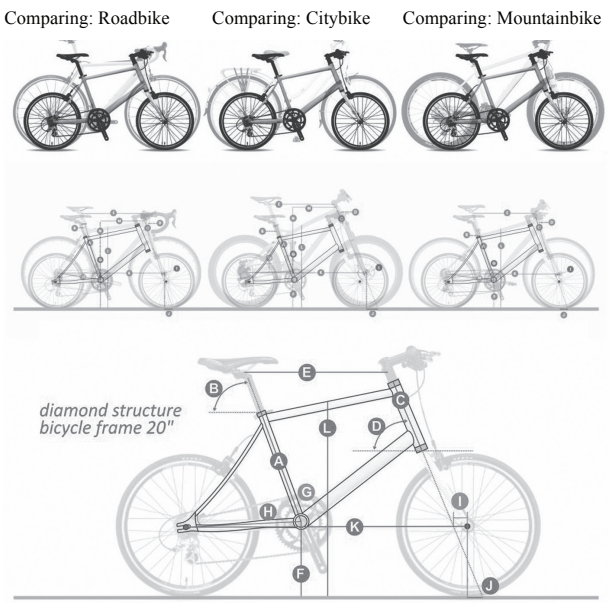


Figure 2. Illustrations in determining the bicycle geometry by comparing other types of bicycle

In addition to the robustness of the bike frame, in the approach to product design should be attention to comfort and safety. Product design in this case an electric bike to interact with humans. In other words, a bicycle operated by a human being to take one point to another.

In determining the required electric bike frame geometry analysis by anthropometric users. The most appropriate size of geometry is that still leaves a comfortable space between the top-tube and the crotch-heigh, so that when the cyclists set foot to the ground, the groin does not collide with the top-tube (Wiyancoko, 2010)[2]. Technically to users unisex with adulthood, standover height are not allowed past the 5 percentile of the female users Crotch height ≤ 667mm [4].

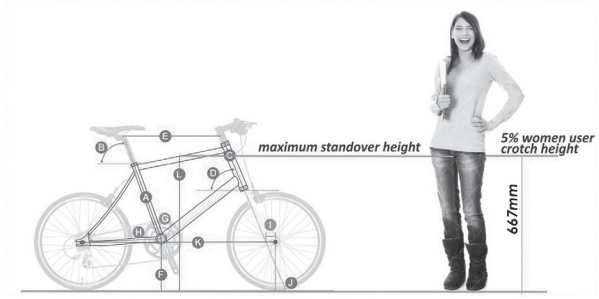


Figure 3. Illustrations in determining the bicycle geometry with the standover

In determining the geometry of electric bicycles other factors not less important is the driving ergonomics. Ergonomics is an important element

in the design of the bike, because it determines comfort while driving. Analysis of ergonomics in the design of the bike include muscle work, distribution of load and driving position. Working muscles and load distribution when the bike is not only running, but started when riding a bicycle even if the bike is not executed. Many major human muscles involved in cycling therefore must be balanced load distribution.

Comfortability and driving safety of ergonomic concerns can be maximizing with proper selection of components such as the type of handle-bar, the design of handle grips, saddle and height sadle types. As for determining the geometry and shape of the whole electric bicycle that must be considered is the driving position. Driving position determines comfort while driving

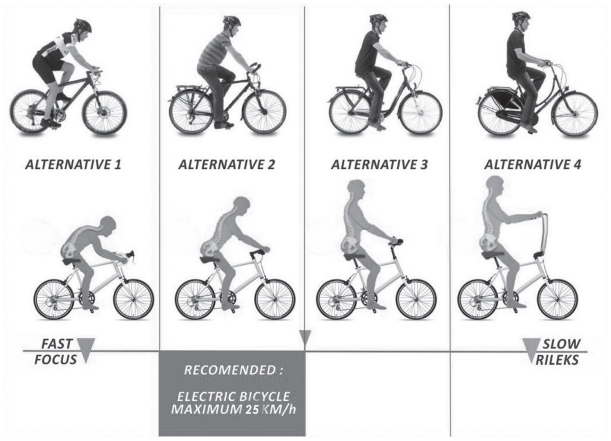


Figure 4. Illustrations in determining the bicycle geometry by comparing other driving types

Driving position for electric bike with a speed of 25 km / h requires a level of focus in driving (Francise, 2008). Speed, degree of concentration and driving position have been recommended be decisive in choosing complementary components forming the geometry of the bike as well as a determinant of electric bicycles.

3.3. Electrical Device Management

To maximize the functionality of the electric bicycle is required analysis in the placement of the battery and electric motor. Each difference between the basic conventional bicycle and electric bicycle located on the attributes of electrical devices on a bicycle in the form of batteries and electric motors. This design project research using hybrid electric motors with brushless-hub type. The electric motor is at the center of rotation of one of the wheels. Type brushless hub electric motors has advantages in terms of ease of maintenance and relatively more economical than other types of electric motors. Placement of electric motors with a certain rotation speed should be placed at the rear wheels to maximize stability when driving or maneuvering.

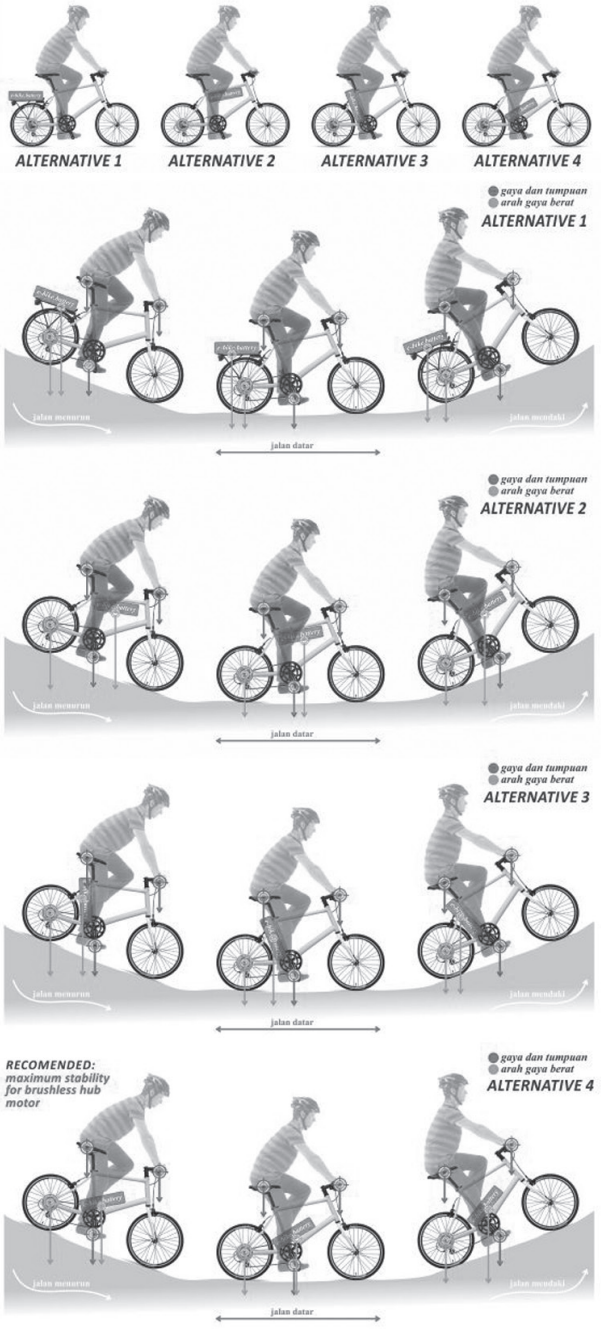


Figure 5. Illustrations in determining the battery area based on the load distribution and field

Placement of electric bicycle battery should pay attention to the terrain and load distribution on the bike. The distribution of the load on the bike affects the working muscles and convenience rider maneuver. In other words, the battery area determines the level of comfort and safety while driving.

Placement battery electric bicycle is the most ideal and stable movement between the two wheels with pedal rotation around the area. The placement of the batteries in these areas background bike frame changes. In theory the product design form follow function mentioned that the shape can be created as a function of the attributes of existing designs (Francise, 2008). Engineered form of order can be taken to accommodate the placement of the battery area

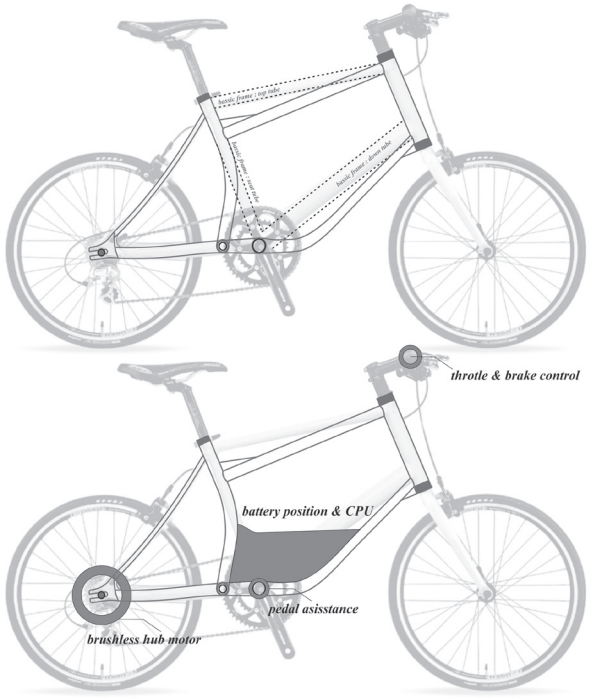


Figure 6. Bicycle frame 'form follow function'

Hadtail Construction bike has a value of flexibility that is influenced by the selection of material and geometry of the bike frame. Flexibility on bike frame serves to maximize the comfort of the bike in certain fields, especially in the electric bike order value flexibility serves to minimize shocks to the battery. For bikes with large wheel base allows for the flexibility to maximize the value of construction hardtail, whereas for bikes with 20 inch wheels the value of flexibility can be enhanced by adding a rear suspension system.

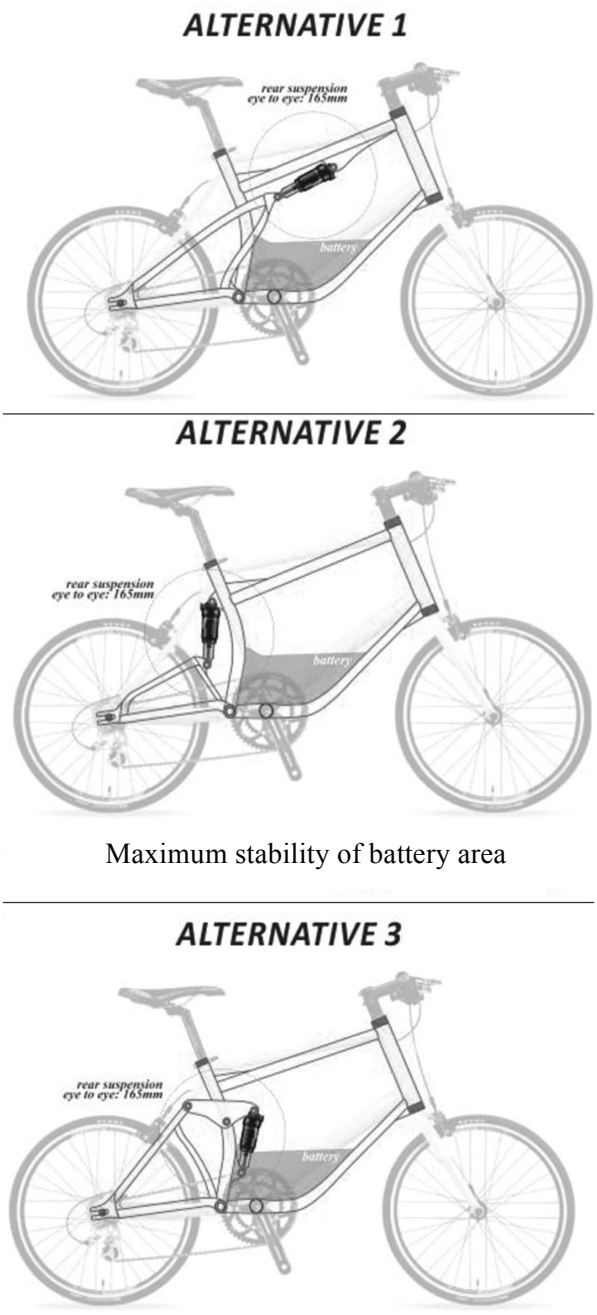


Figure 7. Rear suspension on the bike

Rear suspension system on the bike has a variety and type. Selection of a bicycle suspension system should not interfere with the battery area and can serve a maximum to support the weight of the rider's body in a particular field.

3.4. Energy Utilization

Electric bike is a product design that utilizes the battery energy to drive the bike. In the hybrid electric bicycles, electric motor bike instead as the primary movement. Bicycle as a healthy transportation operated by manual movement, the

electric motor can be operated when necessary to improve the speed and pedal power replaces the current rider fatigue.

In a simple illustration, electric motor on the electric bike powered by batteries and controlled by the rider.



Figure 8. The Basic working mechanism of electric bikes

To enhance the role of electric bicycles as environmentally friendly products, energy utilization in electric bicycles can be taken with battery charging systems engineering. Rotation of the electric motor as the kinetic force can be converted back as a power charger. Meanwhile, the battery charging system can take advantage of solar cell technology.

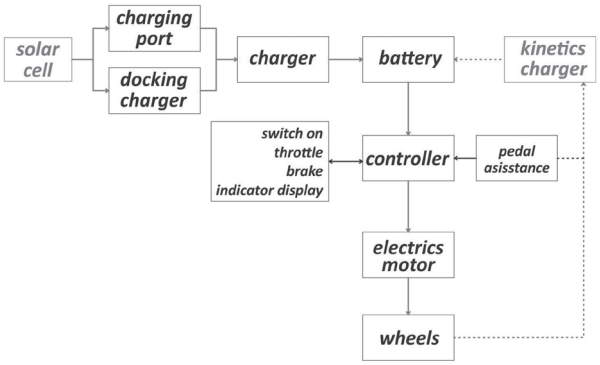


Figure 9. Battery charging systems in electric bicycles as a form of energy utilization

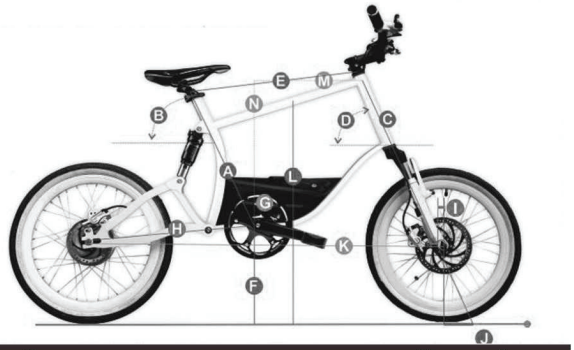
4. RESULT AND DUSCUSSION

4.1. Final Design

Based on the needs of mobility, convenience and practicality of the electric bike with 20-inch wheels can be used as one means of transportation solutions that are healthy and environmentally friendly.

It can be concluded that the shape and geometry of the electric bicycle is obtained from the calculation and analysis in accordance with:

a. the user anthropometry
b. Ergonomics and driving position in accordance with operational field and electric bikes
c. Management of electrical devices with a focus on driving stability including minimizing shocks to the battery.



code	name	dimension	
A	SEAT TUBE LENGHT	cm	48
B	SEAT TUBE ANGLE	(^{0})	78
C	HEAD TUBE LENGHT	cm	23
D	HEAD TUBE ANGLE	(^{0})	72.5
E	EFFECTIVE TOP TUBE	cm	55
F	BOTTOM BRACKET HEIGHT	cm	31
G	BOTTOM BRACKET DROP	cm	8
H	CHAINSTAY LENGHT	cm	45
I	OFFSET	cm	4
J	TRAIL	cm	6
K	WHEELBASE	cm	100
L	STANDOVER	cm	65
M	FRAME REACH	cm	48
N	FRAME RISE / FRAME STACK	cm	47

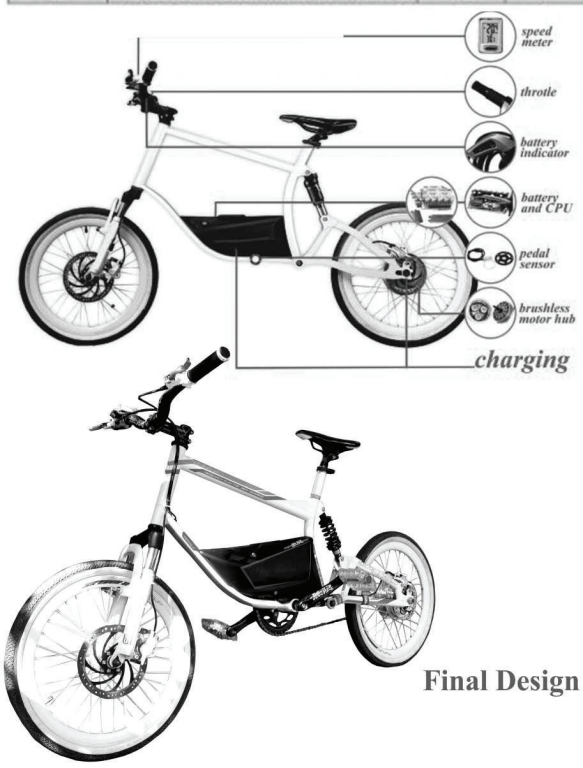
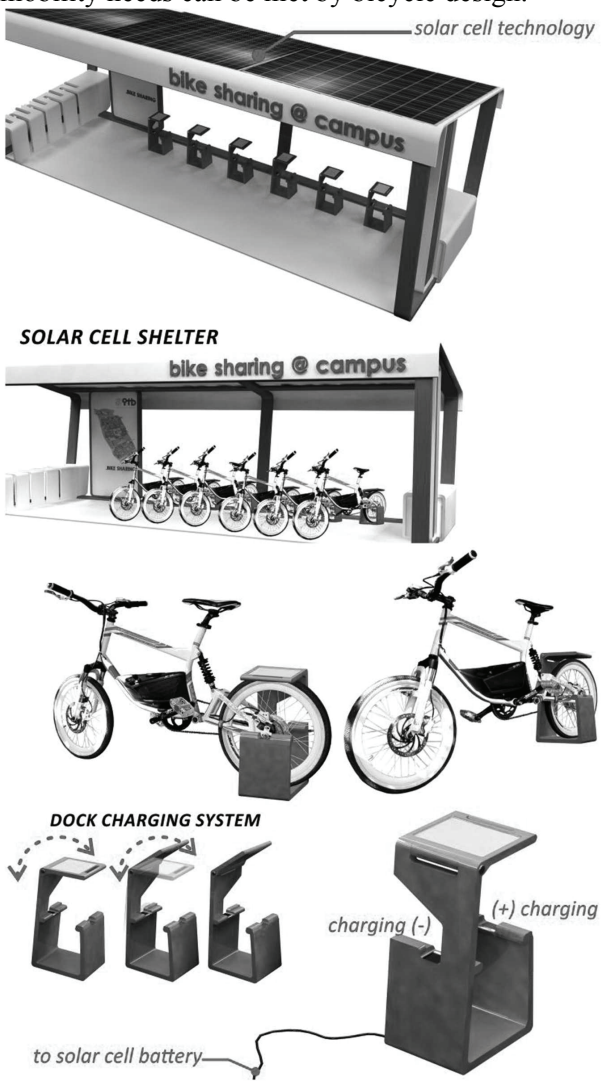


Figure 10. Final design

4.2. Friendly Energy Utilization

Type hybrid of electric motor as auxiliary attributes in bicycle movement. Electric bicycles as a healthy transportation moves with manual and electric motors function as helpers or substitutes for mobility. Battery energy utilization can be used to drive the electric motor so that a fairly high mobility needs can be met by bicycle design.



Fugure 11. Friendly Energy Utilization concept

The concept of charging the battery with solar cell technology can be used as a solution for the utilization of natural energy, minimal pollution and friendly to the environment.

In the viewpoint of eco-product design, operation and utilization of electric bikes need energy cooperation between researcher and appreciator of bicycles as a means of transportation in order to function optimally healthy and become a solution for environmental and social issues in the community.

Institute Technology of Bandung as a form of social arena that affect urban society in Indonesia could be the trigger for the realization of electric bicycles in particular as a means of transportation (bike sharing). Bike sharing programs in the area of Bandung Institute of Technology campus is expected to spearhead the use of healthy means of transport and environmentally friendly.

REFERENCES

Francise,Vince.(2008*). Electric Bicycle-A Guide To The Market*. France: Fancisco

Kurniawan, Arie.(2014). *Desain Sepeda Listrik Berbasis Roda 20 Inchi - Studi kasus : Institut Teknologi Bandung.* Bandung : Tesis Magister Desain ITB

William and Henry Oman. (2006). *Electric Bicycle- A Guide To Design and Use*. New Jersey: IEEE Press

Wiyancoko, Dudy. (2010). *Desain Sepeda Indonesia*. Jakarta: Kepustakaan Populer Gramedia

Design, Entrepreneurship and Tourism in Bandung

(Case Studies: Creative Industries Owned by Art & Design Graduates)

Arianti Ayu Puspita, M.Ds
Doctoral Programme of Art & Design Faculty,ITB,Indonesia
ayu_sip@yahoo.co.id

Dr.Agus Sachari
Bandung Institute of Technology,Indonesia
aschari@yahoo.com

Dr. Andar Bagus Sriwarno
Bandung Institute of Technology,Indonesia
andarbugs@yahoo.com

Abstract **—**In 1947, first Indonesia's education about Art and Design was established in Bandung. Since then, it developed to a higher education level and Bandung became the first city which has Art and Design institutions. Nowadays, the presence of young people in Bandung bring a lot of creative spirit such as product exhibition, art exhibition, culinary festival, and supporting design of city development towards a creative city. All of the activities creates different kind of lifestyle that distinguishes Bandung with other cities. Along with the growth of design institution which delivered graduates with a background in design, the presence of creative industries in West Java also increased and become the most creative city in Indonesia. Therefore, we need a more in depth study of the existence phenomenon of academic graduate art and design institution that has produced a wide range of excellent products. From all the number of design entrepreneurs, three creative industries will be for the case studies, focused on furniture and home decor business. In-depth interviews will be conducted to generate their product character. Brand identity; and product character are two method of business strategies from Karjalainen that will be arranged as strategy framework method in this research and expected to be an endurance factor to survive on maintain the industry, particularly in Bandung.

Keywords – i.e. **Creative Industry, Entrepreneurship, Furniture, Home Decor, Tourism, Bandung**

1. INTRODUCTION

Art and Design Education was firstly established in 1947 named Educational Bureau of Drawing Universiter (*Universitaire Leergang voor de Opleiding van Tekehenlaren*) under the Engineering Science Faculty of *Universitas Indonesia* which had initially been located in Bandung.Art and Design Education of ITB pioneers the growth of various Design Educations in Indonesia. In line with the increasing in design institutions and graduates with their art and design educational backgrounds, the existence of small industries in West Java increases. This phenomenon of designer-entrepreneur is relatively new in Indonesia, particularly in Bandung, West Java. With their background on design, the management knowledge relating to entrepreneurship is not as many as that on particular knowledge on management. The growing number of designer-entrepreneur encourages the existence of business strategy in order to maintain the brands and products. The structure of this paper is divided into several phases. The first phase is the emergence of designer-entrepreneurs from art and design institutions in Bandung. After that is the phase regarding the emergence of creative generation in Bandung City as the origin of art and design education. In the next session, the impact of home decor business for tourism existence in Bandung shall be discussed based on creative industries as case studies.

2. Design Entrepreneurship

Design-preneur is one who becomes the head designer and CEO in particular industry. This indirectly informs him about the importance of design and process of R&D in the company

(Kembaren, 2014). Design-preneurship consists of 2 (two) words, design and entrepreneurship. High technological advancement provides easiness for the designers to create their own businesses through their works. This is in line with Margolin (2002) saying that "As the Arts and Crafts designers of the late nineteenth century worked outside of mainstream manufacturing – so is today designers able to find a niche, produce, and deliver a product to a market".

The definition of *Design-preneurship* relates closely to the definition of entrepreneur itself. According to Oxford English Dictionary (2002), *entrepreneurs* are individuals who start organizing commercial industry. Schumpeter (1934) argues that *entrepreneurs* are decision makers on various activities that direct the behavior in order to open various possible businesses. The ideas of entrepreneur main function continuously improve, started from his main function as individual who creates particular areas as potentials. Currently, design-preneurship has become profession chosen by many graduates from art and design departments of the Universities or Institutions in Bandung. This fact is supported with the data from alumni Tracer Study performed since 2012 by the Student Association of ITB Career Center. The data shows that the number of graduates class 2007 (36 students) who become design-preneurship increase since the graduates class 2004 (12 students).

3. Furniture, Home Decor and Tourism

As the center for design education supported by the existence of several industries such as fashion, music, and film, Bandung City may attract young generations from several areas so that they may increase the diversity and variety of local potentials through their creative products. These potentials are rich of creative products that are potential for export (*Warta Bappeda* West Java Province, 2013).

The development of creative industries and culture are supported by the development of digital technology, internet, and art and design graduates. The slogan "*Bandung sebagai Kota Kreatif*" (Bandung as the Creative City) slowly reveals and becomes part of its identity to present day. From 2008 to 2012, the number of tourism who come to Bandung (domestic and foreign) continued to increase. Which total number is 1.421.429 people in 2008, the total, and 3.513.705 peoplein 2012,the escalation is almost 300 percent.Therefore, the need for tourist attractions, hotels and restaurants continue to rise. The existence of restaurant and hotel also aroused the interest of creative industries to producing furniture and home decor as interior elements. Their products equipt hotel and restaurant needs and also have become tourist attractions at once. The connection between creative industries and tourism amenities is mutually beneficial relationship. Three characters of product from three case studies of home decor industries in Bandung will be discussed at the next session as survival strategies in the business.

3.1Product Identity

Product designs produced by Bandung designers encourage the dynamic atmosphere of creative industries in Indonesia. It is supported through various fairs on creative products. These fairs are participated by young generation entrepreneurs of Bandung. Sustainability and continuity of particular creative industry are greatly determined by the strategies implemented by the company.McDonagh and Lebbon (2000) in Karjalainen (2004) say that "language" of product involves emotional bond and cultural aspects formed in the relationship between the customers and the products.

Before expanding the discussion on brand identity, the writer shall describe the definition of identity under this research. Identity (personal or organization) can be defined as a group of elements that are different between one and the others (Karjalainen, Matti, and Toni, 2004). Identity can also be said as a unity having similarity.Brand can be defined as an idea, concept, or scheme of an object in one's mind. The idea emerges as an illustration of particular shape that distinguishes one product over others and at the same time it represents the company (Karjalainen, Matti, and Toni, 2004). Company's or industry's image and reputation of particular brand determines their market. Product representation is crucial part of the brand's identity that it may carry company or industry personal identity in order to be known, meaningful, and competitive in the market. The definition of brand has undergone many changes from time to time.

Business activities are dominated by planning based on the experience. Through the times of

design-preneur experience, the persistent level of realizing brand identity shall be revealed. The study on brand has mainly related with two dimensions of shape or graphic designs. However, brand is built with its visual shape of three dimensions, which is the product. Without a product, the brand cannot deliver the meaning or message to the customers.

Therefore, this research accounts on the brand identity taken from its three dimensions of shape, the product. With the supports from company's internal data and interview on design-preneurs, the product identity strategy shall be revealed based on three kinds of strategy stated by Karjalainen (Table 1). This identity is built by design-preneurs as a method for competing and surviving in the market.

Table 1. Three Kinds of Product Identity Strategy by Karjalainen.

1 Strategic Identity (Explicit aspect)	2 Product Character (Physical Manifestation)	3 Inherent Identity (implicit aspect)
• Company vision& philosophy • Strategy • Products & services • Performance • Corporate performance • Brand architecture • Corporate ownership	• Explicit & Implicit elements (of product) • Individual elements & gestalt design • Universal meanings & specific meanings	• Core values • Cultures • Internal images • Employees affinities • History of the company

3.2. Case Studies

Prior to 2012, there was no actual data on the number of art and design graduates who became entrepreneurs. Therefore, the writer had interviewed a senior design-preneur practiced since 10 years ago and become functionary member at AMKRI (Indonesian Association of Furniture and Craft). Furthermore, the writer also interviewed lecturer from Industrial Design Programme in Bandung Institute of Technology to support the data. Based on non-structured interview, three creative industries which have home decor products graduates from art and design institutes are:

Table 2. Case Studies List.

No	Brand /Product	Established
1.	Studio 181 Ceramics products (cutlery, jewellery, souvenir, aromatherapy equipment, toiletries, ceramics workshop, etc)	2001
2.	Kandura Studio Ceramics products (cutlery, jewellery, toiletries, art installation, ceramics workshop, etc)	2004
3.	Artes Studio & Artes Living Furniture, home decoration, art installation (various material)	2009

4. Method

In-depth interview with unstructured questions were used as main method in this research. The interview results and photos of product presented as qualitative explanation. Literature and data collecting about company vision were used as secondary data.Interviews regarding featured products is very important to know the suitability of market response and the concept from designer. Photos of products which are presented at the explanation below have been through the permission of the owner/designer.

After conducting interview process and data collecting, the characters of home decor or interior product will be described as advantages and strength for tourism activities in Bandung. On discussion session, the srongth characters will be synthesized into several identities of creative industries product.

4. Analysis of Product Character

Analysis argumentation will be described by four points conclusions studied from various products

of three industries. Four (4) points of products character will become the strength of industrial durability.

4.1. Do It Yourself Product as Act of Entertainment

Studio 181 is a ceramics gallery established in Bandung since 2001 by design entrepreneurship who graduated from art and design institution in 1990. After 14 years running a ceramics business, she managed to export and various international exhibitions. Her business divided into three main elements; they are retail products, project (custom order) products and ceramics workshop. Studio 181 has fulfill cutlery and interior decoration for various cafes, restaurants and Factory Outlet in Bandung. In addition, Studio 181 also routinely produces spa equipment for spa services that are emerging in Bandung. Then, Studio 181 also receives ceramics souvenir order not only from consumers but from outside Bandung especially Kalimantan and Sumatra island.The products have strong linkages with tourism activities, such as souvenirs and spa equipments. They make different design in every year to give more variety to loyal consumer and new consumer, and as variation due the exhibition in several countries. The following sentences are an interview excerpt from the owner /designer of Studio 181:

> *"One of potential products in West Java is souvenir.."*
>
> *"Design should be changed over time, innovative, to provide something new to consumers."*



Figure 1. Ceramics Workshop in Studio 181

Mainly, Studio 181 always received requests from the consumers who want to learn and make ceramics product in a day. The finished product will be processed and then sent to consumers home address as well as a symbol of success and souvenir.Nowadays, many people are keen to experience in the creative process, and ceramic workshop become one of potential business activities in Bandung. The atmosphere of Bandung as a creative city support the existence of similar workshops in fulfill the tourist demand.Tourism and creative industries in Bandung have mutual connection to maintain the continuity of each stakeholder.

4.2. Pleasureable & Fun Home Decor as Hotel Interior

Artes Studio is a brand that was initiated in 2011 by a group of artists and designers who graduates from art and design insititution in Bandung. Artes Studio product oriented is art installation project bring out design concept accordance with client characters (hotels, homes, restaurants, and so on).The following sentences are an interview excerpt from the owner/designer of Artes Studio:

> *"We are divided into two divisions, living products as retail and projects division for art installation and interior."*
>
> *"We create high quality artworks for public and private space."*
>
> *"We also collaborate frequently with other Indonesian emerging artists and designers to generate new possibilities."*

From the interviews, it was known that the chances for the home decor products and furniture in Bandung have high potential with the growth of public commercial space and housing. Thus, retail product can have specific market and the needs of the project / interior decoration for commercial space getting increase.With strong background of art knowledge, both concepts and theories, Artes Studio is able to produce uniqueness to each product. One of the strong character of Artes Studio product is a pleasant interior products, unique, and unusual. The uniqueness applied in one of the hotel in Bandung, where each of the room has different theme and different art installation. The theme gives the story and bring tourists to feel the atmosphere that they do not feel at home or elsewhere. Thus, the interior products can be characteristic and remembered by everyone who stayed at the hotel, both for adults and children. The image (figure 2 and figure 3) below shows the two themes of art installations in two

different rooms, Figure 2 (country theme with "goat seat installation") and Figure 3 (Tintin Rocket as an element of surprise in the room).



Figure 2. Goat Seatfor Rooms with Country Theme.



Figure 3. Tintin Rocket as an element of surprise in the room.

4.3. The Statement of Memory

Artes Living is a part of Artes Studio, which produces furniture and home decor products for direct retail market. Unlike Artes Studio, Artes Living issued a different concept in every year with designers concept idea.In addition to a pleasant interior products and playful, Artes Living produced many products with nostalgia or memories concept orientation. The concept is directly applied to the former furniture products refurbished with a modern feel (figure 5 (left)). Not only secondhand furniture, Artes Living also bring the vernacular concept into modern home lifestyle.The famous Indonesian "mangkuk ayam" statement as street food, become a source of inspiration for chandelier products with high sales value (figure 5 (right)).



Figure 5. Refurbished furniture and vernacular concept with memory inspiration

The memories concept (nostalgic) also influenced the development of furniture and home decor trends in various Bandung creative industries. Kandura Studio, which is another ceramic studio in Bandung; established since 2004, founded by alumnae of the art and design institute with a background in product design, art and craft ceramics. Kandura has two kind of products; namely consumer products and art products. One of their ceramic products has the value of antique combined with new material, the old glass design "enamel" with ceramics material.



Figure 6. Ceramics glass with "old enamel design theme".

4.4. Experiment and Development on Local Material

Experimentation and development are requires, and it is become first priority in Kandura.Routine experiments conducted in exploring project form, function, and a new process with different themes. This following sentences are quotation from Kandura:

"The Projects that we do can always be traced back to our experiments...."

"The project also acts as an idea generator, producing new techniques and glaze recipes for further development and use"

The process of experimentation and development are point of innovation from Kandura Studio. Between Studio 181 and Kandura studio, they both have different specific innovation although they are located in the same city. One of Kandura Studio's project was cooperated with Indonesian Ministry of Trade to involved in Designer Dispatch Service (DDS) programme on 2014. They went to Island of Lombok to work with traditional pottery villages using their oil burnished terracotta technique as the starting point of design.The results are many varian products with contemporer design and pattern, including home decor products.



Figure 7. Home decor products developed from traditional technique in Lombok.

5. Discussion

The four characters above, including physical and inherent characters products of art and design graduates provide broad possibilities of the current design tendencies and opportunities for the future. Those characters showed identities of product from creative industries, represented by graduates from art and design institute.The identities are synthesized as follow:

1. Combination of local culture and global trend.
   Furniture, tableware, home decor from 1970 in Indonesia are the inspiration for designers to touch emotional part of human. Moreover, vernacular element is unseparated part from Indonesian culture. Those elements are the pull factor for designer to introduce their product to consumer easily, with something familiar yet extraordinary. The design affected not only by local culture element, but also global culture. Icon of big cities in Europe, icon of comic or animation characters are the parts of global culture. It is also important to consider trend forecasting as marketing tools to completed the design concept.

2. Flexible identity in company.
   To face the market challenges with other competitors, designer must be able to make a variety of products and undertake projects in order to maintain the continuity of their business.These challenges led the designers to create two identities as a subdivision of the company, namely the retail division and project division. Nowadays, it is very important for creative industries to have a dynamic movement and expand the network in order to survive.

3. Art and design collaboration.
   The graduates from art and design intitute have possibilities to cooperates and work together, therefore, they can develop more ideas and innovative products.Compare to conventional business structure, they have more freedom to express the ideas. On several creative industries, the structure are divided with combination of art and design division.

4. Education and experimental activities.
   With strong background of art and design science, the graduates have practical and theoritical material to showed through products and educational services (workshop).People with curiosity and interest on material processing, become niche market on tourism.

   Furthermore, design development conduct by experimentation which generate conventional and radical shape, influenced by collaboration from art and design knowledge.

5. Stories, history, and green environment values.
   In addition to educational background; social culture, histories and environmental

issue go along with identity of creative product in Bandung. Inherent part from product enhance the values.Stories value; from the product concept and manufacturing process; notified to consumer to broad their knowledge so they can tell that as story to another one.The second value is history; in past history, The colonial government shipped large quantities of European style furniture to furnish their home and office. Since then, these types of furniture became prototypes for reproduction and developed by local wood workers(Wiyancoko, 2000). Todays, many designers produce furniture inspired by European style in Colonial era with contemporary design.The third value was environment issue which has been used as part of market tools. Green environment is global issues which are also attended by Bandung society, allegedly tend as a trend, not a particular ideology.

6. Galeri Desain Bandung (Bandung Design Gallery)
   In Bandung, there are several creative community and design association rise and emerge. The purpose of collaboration not only for learning together and develop something new, but also to market the products.The new place called Galeri Desain Bandung (Bandung Design Gallery) indicating the collaboration.These Gallery has some kind of home decor products, such as lighting, art installation, tableware, ceramics products, accessories and so forth; from brands belong to graduates of art and design institute. The managament governed by representative from the community.The requirements for product is good design and have capability for marketing and production. Currently there are 17 local brands joined since 2014 and may increase in future.Bandung Design Gallery may equated to "Design museum", as a new tourist destination.

All of that tendencies, have characteristics in common with current industry developments coming into the postindustrial era. Creative industry has been part of postindustrial era, the transition from industrial era to postindustrial era described on condition below by Krippendorff (2006:14) as:

Table 3. Shifts in societal dimensions

Industrial Era	→	Postindustrial Era
Primary currencies		
Matter & energy	→	Attention by individuals & communities
Major inequalities		
Economic	→	Access to technology, know-how, education
Dominant structures		
Hierarchies of obligations	→	Networks (heterarchies) of communities
Conflict of concern		
Territorial wars	→	Market competition, spectators sports, elections
Knowledge		
Scientific theories (of nature)	→	Socially constitutive, transfomative
Ontological explanantions		
Mechanical/causal	→	Ability to create, construct & realize
Design		
Technology-centered	→	Human-centered

6. Conclusion

The growth rate of tourism in Bandung greatly affect the economic development of creative industries in Bandung. Particularly at this time, interior products or home decor has a very high potential as a business opportunity. Products can vary, both tangible products and services. Design must have ability to fulfill emotional needs and involve common people to be part of design process. Design community configurate the network as dominant structures in advantage of access to technology. They have ability to create, construct and realize the new design innovation as creative form of postindustrial era.Creativity in creative industry related on variation and innovation. The identity of product may vary with different kind of research object. Therefore, it is very interesting to do further research with different object aside from furniture and home

decor. Art and design workshop has a high chance to be introduced to the public as an education and new experience for tourism. The alumnae who become design entrepreneurship can make solid community as one power to support their endurance.

REFERENCES

Journal article

Kembaren .P, M.Simatupang, T, Wiyancoko .D, 2014, *Design Driven Innovation Practices in Design-preneur Led Creative Industry*, Journal of Technology Management & Information, Vol 9, Issue 3, p.98.

Dissertation

Wiyancoko, Dudy., 2000,*Seating Design and The Culture of Sitting in Javanese Society of Indonesia*, Disertasi, School of Science & Technology, Chiba University, Japan.

Book

Karjalainen, Matti Toni., 2004, *Semantic Transformation in Design - Communicating Strategic Brand Identity through product design references.*Finland: Publication series of the University of Art and Design Helsinki.

Krippendorff, K., 2006, *The Semantic Turn-A New Foundation for Design*, Taylor & Francis Group.

Shcumpeter ,K.A., 1934, *The Theory of Economic Development*. Harvard University Press.

Spring.A, Mc Dade B.E., 1998, *African Entrepreneurship: Theory and Reality*. University Press of Florida.

Article in a published proceedings

Aritenang, 2012. The City of Bandung: Unfolding the Process of Creative City. *4th Artepolis International Conference in Bandung, Indonesia5-6th July 2012*. Bandung

Article from an online magazine or news

Sondayani, E., 2013. Creative Economy Planning for Entrepreneurs. *Warta Bappeda Provinsi Jawa Barat*. [online] Available at: u/informasi/majalah/detailmajalah > [accessed November 2014].

Report

Career Center ITB. Report Tracer Study ITB (2012-2014).

Stand alone web document (no date)

Margolin, Victor., 2002, *The Designer as Producer*. ICSID News, February 2002.

Basic Research for WIG Ship Utilization Measures for The Development of Marine Creative Industry

Kim Youngdong
Pukyoung National University, Korea
ydworks@naver.com

Yoo Sangwook
Pukyoung National University, Korea
yooswook@pknu.ac.kr

Abstract — A WIG ship that flies as floating on the sea by using the ground effect, with being faster than any other means of transport that are used at sea, and excellent fuel efficiency compared to airplane, is expected as an economical marine transportation means. If developing the above advantages further, it will be able to have more features in the military, and to move cargos and lives more quickly to the desired destinations. And, although it is not developed by now, if utilizing the advantage that is faster speed than leisure sectors and can fly the sky instantaneously, it will be able to graft onto a variety of leisure sports. If developing the above advantages, it is determined to be able to give great influence on the incoming future marine creative industry. Therefore, this study is to create a basic database for developing the marine creative industry, by grafting WIG ship that has attracted attention as the next generation transportation equipment onto the marine creative industry.

Keywords: WIGship,Database,Analysis

1.Backgrounds of Study

A variety of marine industries have been evolved in such as shipbuilding industry, environmental-friendly industry, marine plant industry, fishing industry, and tourism industry. Among these, our country already has a global marine shipbuilding technology. In the marine transportation equipments, like a large cargo ship carrying things, passenger ships people that moves in riding, and leisure application yachts individuals enjoy, such marine transportation equipments in various shape and size exist. Depending on the usage environment and usage purpose, marine transportation equipments are being developed, and the usage or purpose have been used in changing in the development process. Yacht had once been moved by utilizing the wind without power, now it went out of the weather's impact by using the engine, and in the case of WIG[1] ship although it had been developed as military purposes in Russia, now it has attracted attention as a next-generation transportation at sea. Russia, the United States, and China are already under development, and our country, through Korea and Russia science and technology exchange project in 1993, introduced Russian WIG ship technology, and 4-person WIG ship that Korea Ocean Research

[1] Wing-In-Ground

and Development Institute and venture companies had jointly developed in 2001, succeeded in its test run, and also with the center of the large-scale WIG ship progress planning team in Korea Ocean Research and Development Institute, it is developing large-scale WIG ship by investing 170 billion won, with the aim of its commercialization in 2012. However, with the reasons such as economic feasibility and safety, its development has been delayed.

1.2 Purpose of the Study

In the marine creative industry, since what are currently developed has been growing by already securing the marketability, it does not fit the marine creative industry. However, WIG ship was developed for military purposes, and yet is insufficient state of development in other applications. Thus, by investigating the development state of existing WIG ship and the marine industries, and by finding businesses that can be fused, it will perform a basic research on the plans that can be utilized in order to achieve the development of marine creative industries

2.Theoretical Backgrounds

2.1 Definition of WIG ship

WIG ship is an marine movement means that was developed by the former Soviet Union with a military purpose, a shape similar to airplane, while flying in low over the sea approximately in 5M by using the ground effect, it is a next-generation marine transportation means that flies at speeds of 100km to 300km per hour. In many countries such as Russia, China, South Korea, and the United States, they are developing WIG ship for military purposes or logistics transportation applications.



Figure 1.WIG caft

2.1.1 Ground effect

If you look at the birds flying on the water, when flying high in the sky, they fly forward by continually moving the wing, but when flying close on the water surface, they can fly for long time with even a little moving while wings open, which is a ground effect. When flying on the surface of water or the ground, the forces that push down the wings are created. It means that the force pushing is reflected from the ground, and the reflected force would push down again as hitting the wings.

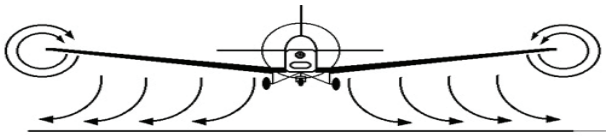


Figure 2. Ground effect

2.2 Classification of WIG ship

WIG ship, based on the weight, is classified into small, medium, and large in its types, which small is less than 10 tons, medium is less than 10-500 tons, and large is more than 500 tons.

IMO[2] and ICAO[3] have classified WIG ship into three types. This is shown in the following table.

Table 1. Type of WIG crafts

Category	Contents
Type A	WIG ship that can be operated by only the ground effect
Type B	WIG ship that can be operated in the extended range of ground effect (less than 150M from the ground) and possible to aviate by temporarily raising the altitude
Type C	WIG ship that is possible to aviate as 150M from the ground without ground effect (the lowest safety altitude that ICAO has designated)

2.2.1 Type A

- Since it can operate by the ground effect, it flies low above the water surface.

- Since the Type A, which does not require a propellant to increase altitude temporarily, is demanding less fuel consumption, and the engine does not need to be strong, its speed is relatively slow, however, the risk of accidents is low.

2.2.2 Type B

- It is a type that is capable of flying at momentarily less than 150M beyond the ground effect.

[2] International Maritime Organization
[3] International Civil Aviation Organization

- In order to respond with unexpected situations, it should be available to momentarily flight, and as a result, propellants or tail wings of WIG ship are equipped.

2.2.3 Type C

- Since it is possible to fly even without ground effect, Type C is almost similar to airplane. However, since the flight capacity is lower than airplane, it is rather inefficient.

- It is used primarily in the military, since the range of activities is diverse, and the room that dangerous situations to occur is high, it is necessary to ensure safety.

3. Domestic and foreign WIG ship development trend

3.1 Foreign WIG ship development trend

3.1.1 Russia

- Russia that has developed WIG ship design for military purposes is a state that secured its unique position of technology in WIG ship production.

- With the recent reduction in munitions costs, the weight even in the private sector increased

3.1.2 Germany

- Mainly, it has mainly developed small WIG ship of less than 20-person. Although it has been developed in military applications, as the military interest has been disappeared nationally, the military development has been stopped. Since then, 80-person WIG ship has been developed, and large WIG ship of 120-person and 200-person have also been developed for the future.

3.1.3. The United States

- Without national support, it had remained at only the research level, since the 1990s, the development has been promoted mainly in the private sector. However, it has not ensured sufficient financial resources, and with the high frequency of use for the airplane on the national shape, it is a state in which the development was virtually interrupted now.

3.1.4 Japan

Kawasaki company, as the main force of marine transport means in the 21 century, is under the research and development on WIG ship that is available to operate in expanding to the Southeast Asia region, and Mitsubishi company developed a 2-person WIG ship for leisure, and is under the research on 100-person grade ship.

3.1.5 China

In China, in order to meet the needs of the army independently by studying the construction technique of Russia and Germany, a variety of model tests of small WIG ship, construction and design have been made.

3.2 Domestic WIG ship development trend

The history of WIG ship development in Korea, as Russia's WIG ship having been known in the country at the beginning of 1990, was started in earnest with the science and technology exchange project between Korea and Russia in 1994. Since 1995, being composed of Korea Ocean Research Institute and four shipbuilding plants, it has developed a design technology for small WIG ship. Although it attempted the development of 200-person grade medium-sized WIG ship in 1997, it was interrupted within a year by financial difficulties. In 2001, it succeeded the development of 4-person WIG ship, and although it progressed the development of 20-person grade WIG ship from 2004 to 2008, the development has been delayed by economic efficiency and safety.

4. Marine industries that can be combined with WIG ship

4.1 Marine transportation industry

Korea Republic has a world top level of shipbuilding business infrastructure and system integration technology. Along with this, it is a situation that completed even up to the enactment of guidelines for operating knowledge, operating technology, and education training of WIG ship's operating crews. Since WIG ship can fly while adjusting the height over the water surface, it is free from the threats of turbulence or high waves, and has a great benefit in terms of being able to use the existing ports.

4.2 Military industry

In the situations that rapid response is required such as marine illegal fishing or various marine accidents search, and rescue, WIG ship owns a long-distance navigation ability and proper speed. And the merit that can fly into the air over 150m also has a higher search ability in the operations to be performed to the ship at sea. The point that is not discovered by radar is also expected to be useful in marine combat and infiltration.

4.3 Leisure business

The biggest advantage of WIG ship is the fastest speed at sea. And, among existing maritime leisure sports, racing races that enjoy the speed by using F1 or power boat are gaining popularity. From that, if the flying ability is added, it is expected to be able to create various racing contents that cannot currently be seen in the land. Since the leisure-related business is an industry that has not yet been tried, ocean, it is expected to have the largest growth effect and the expected effect as a marine creative industry.

5. Contents available to be applied on the WIG ship

5.1 Motor boat

As a small speedboat that is equipped with the engine of light and high horse power, it is a marine transportation equipment to enjoy a thrill and sense of speed while running fast at the sea. A motorboat race had already been held in 1903 from United Kingdom, various races are held in many countries around the world. Motorboat is divided into military boat and pleasure boat, and they are variously classified even for leisure. Its size is diverse depending on the intended use.

5.2 Marine racing games

Classified by the displacement of the engine, ocean racing competition is made on the speed with out-board boat and in-board boat. Various types of race were implemented by their own competition modes. Following chart is the explanation of the representative foreign ocean racing competition.

Table 3.Marine racing games

Title of games	Contents
K-450	K is an abbreviation of KOREA or KYEONG JEONG, and a Korea type Speedboat racing game controlled by Korea light ship operation headquarters, it is a marine race that 8 boats of 450cc patrol the 300m circle three times.
F1	Since its launch in 1981, a competition that under the UIM standards, racing teams of 14 countries run 13 countries for one year, which is opened on the water.

6. WIG ship utilization measures on marine creative industries.

Looking based on the content of this paper, WIG ship already has a potential of various utilizations such as marine transportation applications, military applications, and leisure item. It is a point that its speed is faster than the existing marine transportation equipments, and is a point that is able to escape from the danger of the waves which is the most dangerous in the sea. If it is developed in dividing into Type A, Type B, and Type C, depending on the situation, by maximizing its stability, fuel efficiency, and flight capacity, very high expectations are expected in the growth of marine creative industries.

7. Conclusion

The development of WIG ship up to now has been delayed by the economic value or safety problems. It needs a comprehensive and systematic research on WIG ship research and development that the development level is still low. Since our country has built the world best shipbuilding technology and infrastructure, if we actively participate in this field that attracts interest in worldwide, it will be able to get a good result. Like the contents of the above, the existing WIG ship is possible to be used in a variety of applications, if being developed by fitting them, a variety of use measures of WIG ship will be presented, and it is expected that it will greatly contribute on the marine creative industries.

REFERENCES

Journal article

Bo-Geun Han, Hyeon-Cheol Choi, Eun-Bang Lee (2010) A Study on the practical plan based on the mobility and characteristics of WIG Craft

Ja-Yun Ku(2009) Multi-purpose WIG Craftdesign study for passenger transport between coastal and neighboring countries

Jae-Bong Kim, Hong-Won Yi, Yong-Sik Oh(2012) A Study on the Policy for Introduction of WIG Craft into Coastal Passenger Service

- Trend Research on Cutting board towards Future Technology-

Lee Chang Jun
Pukyoung National University,Korea
Hosin0@naver.com

Cho Jeung Hyung
Pukyoung National University,Korea
Madec2014@daum.net

Abstract — Along with changing trend of the times, design direction of kitchen cutting board will be considered and analyzed in the future through graft with sanitary user convenience and IT. It is expected that a research on more detailed process development for design direction not only for kitchen cutting board but also for kitchen appliances would be required.

Keywords **– Sanitation, user convenience, smart device, material quality, fusion(convergence), kitchenware**

1. Introduction

Along with changing trend of the times, cutting board among kitchenwares will be surveyed and through its developmental design approach, orientation of sanitation, user convenience smart function is intended to be presented.

1.1Research background and objective

Along with enhancement of life quality owing to economic development, diversified products were emerged and design is being developed in diversified terms including product material quality, user convenience, graft with IT. This changing trend of design could be experienced in kitchenware as well.

Cutting board in kitchenware before industrialization times was mainly dominated by wooden cutting board. However, owing to technology development since industrialization, cutting board having diversified material has been emerged through development of diversified materials. At present, as concern over eco-friendliness was rapidly increased, product has been developed by using material without pollution properties. In addition, it could be experienced that value of kitchen cutting board is increased by attempting IT convergence through smart device, breaking away from existing simple function of cutting board by which food material is cut with knife

What is important for kitchenware is its sanitation more than anything else. Cutting board is directly touched with food material for its arrangement. The objective of this study is to present design orientation for kitchenware through theoretical consideration for future direction in design trend of this kitchen cutting board.

1.2 Research range and method

The objective of this study is to present future design orientation of cutting board through analysis of its current trend based on consideration of sanitation, user convenience, IT in kitchen cutting board design. Therefore, research range is that through literature survey, sanitary features of existing cutting board will be identified in terms of its material and data for user convenience will be presented by collecting data for user-focused design orientation and design orientation will be suggested through analysis of IT-grafted product design regarding existing similar case.

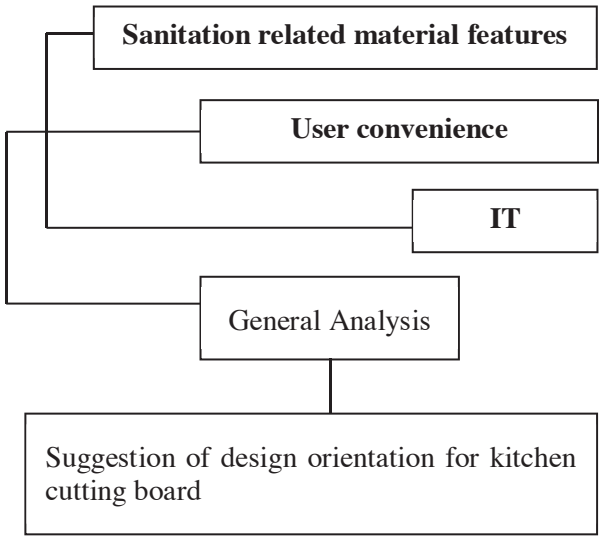
Research method of this study is as follows.

First, regarding sanitation, material features of existing cutting board in terms of pollution, that is, its pollution problem, will be explored. In addition, material sanitation of existing cutting board product will be determined.

Second, design product having user convenience of existing cutting board will be assessed and partial conclusion will be drawn through case analysis based on quantitative data.

Third, regarding IT, a case grafted with kitchenware will be explored. IT utilization data of product will be surveyed and analyzed and partial conclusion will be drawn through analysis of case grafted with kitchen cutting board.

Finally, through comprehensive research based on preceding literature research and case study, design orientation of kitchen cutting board will be presented.



<Fig. 1> Research Method

2. Consideration on sanitation, convenience and technicity

In this chapter, current development trend of kitchen cutting board design will be explored through literature survey and case study on sanitation, convenience and technicity and based on each partial analysis, general analysis will be performed.

Through the content of general analysis, orientation of kitchen cutting board design will be presented.

2.1 Pollution problem of kitchen cutting board and features of cutting board available in the local market

In using kitchen cutting board, importance of its sanitation has been brought to our attention. Direct contact part when food material is arranged is surface of cutting board and sanitary problem may be taken place by material, using period and wrong storage method of cutting board. As the most frequently used material of cutting board, wooden material that has been used from the past up to the present and silicon and polypropylene (P.P) are mainly used owing to development of antimicrobial material.

2.1.1 Wooden cutting board

In using cutting board in the past, its material was dominated by wooden material. According to a study of 'Anti-bacterial treatment and performance on the kitchen scrubber' (Yang, Yoo Hyeong, 2001), in case of wooden cutting board, sanitary aggravation may be taken place by surface damage and corrosion because of generation of fungus and bacteria by moisture or residue of not washed food material in damaged gap. This water mold is said to have a risk of inducing abdominal pain, diarrhea and food poisoning.



<Fig. 2> Wooden surface damage and corroded cutting board

Against this sanitary problem, cutting board product using antimicrobial wood has been launched in the market. Following is cutting board product using campo wood having antimicrobial property.



<Fig. 3> Campo wood cutting board

Fragrance of Campo tree being used as material of cutting board as shown on <Fig. 3> is known to play a role of eradicating insects. In this tree, bacteria is unable to survive due to its antimicrobial activity and according to Science, a US science magazine, even though cutting was made, salmonella bacteria is disappeared within 3 minutes and it was said that after passing one day, most of the bacteria was not detected.

2.1.2 Silicon cutting board

Silicon cutting board could be sterilized with hot water as it has features of not being deformed for long use and enduring temperature up to -40°C～280°C. In addition, by using antimicrobial silicon adding antimicrobial function, service life and sanitation has been further strengthened.



<Fig. 4> Antimicrobial silicon cutting board

2.1.3 Polypropylene cutting board

Polypropylene cutting board is non-toxic plastic being frequently used in the market at present and it is used for medical device, baby products as it does not contain environmental hormone. In case of this material, as it endures up to -20°C～70°C heat, hot water sterilization is possible even though its function is lower than silicon cutting board. In addition, by using antimicrobial agent, bacteria blocking up to 99.9% is allowed by antimicrobial activity and antimicrobial effect is maintained until service life is expired.



<Fig. 5>PP cutting board

2.1.4 Materialistic conclusion

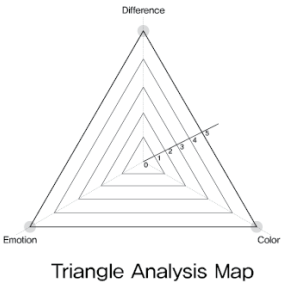
As production of eco-friendly material, cutting board using natural wood is excellent. In addition, in case of using campo wood material, natural antimicrobial effect could be obtained.

2.2 Cutting board design considering user convenience

In existing kitchen cutting board, by making analysis map for user convenience, existing cases will be analyzed.

2.2.1 Deduction of analysis keyword for user convenience

According to Lee, Sang Hwa (2006) of Changwon National University, in case of user-oriented product, differentiation, sensibility and color were designated as important keyword and analysis map was made by using above 3 keywords in each point of cutting board analysis and a table was prepared by assigning score matching with keyword.



Triangle Analysis Map

<Fig.>Triangle analysis map 1～5 points

2.2.2 Case study on existing kitchen cutting board

Product	Emotion	Sensibility	Color
	1	1	1

	4	3	3
	4	4	4
	5	4	4

<Table1> Analysis score by each cutting board product (Higher score, the better)

Through above analysis, in case of kitchen cutting board, modernity was pursued by using emotional approach, diversified colors that provide differentiation of general use and user convenience, breaking away from simple function.

2.3 Case study on IT graft

At present, commercialization of IT approached cutting board is not realized. However, through commercialization of smart device, concept design for future possibility is under progress. Following is an analysis for this concept design



<Fig.> Future digital cutting board furnished with recipe and sterilization function

As shown on above data, another design trend is presented by grafting with smart function, not a cutting board for simply arranging material.

3. Conclusion

Direction of kitchen product is an item undertaking 'food' in terms of human food, clothing and shelter. That's why kitchen product is required to be developed with giving significant emphasis on sanitation. In addition, kitchen cutting board in the topic of this study is considered to be more sensitive part in terms of contacting food material. Therefore, it is concluded that design is required to be progressed by matching with change of consumer's living environment along with smart technology times by summarizing (integrating) technical convergence including each sanitation, convenience and IT based on above study. Information transmission trend of cutting board could be realized through smart device considering sanitation and user convenience and through this study, future design orientation trend for kitchenware could be presented.

4. References

Kim, Tae Eun(2012, December) A study of kitchen appliance design suitable for Korean cooking behavior, pp.18 – 23

Yang, Yoo Hyeong(2001, Auguest) Anti-bacterial treatment and performance on the kitchen scrubber, pp. 15-22

Kim, chang Soo(1996, June) A study on user-classification for usability evaluation, pp. 20-26

Song, Jeong Heon(2014, December) Development of In-Vehicle Secondary Controls Using Smart Device and its Performance Evaluation pp. 16- 18

Cutting Board imeg (2013.July), Retrieved from http://blog.naver.com/wine59/30171467634

Campo wood cutting board (n.d), Retrieved from www.pilliga.com

Joseph Joseph cutting board (n.d), Retrieved from http://www.oclock.co.kr/

Smart cutting board (n.d), Retrieved from http://imanager.tistory.com/entry/200805281507

The Development of Portable Mini-PhotoBot ver.02 for Small Medium Business

Widi Sarinastiti
Politeknik Elektronika Negeri Surabaya
widisarinastiti@pens.ac.id

Sritusta
Politeknik Elektronika Negeri Surabaya
dhoto@pens.ac.id

Yahya Adi Styawan
Politeknik Elektronika Negeri Surabaya
yahyaadis@gmail.com

***Abstract* —** This paper is the continuation of the previous Mini-photobot ver.01 which already provided a small scale photo studio for small medium business of handicrafts in Sidoarjo. The Mini-photobot ver.01 could save a time as it was so much faster than using a traditional photo studio, from taking picture until uploading photos to the internet. However, the Mini-photobot ver.01 was complicated to assemble and to carry. It required more than one person and took about 45 minutes to build until and setting-up. The Mini-photobot ver.02 comes with a compact box that consists of webcam, light tent, with the lighting using L.E.D, and mini P.C using pandaboard include the tablet for graphic user interface. Our research aims to redesign the box of mini-photobot v.01 to make it portable and easier to build and setting-up.

***Keywords* – mini-photobot, automatic photography, portable design, handicrafts**

1. INTRODUCTION

One substantial sector on the growth economy in Indonesia is Small and Medium-sized Business (S.M.B). S.M.B has created a new mass of labour to support the household income. One of the example is in Sidoarjo, East Java, Indonesia where housewives are using their homes to display handicraft business like batik, bag, art and craft, etc. Therefore, there is a potential that S.M.B can become a stabilizer and a dynamic economy in Indonesia. S.M.B is also able to be a spearhead to the large businesses in terms of distributing and selling products of large companies to the end consumers.

The majority of S.M.B owners are housewives, selling crafts directly to the booth or through an online store. Regardless they are proficient in selling the products through online stores, they are lack in the ability of presenting the products in a proper photography and image editing, which is essential in online marketing.

This problem can be solved by learning techniques on taking photos for online marketing professionally. However, it would be time consuming and very costly. The authors are proposing a comprehensive system as well as photo studio named mini-photobot, with a digital camera to take pictures. The pictures then will be edited and automatically uploaded to the online store with a mini P.C controlled by the L.C.D touchscreen.

1.1 MINI-PHOTOBOT ver0.1

The Mini-photobot is a combined photobox and an embedded system. Mini-photobot consists of a box, camera, L.C.D touchscreen, an embedded system, and extra applications.

Mini-photobot operated as user take a picture using camera that connected to the embedded system through L.C.D Touchscreen. Once the picture has been taken, system is processing the image to enhance it. User can upload directly to the server with a single click. Box of mini-photobot designed with balsawood boards with 90cm x90cm size light tent. The picture is taken by a webcam and use L.C.D Touchscreen to capture images from mounted cameras. Images that is taken from L.C.D Touchscreen will be edited in accordance with a provided feature, then it will transmit the images to a server. This tool is using node.js as a web server and RaspberyPi 2 for the embedded system. Figure 1 is an explanation of the mini-photobot workflow system.

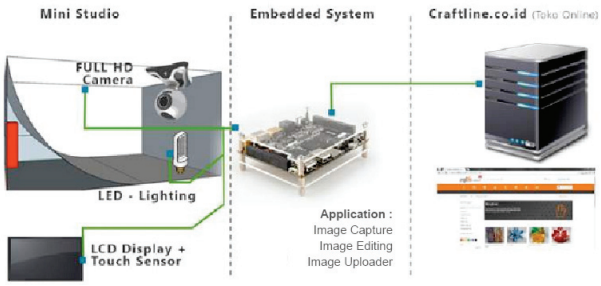


Figure 1. Mini-photobot workflow system.

1.2 THE WORK

First step on previous work was assembling the board to be the box, and then the others components like pandaboard, LCD Touchscreen, web camera, and lightling manually, by using plug and play system.

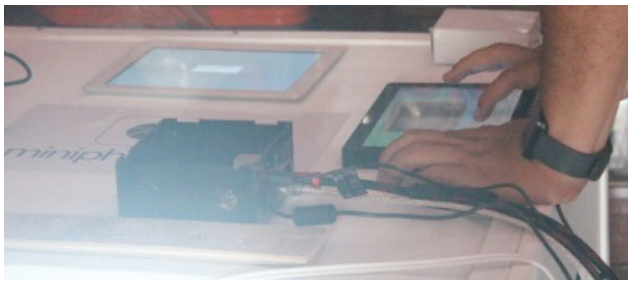


Figure 2. Mini-photobot ver.01 UI system.



Figure 3. Mini-photobot ver.01 final result.

When using the Mini-photobot in Figure 2, it takes about 23 seconds to do all process from taking picture, filtering, and then uploading to the destination server in the Internet. It is more faster than using a conventional photo studio. Final result from mini-photobot is demonstrated in Figure 3.

Table 1. Time consumption comparation on mini-photobot and traditional

Phase	*Times Cosumption (s)*	
	Traditional	Miniphotobot
Take Picture	3	3
Save Picture	5	-
Access Filtering Images App	5	-
Images Filtering	150	10
Access Web	160	10
Upload Picture	15	15
Total	338	38

2. THE PORTABLE DESIGN

The development of portable design has been a concern since the ethnography study was first adopted in technology design. Currently, such discussion has emerged continously because of the fact that the new design methods have been introduced from different disciplines (Boehner et al., 2007; Keinonen, 2009; Koskinen et al., 2011).

In software engineering, portability is usually defined as "the ease with which the system can be transferred from one environment to another at a lower cost than the cost of redevelopment" (Mooney, 1995,p. 150). Just as a software application is designed to be portable across different system environments, the mini-photobot is designed to be portable that is easy to build and to carry everywhere.

3. DATA AND METHODS

Building the whole package of compact and portable mini-photobot was through experimental process. Starting with designing the compact box that can carry all the mini-photobot needs as shown on Figure 3. The final result of the design show on this paper is a prototype using balsawoods as it is light and easy to set up and carve. Balsawood has large pores structure and easy to be attacked by fungi that lead to blue stain patches.

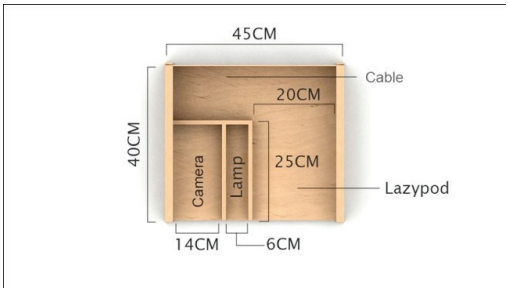


Figure 3. Mini-photobot compact box design.

Designing the actual size of the box requires some skills. The important thing was to understand the mini-photobot needs on electrical circuit that contains L.C.D touchscreen display, lighting, webcam, and pandaboard as mini P.C. The mini-photobot also requires storage for lazypod as the lighting handle, cable, and L.E.D lamp as show on Figure 4.



Figure 4. Mini-photobot ver.02 box prototype with balsa wood.

The mini-photobot ver.01 still using knockdown woods for make the portable table top, but on mini-photobot ver.02 already using light tent that easy to carry and lightweight as show on Figure 5.

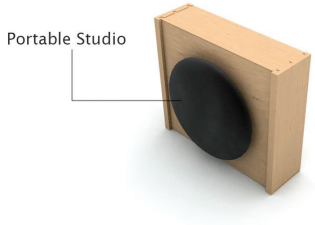


Figure 5. The Mini-photobot ver.02 package with light tent outside.

Light tent usually is utilized in the photography lighting which needs to set-up. This would be a problem for mini-photobot users. Therefore this Mini-photobot ver.02 comes up with a convenient lighting using L.E.D lighting and minipod to subsitute a lighting stand.

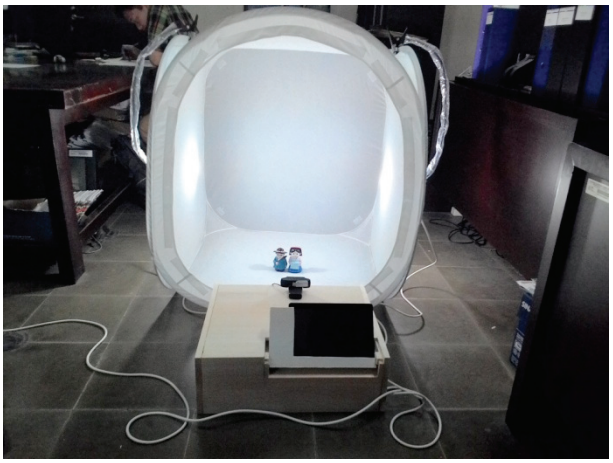


Figure 6. Mini-photobot ver.02

Mini-photobot ver.02 as show on Figure 6, has been tested through a user experience test. The user was asked to assemble the mini-photobot ver.02 until it is ready to set. In the Mini-photobot ver.01, assembling the studio box alone is complicated. It took 45 minutes and more than one person to build and install the lamp, mini P.C, webcam, altogether. The Mini-photobot ver.02 needs about 5 minutes

only to build alone. We experience with six user of miniphotobot, and the result is shown on Table 2.

Table 2. Time consumption result user experience using mini-photobot ver.02

User	*Times Cosumption*	
	1st trial	2nd trial
User 1	3'18.73	3'10.25
User 2	5'12.87	4'17.75
User 3	5'35.35	5'01.15
User 4	6'25.26	5'47.10
User 5	4'17.69	4'01.62
User 6	5'09.25	4'12.15
Average	5'00.39	4'41.67

4. RESULT AND DISSCUSSION

The Mini-photobot ver.02 is much more lightweight, easier to carry and build compare to the Mini-photobot ver.01. The Mini-photobot ver.02 also produces a good photograph result as shown on Figure 7.



Figure 7. Final result product photograph using mini-photobot ver.02

The Mini-photobot ver.01 was using single lighting with neon lamp spot on top of the studio box, thus the result was not good. Figure 8 demonstrates the comparation among mini-photobot ver.01 and mini-photobot ver.02.



Figure 8. A Comparison of The Mini-photobot ver.01 (left) and The Mini-photobot ver.02 (right)

5. CONCLUSION

The authors are currently developing further research for The Mini-photobot ver.03 with better quality box. It is also projected for industrial scale mass products, and convenient to distribute. The authors are also developing a software for image processing with raspberry therefore it will come out with better quality photo in a convenient way.

REFERENCES

Boehner, K., Vertesi, J., Sengers, P., and Dourish, P. (2007). *How HCI Interprets the Probes*, Proceedings of CHI'07. ACM Press.

Dinas Koperasi dan UMKM Jawa Timur (n.d.). Retrieved December 3, 2014, from http://diskopumkm.jatimprov.go.id

Gaver, B., Boucher, A., Pennington, S.,and Walker, B. (2003). *Subjective approaches to design for everyday life*. CHI Tutorial, London, England.

Goodrich, Kristina (2001). *Design Secrets: 50 Real-life Projects Uncovered. Products, Volume 1. Design secrets*. Rockport. ISBN 9781564966384

Lee, J.H. (2009). *User-Designer collaboration during the Early Stage of the Product Development Process*. Doctoral dissertation, Queensland University of Technology, Australia.

Mooney, J. D., (1995). *Portability and Reusability: Common Issues and Differences*, Proc. ACM Comp. Sci. Conf., ACM Press, New York, pp. 150-156.

Sukaridhoto, Sritusta, Yahya A., Edi W., Samsul H., Nurul F. (2015). Develpoment of Mini-PhotoBot for Small Medium Business. *Proceedings of Knowledge Creation and Intelligent Computing (KCIC)* (pp. 84-89). EEPIS Press.

Traditionalism in Creative Industry: Learning the Development of Bamboo Craft from Traditional Basket to Contemporary Art from Shono Shounsai

Yongky Safanayong
UPH, Indonesia
(26 Agustus 1950–11 Maret 2015)

July Hidayat
UPH, Indonesia
julyhidayat@hotmail.com

Fatmahwaty
UPH, Indonesia
fatmahwaty.fdtp@uph.edu

***Abstract* —** Indonesia is the third largest producer of bamboo after China and India. Bamboo craft is used in the religion and daily life of Indonesian people. In Indonesian culture, the use of bamboo material in craft is not merely environmental friendly but represents the culture value and become a part of tradition. With a big potential and demand, the design innovation of bamboo craft in Indonesia seems to be relatively stagnant and Indonesia could only hold 9% of the world bamboo market. In essence, the absence of quality standards, the inability to maintain consistency quality and design innovation becomes major problems. After formulating the problems, we conducted a comparative study of the Japanese bamboo craft which is proven to break through the international market, especially in the aspects of problems encountered by the craftsmen. Japanese bamboo craft are famous for its form revolution. Shono shounsai gave influence of this revolution by elevating the bamboo craft into a higher level of fine art. This paper is intended to share the Japanese craftmen experience in overcome the problems of materials, techniques, designs, marketing and education so our local craftsmen can learn, improve their way of works and finally able to be more competitive in export market.

***Keywords* – bamboo-art, Shono Shounsai, design-innovation, Japanese, craft**

1. INTRODUCTION

The cultivation of bamboo and the development of bamboo craft to support the creative industries in Indonesia has great economy potential. Bamboo is categorized as a non-timber products from production forests and the share of non-timber products from Indonesian forest was 95% as stated by Hilman Nugroho [1] at National Congress of Bamboo in Yogyakarta (2013). In Indonesian export, forest products is in the 5th order of major commodities and craft is in the 7th order of potential commodities. Bamboo export value in 2011 reached US$ 193,33 millions

[1] Dr. Ir. Hilman Nugroho, M.P. have served as Director General of BPDAS-PS (Bina Pengelolaan Daerah Aliran Sungai Perhutanan Sosial or Watershed Management and Social Forestry, Ministry of Environment and Forestry)

(around IDR 2,5 trillions) as stated by Hilman Nugroho at National Congress of Bamboo in Yogyakarta (2013). The International trade of bamboo and rattan in 2012 was about US$ 2.5 billions (more than IDR 32 trillions) where 66% share of the market belonged to China, followed by the UE with 11% share and Indonesia with 9% share (INBAR Reports, 2012).

Indonesia has a lot of potentials since it has 140 species of bamboo (http://djpen.kemendag.go.id). The main areas of bamboo development in Indonesia are Yogyakarta, Bali, Central Java, East Java and West Java as stated by Hilman Nugroho (2013) (http://thepresidentpostindonesia.com/) but according to Central Bureau of Statistics Forestry, between 2009-2013, besides those 5 regions, Moluccas has the widest area in terms of realizing the bamboo plantation (1.080 Ha.) and West Nusa Tenggara had the biggest bamboo productions in terms of non-timber forest products in 2013 (952 rods). These datas show indications of development in cultivating bamboo outside Java and the urgency of disseminate knowledge about bamboo. With such big potentials why Indonesia could only hold 9% of the world bamboo market?

2. PROBLEMS

We have tried to study the bamboo craft bussiness in Rancabuaya, Jambe, Tangerang, Banten and one bamboo craft center in Brajan Village, Sleman, Yogyakarta. From those areas we have tried to learn about bamboo craft development issues from materials, skills or techniques, designs, capital, transportation, communications, management, marketing and regeneration of craftmen. From the field observations we found that craftsmen in our casestudies do not plant themselves but buy the bamboo material. Bamboo is also allowed to grow freely in their environment without specific maintenance and programs. This is due to the character of bamboo that are easy to grow in appropriate topography (100-2200 M) and climate (9-36°C). With this condition, they are difficult to have consistency quality of bamboo material. This data is strengthened by the earlier publication that raw material obtained recklessly and do not preprogrammed (Ichsan, 1990). Apparently in 15 years this problem has not solved.

In terms of techniques issue, the craftmen only used simple equipments like small knive, small hammer and scissor (Figure 1 & 2). They are relying on manual skills, aided by the movement of other body parts such as feet, to weave bamboo (Figure 3 & 4).



Figure 1. Craftman Tool in Rancabuaya



Figure 2. Craftman Tool in Brajan Village: small knive, small hammer and scissor



Figure 3. Craftman Used His Foot to Hold the Bamboo Strip



Figure 4. Craftman Used His Foot to Hold the Bamboo Skin when Peeled

The design of bamboo crafts from Rancabuaya has not been much developed as they maintain the tradition of forms and techniques passed down through generations. Their main product is bamboo hat even though they also make various containers like bottle and fruit containers. Their craft is simple and done in bulk. The housewives in surrounding neighborhood seeking additional income by making easier woven parts, basic or semi-finished products and the expert craftsmen work the more difficult woven that make up the good until completion. Problems arising from this group are the low quality of design and unstandardized quality of woven.

The design of bamboo crafts from Brajan village are more varied and evolving as artisans received training about forms, techniques and characteristics of bamboo craft from government institution called P4TK (Pusat Pengembangan dan Pemberdayaan Pendidik dan Tenaga Kependidikan or Center of Development and Empowerment of Teachers and Education Personnel) Art and Culture of Yogyakarta. Nevertheless, the design between each other crafts men did not differ significantly so that the problems in here is the lack of design identity.



Figure 5. Bamboo Crafts from Ranca-buaya, Jambe, Banten



Figure 6. The Bamboo Craft from Brajan Village, Yogyakarta



Figure 7. The Bamboo Craft from Brajan Village, Yogyakarta



Figure 8. The Bamboo Craft from Brajan Village, Yogyakarta

Lack of capital becomes the classic problem in the small business of bamboo craft. This is related to the lack of ability to manage the company's financial. The frequently encountered problem is that they are not separate the business financial with their daily living cost, one so that corporate profits are used for personal purposes such as home repair, land investment and other personal needs. It wasn't used for developing or increasing the capital of the company.

For marketing their products, the craftsmen rely on collectors. They often get the chance to exhibit in government institutions only when there are certain events. They need the opportunity to do an exhibition on a national scale in order to meet directly with retail buyers, owners of the art shops, galleries and distributors. Bamboo craftsmen of the Brajan village has already had their own website to promote their products and sell the bamboo workshop program in the Brajan as it is promoted as a tourist village of bamboo craft. The ability to participate in international exhibitions must be developed in the long run through the cooperation between craftsmen, craft organizations and the government as they encounter complex problems, ranging from the quality of raw materials, techniques, design and communication. In essence, the absence of quality standards, the inability to maintain consistency quality and design innovation becomes major problems.

3. METHODS

This study uses the case study method and comparative study. The tourist village of Brajan in Sleman, Yogyakarta was chosen as the case because Yogyakarta is a major area of bamboo craft development in Indonesia while case in Banten was chosen due to the consideration of accessibility. In able to provide proposed solutions to the problems of bamboo craft we conducted field surveys using the technique of interview, observation and documentation to talk directly with the craftsmen in order to know their real problems.

After formulating the problems, we conducted a comparative study of the Japanese bamboo craft, especially in the aspects of problems encountered by craftsmen. Why Japan was elected to the case of a comparative study? Japanese bamboo craft are famous for its revolution in form. Japanese bamboo craft managed to break through the international market while maintaining its tradition. Shono Shounsai gave influence of this revolution by elevating the bamboo craft into a higher level of fine art. With this innovation, the bamboo art of Shono Shounsai had been displayed at the Asian Art Museum, San Fransisco and get the international appreciation. Another consideration is that the characteristics of bamboo craft in Indonesia has similarities with Japan in terms of its existence becomes part of Indonesian traditional culture and it is

supported by the attitude of life that respects nature. The geographical climate and topography in Indonesia and Japan are equally conducive to planting bamboo.

4. RESULT AND DISCUSSION

4.1 The Development of Japanese Bamboo Craft

In the history of Japanese bamboo craft, bamboo art popularity connected with *sencha* tea ceremony and the popularity also grew in *Chanoyu* tea ceremony too. These two ceremonies give influence for Japanese bamboo artist / craftsmen to make a beautiful art product with artistic and it wide range influence spreading into Japanese daily life product. The medieval collection of *sencha's* and *chanoyu's* art product became part of the Llyod Cotsen Japanese Bamboo art Collection in Asian's art museum.

To create a beautiful and a good quality product, artists/craft men have to know about the techniques of bamboo material preparation, such as the bamboo plaiting techniques and the bamboo finishing techniques. A bamboo artist must also have artistic sensibility and have to create an innovative product.

Bamboo craftsmen in Kyushu usually use the *madake* (*Phyllostachys bambusoides*). To create a good quality and an artistic product, craft man/artist will make a preparation to get the material from the forest. Japanese craftsman will pray to the God before cutting down the bamboo. After that, the cutting process will be conducted. In the early step of processing the material, they know how to treat the outer skin of the bamboo that had previously been cut based on the length of node (*fushi*). They wipe the bamboo to clean the outer surface of the bamboo, to show the natural color of the bamboo. From this process, the character of the original color of the bamboo plants can be seen. Splitting technique process can start from split the bamboo into two pieces with radial splitting or flat splitting. While cutting the bamboo, a larger part of bamboo (node) must put on the floor, make outline on the top of the bamboo and divided by the average with using measurement to have the precision of the bamboo split. Furthermore, the new split is based on the cutting line to split it vertical and then split it horizontal. To make the bamboo basket, Japanese craft man use the outer surface of bamboo, in order to create the strong bamboo basket on the bottom line of basket. After creating a strip of bamboo (*higo*), they put it by placing two blades with v forming on a wooden log. The thin strip placed on the top of the wooden log, located just below the blade so it can be trimmed and the resulting of the thin strip that has the same width size (*habatori*). Then proceed again with smoothing the part inside of the bamboo (*mentori*). Furthermore, they will repeat the process until the surface of the bamboo becomes smooth and the bamboo strip are ready for use. The precision and the finest surfaces are very important for Japanese bamboo artist and craftsmen to create an artistic product. There are several techniques to develop the bamboo plaiting.



Figure 9. Blades for *habatori* & *mentori*



Figure 10. Takayuki Shimizu was demonstrating habatori - mentori process

The techniques are mat plaiting, square plaiting, twill plaiting, diamond twill plaiting, hexagonal plaiting, clematis plaiting, hemp leaf plaiting, octagonal plaiting, compound plaiting, plover plaiting, twining, plaiting pine needle, irregular plaiting, thousand line construction (comb plaiting), chrysanthemum base plaiting, circular plaiting, bundled plaiting, embroidered plaiting, parallel

construction, armor plaiting, bent bamboo, and coarse plaiting.

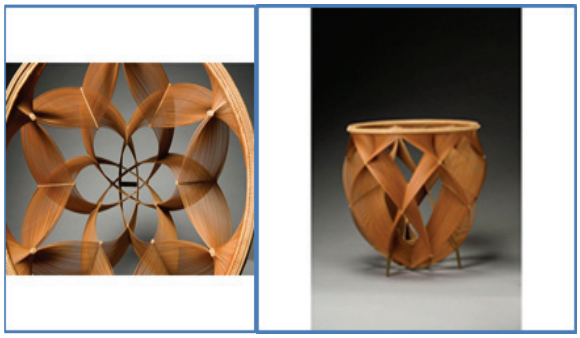
Takayuki Shimizu is a well-known bamboo master from Beppu, in Japan people called him Zu Sensei. He gave workshops and participated in many exhibitions around the world. He also creates jewelry's bamboo products for domestic and international market. This is the way to introducing the bamboo product to the market; a lot of people will see this product. This is really good for business opportunity.

In Japan, many bamboo artists go independent when they finished their bamboo school for two years, they still take master study in four years and have apprentice under their Sensei or company for four years. They spend almost ten years to learn about bamboo. That is why the best bamboo art product we can find it in Japan, created by Japanese artist/craftsman. The finishing options of Japanese Bamboo product can be from plum extracts and mordents, or lacquer.

4.2 Elevating Craft into Art: The Bamboo Art of Shono Shounsai

Shono Shounsai is a master bamboo from Beppu in Kyushu Island, Japan. His journey begins as a bamboo artist since he was 19 years old. His journey with bamboo started since he was inspired by the works of Sato Chikuyusai. One of Shono Shounsai's best works are the flower basket "Shimmering of Heated Air" (*Kagero*) created in 1969 has become a collection of Lloyd Cotsen Japanese Bamboo Basket Collection, which is part of the collection of the Asian Art Museum (Rinne, 2007). Shono Shounsai use *madake* bamboo to create art product from the combination of three types of material. The three types (*Phyllostachys bambusoides, cooper and rattan*) as the main material, rattan as a joint that connects part by part with one another and reinforced copper alloy material as the legs, with a high dimensional products. The height of the product are 34.9 cm and the diameter 35.6 cm. Shono Shounsai using thousand line construction techniques for producing a three dimensional artistic product.

From Shono Shounsai, we learn about the innovation design of bamboo craft as he had elevated the craft into art and combining bamboo with other materials like rattan and cooper. From Shono Shounsai's work, we also learn that it is important for craftsmen to learn about the principles of design such as rhythm, balance, contrast and harmony.



Picture 11. Shono Shounsai's Bamboo Art (https://www.city.beppu.oita.jp, Mei 2015)

5. SUMMARY

The main difference between the context of bamboo craft in Indonesia with Japan is in the area of education, skill/techniques, design, the way of marketing products and self development. The education of bamboo craft man in Japan is thorough the 6 years of formal bamboo education (until the master level) and several years of internship whereas in Indonesia we don't have the formal bamboo education. Deals with techniques, the main different character is about accuracy and neatness. Deals with design, as shown from the work of Shono Shounsai, the Japanese bamboo craft has been elevated into contemporary art that can be appreciated by the global-modern market. In terms of marketing and self-development, the Japanese craft-men have a capability to travel around the world to collaborate with the local craftmen and making exhibitions for promoting and marketing their products. Our craft-men in Indonesia do not have a capital and an opportunity to learn from other craft-men from another bamboo producing country

like India, China and Japan. They also haven't had much opportunities to promote abroad.

In order to improving the quality of Indonesia's bamboo craft for export market, our craftsmen need to make improvements in 3 different areas, which are technical, design and marketing. In technical area, they need to improving their skills in material treatment and bamboo processing by learning various woven techniques, implementing precision measurements and standardizing their working methods.

As the improvement of design area, designers need to develop design of bamboo basket, cooperating with bamboo craftman and not merely dependant to the common design to increasing economic's growth. The economic's growth can produce a wealth life for our craftmen. One strategy we can learn from Shono Shounsai is how to elevating the common art craft into high valuable craft product. The innovation design can complimenting with the patent design to protect the product's producer (manufacture and designer) and it needs to be regulated and managed by the local government.

In marketing area, the local goverment and the companies or designers can organize exhibitions, collaborative workshops and develop their website. By having their own websites, they can promote their product to the market. The local goverment and design institutions can regularly giving useful training of craft design, design ethics and marketing management. This can improving market's knowledge, skill and market's appreciation of bamboo's product.

The development of bamboo craft industry need to create cooperation from craftmens – traders – government – product designer. Finally, to increasing the sustainable of our bamboo's craftman, designers need to know the development of the bamboo's basket and can develop design for the industry. To protect our tradisionalism in creative industry, government need to help our industry to develop market's potential product.

ACKNOWLEDGMENT

We thank UPH for the financial support in publicing the study through international seminar and bamboo workshop. We thank Mr. Rahman as our resource for problems of bamboo craft in Rancabuaya, Banten. We thank Mr. Triyanto as our resource for problems of bamboo craft in Brajan village, Yogyakarta. We thank Mr. Takayuki Shimizu, one master bamboo craftman from Beppu, for sharing us the knowledge of material treatment, techniques, marketing strategies and education of Japanese craftmen during the bamboo workshop.

REFERENCES

Journal article

Ichsan, Mukti (1990). Kendala-kendala Utama Pemasaran Produk Industri Kerajinan Bambu Indonesia di Luar Negeri. *Gatra Pengembangan Industri dan Kerajinan Bambu*, pp. 7-10.

Book

Rinne, M.M.. (2007). *Masters of Bamboo*. San Francisco: Asian Art Museum.

Hong, F.L.S. (2013). *Rethinking Bamboo-Aspects of Contemporary Design*. Asia One Books.

Austin, R., Levy, D. & Ueda, K., (1981). *Bamboo*. Weatherhill, New York & Tokyo.

Stand-alone Web document

Potensi Besar, Industri Bambu Indonesia Patut Dikembangkan, The President Post Indonesia, December 1st, 2013. Retrieved in April, 2015 from http://thepresidentpostindonesia.com

Stand-alone Web document

Menggali Peluang Ekspor untuk Produk dari Bambu. Kementrian Perdagangan RI. Warta Ekspor Edisi Desember 2011. Retrieved in April 2015, from http://djpen.kemendag.go.id

Reports

International Trade of Bamboo and Rattan 2012. Retrieved in April, 2015, from http://www.inbar.int

Evaluating Ergonomic Factor of *Cilaja Muncang* Vernacular Bamboo Furniture

Hendriana Werdhaningsih, M.Ds
Universitas Paramadina, Indonesia
hendriana@paramadina.ac.id

Abstract **—** Kampung Cilaja Muncang, Kecamatan Cimeyan, Kabupaten Bandung is a home for 35 industries that produce vernacular bamboo furniture. They produce simple set of furniture consist of two (2) single seat and one (1) table made from bamboo. The design and manufacturing technique never been changed since about 35 years ago. This research aim is to evaluate ergonomic factor of the products through 2 (two) approaches. First, comparative evaluation of the sitting anthropometry data, standard measurement for chair and the vernacular bamboo chair dimention. Second, Focus Group Disscussion evaluation on user experience. In FGD, respondents give opinion about comfort and potential harms of using the vernacular bamboo chairs. Research found that some parts of this vernacular bamboo chairs caused discomfort and have potential harms. This finding could be used as a platform for developing vernacular bamboo furniture new design that created by The Cilaja Muncang small scale industries.

Keywords **– Ergonomic, Furniture, Bamboo, Vernacula**

1. INTRODUCTION

Indonesia has many potential small scale industries with promising prospects on material and skill. One of the small scale industry is in a village named Cilaja Muncang, Kabupaten Bandung that produce vernacular furniture made from bamboo. This research conducted as part of empowering small scale industry so they are more sustainable and established. Design research consist of some stages. First stage is profilling craftmen and industries, to know existing condition and development opportunity. Profile data gathered by interviewing craftmen. Second stage is evaluating ergonomic factor of the vernacular bamboo chair. Last stage is developing new design to be produced by Cilaja Muncang small scale industries. This paper explained mainly the second stage which is evaluating ergonomic factor of the product. Profile of the craftmen and industry will be described also but in general, to give picture about the existing condition.

2. CILAJA MUNCANG VERNACULAR BAMBOO FURNITURE INDUSTRY

Cilaja Muncang is a village in Kabupaten Bandung, West Java – Indonesia. Small scale industries produce vernacular bamboo furniture in Cilaja Muncang, since 1980. At the beginning, about 3 craftmen imitate bamboo furniture from craftmen at Girimekar, Cibejog, a neighboring village. In 1990s number of craftmen reach to 50. Now, about 35 craftment left and producing vernacular bamboo furniture. Some of them stared from

mid 1980, some started 1990 and the rest are just starts couple of years ago.

Beginning of year 2000, craftmen were not easy to find bamboo material from fields in their area anymore. They starts to buy bamboo from stores, which don't guarantee bamboo quality. According to the craftmen, one of factor of bamboo quality is the harvest time. Bamboo that is cut in the morning has lower quality than the one that is cut at noon.

Vernacular bamboo design never change since the beginning of industry. Craftmen sell product door to door in the areas of Banten, Tasikmalaya, Pangandaran and some areas in Central Java. Craftmen goes to those areas by joining vacant sand truck. They goes 3 times a month. Bandung area is not their target market. Craftmen said that vernacular bamboo design is common for people in Bandung area. Neverthless, with new design, craftmen could market their products to Bandung area and attract buyers from out side Bandung, too.

The result of evaluating ergonomic factor of vernacular bamboo furniture research would be one of platform for developing new vernacular bamboo furniture design. Various new design and sustainable improvement will open more opportunities for individual craftman and industry. The industries could collaborate in bussiness and creating centers of bamboo furniture. Improving design quality will attract buyers to come to Cilaja Muncang, so craftmen must not sell their products door to door anymore. Craftmens time and energy will used more efficiently.



Figure 1. Vernacular Bamboo Chair produce in Cilaja Muncang

3. DATA AND METHOD

Evaluating ergonomic factor of vernacular bamboo furniture use 2 (two) approaches. First approach is comparing form and measurement of vernacular bamboo chair with sitting anthropometric data and chair standard measurement. Sitting anthropometric data and chair standard measurement taken from literatures. Orthographic projection from vernacular bamboo furniture made for form and measurement data. Second approach is user experience research through Focus Group Disccussion (FGD). FGD is conducted to find users opinion about comfort and potential harm in vernacular bamboo chair sitting experience. User experience data collection involving 24 respondents in the percentile 50 sitting anthropometry.

3.1 Chair Standard Measurement and Sitting Anthropometry Data

Vernacular bamboo single chair classified as easychair. Secondary data taken from some literatures that complement to each other generates Table 1. This is used for comparison analysis with vernacular bamboo chair.

Table 1. Easychair Standard Measurement

Measurement	Standard Range
Seat width	40.65 – 63.5 cm
Seat depth	38.1 – 66.04 cm
Seat height	40.64 – 43.18 cm
Seat slope	5° – 8°
Armrest height	20 cm
Armrest width	5.08 – 10 cm
Seat back height	30.48 – 40.65 cm
Seat back recline angle	10° – 15°

Sitting anthropometry data taken from Antropometri Indonesia (2014) percentile 50 and primary for 18-16 years old and from the FDG participant (2015) as comparison.

Table 2. Indonesia Sitting Anthropometry (cm)

Measurement	*Male*	*Female*	*Overall*
Sitting height	88.2	81.54	84.72
Buttock-to-knee	58.33	55.02	56.6
Knee height	52.69	48.67	50.59
Seat length/depth	48.57	46.16	47.31
Popteal height	41.23	39.27	40.21
Seat width	31.95	31.83	31.89

Source: http://antropometriindonesia.org

Table 3. FGD Participant Sitting Anthropometry (cm)

Measurement	*Male*	*Female*	*Overall*
Sitting height	87.875	84	86.58
Buttock-to-knee	59.8125	56.125	58.58
Knee height	48.5625	45.75	47.625
Seat length/depth	48.25	47.875	48.125
Popteal height	44.9375	37.5	42.458
Seat width	38.3125	33.25	36.625

Source: primary data

3.2 Focus Group Disscussion

FGD session started with measuring responden sitting anthropometry. Respondent sitting anthropometry connects with user comfort and the potential harms. Other than sitting anthropometry, responden data also include sex, age, and course taken (college students). Primary data collected through focus group disscussion (FDG). FGD participant are 24 Product Design Department and non Product Design Department students from different semesters. FGD implemented in 6 (six) groups, each consist of homogen 4 respondents. Fist group is Product Design students who have complete Ergonomic 1, Ergonomic 2 and Furniture Design courses. Second and Third group are Product Design students who have completed Ergonomic 1 and Ergonomic 2 courses but not yet Furniture Design. Fourth group is Product Design students who did not take Ergonomic 1, Ergonomic 2 and Furniture Design courses yet. Fifth and six group is non Product Design students who do not know about ergonomic design.

Four (4) vernacular bamboo chairs placed in FGD room. Respondent sits on each chair and try some position that comfortable for them. Respondent gives opinion about user comfort and the potential harm. They also pointing to parts of the chair that uncomfortable or potentially harmful. First group said that:

- Seat contruction is not strong enough and middle part seat structure caused discomfortness.
- Back seat better higher and upper structure caused discomfortness.
- Armrest are too low.
- Chair legs front horizontal structure is disturbing.
- The potential harms caused by the structure ends.

Second group said that:

- Seat is not wide enough.
- Back seat reclines too much and upper structure caused discomfortness.
- Joining part between seat and back caused discomfortness.
- Armrest are too low and armrest diameter better bigger.
- Diagonal structure at chair legs potentially harmful.
- Structure ends are too sharp.

Third group comment that:

- Seat height too low, seat not enough depth.
- Back seat to low and not bright enough. Back upper structure caused discomfortness.
- Armrest are too low.

Fourth group said that:

- Seat are not wide enough.
- Back seat better more reclined.
- Joining part between seat and back caused discomfortness.
- Armrest are too low.

- Chair legs front horizontal structure are not comfortable for foot step.

Firth group said that:

- Seat depth is not bright enough. Seat height too low.
- Back seat better higher.
- Armrest too low.
- Joining part between seat and back caused discomfortness.
- Diagonal structure at chair legs potentially harmful.

Sixth group said that:

- Seat discomfort caused by middle structure.
- Back seat not high enough.
- Diagonal structure at chair legs potentially harmful.



Figure 2. Normal sitting position in FGD



Figure 3. Layback sitting position in FGD



Figure 4. Free sitting position in FGD

Discomfort and the potential harmful points from FDG classified as seat discomfort, back seat discomfort, armrest discomfort, and the potential harm. Vernacular bamboo chair discomfort present at Table 3. The potential harm are at the structure ends and diagonal structure at chairs leg.

Tabel 4. Vernacular bamboo chair discomfort

Object	Discomfort
Seat width	Too narrow
Seat depth	Not deep enough
Seat height	Could be higher
Seat slope	Middle to sides (caused by mid structure)
Armrest height	Too low
Armrest width	Better wider
Seat back height	Could be higher
Seat back recline angle	- Could be more recline - Too reclined

4. ANALYSIS

FGD shows that vernacular bamboo chair has some problems in ergonomic factor. Comparing form and measurement of vernacular bamboo chair with sitting anthropometric data and chair standard measurement also shows that vernacular chair form and measurement does not match with easychair standard measurement.

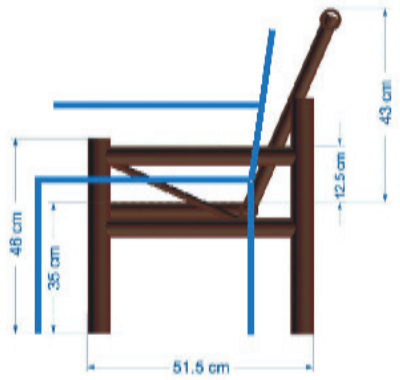


Figure 5. Comparing side view vernacular chair with easychair standard measurement

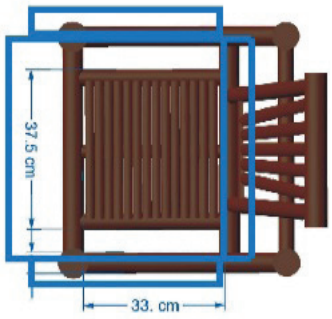


Figure 6. Comparing top view vernacular chair with easychair standard measurement



Figure 7. Comparing front view vernacular chair with easychair standard measurement

5. RESULT AND DISCUSSION

Comparison analysis between vernacular bamboo furniture maesurement, sitting anthropometric, chair measurement standard, and FGD result shows that vernacular bamboo chair does not fit with ergonomic standard. Some parts and construction detail of the chair needs to develop to fits with ergonomic standards. This research will run with some more FGD sessions that take lecturer and staff as respondents. Previous FGD session data will sharpen by the second stage research.

Following this second stage research will be a workshop to disseminate this research results. Craftmen will be the workshop participants. Through the workshop, craftmen will understand lack of their product and knowing the potential to develop. Third stages of this research is design development or research through design. Design development aims to produce design alternatives that conciders to ergonomic and human factor. Whole research will end in November 2015.

ACKNOWLEDGMENT

Author would like to acknowledge Direktorat Jenderal Pendidikan Tinggi and Kopertis Wilayah III for funding this research through Penelitian Hibah Bersaing 2015 Program. Many thanks also to the students and our institution that support whole research process.

REFERENCES

Bruseberg, Anne, McDonagh-Philp, Deana (2002). Focus groups to support the industrial/product designer: a review based on current literature and designers' feedback. *Applied Ergonomics*, 327–38

Kelly, Caroline (2005). The Beauty of Fit: Proportion and Anthropometry in Chair Design. Unpublish master's thesis, Georgia Institute of Technology. Georgia, USA.

Openshaw, Scott, & Taylor, Erin (2006). *Ergonomics and Design A Reference Guide*. Iowa: Allsteel

Reitenbach, Miriam E.F.R., Jochems, Anne J., Molenbroek, Johan F.M., Ball, Roger and van Eijk, Daan J. (2009). User Experience of Office Chairs and Anthropometrics of Female Chinese and Hong Kong Chinese Office and Factory Workers. *The Ergonomics Open Journal*, *2,* 1-12

Prototype Design and Development of Bicycle Hi-CUB (Hybrid-Commuter Urban Bike) for Middle and High School Student Which is could be Produced by SMEs Local Bike.

Bambang Tristiyono[1],Andhika Estiyono[2], Eri Naharani Ustazah[3], Thomas Ari Kristianto[4]

1,2,3) Department of Industrial Product Design, ITS Surabaya Indonesia 60111,
4) Department of Interior Design, ITS Surabaya Indonesia 60111
email: gacombi@prodes.its.ac.id

***Abstract*—**Cycling is an ideal transport for children aged adolescents (12-17 years). This transportation is not only effectively used to go to school, but also for other needs, for example by attending extracurricular activities, tutoring, playing, cycling, or exercise bike. In terms of business opportunities, adolescence junior and senior high school is a big market and the potential for national bicycle industry. Data from the Ministry of Education and Culture, said that the current number of students (excluding universities) are spread across Indonesia to reach more than 58 million students. While the national market demand for bicycle needs, continues to increase. This phenomenon makes the design of the Urban Commuter Hybrid Bike with targets middle and high school teens very potential to be a promising business opportunities in the present and the future, especially for SMEs local bicycle, the bicycle industry for the national competition is still open. This research aims to produce a prototype of the first generation product "hi-CUB-one", is Hybrid commuter urban bike for middle and high school teens that can be produced by a local bike SMEs. Besides, it also aims to empower local bike for passionate SMEs in business, through design innovation to meet market demand, to the needs of a very large bicycle. In this research was also done design development to produce a bike that suits the character of middle and high school teens and resolve problems that occur, the main attraction of design as a competitive advantage. In this study focused on the exploration of the design to meet the needs of adolescents in cycling (style, self-actualization, practical and thrifty), solving real problems so far (how to carry that many school needs, safe not contaminate clothing, not tiring, can be a substitute for motorcycles) and competitive prices in the market. Exploration results are expected to determine the appropriate design criteria with teenage characters, has enough storage space to carry goods school needs the concept of modular (removable plug easily, so it does not interfere with the look of the bike when not in use), have the wheel and chain protector secure against the risk of dirt and squashed, powered hybrid (pedal and electric) that can cover a considerable distance (± 40 km) and reduce the risk of fatigue (as a replacement motorcycle) but the classic function of cycling to stay awake when you want to pedal (still can be used to exercise and to save battery).

***Key words*—Urban Bike, Hybrid, SMEs Local Bike.**

I. INTRODUCTION

At the present time the demand cycle in Indonesia experienced a huge increase. This occurs because of changes in lifestyle, habits and tastes of society, namely; go green lifestyle. Campaign bike to work and the government regulations regarding car free day, the more support changing lifestyles and tastes of the people to cycling. Request a bicycle in the country in recent years, has encouraged the rapid growth of the bicycle industry. According to data Asosiasi Industri Persepedaan Indonesia (AIPI), needs a bicycle in the local market in 2011 around 6 million units. This number is up almost 10% than the previous year, which is about 5.5 million units.

The impact is increased bicycle users, so the implications for rising demand for bicycles. In 2006 the national bicycle production stood at 2.32 million units. This number rose steadily to reach 2.76 million units in 2009. In 2010, total production rose again to 2.86 million units. The same thing happened on exports. In 2006 exports amounted to 759 thousand units. This number rose to 1,059 million units in 2007. In 2008 and 2009 there was a decline, but after it rose again to 1.241 million units in 2010. Although Indonesia has succeeded in exporting bicycles to other countries, but imports of bicycles is still high, and is likely to increase. The largest increase occurred in the year 2010 reached 5.453 million units. This shows that the bicycle market in Indonesia is very potential. It is estimated that the consumption of bicycles in 2011 reached 8.491 million units, then going up steadily and reached 17,607 million units in 2015.

While the national bicycle industry there are three, namely: PT. Insera Sena (Polygon brand manufacturer), PT. Terang Dunia Internusa (United Bike brand manufacturer), PT. Wijaya Indonesia Makmur (brand manufacturers Wim Cycle). The third production capacity of the industry is estimated at around 2.8 million units/ year (polygon=800,000 units, united bike=1 million units, wim cycle=1 million units). Seeing these conditions very clearly a market for the bicycle industry is still very open, especially for SMEs bike to compete to meet the high demand of the market. National bicycle market spreads ranging in age from children, teenagers, adults, to older people with diverse needs and functions of each.

From the description and the phenomenon can be concluded that the business opportunity to design a bicycle with a target middle and high school youth market is still very open and the potential to be developed, because a large market share, there are still many problems that need to be resolved into an opportunity, there is currently no design can accommodate the style and needs of adolescents at an economical price. Another reason is to create a creative design that could be a solution for teenagers to leave the motorcycle for transportation to school, because it clearly violated the Law No.22 of 2009 Article 77 and 81.

Some of the problems of cycling to school for junior and senior high school students are not comfortable because of luggage to school a lot (hard carry it), the clothes become dirty especially the rainy season (many bikes are not equipped with wheel cover), there is no bike design that makes them proud to use it, making energy drained in the street (this should be understood, as should the prime energy needed to follow the learning process at school).

This research was done design development to produce a bike that suits the character of middle and high school teens and resolve problems that occur, the main attraction of design as a competitive advantage. In this study focused on the exploration of the design to meet the needs of adolescents in cycling (style, self-actualization, practical and thrifty), solving real problems so far (how to carry that many school needs, safe not contaminate clothing, not tiring, can be a substitute for motorcycles) and competitive prices in the market.

II. METHODS

Method used in this research:

- Exploration Design
- Digital Design
- Product Prototyping

A. Exploration Design Method

- Development design with the early step doing explorers idea through brainstorming objective tree, that coming from consumer requirement, trend design, problems existing, and benchmarking competitor.
- Brainstorming result be explored in the form of sketch design to determine the character design, that is aspect form, function, and operational.
- Sketch result then value of pursuant to parameter conception to be made alternative design, then developed in size measure detail, material, aspect ergonomic, technical aspect, scheme of colour and branding become the final design.

B. Digital Design Method

- More easy and quicken the process design at concept phase, pre design, development design until digital prototyping phase, what by significant lessen the lead time of phase produce. Where this method also improves the quality of product and optimizes manufacture process.
- Result got can be used as media marketing of product communications in the form of goods print, virtual showcase, content website, e-catalog, and others, so that extend the accessibilities marketing product.

C. Product Prototyping Method

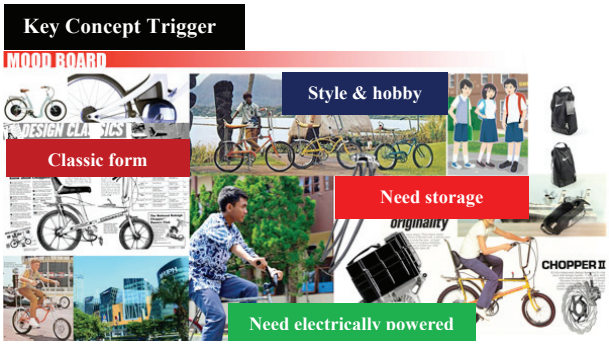
- The manufacture of products such as the original sample (prototype), which allows the simulation in real made to assess the quality of the products based on consumer response.
- Consumers' assessment results as a final prototype refinement so that the validity of the product increased to minimize the risk of failure.
- More real and accurate because consumers can try out directly and feel the actual conditions.

While activity steps shall be as follows:

- Data collecting and antecedent study (product existing, specification of product, product character, questioner responder, and benchmark competitor).
- Theory study (previous research, supporter theory).
- Concept design & sketch (brainstorming, objective tree, sketch).
- Criterion design (result of analyze and study).
- Design development (alternative design, 3D modeling, part design, assembly & sub-assembly).
- Digital Mock-up (fit & proper 3D solid model)
- Pre Prototype (drawing & mock-up).
- Product test and simulation.
- Final Prototype.

III. DESIGN CONCEPT

A.Image Board Ideation



Pictured above is a reference image into middle and high school students in the mood for cycling, which will be developed in the exploration of design.

B.Brainstorming Needs

Need study done to know in detail requirement needed to exploration design. Brainstorming result of idea presented in following table.

Table 1. Brainstorming Idea Design Need

Hi-CUB Design			
Modular Storage	Remove the plug	Easy to use	lockdown system
		optional	
	multifunction	drink containers	
		food containers	
		others	
Style Design	Unique	classic form	
		finishing	
	self-actualization	Life style	
		Character form	
Local Production	Local SME Technology	production	
		finishing	
		Assembly	
	Economics Trigger	cheap price	
		Quality compete	
electrically powered	reducing fatigue	Mid drive hub	
		Pedal on demand system	
	Substitute motorcycle	Does not breaking the law	
		orderly traffic	

IV. ANALYSE & DESIGN RESULT

A. Explores Idea - Sketches

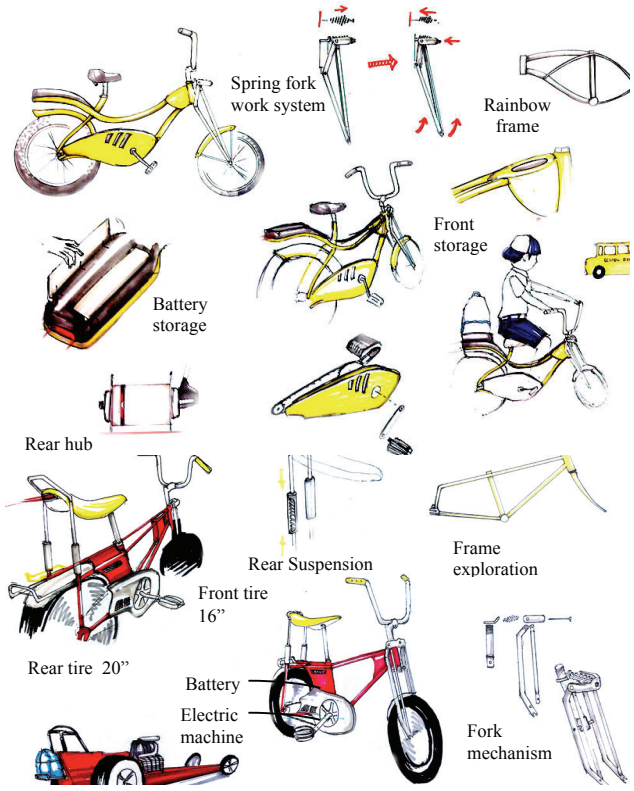
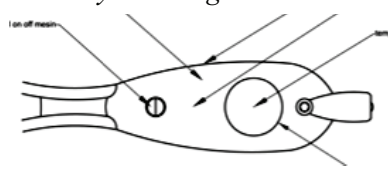
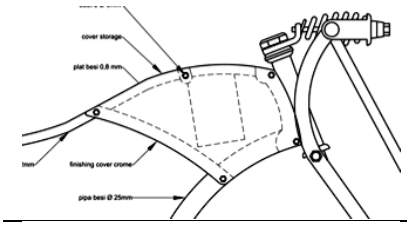


Figure 1. Explores Sketch

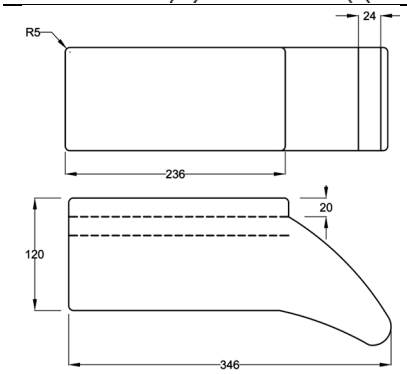
B. Analyze Storage



This storage is a beverage container. Diameter 60 mm (reference bottle of mineral water), side cover plates covered with

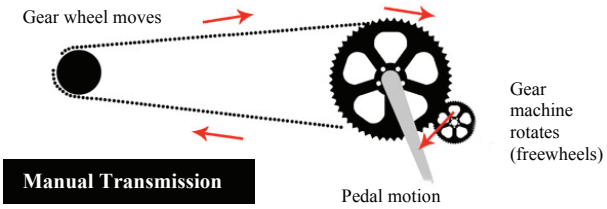


chrome finishing with bolt lock.

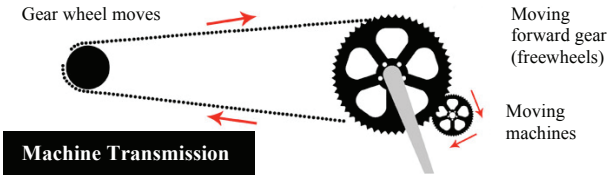


This storage is a modular multi-function storage. This storage container can for shoes or other necessities. Material from the skin and can be extended up to charge more.

C. Analyze Transmission System



Pictured above is when in the manual paddle. Pedal spinning, the front gear drive chain to the rear gear and turning the wheel, while the small gear electric engine rotates freely and not be an additional burden.



Pictured above is when using the machine. Spinning machines, gear machines rotate front gear, then move the chain to the rear gear and turning the wheel, while the pedal can be stationary or rotate freely.

D. Design Development with Digital 3D Model

Here are the results of the design development process

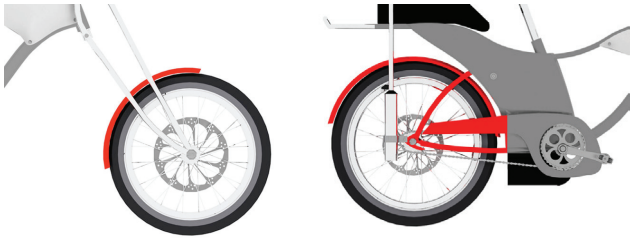


Figure 2. Front and rear mudguard design.

Front and rear mudguard made low enough to withstand the dirt as a result of rotation of the wheel. Design is made simple and close to the wheel in order to give the impression of a classic.

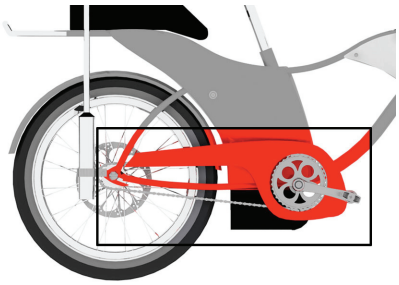
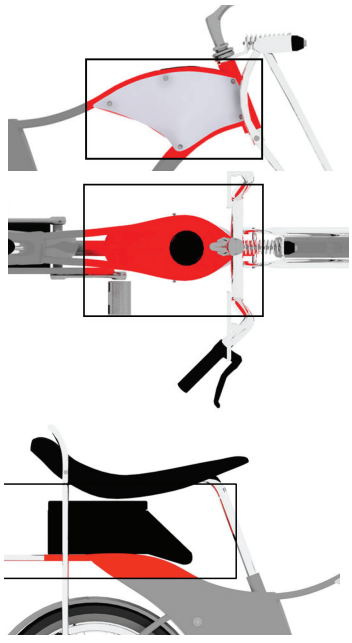


Figure 3. Design chain cover.

Chain cover is designed to protect the risk of dirty pants due to friction with the chain directly. Designs created to protect nearly 70% of the chain, at the top and front, because often rubbing directly with pants.



Front storage designed intact with head tube, top tube and down tube. Is intended to support the form of order matching, intended to strengthen the framework structure. Cover made from metal plate, chrome finishing for supporting classic impression. Front storage function for beverage containers. Storage behind is modular. Made of leather, placed under the saddle. Multifunction, namely: a container of shoes, change of clothes containers, and other supplies.

Figure 4. Front and rear storage design

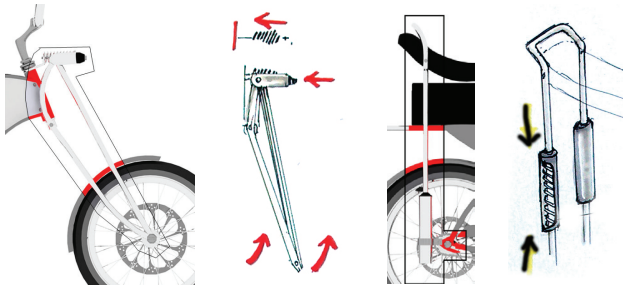


Figure 5. Front and rear suspension design

To reduce vibration, the front fork spring in pairs. Also in the rear suspension spring tide. Serves to support the weight of the user and help dampen vibrations.

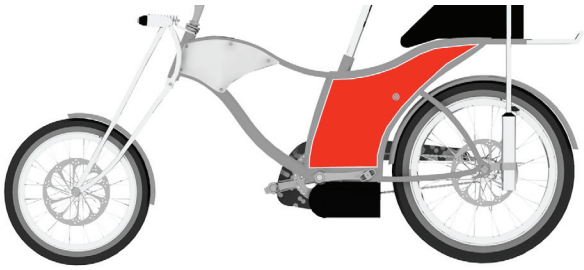


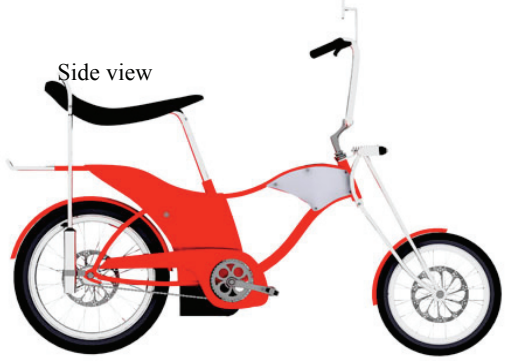
Figure 6. Storage batteries and controller design

Battery and controller placed behind the seat tube, forming a space between the chain stay and seat stay. Very practical and tidy with the cover open the lid, for easy maintenance. Designs created to support the appearance of shape matching.

E. Rendering Final Design



Perspective view



Side view

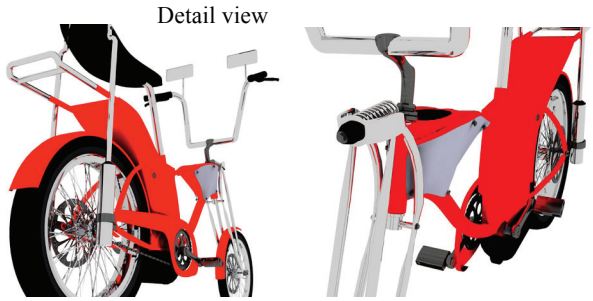


Figure 7. Result of Rendering 3D Modeling

F. Result of Process Prototyping



The process of making the main frame in accordance blueprint. Material use iron pipe diameter of 25mm and 12mm.



The process of making storage front, using a welding join with 0.8mm iron plate cover. join the cover using screws.



Manufacture of storage batteries and controllers. Cover can be opened and closed. Materials using iron plate 0.8mm



Trial bike stringing be intact to check the fit and proper components.



Trying technical performance of the bike, check the riding position, stability and balancing, handling, and others.



The process of finishing, paint and chrome.

Figure 6. Result of Process Prototyping

V. CONCLUSION

Based on the results of the above discussion, it is a few things that can be summarized as follows:

- Cycling is an ideal transport for children aged adolescents (12-17 years). This transportation is not only effectively used to go to school, but also for other needs, for example by attending extracurricular activities, tutoring, playing, cycling, or exercise bike
- Although Indonesia has succeeded in exporting bicycles to other countries, but imports of bicycles is still high, and is likely to increase. The largest increase occurred in the year 2010 reached 5.453 million units. This shows that the bicycle market in Indonesia is very potential. Seeing these conditions very clearly a market for the bicycle industry is still very open, especially for SMEs bike to compete to meet the high demand of the market.
- Some of the problems of cycling to school for junior and senior high school students are not comfortable because of luggage to school a lot (hard carry it), the clothes become dirty especially the rainy season (many bikes are not equipped with wheel cover), there is no bike design that makes them proud to use it, making energy drained in the street (this should be understood, as should the prime energy needed to follow the learning process at school). Another reason is to create a creative design that could be a solution for teenagers to leave the motorcycle for transportation to school, because it clearly violated the Law No.22 of 2009 Article 77 and 81.
- Explored the concept design is modular storage, stylish, electric powered, production of local SMEs.
- System motion of the electric motor, using a pedal on demand because it is easier on the pedal to conserve battery life. The electric motor is used more freely, according to the needs and adjust the condition of the battery.
- To reduce vibration, the front fork spring in

pairs. Also in the rear suspension spring tide. Serves to support the weight of the user and help dampen vibrations. Battery and controller placed behind the seat tube, forming a space between the chain stay and seat stay. Very practical and tidy with the cover open the lid, for easy maintenance. Designs created to support the appearance of shape matching.

VI. ACKNOWLEDGMENT

This research had become national program of grant research prototype development-decentralization scheme PUPT ITS Batch 1, budget year 2015, according to contract number: 003246.82/ IT2.11/ PN.08/2015, date 5 February 2015.

REFERENCES

[1] Andhika E., Thomas Ari K, et.al (2009), "Travel Bicycle Design for Recreational Vehicle In Marine Tourism Lamongan", Research Product Design, Despro ITS, 2009.

[2] Andhika E., Bambang Tristiyono, et.al (2008), "Bike Design Campus to Academician ITS-Surabaya", Research Final Project S1 Despro ITS, 2008.

[3] Bambang Iskandriawan (2011), "Tandem Bicycle Product Development as a means of transportation and Sports Recreation Family with Concept Efficient, Effective, Safe and Attractive ", Research Competence LPPM ITS, 2011.

[4] Bambang Tristiyono, Thomas Ari K, et.al (2013), "Electric Bike Design for Youth in Urban Areas with Sporty Concept", Research Product Design, Despro ITS, 2013.

[5] Bambang Tristiyono, et.al (2012), "Tandem Bicycle Design With Modular System for Parents and Children", Research Product Design, Despro ITS, 2012.

[6] Bambang Tristiyono, Eri Naharani U, et.al (2011), "Design Mini Tandem Bicycle For Apartment Residents", Research Product Design 4, Despro ITS, 2011.

[7] Bambang Tristiyono (2001), "Study model the Geometry 3D Digitally by AutoCAD", Lemlit ITS, 2001.

[8] Http://www.electric-bicycle-guide.com/pedelec.html

[9] Http://sisni.bsn.go.id/index.php?/sni_main/sni/detail_sni/9500

[10] Http://www.goldenmotor.com/

[11] Http://www.electricbike.com/friction-drive/

[12] Norman, Donald Arthur (2005), "Emotional Design", Basic Books, ISBN 0465051367, available: http://ubiquity.acm.org/article.cfm?id=966013

[13] Windharto Agus; et.al (2004)"Integrated Digital Design Methods", RAPID I, 2004.

The Development of Shoes Prototype Using Outsole Craft for Outdoor Activities to Support Local Shoes SMEs Design

Bambang Tristiyono
Industrial Design Department, Sepuluh Nopember Institute of Technology, Surabaya
INDONESIA
gacombi@prodes.its.ac.id

Bambang Mardiono
Industrial Design Department, Sepuluh Nopember Institute of Technology, Surabaya
INDONESIA
bb_mardiono@yahoo.com

Jatmiko
Industrial Design Department, Sepuluh Nopember Institute of Technology, Surabaya
INDONESIA
jatkomik@gmail.com

***Abstract* —** The number of SMEs shoes bankrupt is increasingly growing, this is due to bankruptcy as a result cannot compete in the market. Products shoe existing SMEs tend to be similar to the shoe market of industrial products and a large middle class, so they lose in terms of quality and price, not to mention the influx of Chinese footwear products with a variety of choices and low prices. Industrial middle class and large industries, using machines, while SMEs manually, so to compete in the same product category, obviously SMEs will lose, especially SMEs there is minimal creativity in design and exploration of new markets. This research aims to help develop micro-business partners to become economically independent, grown into a major competence-based and sustainable, improve thinking skills in the process of market opportunities, so it can be transformed into potential products in the market. The method is planned to achieve this goal is to guide partners in improving the quality of shoe production by varying the special design / custom different with products offered in the market in general to the specific target market as well (niche market). This is intended to avoid competition with the shoe industry medium and large scale, which is a micro business partners may not be beat. With special design, micro business partners are expected to be able to exploit its potential (production manually by relying on the skills and creativity of human resources) to create a unique product that is difficult to replicate the shoe industry of medium and large scale. Unique product design shoes that fit well with the limited ability of SMEs production, because it is targeted to a niche market demand is not much. In this research focused produce shoes boys for outdoor activities, casual models with craft outsole (the bottom layer using a rubber outsole derived from recycled automobile tires). Materials of leather and canvas upper with a combination of brown and beige. Besides outdoor activities shoes can also be used school and college activities.

Keywords – i.e. **shoes, special design, outsole crafts**

1. INTRODUCTION

Shoes is a fashion product with high demand in Indonesia. Many types of shoes are favored by the people, both men and women shoes. The high demand for shoes, especially domestic, making local industries overwhelmed. East Java recorded each year are able to produce shoes to reach 80 million pairs per year, and approximately 60% -70% in exports, the rest for domestic market needs.

However, this phenomenon is not directly proportional to the shoe business SMEs, many of them are out of business. The problem is the SME products compete with products shoe industry and a large middle class in terms of quality and price. In general, the products produced by SMEs shoes are shoes that mimic the general circulation in the market. While the same is done by the shoe industry medium and large scale. In terms of quality obviously inferior, because these micro enterprises still manually and primitive production (making the mall, cutting materials, smoothing, and assembly), while medium and large-scale industry was helped with machine tools. It is obvious impact on the quality of the product and the selling price, in this case the shoe industry medium and large scale capable of producing large quantities quickly with good quality, so the price of the shoes can be equal to the product of shoes SMEs there are even cheaper. The condition occurs continuously during this time, so the shoe business class SMEs cannot grow, stagnate, even many that have gone bankrupt.

From the description of the situation, some of the concepts that are suitable for developing the SME business shoes are targeting specific market (niche market) in making the design of the shoe. This is done to avoid competition with the industry shoe upper middle class, the average playing in general shoe market. SME production conditions are now done manually, cannot possibly compete with the shoe industry to the upper middle class, having lost in equipment and capital. Creating custom and specialty footwear products, need to be initiated by utilizing materials that are relatively inexpensive but unique and interesting and appropriate to the intended target market is expected to develop the SME business..

2. METHODS

Method used in this research:

- Exploration Design
- Product Prototyping

A. Exploration Design Method

- Development design with the early step doing explorers idea through brainstorming objective tree, that coming from consumer requirement, trend design, problems existing, and benchmarking competitor.
- Brainstorming result be explored in the form of sketch design to determine the character design, that is aspect form, function, and operational.
- Sketch result then value of pursuant to parameter conception to be made alternative design, then developed in size measure detail, material, aspect ergonomic, technical aspect, scheme of colour and branding become the final design.

B. Product Prototyping Method

- The manufacture of products such as the original sample (prototype), which allows the simulation in real made to assess the quality of the products based on consumer response.
- Consumers' assessment results as a final prototype refinement so that the validity of the product increased to minimize the risk of failure.
- More real and accurate because consumers can try out directly and feel the actual conditions.

While activity steps shall be as follows:

- Field study, market survey, benchmark competitor.
- Need study, brainstorming ideas, product positioning.

- Idea exploration & design sketch.
- Design alternative.
- Design development.
- Design detail.
- Create Product Prototype

3. DESIGN CONCEPT

A. Image Board Ideation



Figure 1. Image Board Ideation

Pictured above is a reference image to trigger the development of the design of the shoe with the outsole craft from tires.

B. Brainstorming Needs

Brainstorming idea carried out to determine the detailed exploration of ideas and concepts needed in adolescent male shoes for outdoor activities. Results of brainstorming are to get ideas concepts in the development of a special design, for exploration fulfillment of specific consumer tastes anyway. In this case the brainstorming aimed at young men shoe for outdoor activities, namely; lectures, field work, nature lovers, and so on.

Table 1. Brainstorming Idea-Design Need

Rockit- shoes with outsole craft			
Outdoor style	Upper Style	Unique material Textures	Mix material
	Sol Style	Low Hard	
Low segment	Special target	Outdoor activity Formal activity	
Eco fashion	Recycle material	Sole shoes of used tires Upper shoes of canvas	
	Craft process	Handmade	
Comfort	Fit and proper	Fit insole & outsole	
	Increase performance	Anthropometry Shape & style Look & feel	

From brainstorming can be concluded that the idea of the concept of development of boys shoes for outdoor activities is low segment, eco-fashion, outdoor style and comfort.

4. ANALYSIS & DESIGN RESULT

A. Explores Idea - Sketches



Figure 2. Explores Sketch

B. Design alternatives

Here is a sketch of an alternative design chosen, then performed the scoring based on weight classification criteria, to select the best alternative, to be developed further.

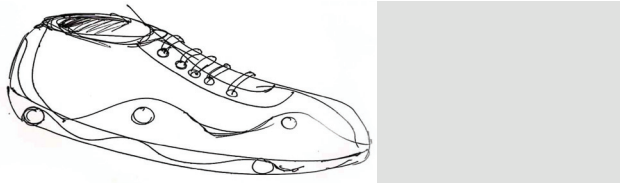


Figure 3. Alternative 1

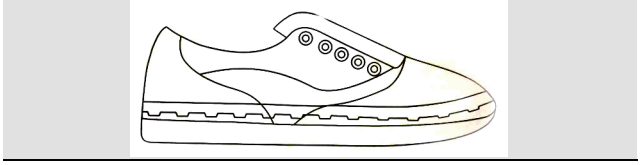


Figure 4. Alternative 2



Figure 5. Alternative 3

Table 2. Selection Matrix-Alternative Designs

No	*Criteria*	*W*	*Alternative 1*		*Alternative 2*		*Alternative 3*	
			R1	∑1	R2	∑2	R3	∑3
1	Form style	0.2	4	0.8	4	0.8	4	0.8
2	Design upper	0.3	3	0.9	5	1.5	5	1.5
3	Design sole`	0.3	4	1.2	5	1.5	3	0.9
4	Composition design	0.2	3	0.6	4	0.8	4	0.8
	Sum	1		3.5		4.6		4.0

Information:

Rating assessment with a range of interval score 1-5, 1 = lowest rating, 5 = highest value.

From the results of the assessment, alternative 2 has the highest score is 4.6, so the end of the selected alternative will be further developed.

C. Ergonomic- Anthropometry Analysis

Shoelast Size

Shoelast is mockup legs that are used as a reference for shaping the shoe. To determine the basic structure of shoes in need notching shoelast appropriate, to suit various types of feet. Overall kind of human foot consists of six types like the example below:

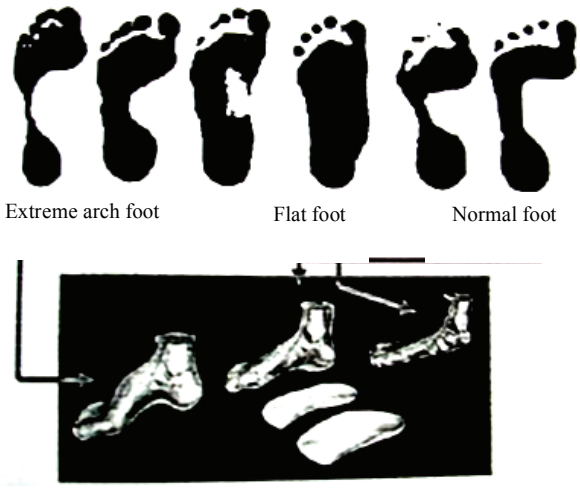


Figure 6. Types of human foot

Conclusion:

For all the feet types can use the shoes comfortably, then shoelast selected based on the type of normal foot. Because most humans have a normal foot types, it is assumed that other forms of foot will be more adaptable to shoelast normal foot.

Shoe Size Standardization

In the shoe making process, the company can follow the benchmark size of the feet in general. Anthropometric foot size is readily available standardization, to be applied on shoelast. The existence of international standards on the matter is now a shoe manufacturer is not difficult to perform serial grading shoe size. A reference measurement system foot divided into 3 types (US, UK, Euro). Measurements were made from the outer portion of the back leg to the front end of the longest toe. Shoes in the market Indonesia more follow EURO standards.

US	UK	EUR	CM	US	UK	EUR	CM
5	2.5	35.5	22	11	8.5	43	28
5.5	3	36	22.5	11.5	9	44	28.5
6	3.5	36.5	23	12	9.5	44.5	29
6.5	4	37.5	23.5	12.5	10	45	29.5
7	4.5	38	24	13	10.5	45.5	30
7.5	5	38.5	24.5	13.5	11	46	30.5
8	5.5	39	25	14	11.5	47	31
8.5	6	40	25.5	14.5	12	47.5	31.5
9	6.5	40.5	26	15	12.5	48	32
9.5	7	41	26.5	15.5	13	48.5	32.5
10	7.5	42	27	16	13.5	49	33
10.5	8	42.5	27.5				

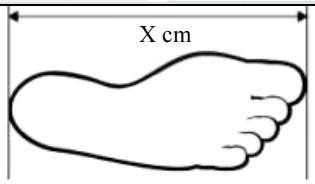


Figure 7. Standardization Shoe Size

D. Shoe Making Process

Here is the sequence of shoe-making process that has been done.

Shoelast selection




Used as a reference base for the production of shoes feet, this shoelast election will affect the overall shape of the shoe depending on what kind of legs that will be used (very slim, slim, normal, somewhat plump, and very fat). Shoelast that have been selected will be the basis of a reference made shoe upper patterns.

Upper sketch




From design sketches, which have been then applied directly to the shoelast that has been coated masking tape, to cover the shape of the desired pattern. This process aims to realize the desired shape designers, from the image pattern that is created, it can be seen whether the pattern will waste a lot of substance or not, this step can be repeated to get the most optimal pattern.

Pattern maker




Results on the upper sketch that has been fixed shoelast, will now be opened and made shoe patterns, this process is usually done by pattern maker who has expertise excellent manual cutting. Burst pattern intended to provide convenience to the process of cutting patterns on the real upper material. But in general, when a pattern is generated not in accordance with the design then this process is repeated to produce the most good pattern. This process applies to the upper, insole and midsole.

Sewing & detail pattern process




After the resulting patterns then mal pattern, cut the actual material, then united with the sewing process. This process close relation to maker of patterns so that the tailor had to work within the guidance pattern maker. Kinds of stitches are usually specified by the designer in accordance with the design and construction of the shoe patterns. Single stitch is used to unite a small pattern or secondary, while the double seam usually used to give more power to the larger pattern, in addition to the specific aims, such as to create an impression or character lines. Among these processes there is usually a screen printing process, pressing, and sewing of upper detail in accordance with the detailed design, so that the products produced more detail.

Sole tire making





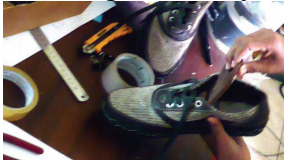

Make sole can actually be parallel with the upper-making. The process begins with design sketches outsole, broken patterns and cutting, do mal patterns on tires (select tires that are still decent), cutting (tools used, namely: electric grinders, saws, cutter, knife, etc.), tidying up. Once completed, ready for the merger with the upper.

Assembly & Sub-Assembly




When the upper patterns have completed combined then continued on the installation of the shoe insole (cushioning and lining), which will be in direct contact with the foot. Material and notching insole must also comply standards of design and comfort shoes.

Finishing & Quality Control




Shoes that have completed the process of

assembling, going through the stages of finishing, among others; midsole mounting, mounting straps then quality control. At this stage of QC (quality control) be checked thoroughly for the production of shoes in order to keep the quality of the product.

E. Result of Prototyping

Here are the final results of prototype shoes "Rockit" which has been done.



Figure 8. Result of Prototyping

Specifications boys shoes for out door activities:
Purpose :Shoe Out door.
Target market :Young men.
Model :Casual Shoes.
Features :Using craft outsole (bottom layer using a rubber outsole derived from recycled tires, then combined and stitched with leather).
Outsole Materials : Rubber tires.
Bahan Upper :Canvas and Leather..
Color :Black and color combination of canvas.

5. CONCLUSION

Based on the results of the discussion above, several things can be concluded as follows:

- Concept development a group of SMEs shoes in order to survive and grow them, namely; targeting specific market (niche market) in making the design of the shoe. This is done to avoid competition with the industry shoe upper middle class, the average also played in the general shoe market.

- Creating custom product design and special shoes (created manually methods) need to be initiated, by utilizing materials that are relatively inexpensive but unique and appropriate to the intended target market, is expected to develop the SME business.

REFERENCES

Bambang Tristiyono; Tim (2012), "Futsal Shoes Design Concept Nusantara with New Image to Enhance Competitiveness of Local Shoe Industry ", Research Design 4- Despro ITS, 2012.

Bambang Tristiyono; Tim (2001), "Men's Shoes Pricise Design the Concept Simple and Fun a New Variant of Casual Shoes", Independent Research-ITS, 2001.

Birtane M, Tuna H (2004), "The evaluation of plantar pressure distribution in obese and non-obese adults", Clin Biomech, 19, 1055-9.

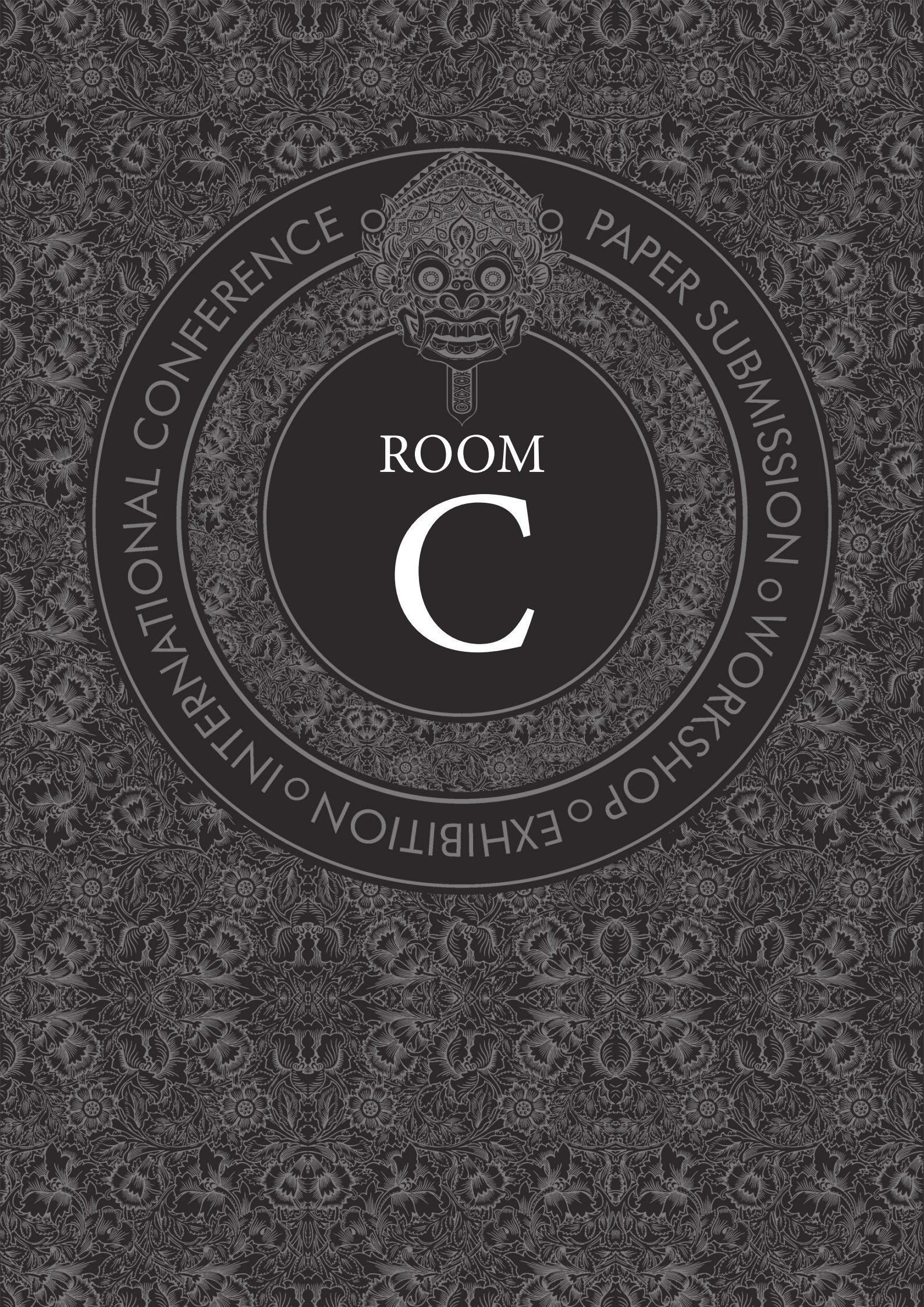
Http://staff.aist.go.jp/yamashita-juli/projects/nibh94data/vis_index.html, accessible date; 5/14/2015, 7:51 AM

Http://futsalshop.wordpress.com/2011/05/04/specs-shoes-futsal-rp245-000/, accessible date; 6/10/2015, 8:12 AM

Http://www.premier-product-design.co.uk/ergonomics, accessible date; 6/13/2015, 11:10 AM

Putti AB, Arnold GP, Cochrane LA, Abboud RJ (2008), "Normal pressure values and repeatability of the Emed1 ST4 system", Gait Posture 27(3) 501-5.

Van Schie CHM (2005), "A review of the biomechanics of the diabetic foot", Int J Low Extrem Wounds, 4, 160-70


INTERNATIONAL CONFERENCE ◦ EXHIBITION ◦ WORKSHOP ◦ PAPER SUBMISSION
ROOM
C


INTERNATIONAL CONFERENCE
PAPER SUBMISSION
WORKSHOP
EXHIBITION
icci
2015

Aceh *Rencong* Preservation by Creative *Kampung* Strategy

Qisthi Shabrina
Institut Teknologi Bandung, INDONESIA
qisthi90@gmail.com

Agus Suharjono Ekomadyo
Institut Teknologi Bandung, INDONESIA
Agus_ekomadyo@yahoo.com

***Abstract* —** Rencong is a traditional weapon, which is a cultural heritage that reflects the history and existence of the past of Aceh Kingdom, which had triumphed in 1496 – 1903. As time goes by, now Rencong no longer manufactured as a weapon, but as a souvenir and accessories of cultural activities. But now the number of rencong craftsmen is decreasing. Currently,there are only three *kampung*s in Aceh that still producing rencong, one of them is BaetLampu'ot, Aceh Besar.

For preserving Rencong as the cultural heritage of Aceh, it takes an effort to keep Rencong industry, such as applying the concept of creative *kampung* as development strategy of Rencong *Kampung*. Creative *Kampung* is a local potential development strategy that refers to The Cycle of Urban Creativity by Charles Landry. Strategy -based model of creative *kampong* as tourist destination has been applied in several *kampung*s in Indonesia and could potentially improve the economy of the *kampung*'s community and make it a tourism asset of the city.

By doing some studies of the BaetLampu'ot and study of creative *kampung* concept, it will be described how the *kampung* will be able to evolve through the formulation of appropriate steps in the formation strategy of creative *kampung*.

***Keywords* – Rencong, BaetLampu'ot, Creative *Kampung*, Heritage**

1. INTRODUCTION

Aceh is the most western province located on the territory of Indonesia, which is famous for its rich culture and its natural beauty. This coastal areas that have Muslim as majority population was triumphed in 1496 - 1903 under the Sultanate of Aceh, left a cultural heritage that until now can be seen fromAceh people in the form of buildings, saga, music, dance, clothing and traditional weapon (Hadi, 2010).

Rencong, a traditional dagger sharp weapon, became the mainstay of Aceh's fighters in achieving independence. This weapon has a very important position and always tucked in the waist Sultan of Aceh, the Ulee Balang, and was formerly known as a highly lethal weapon and feared the opponents. *Rencong* so entrenched as the identity of Aceh, which is until now known as *Tanah Rencong*. In present-day, *rencong* is no longer produced as weapon, but rather on the function of a

souvenir and as a complement to the traditional activities of the people of Aceh.

The presence of Aceh until now would not be separated from efforts rencong craftsmen who still continue to produce and they spread over a large number of villages in Aceh, one of which is BaetLampu'ot *Kampung*. It is one of the rencong craftsmen's *kampung* remaining in Aceh Besar; the other two are Baet Masjid *Kampung* and BaetMusagoe *Kampung*. Only few people know that most rencongs in the markets are produced inBaetLampu'ot *Kampung*, which has the largest number of rencong craftsmen. Now the craftsmen in this *kampung* not only work for producing rencong but also farming. Apparently producing rencong only is not enough to meet the daily needs, due to the increasing cost of production that is not directly proportional to the increase of income and most of rencong craftsmen are people from underprivileged group. This also causes the amount of rencong craftsmen decreases by time.

Maintaining the sustainability of rencong will take an effort such as helping the economy of the rencong craftsmen community to be prosperous and still be able to keep rencong production, with Creative *Kampung* Strategy. This strategy is a concept of innovation with tourism potentialthat will be developed at BaetLampu'ot *Kampung* as Rencong *Kampung*, to create a more favorable market prospects for rencong craftsmen to sell rencongs. Creative *Kampung* concept has been applied previously in a few villages or *kampung*s in Indonesia that have tourism potential, such as handicrafts and local music art, and was proved can raise the economy of community and also preserving the existing potential.

2. CREATIVE *KAMPUNG* STRATEGY

2.1 Definition of Creative *Kampung*

The meaning of creative *kampung* has two substances namely *kampung* and creative. The definitions of *kampung* are; a settlement of low-income communities with less good condition (Budiharjo, 1992), a traditional settlement from local community (Kenworthy, 1997), and centralization of traditional settlement area that evolve by itself with poor facilities and located at particular area in growing city (Silas, 1993). From the several definitions can be concluded that *kampung* is a traditional settlement area that evolve by itself with deficient facilities and located at particular area in growing city.

The definitions of creative are; creativity is a process that can produce something new (Hurlock, 1978), the new product can be considered as a result of the creative process as a creative work if you get the recognition or appreciation by the public at certain times (Stein, 1963) and creativity is the process of self-manifestation or the ability to think originally in elaborating an idea (Munandar, 1997). In conclusion, creative is an ability to create something new, and recognized by the community within a specified time.

From both definition of *kampung* and creative, in conclusion, creative *kampung* is settlement area of communities with local characteristics that create something new, so it can keep growing and evolve into better condition. *Kampung* creative will arise when there are many groups of creative people that act as the pioneers of creativity and contribute to their environment (Hatmoko, 2012). In other way, creative is meant creative forms of activities carried out by the society in the area of the *kampung*, as part of regional economic development and efforts to produce a settlement of the problem solution.

2.2 Strategy on Creative *Kampung* Formation Process

Creative *kampung* is closely related with the formation of the creative city, which has a vision to develop the potential in various areas in the city to support creativity possessed by the community in the form of creative spaces for economic growth and prosperity. So the creative *kampung* formation process strategy can refer to The Cycle of Urban Creativity concept in The Creative City book by Charles Landry. The concept can be regarded as a mechanism to assess the strengths and

weaknesses of creative projects in a city at various stages of development as a strategy that can be used in urban development (Utami, 2014). The five steps of creative *kampung* strategy in The Cycle of Urban Creativity are; **1)Generate ideas,** the initiator role, either from an individual, or from community or institutions to help people generate ideas and projects, **2)Realization**, phase for realizing of community creative idea to be in marketed ableproducts, **3)Networking and Circulating**, phase of network building and developing the stakeholderas supporters for sustainability of creative activity, **4)Platform for delivery**, phase for providing base of activity space for creativity development and industrialization **5)Building markets and audience**, phase to evaluate the creative activity and the market to be afterward enhancing other creative ideas.

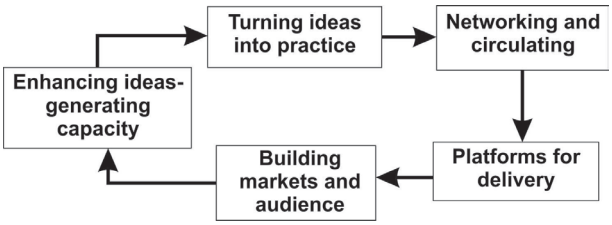


Figure 1. Cycle of creativity (Landry, 1995)

Basically, creative *kampung* concept is lead to increase local and cityeconomics through tourism sector that moves independently. *Kampung* that has tourism potential can be directed to develop a characteristic or uniqueness and creative productivity, so that itcan become tourist attraction itself. Everything that has uniqueness, beauty, and values in the form of handicraft, natural resources and culture diversity can become the tourism potential attraction (UU no 10 year 2010, Kepariwisataan)

2.3 Example of Creative *Kampung* in Indonesia

There are several examples of creative *kampung* forms that were found in big cities in Indonesia; two of them are Jambangan *Kampung*, Surabaya and Dago Pojok *Kampung*, Bandung. The basically problems are the untidiness, low economy and social issues.

Jambangan *Kampung* was a slum area that located along Kali Surabaya river with issue of low economic and bad environment (waste problem), but then Jambangan *Kampung* was able to transforms and become a creative tourist *kampung* that popular by its beautiful environment and unique recycled-reuse handicraft production.

Dago Pojok *Kampung*, came from low economics problem and poorly community relations but it has several art groups that lived there, and then this *kampung* turned into a creative tourist *kampung* of Sundanese music art (Galungan) and kitchenware music that perfomed by housewives (Utami, 2014).

The process of *kampung*'s transformation steps to become creative *kampung* can be seen in the table below;

Tabel 1. The process of creative *kampung* establishment

Stages		Jambangan	Dago Pojok
1	Generate ideas from Initiator	Sriyatun, Idea: waste recycling	Rahmat Jabari Idea: promote the local art.
2	Realization	Brainstorming & workshop: environment & recycling technique	Brainstorming & workshop: Mural's activity &creative music.
3	Networking & Circulating	Partnership with distributor, entrepreneur, and local finance society	Form management from volunteer and do fundraising
4	Platform for delivery	Prepare house or public space as production place and market	Prepare house or public area as workshop and performance space.
5	Build markets & audience	Training and evaluation from entrepreneur for innovation improvement	Training from local art community to improve skill and quality of art performance.

3. CASE STUDY of RENCONG *KAMPUNG*

BaetLampu'ot *kampung* is one of rencong craftsmen settlement that located at Sibreh, Sukamakmur district, Aceh Besar. This *kampung* name has meaning and history. Its name is composed by three words, *baet*, *lam*, and *pu'ot*. *Baet* is adopted from Arabic words, "*Ba'id*" which means "far" as there were three nomads from Turkey, Pakistan, and Arab came all the way to Aceh to propagate Islam. *Lam* and *pu'ot* are words from Acehnese language where lam means "base" or "bed", and *pu'ot*means "sea", so they mean seabed, since historically, this *kampung* was a sea (Ramadhan, 2014).

BaetLampu'ot is a *kampung* with productive people. Most of native rencong craftsmen in Aceh live and produce rencong there, besides work as ranchers and farmers. Besides rencong, the *kampung* also produces some handicrafts such as bag, purse, keychain, and typical Aceh embroidered shoes that crafted by the housewives group. This *kampung* also has a fertile land that dominated by fields and plantations, and bordered by hills (Ramadhan, 2014).

People at BaetLampu'ot are classified as underprivileged people from its economy condition. Most residents work as farmers and ranchers beside rencong producers to fulfill their daily needs (Ramadhan, 2014). The amount of rencong craftsmen in this *kampung* declines due to the declining of rencong demands in markets and lots of other more promising jobs (Nur, 2011). The remaining rencong craftsmen produce rencong with limited fund and low technology (Maghfira, 2013).

BaetLampu'ot*kampung* facilities and infrastructure currently need some improvements and developments, such as the drainage system repair, irrigation system upgrading since the current irrigation system is not permanent so the farm and field's area could not be irrigated properly. Furthermore, to increase rencong craftsmen productivity, needs some equipment renewals and facilities to supply the raw materials. The problems at the *kampung* attract attention from academician and institution from several colleges in Banda Aceh to undergo study and fieldwork there (Ramadhan, 2014).



Figure 2. BaetLampu'ot*Kampung*

3.1Rencong Production at BaetLampu'ot *Kampung*

Rencong craftsmen at BaetLampu'ot *Kampung* have knowledge and concept about producing rencong hereditary. Boys in junior high school are able to help adults in producing rencong. Rencong produced in this *kampung* has several types based on social class of the owner; *rencongmeupucok*, owned by aristocratic people; *rencongmeucugek,* for middle social class people; and *rencongpudoi* for ordinary people. Currently the uses of rencong are just as souvenir, wedding ceremony accessory, statehood activity, and accessory for Seudati (Acehnese dance) dancers.

Rencong production is undergone at simple lodges at the *kampung*, either by individual or by group. Staples for rencongs which are woods, buffalo horns, brass, and white iron can be obtained from other *kampung*s around BaetLampu'ot. The process is consisted by three steps; manufacturing knife handle from woods; forging knife from metal; and making sheath from the same material as the handle.

All rencong craftsmen activity; cutting horn, forging iron; carving woods; are interesting attraction that people can watched in opened area. This also encourages a group Unsyiah students that initiated by Ramadhan as BEM

Unsyiah Social Minister to declare this *kampung* as Rencong Tourist *Kampung*.



Figure 3. BaetLampu'ot*Kampung*'s*rencong*.

4. STRATEGY of CREATIVE *KAMPUNG* FOR RENCONG *KAMPUNG*

Creative *kampung* is one of strategies proposed to maintain the continuity of rencong production in this *kampung* through a new innovation of *kampung* development and rencong production. The main strategy is to liven up the manufacture of rencong activity by augmenting the profit of rencong makers, one of which is through direct interaction. This strategy is supported by the huge market potential of the tourism sector. In Aceh, particularly Banda Aceh and its surroundings, according to *Aceh dalam Angka 2013*, the number of tourists is increasing in the last three years (Asdhiana, 2014). The five stages of creative *kampung* for BaetLampu'ot *Kampung* based on *The Cycle of Urban Creativity* concept are:

1. **Establishment of creative idea by creativity development**. The presence of initiator can be initiated either by individuals or communities in Aceh. The development of innovation idea for rencong *kampung* can be realized as innovation of rencong-themed products such as rencong-shaped or rencong-patterned accessories produced from scraps or leftover of rencong production; environmentally aspect innovation, such as revamping irrigation system that collaborated with alternative technologies and developing the existing Aceh-typical handicrafts with new design or unique materials.

2. Realization of creative idea by doing brainstorming and persuasive approach towards citizens by conducting an activity that involve all residents and the stakeholders; such as holding festival activity and Aceh' Arts Market, decorating *kampung* and revamping the infrastructures in and around *kampung* together with the residents.

3. Build networking and circulating system by establishing partnerships with the stakeholders that supporting the production of rencong; such as raw materials (white metals and) producer, rencong and BaetLampu'ot-typical handicrafts marketing partners, governor and private tourism agency, creative communities concerning to traditional handicrafts, private industrial' CSR, PNPM Mandiri Pedesaan; and providing the transportation for distribution.

4. Providing creative space base by preserving existing rencong production room as originality form of BaetLampu'ot *kampung*, utilizing BaetLampu'ot *kampung* administrative office room as coordination space, designing a simple multipurpose building or room by utilizing existing materials in *kampung* to facilitate activities in Rencong *Kampung*.

5. Evaluate the creative activities dissemination for the activities sustainability. Evaluation is carried out in the end of each event and arranging the next activities. Counseling and founding from participants side such as creative economic community or students community which has expertise in certain sectors is continuing.

4.1 Providing of Creative Activity Space as Architectural Strategic

To carry out *kampung* establishment at BaetLampu'ot *Kampung*, contribution from the professionals, communities, or academicians from various disciplines are necessary. On the creative idea establishment and realization stage, participants from the fields of economics, creative industry, communication, and cultural will play a bigger

role in carrying out the socialization towards *kampung* people and the stakeholders.

The charge of the architect is to arrange a space at *kampung* creatively, functionally, efficiently, and attractively so it can be developed as creative *kampung* space. The creative spaces base are spaces that supporting the continuity of creative activity at *kampung*, such as production room, exhibition room, marketing room, and multipurpose room to bring more creative activities.

Nowadays, at BaetLampuot *kampung*, public space or multipurpose room have not been provided to facilitate the creative activities on a large scale; that can be held to magnify the attractiveness of BaetLampuot *Kampung* and attract more visitors to come in besides watching rencong manufacture activity; such as Festival or Carnival of Aceh' Arts, socialization activity of the rencong craftsmen from *kampung* to *kampung*, or Aceh Art and Culture Market activity.

4.1.1 Developing Rencong Production Space

Rencong production activity is carried out in an opened elongated-shaped space, because of the burning activity that requires maximum air circulation. For the building materials, it utilizes local materials like woods, thatch (coconut tree leaves), and bamboos. Besides forging rencong using furnace, air pump, and water container to gild iron, the craftsmen work in wooden stool with utensils like emery and saw. The developments of rencong production room that need to be done are simple ways like improving factory conditions by rearrange working space, preparing space for tourists to watch rencong manufacture activity, and providing space for exhibiting rencongs.



Figure 4. Traditional art attraction Dago Pojok

4.1.2 Public Space as a Means of Supporting Creative Activities

Public space is a shared room that serves as a space of social interaction. At a *kampung* based on creative *kampung*, a public space is created for the purpose of facilitating *kampung* people creative activities and interaction with people outside *kampung*. For daily life, people at BaetLampu'ot can use this public space as kids play and study room.

Not only for BaetLampu'ot people, this public space can also be used by outside people and creative *kampung* participant to hold agendas and programs as *kampung* promotion strategy which can attract more tourist and supporters party. With the big number of tourists, the existence of the craftsmen will be more popular, and the potential sale of rencong and Aceh-typical souvenir made by BaetLampuot housewives will be increased.



Figure 5. Ilustration design of public space at BaetLampu'ot *Kampung*

5. CONCLUSION

BaetLampu'ot *kampung* is a rencong-producing *kampung* that has some potency and problem underlying its developmental problems. The biggest number of rencong craftsmen, the existence of craftswomen of Aceh-typical handicrafts from productive housewives group, and fertile landcondition are some potential of BaetLampu'ot *kampung*. Whereas the low economy matter, the declining demand of rencong on trading, and the poor condition of *kampung* infrastructures are some problem faced by BaetLampu'ot

people that end up with crisis of rencong producer.

The crisis of rencong producer that become the main problem is tried to be solved through creative *kampung* strategy. The concept of creative *kampung* is one of region development concepts based on cultural and social value with creative community as the main potential source which can be one of tourism destinations so that the local people can grow prosperously and independently. *The Cycle of Urban Creativity* is a theory that can be used to analyze the establishment of creative *kampung*. Creative *kampung* is a label for a creative production *kampung* which either is naturally formed or a potential *kampung* that will be formed or developed into a creative *kampung* if it can meets the criteria of establishment. To build a BaetLampu'ot creative *kampung*, the role from practitioners and academicians from various discipline; the most necessary of them are architects, whom are required in providing creative space base stage as production space and market at once.

The public space arrangement is a part of the creative space base strategy, which plays as one of interaction space media for BaetLampu'ot people to interact with outside people and a medium for other creative activity. It is expected through this creative *kampung* strategy, *kampung* will be an appreciation medium and can motivate the local people and the next generation of rencongs and Aceh handicrafts producer to keep working and preserving Aceh rencong.

ACKNOWLEDGMENT

Acknowledgment submitted to Institute Technology of Bandung as the collage institution which has provided direction and sponsoring the participation of this paper into this conference, to Ramadhan, a student of Syiah Kuala University (UNSYIAH) Banda Aceh, and as one of the founders of Kampung Rencong's program who has given a lot of data and information about BaetLampu'ot *Kampung*. This paper is intended to advance the *Kampung* Rencong program for Aceh's rencong preservation.

REFERENCES

Asdhiana, I. M. (2014, Februari 4). *Travel / News*. Retrieved Desember 12, 2014, from kompas.com: http://travel.kompas.com/read/2014/02/04/1115463/Aceh.Hanya.Menjadi.Tempat.Transit

Budihardjo, Eko. 1998. K*ota yang Berkelanjutan (Sustainable City)*. Jakarta: UI Press.

Hadi, Amirul. (2010). *Aceh: Sejarah, BudayadanTradisi*. Jakarta :YayasanObor Indonesia.

Hatmoko, AdiUtomo. (2012, April 24). *KonsepKampungKreatif*. inSafira (2012). *SkripsiKampungKreatif: SebuahSolusiSpasialPemenuhanKebutuhanDasarManusia*.Depok:University of Indonesia.

Hurlock, Elizabeth Bergner. (1978). *Child Development (6th ed.)*. California : McGraw-Hill

Indonesia, K. (2014, Maret 14). *Senjata Rencong Khas Aceh*. Retrieved November 2014, 25, from Kebudayaan Indonesia.net: http://kebudayaanindonesia.net/kebudayaan/828/rencong-senjata-khas-aceh

Kenworthy, J. 1997, *Urban ecology in Indonesia: The Kampung Improvement Program (KIP)*, Asian Sustainable Development, Murdoch University, Perth, wwwasdev.murdoch.edu.au/cases/kip/kip.pdf.

Landry, Charles.(1995). The Creative City. London: Demos

Maghfira, S. (2013, Oktober 02). *Rencong Untuk Aceh 'TANAH RENCONG'*. Retrieved Desember 15, 2014, from potret-online.com: http://www.potret-online.com/index.php/bingkai/bingkai-sekolah/1311-rencong-untuk-aceh-tanah-rencong

Nur, T. (2011, Juli 25). *Desa Pengrajin Rencong*. Retrieved Desember 15, 2014, from Detik.com: http://travel.detik.com/read/2010/12/10/095122/1517151/1026/desa-pengrajin-rencong

Nugrahaningtyas, A. L. (2012). *Studi Eksplanatif Pengaruh TIngkat Kreativitas Produksi Kerajinan Sampah Terhadap Tingkat Keberdayaann Ekonomi Komunitas Pengrajin Sampah di Jambangan Surabaya.* Surabaya: Universitas Airlangga.

Silas, Johan (1993), *Housing Beyond Home,* Case Study of Surabaya, ITS-Surabaya.

Stein, M. (1963).A Transactional Approach to Creativity.Dalam C.W Taylor & F. Barron (ed). Scientific Creativity: Its Recognition and Development. New York: John Wiley & Sons.

Utami, S. (2014). *Proses Pembentukan Kampung Kreatif (Studi Kasus: Kampung Dago Pojok dan Cicukang Bandung)*.Jurnal Perencanaan Wilayah dan Kota A SAPPK V3N1, 147 - 155.

Promotion Strategies of Fashion Products in Instagram

Genia Despriana

School of Business and Managemet,
Institute Technology Bandung,
Indonesia
genia@sbm-itb.ac.id

Abstract —Instagram reached around 300 million users all over the world. The local brands of fashion products can compete with the well-known International brands and most of them use social media to sell their products online. The problem in this research is there are many ways on Instagram to promote fashion products. However, not all of the promotion strategies are effective. This research examines some promotional strategies that conducted by the online seller. The objective of this research is to find out what kind of promotion strategies in Instagram and also to know how the consumer response on each promotion strategy. This research uses qualitative and quantitative approach. The qualitative conducted by using structured and in-depth interviews through 9 local fashion brands in Indonesia and the quantitative conducted by distributing the questionnaires to 377 respondents. The findings of the research contain some of promotion strategies for fashion products, such as endorsement, advertising through famous accounts on Instagram, giving hashtag, promotion collaboration, making contestson Instagram, and update the photo of the brand regularly. Furthermore, there are variety response from consumer for each promotion strategy.

Keywords **- Instagram, Fashion Products, Promotion Strategies, AISAS**

1. INTRODUCTION

1.1 Background

Instagram is an application that is used to take and manage photos, filter and share the photo to all people. Social system on Instagram is by following another users, or having Instagram followers. Thus the communication between Instagram users itself can be established by providing a like sign and also give comments on the photos that have been uploaded by other users. The number of followers is one of the most important element, where the like sign which given by the followers to the photo could decide whether the photo is popular or not. People also could search other Instagram users through search feature or via Facebook and Twitter because Instagram connect to other social media. The main function of Instagram is a place to upload and share pictures to other users.

Based on Tempo Newspaper 2014, Instagram had reached 300 million users who use this application all over the world. This big number of users is fascinating and now there are many brands that utilize Instagram as a media campaign to sell their products online.

Local brands in Indonesia become more advanced and can compete with the well-known International brands. This local brand sells a various kinds of products with good design and unique concept which makes local products become favored by Indonesian people. Most of them do not have a physical outlet hence they use social media to sell their product online. Through this social media they also could do various kind of promotion strategies.

1.2 Problem Statements

As stated on the background above, social media has a positive opportunity to sell

products online. Since 2012, Instagram become one of the most widely used applications. From the popularity of these applications, online sellers can do some promotion strategies to promote their products. Research is needed to know what kind of promotion strategies for fashion product on Instagram and see the consumer response toward each promotion strategy. This study examines some promotional strategies that conducted by the online seller.

1.3 Research Question(s)

From the problem statements, there are two researches question that can solve the problem.

1. What kind of promotion strategies that used by the online seller on Instagram to promote their products?
2. How the consumer response towards promotion strategies on Instagram?

1.4 Research Objectives

The objective of the research is to investigate what kind of promotion strategies that conducted by the online seller on Instagram to sell fashion products. This research describes some key elements of some promotion strategies and how consumer response toward each promotion strategy. So, finally it could be found which strategy that get a good response, and a bad response.

1.5 Problem Limitation

There are some limitations to write the research, which are:

- Research focus on Instagram as social media promotion
- Research focus on fashion brand that has been established minimum for 2 years and have minimum of 3000 followers.

2. THEORITICAL FOUNDATION

2.1 Instagram

Based on TechTerms (2014), Instagram is an online photo sharing service. By using a single click, people could choose a variety types of photo filters that they want and share the photo to others. Although this feature is very simple, it makes Intsagram become a well-known applications.

There are two ways to use Instagram, first through a site called Instagram.com and the second via an application called Instagram app. Through the site, people can upload photos, apply filters to photos and share photos with others. Meanwhile, if using Instagram through the application, people can take photos via cell phone directly and apply filters and share photos on Instagram or to other social media such as Facebook, Twitter, Foursquare, Flickr and Tumblr.

2.2 From AIDMA to AISAS

AIDMA Model (Attention-Interest-Desire-Action-Memory) was the most famous consumption model and was first recommended by Rolland Hall in the United States in 1920. AIDMA model was an effective model for traditional advertising. However, due to changes in the information environment, Denstu now advocating new consumption model named AISAS model (Attention-Interest-Search-Action-Share).

In the era of the Internet, people can access information easily and quickly. They could search for the information that they need about products, services, and advertising.People also able to share the information and their experienceto other through Internet network. On the stage search-action-share, people have started actively to seek information and it is important for the purchase decision.

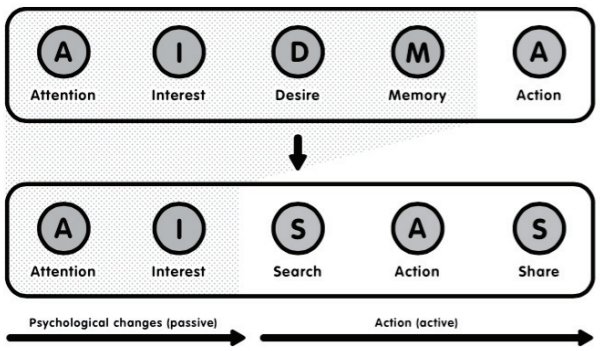


Figure 2.1 AIDMA and AISAS Model

3. RESEARCH METHODOLOGY

3.1 Research Design

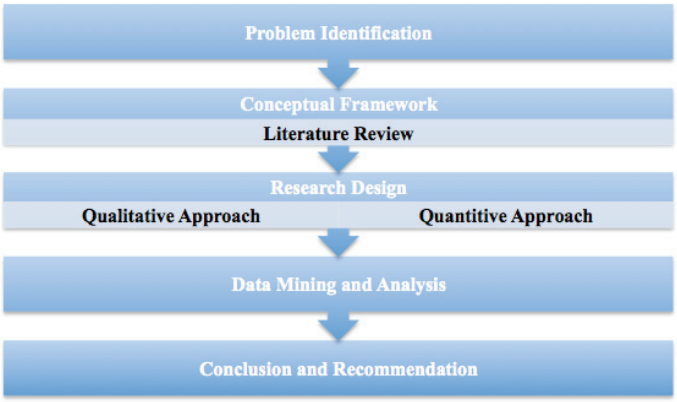


Figure 3.1 Research Design

3.2 Problem Identification

Instagram is currently adopted by many local fashion brands in Indonesia as a media promotion for fashion products. There are various ways that can be done to promote fashion products on Instagram, and this research want to discover more about the promotion strategies that gets a good response from consumers.

3.3 Qualitative Research

3.3.1 Design Questions

The questions were made to find out the data research. The interview questions were concern about "what" kind of promotion stragies and "what" the effects of each promotion strategy.

3.3.2 Interview Method

All respondents were given the same set of questions. And this research use structured and in-depth interview. In-depth interview conducted to discover the insight from the owner or marketing of local fashion brand. From the interview, researcher could get a lot of information from the owner and marketing's experience when they promote the fashion products. When do the interview, theanswer were recorded on mobile phone, and also notes were taken during the interview.

3.3.2 Interview Respondents

There are 9 local fashion brands that interviewed in this research. All of the local fashion brands already use Instagram as media promotion at least for 2 years and already have followers minimum 3000 followers. And all of them are from Indonesia.

Table 3.1 Profile of Qualitative Respondents

Brand Name	City	Established Since	Use Instagram Since	Products for Sale	Number of Followers
Day and Night	Jakarta	2012	2012	top, shirt, skirt, dress, pant, sandal	11.4K
Manikan	Bali	2010	2012	bag, clutch, wallet	11.6K
Perpetuum	Jakarta	2013	2013	top, shirt, skirt, dress, pant	6705
Matoa	Bandung	2012	2012	wooden watch	22.9K
Kaynn	Bandung	2010	2010	leather bag, leather wallet, leather sandal	11.4K
Pinx	Bandung	2010	2012	shirt, dress, pouch, bag, sandal	7022
Mannequin Plastic	Bandung	2008	2012	bag, shirt, skirt, dress	9263
Stargazer	Bandung	2012	2012	shirt, bag	5857
Humblezing	Bandung	2012	2012	jacket, shirt	15.2K

3.4 Quantitative Research

3.4.1 Questionnaire

To know the buyer insight, questionnaire is needed to use as tools to get and explore information from buyer. The questionnaire is made by AISAS model (Attention-Interest-Search-Action-Share). And the questionnaire use Likert scale to measure the scale of answers. Likert scale consist of 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree. The questionnaire distributed through several social media, such as Line, Whatsapp and Facebook.

3.4.2 Sampling

This research uses random sampling method. The population is people who has Instagram account and actively using Instagram.

3.5 Qualitative Data Analysis

After do the interview, the next step is analyze the result of interview from 9 local fashion brands. The interview data analysis was designed according to the needs of research.

3.5.1 Get to Know the Data

Before begin to do the anlysis, the author must consider the quality of data and proceed accordingly. And after get all the data, the

author need to analyze and understand the promotion strategies that carried out by each local fashion brand. For qualitative analysis, the author read and re-read the text of interview result and listen to the tape recordings several times. After that, write the impressions through the data.

3.5.2 Focus on the Analysis

This study focus by question or topic approach. In this approach, the author analyze how the owner or marketing of each brand responded to each question or topic. In this research the author makes questions with open-ended questions and organize the data by making questions for all respondents and get the answers to identify consistencies and differences. The author put the data from each question together.

3.5.3 Categorize Information

The information could be categorize bycoding or indexing the data. This step is the crux of qualitative analysis. The author assign abbreviated codes of a few words or symbol and place them next to themes and ideas that found. It helped to organize the data into categories.

3.5.4 Identify Patterns and Connections within and Between Catgories

After organize the data into categories, the author will see patterns and connections from within and between categories. Highliting the subtle variations or assess the relative importance were important to the analysis. There are some ways to identify patterns and connections within and between categories in this research:

- **Within category description**

In this way, the author write the similarities and differences of the respond from each brand within categories. It is helpful to summarize each category that describes these points.

- **Relationships**

The author discover that several categories occurs together consistently in the data. Connections could help explain why something occurs so it is important to identified.

3.5.5 Interpretation

From all the data that already collected, it is important to attaching meaning to the analysis. The author do interpretation by develop a list key points that discovered as a finding of sorting and categorizing the data.

3.6 Microsoft Excel

Microsoft Excel is used to recapitalize the data results from the interview and questionnaire. In Microsoft Excel the author could make table, percentage, and chart from the data result to help the analysis.

3.7 Frequency Analysis

This research uses 5 points of Likert to know more detail about the respondent. For the frequency analysis, the results will be divided into 3 parts. The first part is “Strongly Agree” and “Agree” will be considered as “Agree”. Second part is “Strongly Disagree” and “Disagree” will be considered as “Disagree”. And the last is “Neutral”, it means that the respondent undecided to agree or disagree.

3.8 Conclusion and Recommendation

The final step of the research is make conclusions and recommendation. The conclusion could be found after get the data and do analysis to the data. And after that, the result will useful for the business owner of fashion products to help them do effective promotion strategies through Instagram.

4. RESULTS AND DISCUSSION

4.1 Qualitative Analysis

Based on interview with 9 local fashion brands, the summary result is acquired as below. All of the respondents were asked same set of questions about what kind of promotion strategies that they used to promote the fashion product on Instagram. There are six promotion

strategies that commonly used by 9 local fashion brands. Below is the explanation of each promotion strategy.

4.1.1.1 Endorsement

All of the respondents use endorsements to promote fashion products on Instagram. Endorsement is conducted by doing endorsed with some public figure. They choose the figure that appropriate with their brand image and has a large number of followers. And after they endorsed, the public figure will posts the photo using the product from the brand and they give hashtag and also tagging the brand. The public figures could choose to be paid by fee or free products Most of the respondents could increase sales and number of follower around 100-200 followers in a day after do the endorsement.

4.1.1.2 Hashtag

All of the respondents use hashtag as promotion strategy on Instagram. Hashtag has function to help people search the categories of the brand and products and from the hashtag, the brand could regram the photo from customers. If people use the brand's hashtag, it also could make people more and more will know about the brand. The effect of using hashtag are increase sales, number of followers and also it could spread the information quickly.

4.1.1.3 Contest

4 from 9 respondents, Day and Night, Manikan, Perpetuum, and Humblezing, they use contest as one of the promotional activity through Instagram. All of the respondents conduct Giveaway contest. From the interview result, there are 3 kind of Giveaway contest, such as OOTD (Outfit Of The Day), Mix&Match and thematic photo contest. Giveaway contest conducted by posted a photo using the products of the brand, give a hashtag on the photo and the winner will be rewarded a free product or a shopping voucher**.** For OOTD, the contest conducted with focus on the overall outfit that used by the participant. For Mix&Match, the contest conduct by mix various kinds of fashion products that owned by participant but it must be matched. And the last is a thematic contest that conducted by uploading photos according to the theme that created by the brand.

4.1.1.4 Promotion Collaboration

From 9 respondents there are 6 respondents that do promotion collaboration to promote fashion products on Instagram, they are Manikan, Matoa, Kaynn, Pinx, Mannequin Plastic, and Humblezing. In this strategy, the brand do cooperation with another brand by doing photo session together, making a product that collaborate two brands, making hashtag and tag that collaborate two brands, and do collaboration with a store by making product according to the store concept. And after do the collaborations, each brands help to post the photo respectively. This strategy could attract each brand followers and could increase around 50 followers in a day.

4.1.1.5 Update Photo Regularly

All of the respondents use this strategy to post the photo when do promotion. To post the photo they see the traffic of people that use Instagram. The right time to post photo could make the photo get more like and comments. Most of the brand post the photo minimum 1 photo and maximum 3 photos in a day and they post the photo in the afternoon around 12.00-13.00 on after lunch time and 19.00 in the night. The right time to post could make more people see the photos and the photos can be posted more effectively.

4.1.1.6 Advertising on Instagram

Instagram advertising is done by doing commercial break in the account that has a huge number of followers, such as Dagelan, 9gag, Akurapopo, etc. The brand that used this strategy is Humblezing. To do the advertising, the brand must pay around Rp700,000.00- Rp 3,000,000.00 per post.

4.2 Quantitative Analysis

Quantitative research conducted by distributing questionnaires to 377 respondents. To discover the consumer response to each promotion strategies, the author use AISAS model as based of questionnaire question.The questions were designed to discoverwhethera promotion strategy could make people give attention to the brand, feel interest to the brand, search further information about the brand, buy the brand product, even want to share photos of the products after buying products.

4.2.1 Endorsement

Based on the table below, on the Attention response (A), 51.7% of respondents feel agree, 19.7% of respondents feel disagree and 28.6% were neutral. On the Interestresponse (I)as much as 55.9% of respondents were agreed, 19.4% feel disagree and 24.7% were neutral. On the Search response (S1) as much as 66.4% of respondents were agreed, as much as 12.4% feel disagree and 21.2% were neutral. On the search response (S2) as much as 61.3% of respondents were agreed, as much as 18.3% feel disagree and 20.4% were neutral. On the Action response(A) as much as 38.7% of respondents were agreed, as much as 17.8% feel disagree. and 43.5% were neutral. And on the Share (S) as much as 20.1% of respondents were agreed, as much as 56.2% feel disagree and 23.6% were neutral.

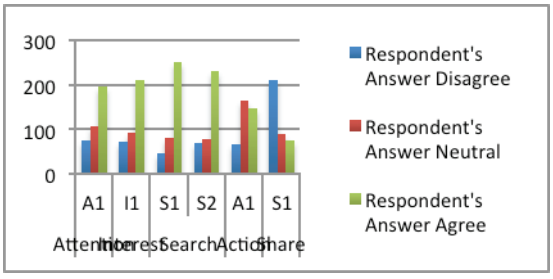


Figure 4.1 Endorsement

4.2.2 Hashtag

Based on the table below, on the Attention response (A), 25.2% of respondents feel agree, 48% of respondents feel disagree and 26.8% were neutral. On Interest response (I), as much as 33.4% of respondents were agreed, 41.6% feel disagree and 24.9% were neutral. On Search response (S1) as much as 34.4% of respondents were agreed, 38.7% feel disagree and 26.8% were neutral. On Search response (S2) as much as 34.7% of respondents were agreed, 35.3% feel disagree and 30% were neutral. On Action response, (A) as much as 24.6% of respondents were agreed, 29.5% feel disagree and 45.9% were neutral. And on the Share response (S) as much as 15.6% of respondents were agreed, 57% feel disagree and 27.3% were neutral.

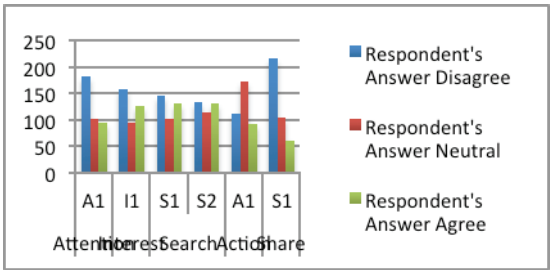


Figure 4.2Hashtag

4.2.3 Update Photo Regularly

After seeing the table below, on the Attention response (A) 60.2% of respondents feel agree, 18.5% of respondents feel disagree and 21.2% were neutral. On Interset response (I) as much as 59.4% of respondents were agreed, 14.9% feel disagree and 25.7% were neutral. On Search response (S1) as much as 59.1% of respondents were agreed, 14.6% feel disagree and 26.3% were neutral. On Search response (S2) as much as 62.1% of respondents were agreed, 17% feel disagree and 21% were neutral. On Action response (A) as much as 43.3% of respondents were agreed, 17.5% feel disagree and 39.3% were neutral. And on Share response (S) as much as 25.8% of respondents were agreed, 48.5% feel disagree and 25.7% were neutral.

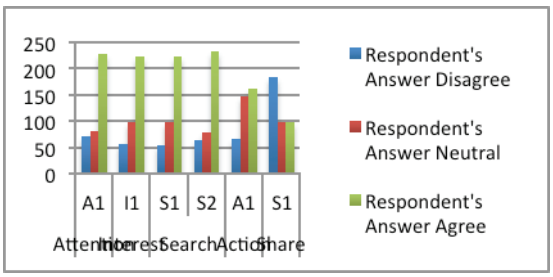


Figure 4.3Update Photo Regularly

4.2.4 Contest

After seeing the table below, on Attention response (A), 32.1% of respondents feel agree , 38.7% of respondents feel disagree and 29.2% were neutral. On Interest response (I), as much as 33.9% of respondents were agreed, 38.8% feel disagree and 27.3% were neutral. On Search response (S1) as much as 37.9% of respondents were agreed, 35.8% feel disagree and 26.3% were neutral. On Search response (S2) as much as 22.5% of respondents were agreed, 52.2% feel disagree and 25.2% were neutral. On Action response (A) as much as 33.2% of respondents were agreed, 39% feel disagree. and 27.9% were neutral. And on the Share response (S) as much as 19.8% of respondents were agreed, 57.8% feel disagree and 22.3% were neutral.

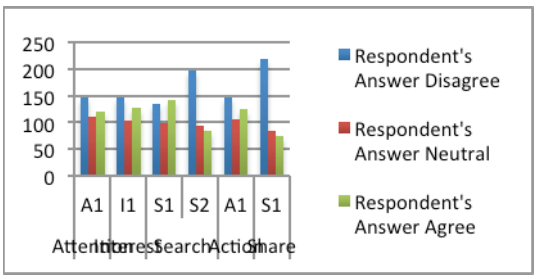


Figure 4.4Contest

4.2.5 Promotion Collaboration

After seeing the table below, on Attention response (A), 54.4% of respondents feel agree, 19.3% of respondents feel disagree and 26.3% were neutral. On Interest response (I) as much as 51.5% of respondents were agreed, 19.6% feel disagree and 28.9% were neutral. On Search response (S1) as much as 49.6% of respondents were agreed, 20.7% feel disagree and 29.7% were neutral. On Search response (S2) as much as 45.1% of respondents were agreed, 25.7% feel disagree and 29.2% were neutral. On Action response (A) as much as 34.5% of respondents were agreed, 26.3% feel disagree and 39.3% were neutral. And on Share response (S) as much as 19.9% of respondents were agreed, 49.3% feel disagree and 30.8% were neutral.

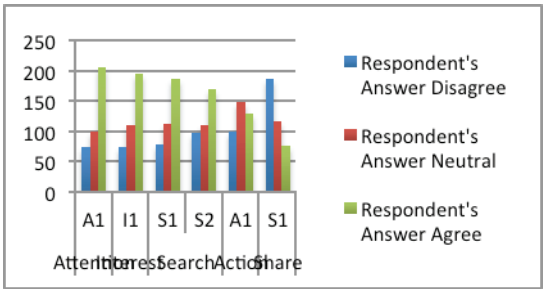


Figure 4.5Promotion Collaboration

4.2.6 Advertising on Instagram

After seeing the table below, on Attention response (A), 35.3% of respondents feel agree, 38.8% of respondents feel disagree and 26% were neutral. On Interest response (I) as much as 31.8% of respondents were agreed, 39.5% feel disagree and 28.6% were neutral. On Search response (S1) as much as 30.8% of respondents were agreed, 36.6% feel disagree and 32.6% were neutral. On Search response (S2) as much as 35.3% of respondents were agreed, 37.6% feel disagree and 27.1% were neutral. On Action response (A) as much as 21.3% of respondents were agreed, 41.4% feel disagree and 37.4% were neutral. And on Share response (S) as much as 14.6% of respondents were agreed, 60% feel disagree and 25.5% were neutral.

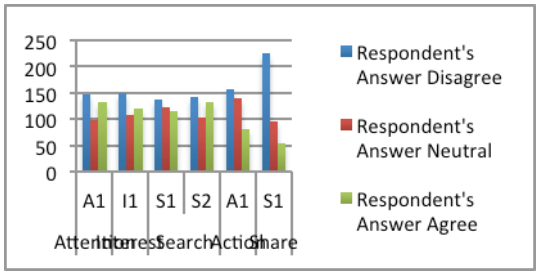


Figure 4.6Advertising on Instagram

4.1 DISCUSSION

The author use qualitative and quantitative approach to do this research. There are several strength and weakness on this research. The strength of this research is able to find out directly and more deeply the insight of business people who already success on selling fashion products. The research found new knowledge about the strategies that could be used to promote fashion products and this strategies is already experienced directly by the owner business. However, this research is unable to identify other factors that influence

people to make a purchasing decision on the product of brand. Therefore, further research is needed to fill this gap.

6. CONCLUSION

There are six promotion strategies that conducted by the majority of local fashion brand on Instagram. They are endorsement, putting hashtag, update photo of the brand regularly, making contest on Instagram, do promotion collaboration and do advertising on Instagram through famous account. Based on the consumer response from each promotion strategy, there are three promotion strategies that received postitive response from consumers; that are update photo regularly, endorsement, and promotion collaboration.

This strategies could make people pay attention to the brand, build interest to see the brand and encourage people to search more information about the brand. For update photo of the brand regularly strategy, it also could drive people to buy the product. However, there are other factors in the endorsement and promotion collaboration strategies that affect people to make purchase decision. It is probably because the feedback was dominated by neutral answer. It can be assumed that people was unsure in purchasing decision.

7. ACKNOWLEDGMENT

Acknowledgement submitted to Allah SWT as the source of all knowledge, School of Business and Manangement Institute Technology Bandung which has given to me support and confidence to do this research. To Mrs. Mia Tantri Diah Indriani as my thesis supervisor which has been guiding me, always support me, giving me a lot of knowledge and motivation. To my parents and friends that alway support me. As well as boundless gratitude to all those who have helped the realization of this writing, may be useful for the readers.

REFERENCES

Ratcliff, Donald. 2002. *Qualitative Research*. Part Five: Data Analysis. Retrieved 4-9-03: http://www.don.rat-cliff.net/qualitative/expq5.html

Taylor, E., & Marcus Renner, P. (2003). Analyzing Qualitative Data.

Mangold, W. G., & Faulds, D. J. (2009). Social media: The new hybrid element of the promotion mix . *52*, 357-365.

Schroeder, H. M. (2014). Social media in business strategy: the learning and development implications . *Development and Learning in Organizations: An International Journal , 28* (6), 12-15.

Foucault, M. (2000), "The subject and power", in Faubion, J.D. (Ed.), Power: The Essential Works of Foucault, Vol. 3, The Free Press, New York, NY, pp. 326-48.

Wilopo, A. R. (2012). *Pengaruh Penerapan AIDA (Attention, Interest, Desire, Action) Terhadap Keputusan Pembelian.* Malang: Universitas Brawijaya .

Ramadhan, B. (2014). Analyzing The Effectiveness Of Guerrilla Marketing Implementation Towards Consumer Behavior Through AISASModel. *5TH International Confrence On Business And Economic Research.* Kuching.

Brightayati, L. (2010). *Efektivitas Iklan Dengan Menggunakan Model AIDA*. Surakarta: Universitas Sebelas Maret.

Wei, P.-S., & Lu, H.-P. (2013). An examination of the celebrity endorsements and online customer reviews influence female consumers' shopping behavior. *Computers in Human Behavior* , 193–201 .

Sugiyama, K., & Andree, T. (2011). *The Dentsu Way*. New York: McGraw-Hill.

Amaly, L., & Hudrasyah, H. (2012). Measuring Effectivenes Of Marketing Communication Using AISAS ARCAS Model. *Journal Of Business And Management* , 352-364.

Integrated Learning Model in Product Design Studies based on Design Thinking and Business Model Canvas

Tri Noviyanto P Utomo
Universitas Ciputra Surabaya,Indonesia
tommy@ciputra.ac.id

Stephanus Evert Indrawan
Universitas Ciputra Surabaya,Indonesia
sindrawan@ciputra.ac.id

Abstract **–**The design-based education concept, especially in the field of product design is experiencing a rapid change in the last few years. There are many learning methods have been applied, from problem-based learning method to competency-based learning method. Although we have studied the methods well, we often do not touch the fundamental issue of how a product design is planned, to be implemented and to be marketed.The need for a model of learning in the field of product design that can integrate the design-thinking proccess and planning a business model that can be easily understood is the basis of this study. Optimizing the design proccess by Design Thinking Method is done through 7 stages. The seven stages of design thinking are: Exploration, Identification, Ideation, Visualization, Construction, Evaluation and Persuasion. While learning the business model planning is done through Business Models Canvas (BMC) methods. There are three major components that build and underlying BMC, namely operational, product and consumer. The learning models of Design Thinking Method and Business Model Canvas that integrated is applied in Entrepreneurial Interior Architecture Studio 4 Subject held by University of Ciputra.

Keywords : Design Product, Design Thinking, Business Model Canvas

1. INTRODUCTION

Tradition in academic circles since the Bauhaus era until now has changed continuously and design methodology as a science that supports the design planning process experience the same thing. Bruce Archer in Sachari (2002) stated there are six steps in a systematic design process of design, namely: Programming, Data Collection, Analysis, Synthesis, Development and Communication.

There are so much potential to adopt and integrate the product design process with business planning. A comprehensive method is required in order to seek opportunities of learning that combines product design planning and business planning. The implemented learning process is using the principles of instructional development that includes the selection of material, strategy, media, assessment, and the source or learning materials. Furniture Design studio based leaning discussed in this paper is done in a model thinking Design Thinking and Business Model Canvas.

2. GROUND THEORY

The basic principle in the product design process is a systematic framework. This basic framework composed gradually in a sequential process, where every stage becomes the foundation to reach the next stage. At the end, this process is expected to produce the ideal product.

McKim (1973) and Simons (1969) stated that the design process is a process of thinking. Furthermore, Peter Rowe adopted this idea in

his book Design Thinking, which is used by the Architect and Urban Planner as a method to planning a city in term of design research literature. This thought was expanded by Rolf Faste who teaches "Design thinking as a method of creative action" and also adopted for business purpose by David M. Kelley, who known as the founder of IDEO.

Ambrose and Harris (2010) described the stages of thinking in a design process as. : "Design is a process that turns brief or requirements into a design or a solution or a finished product"(Ambrose and Harries, 2010, p.60). There are seven stages of design process: define, research, ideate, prototype, select, implement and learn. Every its element needs a Design Thinking. At first the design problems and its requirements need to be **defined** referring to its target audience. Understanding of the specific problems and all the elements associated with it will provide the right solution to be developed. Objectives needs to be defined specifically so that the design team knows what to be achieve. Asking question "The five W" can provides detail that design team can use throughout the design process and identifies key restraints that they have to work to. The **research** stage reviews information such as the history of the design problems, end-user research and opinion-led interviews and identifies potential obstacles. **Ideate** is the stage where end-user motivations and needs are identified and ideas are generated to meet these, perhaps through brainstorming. **Prototyping** sees the resolve or working up of these ideas, which are presented for user-group and stakeholder review, prior to being represented to the client. **Selection** sees the proposed solutions reviewed against the design brief objective. Some solutions might be practical but may not be the best ones. **Implementations** sees design development and its final delivery to the client. **Learning** helps designers improve their performance and, for this reason, designers should seek client and target audience feedback and determine if the solution met the goals of the brief. This may identify improvements that can be made in the future. The design process is often linear as it explained by seven stages of design thinking, it frequently involves revisiting earlier segments for reworking as it evolves.

In addition to the theoretical approach through design thinking , there is another theoretical approach used.It is the Business Model Canvas Generation, known as BMC. BMC was proposed by Alexander Osterwalder. Business model describes the rationale of how an organization creates, delivers and captures values. This method that had been tested on many large companies all over the world such as IBM , Ericsson , Deloitte , the Public Works and Government Services of Canada . Through a systematic scheme, BMC explained 9 business buildings block. **Customer Segments** company or organization has a different consumer segments. In order to gain a better customer, a company may distinct segments with common needs, common behavior, and other common attributes. These different consumer segments are Mass Market, Niche Market, Segmented, Diversify and Multi Sided Form. **Value Proposition** a product was made to answer the needs of consumers . The value of the products offered can be a product that is innovative or an existing product but has certain additional features such as newness, performance, customization, "getting the job done", design, brand/status, price, cost reduction, risk reduction, accessibility, and convenience/usability. The Value proposition are quantitative : price-efficiency, qualitative : overall customer experience and outcome. **Channels** Customer Segments to deliver a Value Proposition Communication, distribution, and sales Channels comprise a company's interface with customers. Channels are customer touch points that play an important role in the customer experience. Channels serve several functions, including: Helping customers evaluate a company's Value Proposition, Allowing customers to purchase specific products and services, Delivering a Value Proposition to customers, Providing post-purchase customer support. **Customer Relationship** define the type of relationship between companies with specific

consumer segments. A company should be able to explain this type of relationship which could be from something personal to automated. Various Form of Customer Relationship consist of : Personal Assistance, Dedicated Personal Assistance, Self Service, Automated Services, Communities and Co-Creations. **Revenue Streams** represents the cash a company generates from each Customer Segment (costs must be subtracted from revenues to create earnings). Several ways to generate Revenue Streams are Asset Sale, Usage Fee, Subscription Fees, Lending/Leasing/Renting, Licensing, Brokerage Fees and Advertising. **Key Resources** describes the most important resources to make a business model works. It could be human, financial, physical and intellectual**. Key Activities** is the most important activities in executing a company's value proposition. An example for Bic would be creating an efficient supply chain to drive down costs. It can be categorized as Production, Problem Solving, and Platform/Network. **Key Partnership** In order to optimize operations and reduce risks of a business model, organization usually cultivate buyer-supplier relationships so they can focus on their core activity. Complementary business alliances also can be considered through joint ventures, strategic alliances between competitors or non-competitors,\.

3. RESEARCHMETHODS

This research drew on qualitative method. General explanation will give two great overview of the implementation of this method. The first explanation is resulted from the application of the seven stages of thinking through design thinking; in order to produce the optimal product design. The second exposure is done after producing the design of products that have gone through the stages of design thinking. Design results are expected to emerge in the process of design thinking in the form of innovative products that have value (value propositions) and broad impact on user acceptance of products (customers) .

Value propositions is one segment in 9 blocks BMC (Business Model Canvas), which gives an idea of the value of a product. The value of a product can be innovated design, material efficiency, the price offered etc. Learnings scheme of integrated learning model based on design thinking method and business model canvas is illustrated in the following flowchart :

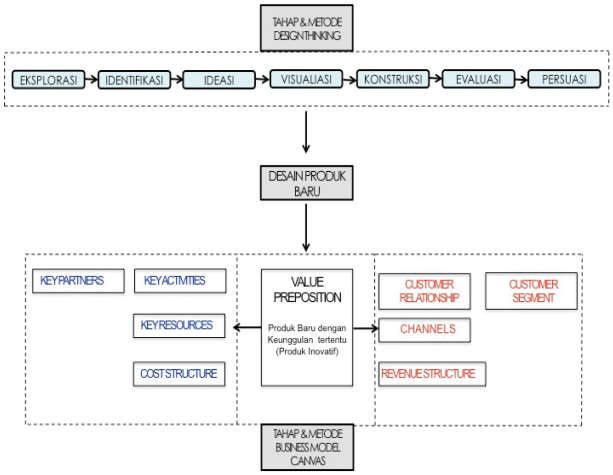


Table 1. Integrated Model of Design Thinking and Business Model canvas.

Translation of BMC hereinafter outlines eight other blocks as the basis for running a business based product design. The output of the process of design thinking in the form of new product design will be the basis for the development of product design based business that has a value of innovation

3.1 Seven stages of design thinking used in this study are:

1. Exploration: This early stages is an activity to collect data related to the furniture designer whose work much given an effect on the development of furniture design world. This data is taken from literature or internet.

2. Identification: This stage is an activity to look for any explanation of the stages of exploration. This information is filtered, classified and grouped to map the various findings concept of thought and the things special about the design work that has been explored before. This identification is also the basis for the formulation of the problems found.

3. Ideation: This activity is generating creative ideas and the formulation of the problems that have been made in the identification process. The ideas are based on the rationality and objectivity with unlimited thinking.

4. Visualization: Results from ideation applied in visual form (2D and 3D modeling). Visualization is useful to communicate the things that are hard to explain through words. More than that visualization is also useful to examine all the possibilities that exist to enhance the idea.

5. Construction: create a visualization form a more real and ready to be tested as a viable new product to be marketed.

6. Evaluation: is to get a responsefrom the user or the market through prototype. This evaluation is also useful to correct errors that may appear in the visualization and construction phases thus enabling to find a better solution.

7. Persuasion: This stage is to present a finished product, both to users and to those who have contributed to the development of the product.

Method of research done in stages based on design thinking can be seen in the groove / chart below:

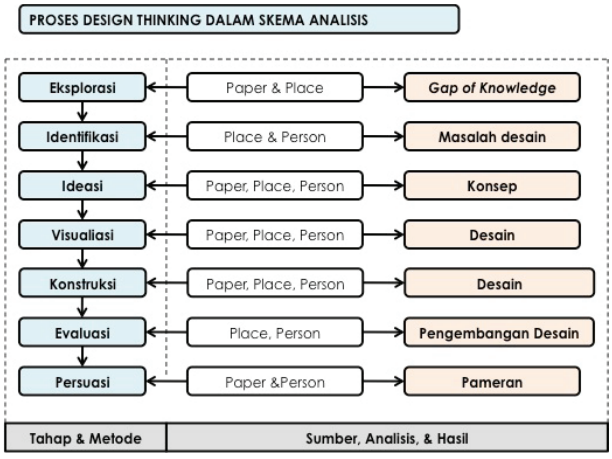


Table 1. Process Stages method, analysis and results in Design Thinking.

All stages of design thinking process is to produce a product that has more value than other similar products, and of course the answer based on users need and brief.

3.2Nine Block of BMC (Business Model Canvas)

The initial step of BMC is by analyzing the products that have been produced through Design Thinking's process. The values of product became the benchmark for the development of this BMC models. Nine blocks BMC according to Osterwalder and Pigneur (2013) are: Customer Segment, Value propositions, Channels, Customer Relationships, Revenue Streams, Key Resources, Key Activities, Key Partnerships, and Cost Structure

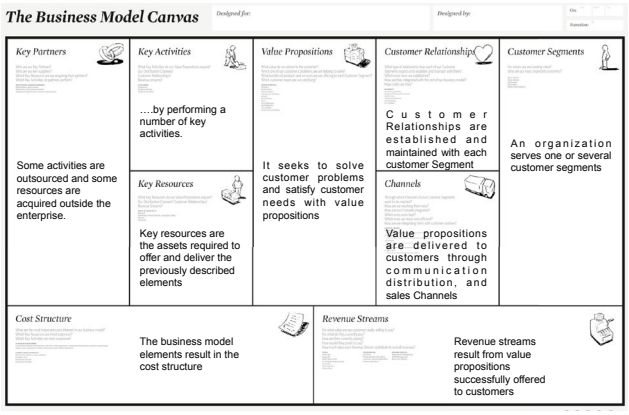


Table 2. The Business Model Canvas

Customer Segment: are those who use the services/products of companies that contribute to income. Value propositions: One of the advantages of the product is electable by the customer. Channels: Tools for delivering product information to customers. Customer Relationships: build customer relationships to attract and keep new customers. Revenue Streams: flows of funds / income from sales activity. Key Resources: Assets crucial in determining the successful operation of the business model. Key Activities: Activities that determine the success of the business model. Key Partnerships: partnerships with partners who support the operational business, and Cost

Structure: All costs incurred during the operational business.

Business model innovation strategies conducted on nine blocks BMC referring to the block value propositions because the values of the resulting product excellence into the early strength of this business model.

Development center of the business model begins at block value propositions namely Product Leadership, besides Excellent Operation and Customer Intimacy. The values of the resulting product are force into formulating and developing this business model. Here is a description of the business model canvas that starts from the value propositions or better known as strategy - Driven Offer.

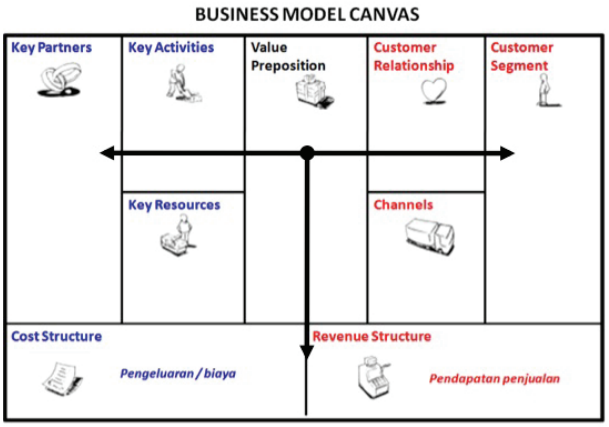


Table 3. Strategy of Offer-Driven in the BMC

4. BMC APPLICATION IN FURNITURE DESIGN SUBJECTS AT CIPUTRA UNIVERSITY.

This course's Brief is to create sitting facilities or chair in a retail project. Design Thinking method and Business Model Canvas are involved during the learning process. Understanding patterns of the integration of design and its implementation of the business is to train students to design learning. Specifically is to think and act holistically in creating a product design based on business model.

4.1 Design Phase

Referring to seven stages of design thinking, the first step is doing Explorations and continued to Persuasion phase in order to produce innovations and its value.

Exploration: Activity of this phase is to find and collect all the information related to the design of furniture design works especially influential in the world of design.



Figure 1. Explorations Activity

The purpose of this stage is to know, and learn the concepts and philosophy as well as observing various forms of influential works from influential designers.

Identification: The results of this exploration then grouped to type, shape similarity, either in the form of shape, color, texture, construction techniques and use of material. This identification also aims to benchmark the work of the designer with the perception of his own imagination.



Figure 2. Identification and Benchmarking

Ideation: This phase is the phase of fun for designers because of the activities involves the activity of ideas without limitation in the visualization of images. Parts that could restrict the idea of ideas are a benchmark done in the identification phase. Various design alternatives can be generated in this phase, but in the next phase, namely: **Visualization** there will be more and more design options for later selected and determined through the mechanism of brainstorming

.

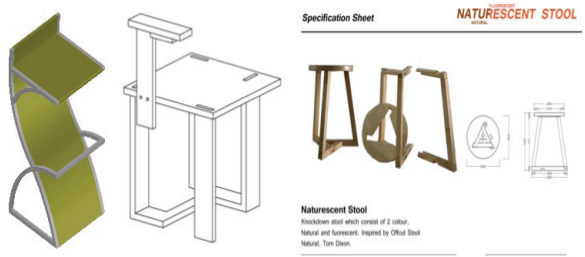


Figure 3. Ideation dan Visualization

Construction or prototype is the stage after stage of visualization. **Prototype** is an important step to determine the response of the market and users to design object. In the process of making this prototype, there are technical and non-technical discussions between the designer and furniture maker. This phase is a critical point in making furniture, therefore this process happens over and over.



Figure 4. Prototyping and Construction.

Evaluation and persuasion is the final stage in a phase of design thinking. After construction was tested then be evaluated to get a broader picture both in the design, construction, materials, colors and even up to the energy efficiency and the economic or price. Persuasion is done after all the stages passed; the purpose of this activity is to provide confidence to be a product that has been made. This persuasion is also the first step in entering the real market test.



Figure 5. Evaluation and Persuation.

4.2 Business Plans

Business Planning in this case is using a strategy Business Model Canvas Offer -driven model, A BMC strategy with a focus on Product Leadership. Prioritize value propositions, excellence and product innovation results of design thinking process that will affect eight other blocks. Here are the results of BMC 's product design furniture design learning outcomes for the project

EINAS 4 (Entrepreneurship Interior Architecture Studio) University of Ciputra Surabaya .

BMC PRODUK FURNITUR

KEY PARTNERS	KEY ACTIVITIES	VALUE PREPOSITION	CUSTOMER RELATIONSHIP	CUSTOMER SEGMENT
Suplier Kayu dan Bahan finishing. Workshop Kayu dan Besi. EO Pameran. Konsultan Arsitektur/ Interior Asosiasi Profesi Depatemen Perdaganan dan Perindustrian. Asmindo, Amkri Konsultan Pajak	Pengembangan R & D Pembelian bahan Baku Pengaturan Jadwal Exhibition, Mencari peluang pasar baru.	Produk dengan Keunggulan : Praktis bongkar pasang cepat, konstruksi kuat tanpa paku,atau sekrup, Efisien dan green material. Fungsional dan ringan dan mudah dibawa.	Menginformasikan ke pelanggan jika ada produk baru, termasuk informasi keikutsertaan di Pameran, Memberikan harga kompetitif	Buyer luar dan dalam negeri Konsultan perencana arsitektur/ interior
	KEY RESOURCES		CHANNELS	
	Desainer, Marketing, Peralatan pertukangan, Manpower, workshop, showroom, Kebutuhan bahan.		Furniture and craft Exhubition local, Regional, International. Asosiasi, Media Sosial, Website	
COST STRUCTURE			REVENUE STRUCTURE	
Biaya Operasional, Biaya R&D, Sewa workshop			Penjualan Produk	

Table 3. BMC product Furniture

BMC furniture consists of nine blocks, each of which will affect of the business plan. The Results of nine blocks are:

Key Partners: Material Supplier (wood and finishing materials), Metal Workshop, Event Organizer for the exhibition design, Interior Architecture Consultant, Professional Association, the Department of Trade and Industry, Asmindo, AMKRI, Tax Consultants.

Key Activities: Developing Research and Development Department, purchasing raw materials, Exhibitions schedule settings, looking for new market opportunities

Key Resources: Designer, Marketing, Accounting, Tools, Handworker, workshop, showroom, materials.

Value Proposition: wood furniture can be assembled easily without using nails or screws construction, light and functional.

Customer Relationship: Always provide information to customers when there is a new product that will be launched, including participation in the exhibition schedule, giving a competitive price.

Channels: Furniture and Craft Exhibition at local, regional and international arena, the Association of the profession, through social media and through the website updated continuously.

Customer Segments: International and local buyers, specialty furniture store, both architecture and interior consultants.

Cost Structure: This block describes all the expenses resulting from business activities. Costs including operating costs, the cost of R & D, the costs of rent workshop etc

Revenue Structure: all the incoming flow of funds from the sales transactions that generate profit.

4.3 Market Test

The market opportunity of furniture products can be discovered through exhibition in both local and international events. The market test aims to get an evaluation and look for feedback for further design development. Furthermore, by joining many exhibitions will open more opportunities for new markets.



Figure 6. Exhibition 100% Design Singapore



Figure 7. With Buyer in 100% Design Singapore

The products from this research were exhibited in an international design showcase namely 100 % Design Singapore. It had received appreciations from sharing parties such as professionals, teachers, entrepreneurs and other business people. By the end of the event, a Singaporean businessman bought the all displayed design student works with royalty agreement

5. Conclusions

Many learning methods designing products in various design schools just stopped until the prototype only. The changing times continue to change and will continue to look for new forms of holistic learning methods, interdisciplinary and cross-knowledge to produce high-quality products and respond to consumers' expectation. Methods for product design thinking and planning model with integrated BMC provides a breakthrough for the real learning of business based product design. The integration between methods of design thinking and BMC plan needs further development. Business model innovation strategy that splits into three main blocks BMC innovation is clear thus there are opportunities to the improvement of design learning.

6. REFERENCES

Ambrose, Gavin and Harris, Paul (2010)., *Design Thinking*. Switzerland : AVA Publishing.pp 12

Brown, Tim (2008). Design Thinking. *Havard Business Review* .June 2008.

Osterwalder, Yves Pigneur (2013). Business Model Generation. Ney Jersey : Jhon Wiley and Son.

Riverdale & IDEO. (2011), Design Thinking for Educators, pp.4.

Sachari, Agus (2002). Pengantar Desain Produk. Bandung : ITB

Tim PPM Manajemen (2012)., Business Model Canvas Penerapan di Indonesia. Jakarta : Tim PPM

The Rise of Sole-Proprietor Makers in Urban Cities in Indonesia

Aulia Ardista Wiradarmo
Bandung Institute of Technology, Indonesia
auliaardista@yahoo.com

Abstract —Nowadays the notion of Do-It-Yourself (DIY) is not merely about hobby and leisure time. For the past few years it has shifted into a profitable microbusiness with sole-proprietor maker as the main initiator. Therefore contemporary craft or craft-design started emerging in Indonesia. This essay is based on the writer's personal experience as a maker and entrepreneur. The writer also observed other makers in order to explore aboutwhat distinguish them from traditional craft or design alongside with other supporting elements such as business model and consumer type. Combined with desk research from literature reviews, this paper explains about the growth potential of contemporary craft and gives recommendations so thatcraft-design sector in Indonesia could thrive.

Keywords – Contemporary Craft, Craft-design, Creative Economy, Entrepreneur, Handmade, Maker

1. INTRODUCTION

Do-It-Youself (DIY) is currently an emerging movement in Indonesia, which mostly conducted by the urban people. These people began to create things for themselves as an embodiment of self-expression and as well as a leisure activity. Regardless imposed by the ideology to create than to buy, some makers decided to fathom their hobby by establishing microbusiness which is known as sole-proprietor maker.

On the other hand, Indonesia is prominent for its traditional craft that mostly produced by craftsmen from the rural areas. These rural people have ancient traditional techniques and cultures that passed down through generations. Albeit the term craft that they both use, there are some differences between traditional craft and contemporary craft.

This paper observes 12 sole-proprietor makers, their characteristics, business model, and their relation to consumer alongside with literature review about contemporary craft or craft-design. Observation was accomplished through their website, social media, and media coverage.

The purpose of this paper is to raise awareness about the potential growth of contemporary craft makers and provide recommendations for makers and stakeholders in order to thrive this burgeoning sector.

2. CRAFT-DESIGN

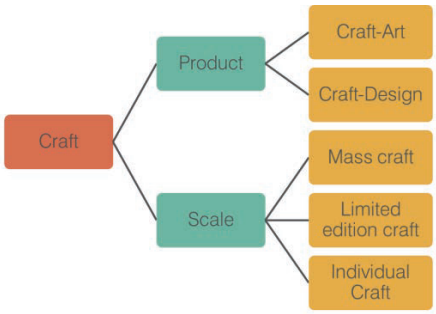


Figure 1. Scope of Indonesian craft

The Indonesian Government divides creative economy into 18 sub-sectors and one of them is craft. Craft is defined as an artefact which is made by hand. The scope of craft can be classified by its final product and production

scale as above. To some extent, craft-design perfectly describes the circumstances of contemporary craft makers in Indonesia.

Craft-design combines characteristics of both craft and design in a single product. For instance a craft-design productmay be produced by hand in limited edition (craft characteristic) but use composite material and functional (design characteristic). In general the highest distinction iscraft or craft-art represents hereditarycultural tradition while craft-design adapts with the latesttrend.

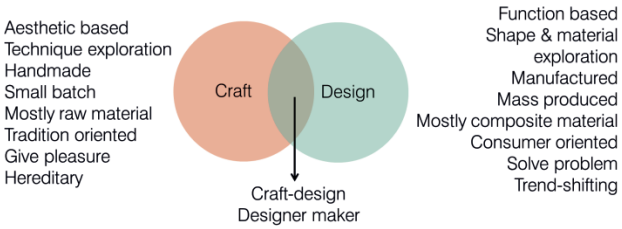


Figure 2. Characteristics of Craft and Design

Cokorda Istri Dewi (2014) from the Ministry of Tourism and Creative Economy stated that the main problem of Indonesia's craft industry is the lack of creative resources (creative people involved in this industry). It has the smallest figure (scale 1 to 10) among other seven indicators. Empowering craft-design makers is a feasible solution to reinforce this indicator.

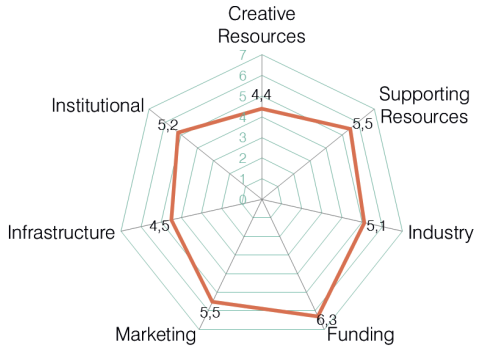


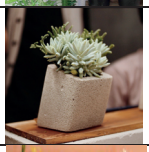
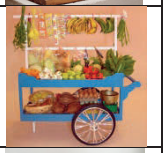
Figure 3. Mapping of competitiveness for Indonesian craft

3. MAKER CHARACTERISTICS

Research by Meg Mateo Ilasco (2011) proved that self-employed makers tend to be happier and more satisfied with their jobs. Most of them work at a studio, whether it is home-based or a separate office location. The income might not be munificent, but they can afford a self-actualization. Thisself-fulfillment makes some of the makers decide not to be a part time crafter anymore and be a full time crafter, as Dewi Kucu of Cutteristic did. She left her job as an interior designer and prioritized Cutteristic.

As sole-proprietor makers, there is no boundary between the business and the owner. It can be seen from their social media branding which often use soft-selling method. Martha Puri Natasande, the owner and crafter of Ideku Handmade not only posts product-related photostoher Instagram, but also exposes her daily life. She has #puwisweekendstoriesor #becausepuwilovesmural hashtags in order to engage with her followers.

Table1. List of brands by makers, cities, products, and materials or techniques

1	ARKANA Bandung Notebook / journal Book binding	
2	Ayu Larasati Jakarta Tableware Ceramic throwing, glazing	
3	Born Products Jakarta Bag, wallet, strap Leather sewing, stamping	
4	Cemprut Tangerang Doll Sewing	
5	Conture Bandung Houseware, furniture Concrete modelling	
6	Crayon's Craft & Co Bandung Food miniature Clay modelling	
7	Crochet in Pot Jakarta Home decor Crocheting	
8	Cutteristic Jakarta	

	Wall decor, gift Paper cutting	
9	Ideku Handmade Jakarta Bag, pouch, cushion Drawing, sewing	
10	Kelly's Jakarta Card, calendar, wrapping Drawing, printing	
11	Lima Watch Jakarta Watch, table clock Wood carpenting	
12	Omoi Bandung Scrapbook in jar &box Drawing, scrapbooking	

Because of its authenticity, craft-design products are easy to differentiate from mass-produced products. Mainly because they are produced in small-batch or limited editionwhich enhance exclusivity. Most of the makers use pre order or made by order system. This system is also advantageous to the customersince they can order custom made products based on their desire and need. As an example, if you want to order a memory jar at Omoi as a gift, Andintya Anissa, the owner of Omoi, will request photos and details such as your beloved ones favourites and profile to create a personalized memory jar. Indeed the result is a remarkably personal present.



Figure 4. Hand building pottery workshop by Ayu Larasati at Indoestri Makerspace

Furthermore skill-sharing is another engagement for the makers'brands. Some makers obtain additional income from workshop teaching or open studio. The cost may vary and depends on the organizer.There is also a free workshopbut it is mostlya simple andmere lectureworkshop without live practice. To illustrate Ayu Larasati hosts a hand building pottery workshop which costs Rp 1 million at Indoestri Makerspace but she also has a short lecture class with Lingkaran.co which is free. After all it is a way for them to connect with other makers and craft enthusiasts.Other prominent workshop organizers are Living Loving Class, Mau Belajar Apa, and Tobucil.

4. CRAFT-DESIGN BUSINESS

Sole-proprietorship is the simplest business structure for makers. Its definition is that the business and the person starting the business are one entity (Malinak, 2012), thus it starts with self-employment. It can be solo or with few employees but the owner must be in charge with every production process. Usually the employees are personally trained by the owner in order to learn specific skills.

In fact most of the people prefer industrialised products, so craft-design products targets niche market. It does not mean that the market is narrow yet it is more specific. Essentially perfect niche can leads to loyal customer and peer-to-peer endorsement. Business model for niche is often called longtail. Long tail focuses on large number of products with low volume. In craft-design case it is shown by personalized products or commissioned works.

Craft-design market place can be divided in to online and offline. Etsy is the biggest online craft marketplace around the world with 36 million active buyers and sellers (Benedict Dellot, 2014). Many of Etsy sellers earn their living cost merely by selling in Etsy.

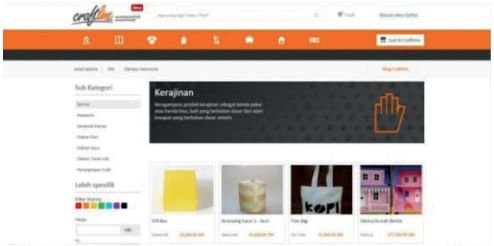


Figure 5. Craftline website

Judging from the number of Indonesian sellers on Etsy, Indonesians are still unfamiliar with this type of platform. Presumably it is because

most Indonesian people do not familiar with export policiesor international payment system. Hence, online marketplaces such as Craftline and Kreasik are existed. However the number of users and sales in these platforms do not develop rapidly thus it is clear that direct business to consumer relationship is still the most profitable in Indonesia's industry.

Most of offline marketplaces for craft-design products are craft fairs such as Inacraft, Pasar Seni ITB, Crafty Days Tobucil, SMART Dia.lo.gue, and Indoestri Day. In addition there are only few offline stores that focus on craft-design products.

5. CONSUMER TYPE

Even though makers target niche market, the evolution of consumer is getting more promising for craft-design business. Yuswohady (2012) explained about the"Consumer 3000" phenomenon which asserts the surge of middle class.

Currently the amount of middle class citizen in Indonesia is higher than upper and lower class. From a psychographic perspective, middle class consumer is value-minded consumer and the values are divided into 3 categories: (1) reasonable value; (2) critical value; and (3) functional value. Reasonable consumer derives from brand-minded consumer whobecomes more rational and knowledgeable while functional consumer isderived from price-minded consumer who possesseshigher buying capability.

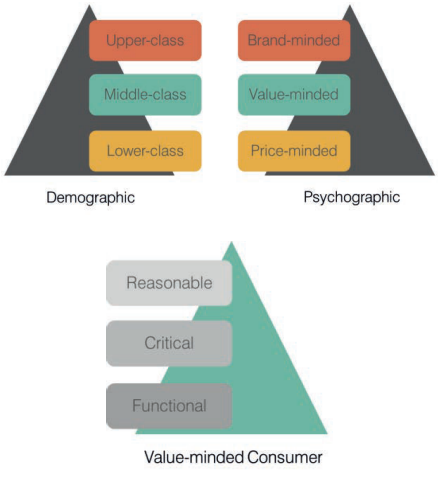


Figure 6. Consumer 3000 Segmentation

The connection with craft-design development can be considered as 3 stages of awareness:(1) consumerunderstands the beauty of handmadeproducts(DIY movement);(2) consumer chooses local brand (local value awareness); and (3) consumer becomes more specific onchoosing valuable local handmade products (craftsmanship value awareness).

Handmade productscan be considered as highly valuable since consumer feels involved and enjoys the production process. They also experience the ease and comfort of custom-made service and does not mind payingslightly higher price or waiting for the production process. With handmade productsconsumer will also get one-of-a-kind productswhichbearmore personal valuethan mass products. Furthermore makers always prioritize quality, not quantity of their products, for they are driven by the passion to create and not solely to gain profit.

6. CONCLUSION& RECOMMENDATION

In conclusion contemporary craft have different characteristics from traditional craft. Therefore action and approach that has to be taken must also be different. Apparently both the government and society are not fully awareof this fact yet.

With this paper the writer hopes to promote contemporary craft or craft-design as a rapidly growing sector. The demand is getting higher, even more so if we can penetrate global market. The writer hopes that more Indonesian will decide to work as makers and create their own job opportunity. It is unconventional in Indonesia to be self-employed but it has been proven to be successful in advanced economics countries. Besidescurrently Indonesia is encouraging its creative economy development.

Apart from that if it was traced back to the root, Indonesian culture is genuinely creative and productive. The writer believes that creativity runs in Indonesian blood. Indonesians are makers, whether traditional or contemporary, and they can change the economic condition to a better way.

To achive that the writer proposes some recommendations. Recommendations are sorted as internal (makers) and external (stakeholder, government, industry) recommendations.

6.1 Internal Recommendations

- Combine contemporary products with traditional material or pattern to embrace Indonesian culture. Adhi Nugraha (2010) invented the TSCUM method to help simplify the process.
- Increase the quality of brand image and presentation with an array of well-executed photoshoot, catalogue, and lookbook.
- Initiate national craft community to engage and collaborate with other makers.

6.2 External Recommendations

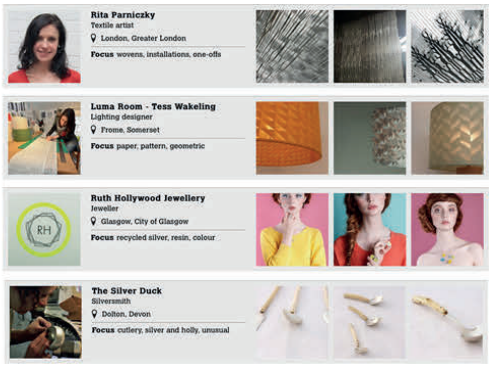


Figure 7. UK Craft Council's Makers Directory

- Create certifications for online shop so that consumer can choose a reliable online shop. It can also be integrated with an online makers directory as publication support.
- Make offline marketplace or shop for local craft products. It must be curated professionally to maintain quality.
- Socialize exportpolicies, international payment, and how to ship products overseas. Makers should be able to expand their market conveniently. To do sowould also popularize Indonesia as a country of makers, not merely consumptive users.
- Raise the entrepreneurial spirit of young people. Online craft-design business is easy to start and considerably cheap. It simply requires skill and passion.
- Give awards and commendations for the best craft and other creative industry practitioners in appreciation of their contribution to creative economy.

REFERENCES

Dewi, Cokorda Istri. (2014). *Ekonomi Kreatif: Kekuatan Baru Menuju 2025*. Jakarta: Kementerian Pariwisata dan Ekonomi Kreatif.

Dellot, Benedict. (2014). *Breaking The Mould: How Etsy and Online Craft Marketplaces are Changing the Nature of Business*. London: RSA.

Ilasco, Meg Mateo. (2011). *Craft, Inc. Revised Edition*. San Fransisco: Chronicle Books.

Jacob, Sam. (2015). *What Makes a Maker?* Taken on 26 March 2015 from http://metropolismag.com

Malinak, Jason. (2012). *Etsy-preneurship*. Hoboken: Wiley.

McGuirk, Justin. (2011). *The Art of Craft; The Rise of The Designer-Maker*. Taken on 26 March 2015 from http://www.theguardian.com

McIntyre, Morris Hargreaves. (2006). *Making It to Market: Developing The Market for Contemporary Craft*. London: Crafts Council.

McIntyre, Morris Hargreaves. (2010). *Consuming Craft: The Contemporary Craft Market in A Changing Economy*. London: Crafts Council.

Nugraha, Adhi. (2010). *Transforming Tradition for Sustainability through 'TSUCM' Tool*. SYNNT/ORIGINS, 3, 20-36.

Osterwalder, Alexander & Yves Pigneur. (2010). *Business Model Generation*. Hoboken: John Wiley & Sons, Inc.

Risatti, Howard. (2007). *A Theory of Craft: Function and Aesthetic Expression*. North Carolina: The University of North Carolina Press.

Yuswohady. (2012). *Consumer 3000: Revolusi Konsumen Kelas Menengah Indonesia*. Jakarta: Gramedia Pustaka Utama.

Proposed Form of Work Agreement in Specific Time (PKWT) for IKM Employees

(Case Study at IKM "X" in Tasikmalaya)

Siti Rohmah
Politeknik STTT Bandung, Indonesia
Sitifirdaus2011@ymail.com

Kuswinarti
Politeknik STTT Bandung, Indonesia
ksudjono@yahoo.com

Karlina Somantri
Politeknik STTT Bandung, Indonesia
karlina.somantri@yahoo.com

Abstract — *Indonesian small industry is highly potential to be developed, especially the ones in the rural areas. However, there are also some barriers that this industry has to face, such as employees' absence rate which lead to the failure in fulfilling the production target. This problem occurs because there's still no legal agreement between the employees and the employer. This research aims to propose a proper design of work agreement of specific time (PKWT) to be implemented in order to create a good cooperation between the employees and their employer. Based on the stipulation letter of the Minister of Transmigration and Labour No 100/MEN/VI/2004, PKWT is a work agreement between employees and employer in a specific time scope. The research methods used are field and library research, collecting data in form of government rules and other relevant data supporting the research topic. The implementation of PKWT is expected to increase employees motivation which will lead to the target fulfillment.*

Keywords – *Small Industry, Employees, Employers, work agreement, specific time, PKWT*

1. INTRODUCTION

1.1. Back Ground

Indonesian small industry, especially in the rural areas, is highly potential to be developed and can be an economic booster for the community and the industry itself.

Embroidery IKM (Small industry) X in Kawalu, Tasikmalaya, is one of potential embroidery company with an omzet of Rp. 1.3 M/month. Moreover, this IKM has already established a good cooperation with monetary institutions and also created a promising marketing prospect that reaches 90% of export-oriented market.

However, this IKM also faces some common problems such as lack of capital, human resource, production cost, technology level, marketing, imported product competition (Hafsah, 2004).

One specific problem faced by IKM X is the rate of attendance of the employees. The fluctuative attendance rate of the employees has become a barrier in achieving the production target. The problem occurs because most of the employees are temporary or even daily workers and their payments are based on their own production rate, not by target. In other words, the employees have low motivation and this affects their performance.

Analisa (2011) has conducted a research on the effect of work motivation and environment to employees' performance. The participants were 74 employees of Semarang Trade Office. The result shows that work motivation affects performance in 4,003 (> t tabel 1,663) and significance value of 0,000 (<0,05).

Other research was conducted by Yuliarti et. al. (2014) on the correlation between anxiety of pension and work motivation of the employees of PT Pos Indonesia (Persero) Surabaya. The participants were 22 employees who would commence their pension time in the age of 50 – 54 years old. The *Spearman-Ranked-order* analysis result shows r = 0,792 and the significance value of 0,000 (p < 0,05) indicating the correlation between the variables.

Nawawi (2003) proposes that employees' motivation is affected by several factors, such as interest, salary, social status, work atmosphere and goals.

Nitisemito (2000) adds that the symptoms of decreasing motivation are low productivity, high rate of absence, high turnover, increasing damage level, restlessness, increasing demands and strikes.

Based on the aforementioned facts, researchers are interested in finding out:

1. What is the appropriate form of PKWT to be implemented in IKM X?
2. How the PKWT can protect the employees?

The PKWT is then expected to overcome the existing problem faced by the IKM X.

1.2 Research Method

The methods used in this research are field study, a study that is done in the field or area of phenomenon (Hasan, 2002), and library study, done by collecting and reviewing data from books, notes and reports which are relevant to the research topic (Nazir, 1988).

2. LITERARY REVIEW

2.1 Work Agreement

The article 1 number 14 of Government Regulation No 13, 2003 on Labour, defines work agreement as an agreement between labours/employees and employer(s) that contains the work terms and conditions for both sides (Tim Redaksi Hukum, 2007)

From the fact aforementioned, a proper work agreement must fulfill these requirements:

1. There are subordinate(s) and superordinate(s)
2. Work implementation
3. Specific time
4. Approved Salary/wages
5. Mutual agreement

2.2 Work Agreement for Specific Time

Work Agreement for Specific Time (PKWT) is designed to provide protection for the labours/employees against recruitment without any agreement on time of work.

Labour protection with PKWT will guarantee the rights of labour in doing continuous work with no specific time. On the other hand, the employers don't have to hire labours to do work in specific time.

Government regulation No 13, 2003 on Labours sets up work categories for PKWT as follows:

1. One time or temporary work
2. Not more than 3 years work
3. Seasonal work
4. Work related to new product, new process or on trial excess products.

3. RESULTS AND DISCUSSION

3.1 General Overview of IKM "X"

IKM embroidery "X" is an IKM that produces embroidery praying veil. The quality of the embroidery is good because the workers are well-trained. This IKM is able to produce on average of 1000 pcs/day.

Some potentials owned by this IKM are well-trained labours, vast market share and sufficient numbers of embroidery machines. However, there is one specific problem that has been a consistent barrier for this IKM to develop. The attendance rate of the employees is low and this has affected the production rate. The daily target is 1200 pcs, but the production division can only produce 1000 pcs daily due to the absence of some of the employees in the production line. The attendance rate of the finishing division can be seen in Figure 1 and the production rate can be seen in Figure 2.

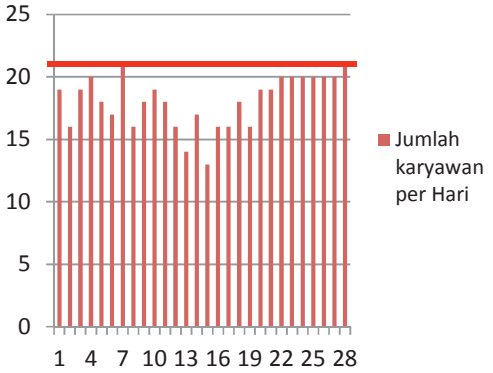


Figure 1. Sum of employee per day
Source : IKM X, Tasikmalaya

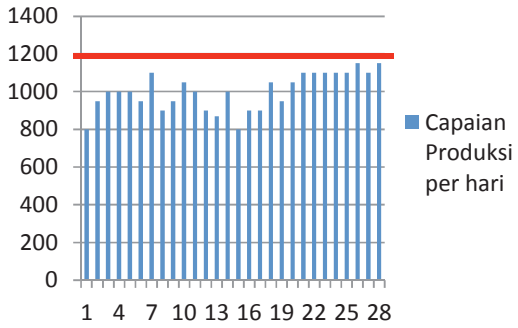


Figure 2. Production performance per day
Source : IKM X, Tasikmalaya

3.2 The Implementation Plan of PWKT for Employees

Some factors in consideration to improve the employees' performance are work satisfaction, employees' motivation and commitment to the company.

High motivation can create a commitment to responsibility in finishing every work. Implementation of PKWT will certainly increase the employees' motivation due to the rights guarantee issued by the employer(s).

3.2.1 Form and Content of PWKT

The form of work agreement is set in the article 51 section 1 of Regulation No 13, 2003 on Labour that clearly states that work agreement is in written form in Bahasa Indonesia and in Latin letters.

It has to be written in order to gain legal value for protecting the rights of both sides and to act as written document in case any legal conflict occurs in the future. The use of Bahasa Indonesia and Latin letters is meant to avoid misunderstanding.

If the agreement does not meet the requirements above, it will be regarded as PKWTT, Work Agreement for Non-specific time, based on the Stipulation Letter of the Minister of Labour, KEP.100/MEN/VI/2004 article 15 subsection 1. In this case, government acts as the supervisor of the agreement.

In reality, some companies still don't implement written agreement due to the lack of information. This may have been the result of the education background of most of the employees in IKM which only requires high school graduates. In addition, the fact may also have been the result of family tradition in the rural area where agreements are based only on trust and spoken commitment.

The Content of PKWT, based on the article 54 in Regulation No. 13/2003, has to include the following minimum requirements:

1. The Company's name, address and kinds of products
2. Employee's name, sex, age and address.

3. Position and kind of job.
4. Place of work
5. Wage and terms of payment.
6. Rights and obligations of both sides.
7. Starting date and duration of agreement.
8. Place, date and signature of both sides.

3.2.2 Legal Protection for Employees/Labor in PWKT

In the Government Regulation No 13, 2003 on Labour, legal protection for the labours/employees has already regulated, including those involved in PKWT. It aims to maintain a harmonic cooperation between the labours/employments and the employer(s). Some of the protections (Tapongangoy, 2013) are as follows:

1. Protection Against Permanent Jobs

Government Regulation No 13 Article 59 subsection 1, 2003, clearly states that labours/employees with PKWT can only commence work in specific time, including:

1. One time or temporary work
2. Not more than 3 years work
3. Seasonal work
4. Work related to new product, new process or on trial excess products.

When the above terms are violated, when a PKWT employee is given a non-specific time work, the employees' status are turned into PKWTT or permanent employees.

2. Protection on Wages

People work to earn wage for providing his'her family. Therefore, wage is a very important aspect in employees protection (Tapongangoy, 2013).

Payment/waging principles in Government Regulation No 13, 2003, are:

1. Right for payment starts and ends with the work agreement
2. Employer(s) must not differentiate the wage for female and for male employees/labours for the same kind of work.
3. Wage is not paid if the employee does not do what he/she is supposed to do.
4. Wage components consist of basic salary and regular support with the formulation of basic salary is at least 75% of the total salary (article 96)
5. Any demand for disagreement on wage is expired in 2 years after the agreement initiation.

The aforementioned explanation shows that the regulation on PKWT is already sufficient in protecting the rights of the employees/labours, including the requirements to be fulfilled in order to establish a PKWT. The next thing to consider is whether the regulations has been followed or not by both sides involved in PKWT, especially by the IKM owners that still implement informal agreement. In this system, the IKM owners implements profit-sharing system in the waging system.

4. CONCLUSIONS

1. The proposed PKWT in IKM "X" shoud be in written form and contain the company's name, the employee's name, sex, age, address, wage/salary and terms of payment, duration of PKWT and the date of issue and signatures of both sides.
2. The legal protection should follow the Government Regulation No 13, 2003 on Labour in order to appropriately protect the employees.

5. REFERENCES

Analisa, Lucky, wulan., (2011)., *Analisis Pengaruh Motivasi Kerja Dan Lingkungan Kerja Terhadap Kinerja Karyawan*, Skripsi, Fakultas Ekomomi, Universitas Dipenogoro, Semarang.

Hafsah, Mohammad Jafar. (2004)., *Upaya Pengembangan Usaha Kecil dan Menengah*, Infokop, No. 25, Tahun XX.

Hasan, Iqbal, Muhamad., (2002)., *Pokok-pokokMeteriMetodologiPenelitiandanAplikasinya*, Jakarta: Ghalia Indonesia, hal 11.

Keputusan Menteri Tenaga Kerja dan Transmigrasi No. 100.MEN/VI/2004 tentang Ketentuan Perjanjian Kerja Waktu Tertentu

Nazir, M., (1988), *MetodaPenelitian*, Cetakan Ke-3, Jakarta, Ghalia Indonesia, hal 11.

Nawawi, Hadari, (2003), *Manajemen Sumber Daya Manusia Untuk Bisnis yang Kompetitif*, Yogyakarta : Gajah Mada University Press.

Nitisemito, Alex, (2000), *Manajemen Personalia: Manajemen Sumber Daya Manusia*, Jakarta: Ghalia Indonesia.

Tampongangoy, Falentino, (2013), *Penerapan Sistem Perjanjian Kerja Waktu Tertentu di Indonesia*, Lex Privatum, Vol.I/No. 1/ Jan-Mrt/ 2013, Hal 146- 158.

Tim Redaksi Hukum Nuansa Aulia, (2007), *Himpunan Peraturan Perundang-undangan Republik Indonesia Tentang Ketenagakerjaan*, Edisi Revisi, Bandung: CV. Nuansa Aulia, Cet. Ke.2.

Undang-Undang RI Nomor 13 Tahun 2003 tentang *Ketenagakerjaan*

Yuliarti, Vivit., dan Mulyana, Olievia Prabandini., (2014), *Hubungan antara Kecemasan Menghadapai Pensiun dengan Semangat Kerja pada Pegawai PT Pos Indonesia (Persero) Kantor Pusat Surabaya*, Charakter, Vol. 03, Nomor 02 Tahun 2014

Regulating Billboards Outside Public Infrastructure Seen From City Image Point of View: Semarang Case Study

Adi Nugroho, S.Ds.
First author
Soegijapranata Catholic University
adi.nugroho@unika.ac.id

Ir. Robert Rianto Widjaja, MT
Second author
Soegijapranata Catholic University
robert@unika.ac.id

Regulating billboards is one of main priority programs being held by the government of Semarang city. As a capital of Central Java province, the city has five main iconic road corridors namely Simpang Lima area, *Jalan* (street) Pahlawan, *Jalan* Pandanaran, *Jalan* Pemuda and *Jalan* Gajahmada. Latest observation shows these corridors have an increasing significant amount of frenzied billboards in terms of placement and size. However, billboards are of consequence income regarding retribution and taxes. In the other hand, an uncontrolled growth of billboards will affect the visual view of the city and feared to damage the image of the city. This research examines the conception of removing billboards that are exist on Semarang's city infrastructure into any other places, while analysing its impact on the visual image of its surrounding. A number of theories try to evaluate the usage of billboards as medium to construct city image. In the cities of developed countries, there are no billboards as many as Semarang. The area being used of a sample in the research is *Jalan* (street) Pandanaran, predominantly a provincial road connecting eastern part to western part of Java. *Jalan* (street) Pandanaran also commonly known as a centre of souvenirs and gift shops as well as a section of Semarang's golden business triangle. By having a structured simulation of reducing the number of billboards in some section of *Jalan* (street) Pandanaran as a case study, then we can have an early identification on how its impact to the city's image.

Keywords – Billboards, City Image, Revenue

Introduction

Semarang city as the capital of the Central Java province in Indonesia has evolved in many sectors, one of which is the economy. Development in this sector drove investors to provide many contributions to develop the city of Semarang. Construction of multi-storeys buildings as well as urban infrastructures are continuously improving in the past five years. Cosmopolitan urban lifestyle felt increasing steadily throughout the day. These conditions are giving a positive vibes for the city's development but not without trade-offs. Cosmopolites demands comfort in fulfilling their needs. The phenomenon can be seen from the fact that Semarang has an economic growth of 6,4 and 6,2% in 2012 and 2013, with advertisement expenditure has contributed around 10% of total revenue in 2013 (Office of Regional Planning Semarang, 2014). The number of billboards as an advertisement media is also increasing quite significant, in the main iconic road corridors predominantly. In total there are 331 billboard spots in Semarang, in 2012 (Office of Regional Planning Semarang, 2013). 35 spots alone are located in *Jalan* Pandanaran corridor. Many of these billboards are placed on the area of city infrastructure such as; sidewalks or pedestrian way, permanent median strip, selling houses and apartments, cars, restaurants, goods and tourism. Albeit it is a good sign of a stable economy, these billboards on the other hand are creating discomfort, notably in visual comfort of the city because it has blocked the view of the buildings, trees, and city landscape.

City Government of Semarang has came up with plans to reduce billboard spots located on the city infrastructure since 2004 (suaramerdeka.com), but there are no clear guidelines on how and when to execute the policy. We have hypotheses that by removing billboard spots on the city infrastructure can create a better cityscape that can bring a good

city image to the citizens and visitors. But then comes the dillema of how to replace the lost revenues gained by those removed billboard spots? Therefore, this study was conducted with the purpose of: (a). Simulating visually the effects of removing the location of the billboards from the city infrastructure into building plots or elsewhere, (b). Obtaining analysis of specific cases related to the reduction of billboards, (c). Getting the economic analysis of the changes in the revenue of City Government of Semarang from the installation of the billboards' new spots. We only address point a and b in this paper, with a slight of predication on point c by discussing good precedent from other city in Indonesia.



Figure 1. Frenzied giant size billboards placed on city infrastructure on Jalan Pandanaran (2014).

Literature and Theory

Indonesia is at fourth position globally for advertising expenditures, just below United States of America, China, and Argentina in 2012-2015 (zenithoptimedia.com, 2013). In 2013, Indonesian ad-expenditures have reached 66 Trillion Rupiah, of which around 5-6% is generated by Out-of-Home media such as billboards, digitally or non-digitally with 20% growth rate compared to previous 15% in 2012 (Ad Quest AC Nielsen as quoted in Aegis Global Advertising Expenditure Report, 2013). In 2013, revenue gathered from billboard tax in Semarang city is reaching a noteworthy amount of 14-15 billion (kabar24.bisnis.com).

Billboard is a form of Out-of-Home advertising or simply put an outdoor advertising. An Out-of-Home media is defined as a visual communication media located outside of a household environment (Indonesian Advertising Council, 2014). Unfortunately billboard in Indonesia is yet to be classified, for there is no specific standardized reference, whether it is from the government or from the industry. For this research, we use a global standard from several out-of-home media advertisement associations such as in Australia or North America. Based on its technology, a billboard can be categorized as digital billboard and non-digital billboard ("*Digital billboards and road safety: An analysis of current policy and research findings*", 2010). In major cities around Indonesia, such as Semarang, billboards are often built in giant size with many different dimensions in purpose of targeting car or motorcycle driver. In larger part, those billboards are non-digital.

Giant size billboards with variety of pictures and images on its surface will create a constructed communication using visual languages. As a visual communication, that images as a form will carry messages as a content and being unified as a perception in the mind of its audiences. This perceiving process is a creation of meaning, and it will be influenced by the presence of the audience and its surroundings. In this particular context, these surroundings are the environment located nearby the spots of the billboards. By that notion, we can suggest that an experience of seeing a billboard as a visual communication medium, in a city built environment will also fabricate a spatial concept of the city. We explore some arguments to support this idea. Ciolfi (2004), suggested that a city's spatial concept will always be of ascendancy from human concept as individual or communal entity. This opinion is substantiate by the thought of a city's spatial concept was not formed only by the connection of the citizens and its surroundings, but also on how did they communicate with it and celebrate that communication process (Ellin, 2006). Another perspective stated that an individual experience with a place or spatial concept that being triggered visually, would create a localized feelings and emotions (Bachelard, 1958) as well as generating pride and ownership (Hannigan, 1998) towards the place. As a result, experiencing a spatial concept will effect the creation of perception and image generating process of the city, inside the mind of the audiences. A city with frenzied billboards will provide an unsatisfactory performance regarding its image, and will be perceived unenthusiastically by its citizens or visitors.

Data and Methods

After examining literatures and theories, we evaluated the regulation about billboards in the

jurisdiction of Semarang city. Local Regulation of Semarang City Nr. 14/2012 on The Implementation of Advertisement article 2 still asserted that billboards are placed on the city infrastructure although the thoughts of removing it outside was already initiated since 2004, as mentioned above. In the article 5, we spotted a division and perimeter of what is meant by city infrastructure and/or non-city infrastructure. There are 14 places to be categorized as city infrastructure, among them are; sidewalks, bus stops, pedestrian overpass and police outposts. Whilst the category of non-city infrastructure are; parcels owned by individual or city government, façade or top of a building, highways or railroads, air/seaports, and public aerial space.

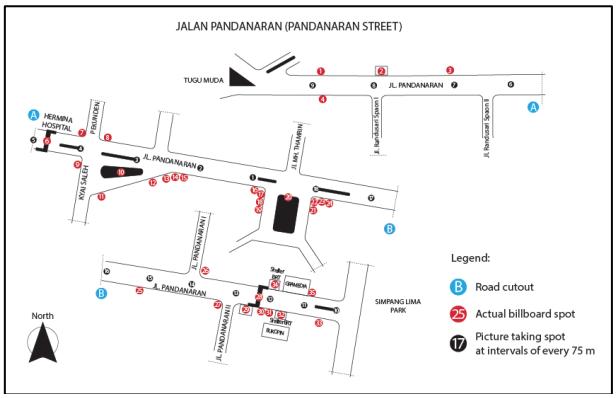


Figure 2. Mapping for billboard spots and spots for taking pictures alongside Jalan Pandanaran (Analysis, 2014).

Subsequent to identifying and mapping the initial problems and situations, we then established research method as following: (1). Acquiring visual data by taking sequential photographs of Jalan Pandanaran at intervals of every 75 meter based on the eight cardinal and ordinal directions to incorporate continuous display of current visual impact, (2). Then a comparison is made by analyzing maps and data related to billboards in Jalan Pandanaran obtained through the Bureau of Street Lighting and Billboard Tax Semarang City, (3). Compiling data by grouping similar cases along the road corridor and identifying problems on the ability of nearby ideal spots for receiving billboards, (4). Simulating new potential and realistic billboard spots by moving current spots into existing nearby buildings or into another place existed on Jalan Pandanaran to aspire good visual will influence the city's image positively, (5). Contributing to local government policy by proposing new layout and dimension categories.

Result and Discussion

As a result of the analysis, we came up with four billboards spots removal categories and its treatment; (1). Billboards moved to area near its original spots with three sub-categories, (2). Billboards moved to other places alongside the road corridor with two sub-categories, (3). Billboard spot is deleted, and (4). Billboard stays in its original spot (see Table 1. for detail).

Table 1. Proposed removal categories and suggested billboards dimension (Analysis, 2014).

NO	*REMOVAL CATEGORY*	*DIMENSION*
1.A	Billboards moved to area near its current spot	As it is now
1.B	Billboards moved to area near its current spot and stamped on the building	4mx6m and 4mx8m
1.C	Billboards moved to area near its current spot and stamped on the façade of the building	4mx6m and 4mx8m
2.A	Billboards moved to other places and placed into the building parcels	As it is now
2.B	Billboards moved to other places and placed on top the building	4mx6m and 4mx8m
2.C	Billboards moved to other places and placed in front the façade	4mx6m and 4mx8m
2.D	Billboards moved to other places or in front of the facade collectively (Digital billboard: Videotron)	4mx6m and 4mx12m
2.E	Billboards moved to other places collectively (Non digital billboard)	4mx6m and 4mx8m, one spot for six commercials
3	Billboard spot is deleted	N/A
4	Still on its current place (not moved)	As it is now

Afterwards, we attained several visual impacts on *Jalan* Pandanaran by doing a digital simulation using photo editing software. In a specific case, we necessitated on deleting billboards being placed surrounding an intersection (Figure 4). Although we have carefully examined laws and regulations within the jurisdiction of Republic of Indonesia with unfortunate result; none stated clearly about how to regulate billboards placed in a junction.

Therefore, the necessity were called as a judgment based on visual and safety impact only.

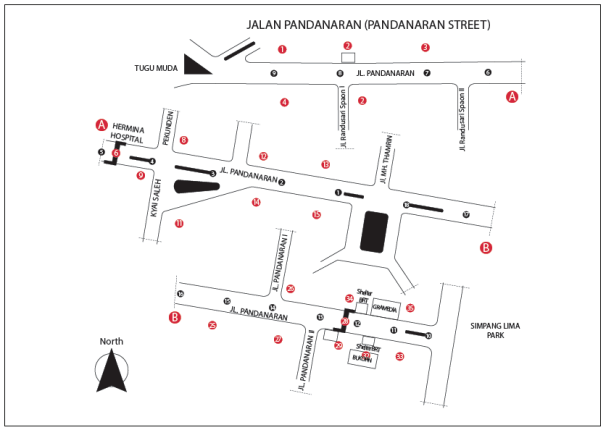


Figure 3. Simulation of the new proposed layout of billboard spots with proposed removal categories as considerations (Analysis, 2014).



Figure 4. Up: Simulation of category 3, deletion of billboard spots located in a junction. Below: Simulation of category 2.A (Analysis, 2014).

As mentioned above, some section of *Jalan* Pandanaran is well known for center of souvenirs and gift shops. In this particular section we proposed to install a digital billboard to enhance its image, by using LED (Light-Emitting Diode) façade or LED billboard, acknowledged by the local authorities as Videotron.



Figure 5. Simulation of category 2.D, implementation of LED façade or LED billboard on *Jalan* Pandanaran (Analysis, 2014).

The use of digital billboards can also be a solution to replace the lost revenues caused by the deletion of 11 out of current 35 billboard spots. This has been precedented by The Provincial Government of Jakarta, an LED billboard has become a new revenue source regarding fibre optic channel construction and energy consumption tax (*Aegis Global Advertising Expenditure Report*, 2013). Further research upon this recommendation is needed.

Acknowledgement

Funding of this research was provided by The Bureau of Street Lighting and Billboard Tax Semarang City in 2014. Therefore findings and recommendations were given to the bureau as an accurate information about simulating billboards removal outside of the city infrastructure, in particular from the visual image and the aesthetics of city appearance point of view.

References

Aegis Global Advertising Expenditure Report, (2013), Retrieved June 15th 2015, from http://dentsuaegis.at/tl_files/download/Aegis%20Global%20Advertising%20Expenditure%20Report%20-%20May%202013.pdf

Executive summary: Advertising Expenditure Forecasts December 2013, (2013), Retrieved June 16th 2015 from http://www.zenithoptimedia.com/wp-content/uploads/2013/12/Adspend-forecasts-December-2013-executive-summary.pdf

Bachelard, Gaston, (1958/1994), *The Poetic of Space*, Beacon Press, Boston

Ciolfi, Luigina, (2004), *Understanding Spaces as Places: Extending Interacton Design Paradigms,* Cognition Technology and Work Journal, Vol. 6, No. 1, Springer, Berlin

Ellin, Nan, (2006), *Integral Urbanism*, Routledge, London

Hannigan, J, (1998), *Fantasy City: Pleasure and Profit in the Postmodern Metropolis,* Routledge, London

Semarang City's Regional Economy Analysis 2013, (2014), Office of Statistics Semarang City and Office of Regional Planning Semarang City

Semarang City's Regional Economy Analysis 2012, (2013), Office of Statistics Semarang City and Office of Regional Planning Semarang City

Indonesia Advertising Ethics: Amendment 2014, (2014), Indonesian Advertising Council, Jakarta

Discussion Paper Digital Billboards and Road Safety: An Analysis of Current Policy and Research Findings, (2010), Retrieved January 15th 2015, from http://oma.org.au/__data/assets/pdf_file/0013/3127/Discussion_paper_Digital_signage_and_road_safety_SEPT_2010.pdf

Membabat Hutan Reklame dan Buang Sial Parkir [Cutting Down Billboard Jungle and Removing Bad Luck of Parking System], (2004), Retrieved March 24th 2015, from http://www.suaramerdeka.com/harian/0410/30/kot06.htm

Pajak Reklame: Pemkot Semarang Targetkan Pendapatan Rp1,3 Miliar [Advertising Tax: Semarang City Government Has Targeting a Revenues of 1,3 Million Rupiah] , (2013), Retrieved January 15th 2015, from http://kabar24.bisnis.com/read/20130609/78/143682/pajak-reklame-pemkot-semarang-targetkan-pendapatan-rp13-miliar

Peraturan Daerah Kota Semarang Nomor 14 Tahun 2012 Tentang Penyelenggaran Reklame [Local Regulation of Semarang City Nr. 14/2012 on The Implementation of Advertisement], (2012), Retrieved January 15th 2015, from http://jdihukum.semarangkota.go.id/isi/2012/Perda%2014%20Tahun%202012%20tentang%20Penyelenggaraan%20Reklame.pdf

Effect of Visual Analogy and Design Values In Ideation Phase, Generated by Designers From Different Educational Background

Adi Nugroho
First author
Soegijapranata Catholic University, Indonesia
adi.nugroho@unika.ac.id

Jasmine, Zeng Si-jie
Second author
Beijing Star Software, China
jasmine.zsj@gmail.com

The issue on how designers generating ideas to solve a design problem is being investigated in this research. A variety of empirical studies on the use of visual stimuli and its effect to ideation process of designers has had been conducted by many design researchers. However previous research has focused only in the effect of the stimuli from a clustered group of designers. In the following experiment a selection of two different educational backgrounds of design, architecture and industrial design, is made to obtain new information about the different design values precipitated within the given conception. A qualitative analysis was done as part of assessing the ideas given by research participants. Quantitative analysis of a design solution given by both architects and industrial designers were conducted and reported as further down. The objectives for this research are to find [1.] the effect of visual analogy stimuli into the ideas generated from designers for a specific design problem, [2.] differences of design values from the solutions given by designers from divergent educational background, and [3.] to find the correlation of the design values which used to construct the assessment criteria.

Keywords – visual analogy, visual stimuli, ideation phase, design values, different design educational background

Introduction

Design researchers agreed that design has several definitions. Hegelian perspective may have an influence in the following assertions, as the design process itself, involving dialectic reasoning of creating and solving a problem (Lawson, 1980), which act as a social process (Schon, Bucciarelli, 1987). The problem for designers to solve is more into complex (Badke-Schaub, 2005), ill-defined (Eastman, 1969, Casakin & Goldschmidt, 1999), and contextual (Lawson, 1980). It is the designers' task to reconstruct the problem and make sense of things by creating meanings (Verganti, 2009). This situation will enforce designers to forge a novel solution that eventually leads them and the stakeholders to get out of the problem. Ergo, designers will provide a systematical cognitive approach for progress and movement by synthesizing ideas from its thesis and antithesis.

Being baptized as a visual communicator, designers' activity cannot be detached from sketching activity (McKoy, et al, 2001). Designers communicate using sketches. Not only pouring their idea visually, designers also conducting visual-mental process (Oxman, 1997) as their representation of knowledge (Casakin & Goldschmidt, 1999), and use it as a means of conversation (Schon, 1983, Lawson, 1980). This visual-mental process in ideation has known can be triggered by seeking analogical inspiration (Tseng et.al, 2008). Since designers work in a complex and contextual problem while fabricating a social process, we believe that there are different values

generated from designers of different educational background whilst the visual-mental process is similar. As asserted by Lawson (1980), *"... design does not happen in isolation, but rather, refers to the various social, cultural, and intellectual perspectives on design, to the possibilities of the medium, and to the history or present-day state of one's own field of action."*

Albeit researchers have long studied about the ideation process of designers, not much information can be gathered regarding the effect of the solution given by designers from different educational background being exposed into particular analogical inspiration. A study conducted by Holm (2006) only provides knowledge about the amalgamation of design values generated from both industrial designers and architect. For this reason, one of the main goals of the experiment is to yield the issue and found if there are any differences in the values of design given by designers from different educational background.

Literature and Theory

Graham Wallas (1926) a gestalt psychologist asserted a theory of four stages in creative process ; 1] Preparation, 2] Incubation, 3] Illumination, and 4] Verification. In the incubation stage, often designers endeavor a fuzzy process and non-conscious idea, the stage that has the slightest understanding (Best, 1999 as cited by Snyder et.al, 2004). To help them synthesizing a more concrete idea, designers often trace back their memory and might get a fixated design solution. To cope with this fixation, most of the time designers will look for novelty solution in a form of analogical inspiration by means of graphical representation. An analogy is defined by Goldschmidt (1999) as *"likeness of relations; as in A:B::C:D, or A is related to B like C is related to D."* of which may involving a transfer of associational information from a known situation, to an unknown situation. It seems that the process has become a vicious cycle of fixation, because there's no such thing as truly as novel solution. In this research we will not focus on the fixation, but more into the use of visual analogy representation and its effect to designerss from different educational background. Based on its historical perspective, design has emerged into a social power that can append, alter, adapt, and directing the civilization. As discussed earlier, designers build a cognitive, creative process and they will act as a decision maker on how to solve the ill-defined problem in different context eventually. Nevertheless, designer is an entity, an individual that cannot escape from its portion of the society. Adjacent to that assertion a designer's perspective is now not only focusing more into an individual "*decision maker*", but already become a "*conversation-maker*" (Boland et.al, 1994 as cited by Gasson, 1998).

An architect is making conversation between the people and its environment, in a form of a building, urban planning activity or landscaping. Industrial designer has intentionally produced a conversation of a product with its user. Both are designers, and both are a producer of meaning and moving people into progress, which is an important factor of civilization and defined as part of human nature by Kant (1784). Therefore design itself is as old as human civilization which has a considerable tradition (Heufler, 2004, as cited by Holm, 2006*)* entails plan and intention that submerged into ideas, beliefs and values of the designers and being carried out into a design proposal (Holm, 2006). A design value is defined as the following; *"A scope consisting of : attitudes, beliefs, orientations, and underlying assumptions"*, (Holm, 2006).

In this research, the focus is to go deeper into different design educational background. Western history credence their root of civilization comes from Ancient Greek. An embodiment of human knowledge and intelligence can be transferred in a formal way. The notion was introduce by Plato in 387 AD in a form of institutional concept of Academia, a place of knowledge disputation (Schubert et.al, 1998). Although the concept of academia is the core of design school, its distinguished characteristic of combination of theory and practice has been argued by Holm (2006) as an influence of Judeo-Christianity tradition. The doctrine of master and disciple relationship still can be seen in todays curriculum of a design school, emphasizing the needs of a student to comprehend theoretical matters contiguous with practicality issue. That relationship is a common idiosyncracy found in architecture and industrial design education. Following industrialization and the birth of Bauhaus in Europe in 1919, hence the first modern day design academia, at present design has already become an exclusive word segregated into many clusters and branches. Focusing more into that historical reasoning (of European industrialization), we decided to opt for architecture and industrial design as they grew

along with the revolt of machines and manufacturing.

Similar characteristics shared by architecture and industrial design education are *;* [1.] *emphasis on project based learning,* [2.] *a student/teacher relationship that mimics the traditional master-disciple relationship, and* [3.] *Design educators both consciously and unconsciously instill fundamental value-system into students, especially through design criticism in architectural or industrial design school studios.* (Holm, 2006). While sharing homologous features, both pedagocical systems also share contrasting values, ideas and beliefs.

Data and Methods

We investigated the research conducted by Holm (2006) to provide better understanding in values generated by architect and industrial designer. Holm (2006) asserted five distinctive design values of designers; [1.] Aesthetic, [2.] Social, [3.] Environmental, [4.] Traditional, and [5.] Gender. Within these values, there are sub-values that characterized a composite of ideas and beliefs of which an architect or industrial designers possess. In this research we will only addressing several criteria that we use as a criterion. Succeeding the outline of our research objectives, we stipulated our research question as: *"When provided with a stimulus of Pictorial Distant Analogy how would designers with different educational background to be influenced in their idea generation stage?", and "Is there any difference of values between Architect and Industrial Designers in their ideation?"*

Following that, we postulated hypotheses as following; H1] Pictorial Distant Analogy stimulus has an influence on the idea generation process of designers when it lead to a practical solution for the problem; H2] Different educational background has a certain influence on the performance of designers during their idea generation process; and H3] There are differences in design values of ideas given by designers from different educational background.

Then we set up three experimental conditions in which participants were asked to solve a design problem and present their ideas in a visual way by sketching or drawing although explaining the idea with text was allowed. The first condition is a control condition. In this condition, the participants would be invited to a laboratory designed specifically to monitor an experiment, usually for focus group discussion purpose. They were asked to sit in front of a table where s/he could be videotaped easily. Before the experiment the participant would be asked to fill in a pre-questionnaire with some basic questions about their background. Then we gave the design brief sheet of "How would you design a mode of transportation in 2050?", accompanied with sketch tools like markers and blank A3 sheets to the participant. The participant then started to sketch on the given sheets. He/she was allowed to use his/her own tools but not allowed to draw on both side of a paper. The sketching process would take about 45 minutes and the participant would be informed of the last five minutes time prior to end. The control group consists of 10 designers that were still a student from bachelor and master program, five from architecture and five from industrial design.

After sketching, participants were required to fill a post-questionnaire in which the participant could provide comments on the experiment. The whole experiment last approximately one hour. The researchers didn't interfere into the ideation process, but only giving short, clear answer regarding participant's question about unclear things from the brief or the instruction. The second and third condition were *Distant Pictorial Analogy Condition.* In the second condition the design brief and experiment procedures would be the same as control condition, but participants were industrial design students only. For the third condition, participants were architecture students only. They would be required to solve the same design problem with distant pictorial analogy of a twister presented during the experiment as an inspirational stimulus for idea generation. A group of 10 students from architecture comprise mostly from first year master program students and some already in their second year. Similar condition applied into 10 students from industrial design background. In total there were 30 students joining the experiment. All subjects were acting voluntary and didn't get any reward whatsoever in term of financial or academic related to course credit.

Result and Discussion

Design performances of the participants were assessed in six dimensions with two criterions for every each dimension except one; [1.] Practicality: Ideas are evaluated to be practical or not based on judges' knowledge, [2.] Originality: Ideas are evaluated to be original or not based on judges' experience and comparison to other participants'

ideas, [3.] Contextually: Ideas are evaluated to be elitist or populist, [4.] Conceptualization: Ideas are evaluated to be prompted or impromptu based on previous sketches or textual explanation of the participant, [5.] Functionality: Ideas are evaluated to be artifact or user experience, [6.] Fluency: Number of ideas. For *Practicality* and *Originality*, we use a guideline from previous research by Finke (Smith, Ward, Finke, 1995) on judging an invention. The scale is a pre-setup distinct scale of 1-5 that referring to the practicality and originality of ideas given. Finke stressed that a series of possibilities might emerged based on the scale, and idea can be very practical (VP) but in the same time not original (NO), or the other way around, very original (VO) but not practical (NP) at all.

The other three criteria were constructed from the previous assertion of distinctive design values of designers. A semantic scale is used to assess the category, using semantic descriptor. Then we bring the scale into ordinal. *Contextually* proposed as a criterion, based on the design values of social and environmental. Semantic descriptors for *Contextually* are *Elitist* (EL) and *Populist* (POP). *Elitist* means the idea given by group of designers incorporate an individualistic interaction only. Therefore designers does not really think about the bigger context of the problem and only implementing his own way of thinking, while *Populist* is the opposite. Conceptualization is based on the traditional design value. *Prompted* (PR) means designers were only using their own relevant experience, and may found the ideas given are a bit repetitive. In a way this semantic descriptor is also assessing the degree of innovation. *Impromptu* (IMP) means every design solutions are new, not related to their previous idea.

Table 1. Scale of Assessment Criteria

Evaluation Criteria	***Scale***						
Practicality	NP	1	2	3	4	5	VP
Originality	NO	1	2	3	4	5	VO
Contextually	EL	1	2	3	4	5	POP
Conceptualization	PR	1	2	3	4	5	IMP
Functionality	ART	1	2	3	4	5	UX

The aesthetical value of design is used to raise the *Functionality* criterion. An *Artifact* (ART) of an idea is basically confirming the value of self-expression, where the designers were seeing their position in the problem as an artist. So they only provide some tangible/intangible solution that has no meaning for people or user. Whilst a semantic descriptor of *User Experience* (UX) is elucidating the ideas generated by designers, that are looking more closely into fabricating solution which holds meaning besides trying to incorporate relationship between the idea and its user. Fluency is based only from the number of ideas given as a solution.

The first analysis we did is to find the effect of the stimuli in their ideation. The second was finding any significant differences from two different educational backgrounds. Final analysis was conducted to search any further correlation of the assessment criteria. After analyzing the data collected, it led to conclude that we confirmed only two of our proposed hypotheses. H1 did not support by the statistical analysis of MANOVA Test, because the measured results from the control group and the treatment group shows only one significant different value of functionality. The value of functionality from the treatment group has a lower mean score compared to the control group. This means there is no effect of stimuli on ideas generated by designers. H2 is being confirmed since the result gave an endorsement of different mean for architecture students and industrial design students. H3 also verified by the outcomes of statistical data of repeated Pearson tests, comparing every pair of criterion in the assessment criteria shows a significant difference between different educational background. In other word, industrial designers and architects do not share the same values of design being generated in their ideation phase.

Even though these results are being induced, several things must be taken into consideration such as; small samples of participants joining the experiment and the composition of designers in the control group for ideal condition would be much better suited if it was consists of industrial design and architecture students rather than homogeneity. In this case, albeit we argued that we separate the analysis process and consider them in the first phase as a group of designers, a further research represents the ideal condition would be suggested.

Acknowledgements
This research was basically an experiment being supervised by Dr. Carlos Cardoso and Milene Gonçalves as part of a research group project of "How Designers Get Inspired: the Influence of External Stimuli During Ideation Phases" in the Faculty of Industrial Design Engineering, Delft University of Technology, the Netherlands.

References

Badke-Schaub, P., (2005), *Why Designing is Best to be Described as Complex Problem Solving – and why Designerss are Best to be Described as Human Beings,* unpublished

Casakin, H. and Goldschmidt, G., (1999), *Expertise and the Use of Visual Analogy: Implications for Design Education,* Elsevier Science Ltd.

Eastman, M.C., (1969), *Cognitive Processes and Ill-Defined Problems : a Case Study from Design,* Institute of Physical Planning, Carnegie-Mellon University

Gasson, S., (1998), *Framing Design : A Social Process View of Information System Development,* Drexel University Library

Holm, Ivar, (2006), *Ideas and Beliefs in Architecture and Industrial Design,* Oslo School of Architecture and Design

Kant, Immanuel, (1784), *An Answer to the Question: What is Enlightenment?*, Retrieved February 12th 2011, from http://www.english.upenn.edu/~mgamer/Etexts/kant.html

Lawson, Bryan, (1980), *How Designerss Think,* Architectural Press, Oxford

L.L. Bucciarelli, Schon, D., (1987), *Generic Design Process in Architecture and Engineering : A Conversation Concerning at least Two Design Worlds in NSF Workshop in Design Theory and Methodology,* Oakland, California

McKoy, Felicia L., et al., (2001), *Influence of Design Representation on Effectiveness of Idea Generation,* Proceedings of Design Engineering Techinal Conferences and Computer and Information in Engineering, Pittsburg, Pennsylvania

Oxman, R., (1997), *Design by re-Representation: a Model of Visual Reasoning in Design,* Elsevier Science Ltd.

Schon, D., (1983), *The Reflective Practitioner : How Professionals Think in Action*, Temple Smith, London

Schubert, P., et al., (1998), *A Global Knowledge Medium as a Virtual Community; The NetAcademy Concept,* Institute for Media and Communications Management, University of St. Gallen, Switzerland

Smith, Steven M., Ward, Thomas B., and Finke Ronald A., (1995), *The Creative Cognition Approach*, Massachusetts Institute of Technology

Snyder, et al., (2004), *Nonconscious Idea Generation,* Psychological Reports, 2004, 94, 1325-1330

Tseng, et al., (2008), *Overcoming Blocks in Conceptual Design : The Effects of Open Goals and Analogical Similarity on Idea Generations,* International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, New York, New York

Verganti, Roberto, (2009), *Design-Driven Innovation: Changing the Rules of Competition by Radically Innovating what Things Mean,* Harvard Business Press, Massachusetts

Wallas, Graham, (1926), *The Art of Thought,* Harcourt, Brace and Company, San Diego, California

Study on Experiential Marketing Model of Taiwan's Chocolate Museum

Shih-Ching Lin
Graduate School of Design , Doctoral Program. National Yunlin University of Science and Technology, No.123, University Rd., Sec. 3, Douliou, Yunlin 64002, Taiwan, R. O. C.
malinda0810@gmail.com

Chi-Hsiung Chen
[1]Department of Product Design, Chungyu Institute of Technology,
No. 40, Yi 7th Rd., Keelung 20103, Taiwan, R. O. C.
[2]Graduate School of Creative Design, National Yunlin University of Science and Technology,
No.123, University Rd., Sec. 3, Douliou, Yunlin 64002, Taiwan,R. O. C.
chenchs@yuntech.edu.tw

Abstract **—**Due to the influence of globalization upon local culture, the policies of Taiwan's government have been actively guiding and promoting local cultural industries, and thus, many traditional industries actively move toward the promotion of localization of their corporate cultures. In addition to deeply rooting local culture on the enterprise of the chocolate museum, it will invest a great number of resources in industrial transformation as chocolate is loved by Taiwanese. The food business uses chocolate as an ingredient for its products and makes it sweet and tasty food. In addition to selling its products on the market, the business also founded a chocolate museum and tourism factory to provide a venue for consumers to learn about the manufacturing process of chocolate products and to elevate their sense of trust and participation. Therefore, interactive strategies were gradually valued, and that manufacturing industry moved toward tourism, which can be regarded as a trend in the age of knowledge economy. This study conducted an indepthresearch by investigating and analyzing of case study for HunyaRepublic of Chocolate. Moreover, SWOT analysis was conducted to comprehend the strategic aspect of its experiential marketing. Last but not the least, based on the results of the analysis, an experiential marketing model was constructed. This study finally got two conclusions as below: (1) The execution aspects of Hunya Foods' Republic of Chocolate regarding experience design include constructing experience quality, promoting community links, strengthening basic service and providing multiple marketing channels. (2) Republic of Chocolate adopts static exhibitions, dynamic displays, hands-on experience, and films and theaters to improve consumers' internal imagination and external experience during visits.

Keywords **–*Keywords: Experiential marketing, experience factory, cultural industry; marketing strategy.***

1. INTRODUCTION

With the evolution of the times, advancement of technology and change of theenvironment, Taiwan's industries also face great changes. Although the traditional manufacturing industry has brought an economic miracle, it has to face huge industrial transformation. Since 2002, the cultural and creative industry has been included in Taiwan's National

Development Plan, showing that cultural economy is gradually valued in Taiwan, and that industries are starting to transform. Many industries have integrated culture into their management concepts to create new value. When economy is highly developed, people's life becomes affluent, and thus, basic physical needs are upgraded to the spiritual level (i.e. the cultivation and demand of the cultural level). At present, industrial culture is valued due to a great amount of cultural consumption. In addition, as the manufacturing industry has experienced rise and fall, it begins to invest its corporate culture in the cultivation of local culture in recent years. Therefore, the establishment of tourism factories enables consumers to comprehend corporate culture, to learn more about the manufacturing process of a product and thereby to elevate their confidence.

In recent years, tourism factories have introduced their corporate concepts, manufacturing processes and traditional processing methods to the tourism and travel market with an experiential model. By interactive experience design, consumers can identify themselves with the manufacturing process of a product, and consumption emotions can thus be generated during the experience to elevate corporate value. As chocolate products are loved by consumers, the food business has been urged to establish some relevant experience venues including a tourism factory and chocolate museum. Therefore, this study will probe into the experiential model of this chocolate factory in Taiwan. The objectives of the study are as follows:

1. To analyze the experiential strategies of Republic of Chocolate through case study and SWOT analysis.
2. To analyze and probe into the experiential model of Republic of Chocolate.

2.Literature Review

2.1 Experience Economy

Pine & Gilmore (1999) indicated that experience is a good feeling derived from a perfectly balanced status formed in one's consciousness when one's physical strength, emotions, intelligence and spirit reach a certain level. Two people cannot have exactly similar experience because any experience is the result of interaction of one's mental state and an event. Schmitt (1999) proposed that experience is a response to stimulation, and it is usually not a spontaneous but an induced perspective. The process of experience includes the entire nature of life no matter the event is real, dreamy or virtual. The response usually results from direct observation of or participation in an event. Yao-Wen Chang (2010) started from the experience of personal sense perception to the experience of consumer behavior, and he pointed out that when experience enters the society, consumption and experience have become closely related. Consumption is the foundation of pushing economy forward, and economic patterns change with consumer behavior. Since experiential consumption has been formed, a new economic pattern—experience economy—has formally arrived.

According to Pine II & Gilmore (2003), experience has been divided into four aspects including recreation, education, escape from reality and aesthetics as in the following figure based on its participation degrees and connection types. They further illustrated the utility of the four aspects in constructing sense experience. Recreation makes people obtain the sense of participation through passive experience, the meaning of education is to satisfy people's desire to learn, escape from reality provides unreal imagery and space to satisfy people's imagination, and aesthetics attract people to visit a venue personally. The interweaving of the four aspects has formed scenario experience space to catch people's attention.

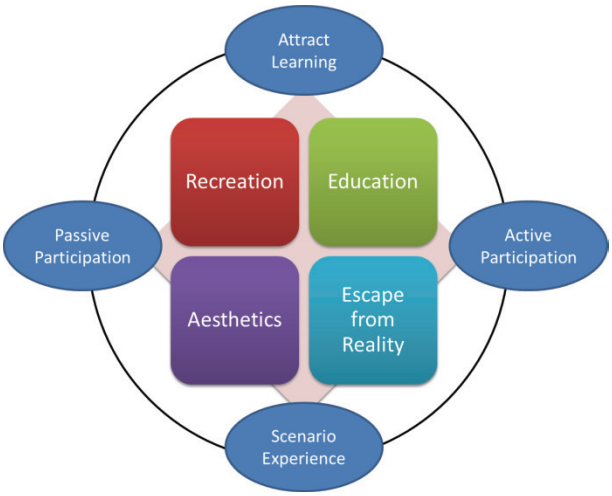


Figure 1. Experiential Model (Pine Ⅱ & Gilmore, 2003 and this study.)

2.2 Tourism Factory

According to "Guidelines for Factories Providing Tourism Service" promulgated by Industrial Development Bureau, Ministry of Economic Affairs (hereinafter referred to as the Bureau) in 2003, tourism factories are factories which are located in industrial areas governed by the Bureau, and that provide tourism service. The factories have to be complete and continue to produce and process products that they have registered. In addition, they have to manufacture non-hazardous products which have tourism, historical and cultural, and educational value. Factories providing tourism service refer to factories involving in manufacturing and processing and possessing factory registration certificates. In addition, their partial factories, machines and equipment can be used for tourism and recreational purposes, and their DIY experience sections can provide factory visits, hands-on experience and educational tours. To achieve the above-mentioned functions, tourism factories should be equipped with hands-on and tour facilities, landscape facilities, product exhibitions or sale sections, safety protection facilities, recreational facilities and parking lots to provide tourism and recreational service for tourists (Industrial Development Bureau, Ministry of Economic Affairs, 2003). Requirements for a successful tourism factory proposed by Director Chong-Qing Li (2003) of Central Office of Ministry of Economic Affairs are as follows:

1. To satisfy basic needs of tourism: To satisfy consumers' basic expectation of tourism, tourism factories have to provide information about tourist attractions, sell souvenirs and conduct DIY experience activities. They have to achieve the minimum standard to create the maximum value.

2. To comprehend its operation: The function makes tourism factories different from other forms of tourism. Consumers can comprehend the entire manufacturing process of a product by visiting the production line of a tourism factory, and this is a feature that a tourism factory is greatly promoted.

3. Products: In addition to emphasizing their unique and rare features, products should contain cultural meanings and integrate with daily needs to make them practical.

4. To integrate with local communities: Tourism factories have to integrate with local communities and make more media exposure opportunities to urge tour groups to visit communities built by tourism factories

3. Research Design

3.1 Research Method

This study probed into the experiential model and relevant documents about tourism factories from the angle of experience economy by documentary analysis. In addition, the study analyzed the experience design and activities of Hunya Foods' Republic of Chocolate, the subject of the case study, with the observation method. Moreover, SWOT analysis was conducted to comprehend the strategies of its experience design. Last but not the least, based on the results of the analysis, its experiential model was analyzed as well.

3.2 Research Procedure

The research procedure of this study is divided into the following four stages:

Table 1. Research Steps

Stage	Content	Illustration
First Stage	Research Background and Objective	To illustrate research background and draft related objectives.
Second Stage	Data Collection	To collect relevant documents about experiential economy and tourism factories for follow-up research.
Third Stage	Drafting of Research Methods	Case study and SWOT.
Fourth Stage	Results and Discussion	To comprehend the application of its experiential strategies with the case study method and SWOT analysis. To analyze its experiential model based on above documents.
Fifth Stage	Conclusion	Research conclusions are proposed based on aforementioned analysis results.

4. Research Design

4.1 Development Overview of Hunya Foods' Republic of Chocolate

Republic of Chocolate is a chocolate museum founded by Hunya Foods in 2012. The museum looks like a piece of premium chocolate being opened, and it has opened up a rich and sweet kingdom of dreams for Taiwan's chocolate industry. The enterprise has created a tourism factory for tourists to gain knowledge of chocolate and to experience under the background of 77 Nougat Chocolate, a product of Hunya Foods.

4.1.1 Current Status of Market

Located in Taoyuan, Taiwan, Republic of Chocolate possesses the cultural relics of chocolate with 3500 years of history and introduces the development process of the latest techniques to produce chocolate. It is a research center for Hunya Foods to develop chocolate, providing fun for the public to participate and experience personally. Republic of Chocolate became renowned after Ti Amo Chocolate, an idol drama, was shot here when it was opened. In addition, by renting the site and being invested by films, the tourism factory has become well-known among young people on the market. Moreover, it has been selected one of tourist attractions of Taoyuan Little Wulai Line in the project of Taiwan Trips by Tourism Bureau, Ministry of Transportation and Communications, so it has become one of must-visit tourist attractions in Taoyuan. Consumers who visit the tourism factory include families, tour groups and individual tourists on holidays.

At present, Republic of Chocolate serves as an experience factory which provides DIY activities. In addition, products it sells are the products of Hunya Foods. The experience factory enables consumers to comprehend the manufacturing process and methods of its products, and thereby elevates their confidence.

4.1.2 Current Status of Products and Service

"77 Nougat Chocolate" is a snack many Taiwanese have been eating since they were little. However, with the evolution of the times and the rise of experience economy, Hunya Foods has realized that it has to provide consumers with more and director service if the traditional food industry intends to keep up with the change of the consumer market. Therefore, the enterprise opened its chocolate-manufacturing factory to offer experience courses for consumers to acquire the manufacturing process of processed food products. In addition, it hopes to elevate consumers' confidence in the products through its transparent manufacturing process. Moreover, inside the chocolate museum, various exhibition sections offering five-sense

experience provide different chocolate scents for consumers to experience in addition to displaying knowledge and stories related to chocolate. Besides its software service, the museum also has a large audio-visual room where films are played to make consumers love chocolate and Republic of Chocolate more.

In addition to the chocolate products of Hunya Foods, commodities related to Chotty and Cotty, two mascots of Republic of Chocolate, have also been designed. In addition, Hunya Foods has integrated "Nougat Monsters," miniature building blocks designed by TICO, with its creative products, and consumers can get the gift for free if they purchase a chocolate gift package. The gift will help extend consumers' memories of the visit after they leave the museum.

4.1.3 Current Status of Consumers

Republic of Chocolate is divided into three areas including the factory, the chocolate museum, and outside the museum, and each area has been planned for different consumer groups. At present, consumers on weekdays are chiefly group visitors, and as reservations are required for some part of the factory, quite a few educational and tour groups are attracted to visit the factory. On holidays, however, visitors are mainly individual tourists who visit the chocolate museum to experience chocolate DIY activities and interactive exhibitions. In addition, to improve its experience activities, Republic of Chocolate irregularly holds various events on different holidays and provides promotions to attract nearby residents to participate in the events to make sure its innovative events can constantly attract more tourists.

4.1.4 Current Status of Competition

In recent years, with the rise of experience economy, experience museums are springing up like mushrooms. In addition to the establishment of Republic of Chocolate of Hunya Foods in 2012, an enterprise in Taiwan also opened up World Chocolate Wonderland in Tamsui, New Taipei City in 2014, which has become a featured tourist attraction and new spotlight for chocolate tourism. Although the two chocolate-themed museums seem similar, experience activities they provide bring distinct feelings to consumers. Compared with World Chocolate Wonderland which is run as a museum, Republic of Chocolate has greater competitive advantages because it has a factory which exhibits its manufacturing process and an outdoor interactive area. In addition, consumers' confidence in its products can be elevated, and their emotional factors toward experience activities can be strengthened due to its transparent manufacturing process.

4.2 SWOT Analysis and Coping Strategies of Republic of Chocolate

4.2.1 SWOT Analysis of Republic of Chocolate

Based on the analysis of current statuses of Republic of Chocolate, this study analyzed its SWOT as shown on Table 2.

Table 2. SWOT Analysis of Republic of Chocolate

Strengths (S)	Weaknesses (W)
S1:The museum has been included in one of itineraries of Taiwan Trips of Tourism Bureau. S2:Its factory is opened for experience. S3:Festivals are held irregularly. S4:Micro films are promoted in the museum only. S5:A distinctive chocolate restaurant has been established. S6:Tour service is provided at scheduled time. S7:The museum can be rented to shoot idol dramas.	W1:Most illustration in the museum is words. W2:There are only few creative chocolate-related products. W3:Facilities outside the museum do not correlate with chocolate. W4:The museum is a little far away from the nearest bus stop. W5:Tickets cannot be purchased in advance. Visitors have to stand in a line to purchase tickets before entering the museum.
Opportunities (O)	**Threats (T)**
O1: The government promotes cultural and creative industry and experience economy. O2: Children's education and parent-child interaction are valued. O3: The museum has large hinterland and space for activities. O4: Film marketing helps elevate the exposure rate of the museum. O5: The museum provides free shuttle bus service.	T1: Museums with the same theme are established. T2: The issue of food safety is reexamined. T3: The connection of tourist attractions around the museum is not perfect.

4.2.2 Coping Strategies of SWOT Analysis

(1) Coping Strategies of SO Analysis

SO1:To elevate the exposure rate of the museum through film marketing.

SO2: Festivals can be held irregularly at the large hinterland inside and outside the

museum to attract community residents to participate in the events and to achieve the objective of community links.

SO3: To install a parent-child interactive area and add interactive items.

(2) Coping Strategies of WO Analysis

WO1: To integrate existing resources to make experience service its chief execution item.

WO2: To draw support from human resources of Taiwan's creative design to elevate the diversity of the museum's products.

WO3: Free shuttle buses can go directly to the museum's parking lot to avoid the distant route from the main road to the museum.

(3) Coping Strategies of ST Analysis

ST1: To strengthen the experience design of the tourism factory and show the diversity of experience.

ST2:Its transparent food manufacturing process can increase consumers' confidence.

ST3: Festivals can be held to attract community residents to participate to elevate community links.

(4) Coping Strategies of WT Analysis

WT1: To strengthen training for tour guides to provide lively interactive experience.

WT2: To improve the museum's route planning and shuttle bus service.

4.2.3 Experiential Model of Republic of Chocolate

The aforementioned coping strategies of SWOT can be divided into four execution aspects to make Republic of Chocolate become a cultural and creative industry providing experience tourism. The first aspect is to construct experience quality. In addition to personnel training and the establishment of hardware facilities, the improvement of experience quality can elevate its brand value. The second aspect is to promote community links. It can promote the rise of nearby tourism industry and create a new cultural settlement. The third aspect is to strengthen basic service. It includes transportation, service, and hardware facilities, and it aims to provide consumers with a safe, convenient, clean and hygienic environment to improve the smoothness and integrity of an experience process. The fourth aspect is to make the best use of multiple channels to improve the reputation of the brand among consumers.

4.3 Experiential Model of Republic of Chocolate

Through the above analysis, this study divided the experience types of Republic of Chocolate into static exhibitions, dynamic displays, hands-on experience, and films and theaters to strengthen consumers' experience and memories through internalized scenario imagination and external hands-on experience and interactive tours. The study analyzed and probed into the four experience types, and drew a model figure as on Figure 2.

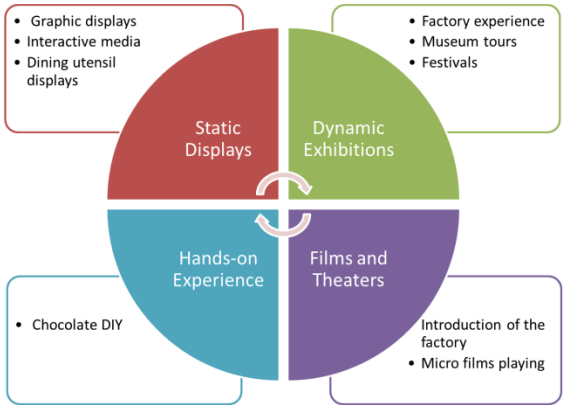


Figure 2 Experiential Model of Republic of Chocolate (Drawn by this study.)

5. Conclusion

Based on their services and products, enterprises create new sense experience and value identification from a daily scenario to catch consumers' attention and enable them to re-recognize rational and perceptual consumption consciousness to further change

their consumption behavior (Nan-Yang Wei, 2005). Experience economy aims to change consumers' fixed impressions of products and services, and thus, through transparent manufacturing processes and direct contact, it is easy to elevate consumers' trust of a certain brand and product, and thereby promote its brand value. This study conducted SWOT analysis to comprehend the strategies of Republic of Chocolate, and its experiential marketing model was further drafted. The two results of the study are as follows:

1. **The execution aspects of Hunya Foods' Republic of Chocolate regarding experience design include constructing experience quality, promoting community links, strengthening basic service and providing multiple marketing channels.**

Through service quality and the planning of experience design, consumers obtain different knowledge and experience from multiple experiential models. Moreover, through the rental of the venue for shooting films and dramas, consumers' memories can be linked to increase the customer return rate.

2. **Republic of Chocolate adopts static exhibitions, dynamic displays, hands-on experience, and films and theaters to improve consumers' internal imagination and external experience during visits.**

Through micro films the tourism factory plays, consumers embrace the idea that the chocolate of Republic of Chocolate is the most delicious chocolate in the world. In addition, through interactive tours, consumers gain knowledge of chocolate. Last but not the least, through hands-on experience, consumers' confidence in DIY activities is elevated, and a complete experience procedure from inside to outside is thus created.

REFERENCES

Journal article

Pine, II B. J. & Gilmore, J.H. (1999). The Experience Economy: Work as theater and every business a stage. Boston, Harvard Business School Press.

Pine, II B. J. & Gilmore, J. H. (1998). Welcome to the Experience Economy. Harvard Business Review, Vol. 4, pp. 97-105.

Schmitt, B. (1999), Experiential Marketing, N Y: The Free Press.

Chang, Yao-Wen (2010). A Research on Subcultural Product at Experience Economy—Designer Toys as an Example. Thesis of Graduate Institute of Industrial Design, Huafan University.

Nan-Yang Wei (2005). Wow! 21 Marketing Tricks You Must Know. Woer Press.

Website of Republic of Chocolate: http://www.republicofchocolate.com.tw/

Indonesian's Convivial Society Products

Kumara Sadana P.S.Ds.,M.A.
DMP-UBAYA,Indonesia
Kumy01@yahoo.com

Abstract **—**Indonesia has an endless diversity of natural resources and human craftsmanship expertise. Many outstanding and timeless architectural, graphic and product designs have been produced since ages ago. These products were developed from convivial society that Indonesian people called "Kampung". This project focuses on the possibility to create a new businesses based on local geniuses design and creativity. Design tourism, as new term, can be categorized as eco-tourism because it uses the principle for sustainable development, respect the environment and local culture. It's also using several key aspect in cultural tourism which containing lifestyle of people in term of art, architecture and design. Using Indonesian convivial society graphic-products-architect's data and benchmarking NGO's in responsible tourism provider Jakarta Hidden Tour. The result is a business plan of convivial society tour in Indonesia. Targeting international tourist and domestic, a specific niche market designs for professional designer, academician, researcher, or creative enthusiast. Visitors also can "experiencing", "participating" and "learning" in social impact programme, give donation, join the workshop, and share knowledge through our co-creation education platform. Author want to give benefit to create a transformation in business design to social and cultural sector.

Keywords **– business model, convivial society, design tourism, tourism**.

1. INTRODUCTION

It's started by the diversity of Indonesian culture, an archipelago country which very well known because of the richness of it's culture, ethnic group, design and architecture. Bali for instance, famous because of the traditional dances, costumes, musical instruments, architectures. Mean while, in other areas in Indonesia that also has an amazing culture and design that is not less great than Bali, deserve to be proud of and displayed as tourist excursions. *Angklung* for instance, a traditional musical instrument made of bamboo from Bandung in West Java. The product that emerged from the craftsmanship skill of Indonesia's native designer which has existed since time immemorial, without any role of the designer who has a background of higher education in the field of design. The collection of artist-designer-architect is emerging in the community called convivial society. A society that has an existence of sublime creativity to be proud of. Amazingly, there are thousands society like these in Indonesia, according to the culture and the diverse tribes in various islands in Indonesia.

But unfortunately, these design riches buried hundreds of years, drowned by the frenzied modernization and globalization. Idea of creativity, originality of function, quality of products produced equally by cultures from Bali, Yogyakarta, which was recorded as the highest area of cultural tourism visitor was in Indonesia. Therefore, based on the quality of

convivial society, architecture, graphic product, the writer wishes to realize these design tourism business models.

Design tourism is a new term that will be introduced in this paper, it is closely related to cultural tourism, which also talking about art and culture, it is also closely related to the core of creative tourism activities like experiencing, participating, learning from the object of the visit. Design tourism will be specifically collaborating actively tourist activities in a more specific subject of the culture-graphics-architecture product. Aware of a very new topic in the field of tourism, the authors recognize the needs for a comprehensive research on the destination of design tourism. Also need support from local communities as the main actor of convivial society. As well as cater and the sustainability of the society and their design. So it needs to be raised a tourism activities based on eco-tourism principle that brings education content, for local communities and for visitors, to prove the principle of traveler's philanthropy.

2. FUNDAMENTAL THEORY

2.1 Tourism

The World Tourism Organization defines tourists as people "traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes. Tourism industry is a fast developing sector for the economy worldwide. Statistical data suggests that the tourism industry in the global scenario makes up 11% of GDP. There was a growth of 9% in Asia and Pacific. Tourism industry trends also suggest that as many as 200 mill. people are engaged worldwide in the tourism industry. Tourism in Indonesia is an important component of the Indonesian economy.

2.2 Eco-Tourism

Ecotourism is "Responsible travel to natural areas that conserves the environment and improves the well-being of local people." (TIES, 1990). Martha Honey, expands on the TIES definition by describing the seven characteristics of ecotourism, ecotourism is about uniting conservation, communities, and sustainable travel.

Author define the feedback from visitors by showing current trend of travellers philanthropy. So during the project author can smuggle the education and travellers philanthropy concept in business model. Travelers' Philanthropy is a growing international trend in which travelers and companies in the tourism industry give financial resources, time, and expertise to increase the well being of local communities. As defined by CREST's newly published *Travelers' Philanthropy Handbook.*
Eco-tourism has not been optimally developed in Indonesia, something that could be done by utilising its high potential (related to the diversity of its flora, fauna and culture). It is generally believed that less than 5% of Indonesian tourism revenue comes from eco-tourism (Sudarto, 1999). There is a vision in the country that tourism will be the main source of foreign exchange within the next 10 years.

2.3 Cultural & Creative Tourism

Cultural tourism is the subset of tourismconcerned with a country or region's culture, specifically the lifestyle of the people in those geographical areas, the history of those people, their art, architecture, religion, and other elements that helped shape their way of life, including design (OECD, 2010). Creative tourism is a form of cultural tourism (Ohridska-Olson, R. 2010).

Although creative tourism is generally perceived as a form of cultural tourism it is essentially different from the mainstream cultural tourism. While traditional cultural tourism is based on "viewing", "seeing" and "contemplating" (e.g. visiting museums, art galleries), creative tourism is based on "experiencing", "participating" and "learning". This puts creative tourism as the next generation of cultural tourism that satisfies the higher level need of self-actualization with a primary focus of active skill development.

The Indonesian archipelago harbors many ancient cultures that are rooted here. On 2 October 2009, UNESCO recognized Indonesia's "Batik" as World Intangible Cultural Heritage, adding to the earlier recognized Indonesia's "*Keris*" (the wavy blade dagger), and the "*Wayang*" shadow puppets. Further being considered as World Heritage is the "*Angklung*" bamboo musical instrument from West Java, being uniquely Indonesian.

2.4 Convivial Society

Ivan Illich, Tools for Conviviality (1973) wrote that convivial society is a society that has freedom in running their daily life. They are built with the possibility of each of its members to run its system of social life independently without the help of others. Designs that living in such a society, must be the designs that are actually understated, easy to use, the material there is around and the community to create their own. Based on Illich sociology design is implementation and development of technology and the concept of convivial society. Science is used to simplify the design of tools to enable the cloud to be easy to use, completely unpretentious and can be made by the public.

Many products are functional and aesthetic have been produced a long time ago, such as *gendonganjamu*, *kentongan*, *bedug, becak*, *delman*, *angklung*, etc. Those products are appear without the participation of product designer which earned formal education in the modern era. These genius product design appear without known the history, product concept. Suddenly, the product has been attending in community since ancient times. This products came from the society in rural areas called kampung, a traditional convivial society in Indonesia. A kampung or village is a clustered human

settlement or community, with the population ranging from a few hundred to a few thousand. Convivial society in Indonesia are very unique, cultural hereditary from ancestor made each society has it's own character and identity. Often several kampung produce craft based on those skill. Kampung can be recognize by other because they create something unique that cant be made by other. Here are several kampung in Indonesia which recognize global because of their highly craftmanship skill.

Table 1. Convivial society and it'scomodities

Province	Kampung	Product/Service
DKI Jakarta	KampungSetuBabakan, Jagakarsa, South Jakarta	Ondel-ondel maker, betawi art & culture like tanjidor, gamelan
West Java	Tasikmalaya	Payung Geulis
Central Java	Desa Tlogodepok, Kecamatan Mirit, Kebumen	Wayanggolek
Central Java	Blumbang, Tawangmangu, Karanganyar	Alu, rice pounder festival
Yogyakarta	Dusun Bobung, Desa Putat, Patuk, Gunung Kidul	Mask for Topeng dance
East Java	Kampung Jetis Sidoarjo	Batik traditional fabrigues
Bali	Desa Tenganan, Karang Anyar	Woven fabric
West Nusa Tenggara	Desa Sukarara, Sasak community, Lombok	Traditional woven for tapestry
East Nusa Tenggara	Desa Oebelo, Kecamatan Kupang Tengah	Sasando music instrument
Papua	Kampung Asei pulau, Kabupaten Jayapura	Kombo wood craft
Cetral Sulawesi	Desa Limboro, Donggala	Ulos, traditional fabrics
North Sumatra	Medan	Tilapia leather

Source: Putra, 2011

3. METHODS

3.1. Focus Company Studies

Poverty tourism, Jakarta Hidden Tours

From http://realjakarta.blogspot.itJakarta Hidden Tour (JHT), provide an unregular eco-tourism, a poverty tours. JHT will take tourists on a journey that cannot be done by inexperienced persons, not only gave an experience to participants but also knowledge, concern and awareness about humanity, environment, especially cultural dialogues. Here are some tour packages that JHT over for poverty tours; all of the packages stand in Jakarta area. There are 5 main tours, categorized by the size of participants who join, area where going to be visit and time duration. Poverty tourism or slum tourism' is a type of tourism that involves visiting impoverished areas, which has become

increasingly prominent in several developing countries. The concept began in poor sections of London and by 1884 had started in Manhattan.

3.2. Business Model Analysis

JHT mainly focus on tourism services, but they also have foundation to make a donation programme. They realize that using this methods will avoid them from the public judgement of voyeurism for using poverty as tourist attraction. JHT demonstrated very well the meaning of community based tourism. For the business canvas model analysis here is some description

Table2. Business model canvas case study

Value preposition	Social –humanity tourism
Key activity	Poverty tourism provider, donation distributor for poor people
Key partnership	Local village community
Key resources	Tour destination
Customer segments	International tourist, care about poverty, 5 – 60 y.o
Customer relationship	Blog
Channels	Blog, social media
Costs	Tour guide, transportation, donation
Revenue streams	Tour fee, charity

Source: author analysis

IV. RESULT

4.1 Design Tourism Definition

From the several definition related to tourism above, we can have clear and deeper relation for the topic chosen that the cultural tourism concern more on the lifestyle of the people in the destination area in term of their art, architecture, design. The author belief that design is a part of culture. Design from several dictionaries can be define as To create or contrive for a particular purpose or effect; plan or convention for the construction of an object or a system; to create or execute in an artistic or highly skilled manner. Author try to define design tourism as a new term, and the definition are:

Traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes to enjoy an artistic environment or highly skilled manner place, see people / designer / artist / craftsmen who plan and create a artistic object or a system.

4.2 Design Tourism, Indonesian Convivial Society Tour

On all convivial society tour, visitors will see the genuine Indonesian design who came from the convivial society. Visitors can traveling to and staying in places outside their usual environment to enjoy an artistic environment or highly skilled manner place, see people plan and create a artistic object or a system.

When passing through the narrow alley in kampung, visitors will undoubtedly feel the sense of community and spirit that exist the area. Villagers live with their local genious and genuine creativity and originality to create product to fullfill their needs. Their spirit of culture creates can give visitor an insightfull of our daily life challenges. Participants will leave with an enlightened sense of the purpose and determination that exist in that society. Design tourism are a genuine social-entrepreneur, some percentages of all profits is used for the activities to empowering the society and its design.

Visit to Indonesia would not be complete without participating, experiencing and making the craft product. Beside the tourism package, design tourism also provide a nice educational and knowledge sharing programmed called convivial society design workshop. After participants have been attract with craftsmanship skilled in convivial society, they can learn how to make the product from the expert directly.

4.3Business Canvas Model

Table 3. Business canvas model

	Desa.Ind
Value preposition	• Provide design tourism package • Empowering convivial society through community based tourism business model • Builds cultural awareness and design conservation • Provides direct financial benefits for local design conservation • Educate convivial society with design in order to developt their local genuine design • Share knowledge of Indonesian convivial society to visitor
Key	• Convivial society research for tourism

activity	destination • Design tourism provider • Educational activities for tourism package (workshop, excurcions) • Donation programme for giving economic benefit to the society, and built account transparency of it on channels • Actively do advertising and promotion through ATL and BTL methods
Key partnership	• Community based tourism researcher • Inbound tourism operator • Local tourism and creative economy biro
Key resources	• Convivial society, a community around Indonesia, who has a craftmanship skill in design-art-architecture field, as main tourist attraction • Manpower for tour guide prospective • Linkage with academician like design university, design community
Customer segments	A niche market with several classifications like: • Academician (student-lecturer-researcher), professional designer-architect-artist • Travellers type: Special interest travellers, education travellers, backpackers • Cultural tourism enthusiast; 15-60 years old; unisex; 50% domestic, 50% international
Customer relationship	Build communication with community, research team, and co-creation customer relationship for community development programme
Channels	Above the line -> Web & blog, social media, design expo, inbound tour operator (ITO), travel Agent, Indonesian Tourism and Creative Industry Biro, travelling programme in TV channels Below the line -> Advertising in travelling website , monthly buletin in design group design mailing list, trade show in design event/festivals, design talks or creative meeting
Costs	Tour guide, transportation, accomodation, community development programme
Revenue streams	Tour fee, donation

Source: author analysis

V. CONCLUSION

Design tourism focuses on the possibility to create a new business of design-tourism, based on local geniuses design and creativity. Using principle of eco-tourism, the direction of the project will create an application model of tourism, education, donation and campaign programme. Targeting 1:1 ratio between international tourist and domestic, a specific niche market designs for professional designer, academician, researcher, or creative enthusiast. Design tourism offers several package of tour from 8 hours, 2 days, until long tour in 5 days. Stay overnight with the society in their environment, unforgettable moment for experience seeker. Touch with local taste tour compliment by using local transportation methods and enjoy local tasteful culinary. The tour destination focus on five main tourism destination in Java and Bali island. Visitors also can "experiencing", "participating" and "learning" in our social impact programme, give donation, join the workshop, and share knowledge through our co-creation education platform. To answer the traveler's philanthropy, Design tourism pledged that 50% of the profits after tax from tourism package would be donated to projects.

REFERENCES

Books

Illich, I., 1973, Tools for Conviviality, Marion Boyars Publishers.

Rudofsky, B., 1964, Architecture Without Architects, University of Mexico Press.

Sachari, A., 2002, Sosiologi Desain, Bandung : Penerbit ITB.

Stickdorn, M., 2009, Service Design in Tourism", in, Helsinki, Taik Publications.

Research reports and papers

Crest, 2011, Analysis of Traveler's Philanthropy Survey Osa Peninsula 2011, Osa Costarica, FundacionCorcovado

Kishi, K., Mar 2011, Meta-Kampung, ICCI Bali Indonesia, ITS

Putra, S. Kumara, 2011, Produk *Convivial Society* Indonesia, Surabaya Indonesia, UBAYA

Web site

www.bps.go.id

www.communitybasedtourism.info

www.ecotourism.org

www.indonesia.travel.com

Personalization as Sustainable Living in Public Space of Apartment

PrasetyoWahyudie
Department of Interior Design/Institute of Technology Sepuluh Nopember, Surabaya Indonesia
Prasetyo_wahyu@yahoo.com

Susy Budi Astuti
Department of Interior Design/Institute of Technology Sepuluh Nopember, Surabaya Indonesia
kreasisusy@yahoo.com

Abstract — Personal space is an imaginary boundary that is inaccessible to public. Personal space setting mechanism as a private boundary include shared ownership of place or object by using symbol as a tool of communication. Apartment is a housing with standards and regulations that are opt to be obeyed by the inhabitants as a behavior boundary. The boundary and regulations becomes a similarity profile of the inhabitants' needs, however the inhabitant's composition character is what distinguishes. The difference in inhabitant's composition leads to different perspectives in interpreting space.

The phenomenon of shared part-property-land in an apartment becomes a boundary in behavior. Public space in an apartment are shared spaces which are facilities within the secondary territory (corridor, lobby, lift, etc.) to shared properties (parking and objects outside the apartment building). Corridor is the most used public space and is also the closest to the housing unit. Within the corridor area is where the prime activity takes place (personal activity) with social activity that misinterpretations are likely to occur between private and public needs. Therefore this research aims to formulate personal space based on territorial behavior. Besides physical needs, personalization also fulfills psychological needs as a form of self-actualization process.

This research is conducted with a literature review method to review a certain user group behavior with an environment setting in a vertical housing (an apartment). Prior researches are used as references to enrich the literature review.

The expected result from this research is a study of personalization concept in apartment's public space as sustainable living.

Keywords – Behavior, Personalization, Sustainable living

1. BACKGROUND

Housing is a social condition that could define its inhabitants' level of welfare. The existence and quality of housing is influenced by its social, economic, cultural environment, which determines the inhabitants' life. The inhabitants' behavior puts in the meaning and identity in their housing for satisfaction. The phenomenon within vertical housing is

different from that of horizontal housing. Commonly, humans tend to put signs in a space that they occupy, such as fence or the terrace as a symbol to indicate a space to its owner. Identification can be done by modifying the space.

Snyder (1979) explained that the study of human behavior is not only about the function of a building, landscape or other physical environment, but also about esthetics. A study based on function include about behavior and needs, however based on esthetics about preference, experiences and perception. Moreover, Altman (1976) elaborated that Environment Behavior Studies (EBS) consists of 3 components, which are environment-behavior phenomena, user group and settings. Behavior phenomena to the environment will vary, due to the difference of meaning, symbol and also the way human make use of the environment as self-representation. For example is privacy, is a personal behavior phenomena that is related to the individual behavior pattern, rules and the social system within the environment. The difference within the user group will bring out different needs and activity pattern, while setting according to Altman is the scale of the environment in which the activity takes place.

Roger Barker (1955) defines EBS in 4 characters, a standing pattern of behavior (individual behaviour), social rules (norms), physical environment (social space, private space, etc) and time locus (time : hour, day, month etc). So it is clear that environment behavior study is the study of human behavior, as an individual or social (a group community) to the physical environment, reviewing both physical and non-physical needs.

2. METHODOLOGY

This research is a literature review, which is by analyzing Environment Behaviour Studies, Housing Satisfaction and Personalization. To be more applicative, it is equipped with research analysis from journal sources. Some field study objects are used to complete the literature analysis review to give a communicative approach.

3. RESULT AND DISCUSSION

3.1 Preference in Personalization

Preference is influenced by lifestyle. Lifestyle is not only to be interpreted as an activity, but can also be a representation of a background of culture, age, gender, education, occupation and even religion. A community with a certain lifestyle will be contained and manifested in the quality of environment profile. Apartment as a form vertical housing is a facility for urban society lifestyle who requires handy housing, effective (easy access to the workplace), privacy and has a high investment value. Apartment facility is a similarity point for the different cultured inhabitants. The similar profile of the user are facilitated in the public territory, such as the swimming pool, gym center, parking area, center/café and shopping area. Whereas personalization occurs in primary and secondary areas, which is the user's private area with permanent ownership so that the personalization is clearly available, both physically and non-physically. The secondary area is the area of mixed use between the private and public. Personalization within this area occur ambiguously between individual or social preference.

3.2 Experiences in Personalization

Living in a vertical housing is a new culture for Indonesian people, so that some of the time activities that are executed in horizontal housing are carried to the new housing environment which is the vertical housing. The density of housing unit at a vertical housing contributes to small space for the user, even just in talking or fulfill the needs of listening to a high volume music. So that speaking or using loud audio system will disturb the unit neighbors or even the users overall. Here, the users are to adapt themselves to not to disturb the neighborhood.

Kisho Kurokawa (1994) emphazises the importance of having an element and intermediation space within the housing environment. Intermediation space or semi-public space can be very meaningful to the user. Relp (1976) states corridor as the

"outsideness exsistential", because it becomes a bridge for socializing. In an apartment, every person can walk to the door and window of other user, which decreases each user's private area. They feel that there is less privacy and security knowing that there are people constantly passing by the apartment corridor. Parents who live in an apartment, usually do not like their children to play outside (the garden) without any adult supervision, so that they limit their children playing to only play in the narrow corridor, balcony and lift lobby. The provision of a social space for mothers and children in the same floor is highly required. Such social space needs design and supervision consideration to fulfill the needs of both the children and the parents.

Housing satisfaction is closely related with the establishment of sense of togetherness. Explained in Cho et.al (2007), a research stating that to create a culture based vertical housing concept, emphasizes on the need of community space for togetherness. Community space a social environment aspect is used by sharing, which the uses are defined by the management. Raman (2010) stated that social relation within high rise building user are very low, because social interaction mostly occur in the same floor level users. Acquaintanceship among the same floor users a bigger than among different floors/blocks. This occurs in different types of corridor (Aziz, 2013). Hashim dan Rahim (2010) researched that the weakness of privacy concept in modern buildings are that in considering social interaction, culture, visual and acoustics aspects. The user's satisfaction does not only depend on their individual unit, but more on the physical and social environment (Francescato dkk, 1987).

In vertical housing, shared facility ownership is strata title ownership, which is shared ownership both horizontally and vertically to a part, object and shared land. (UU RI no. 20/2011 pasal 1 ayat 1). Altman (1980) stated that the shared space is as a secondary territory, the space where the need of the private and public meets, which potentially causes conflict. Moreover Syamwil (2012) stated that the need of private and public space in a certain social economy will lead to personal and communal space which suits the social character context. The physical environment as the human restraint in behavior can be reviewed as personal/private or social function (Altman, 1980). For example, the migrants from the village complains in the first phases of their migration to the city. The migrants feel that living in an apartment limits the communication between neighbors and other users, moreover feeling isolated and alienated

Based on the phenomenon explained above, it shows that culture and past experience is very important and plays a great deal in translating personalization. The habit of having a transition space at a housing which is the garden creates it as a main necessity to socialize with the social environment. Basically behaviour within the transition space is still a need in the vertical housing however with different meaning. Personalization in vertical housing is preferred to be non-physically. Close physical boundary within intimate scale does not mean intense in socialization, but more of verbal socialization, audio and expression. So that in effort of reaching personalization in housing, the non-physical solutions are more preferred.

3.3 Perception in Personalization

Altman (e.g. 1975) in Bell-Fisher (2001) moreover explains about environment mechanism in which we are able to control privacy according to the needs. Garling, Biel and Gustafsson (1998) also explained on how to reach the optimum condition from a suitable/preferred environment. The optimum stimulation level is the one that reaches the suitable and appropriate condition. There are 3 kinds of optimum stimulation that influences adaptation, which are intensity, diversity and patterning.

Based on the comprehensions above, the level of adaptation depends on how an individual responds to its environment that is suitable with their needs. If too much variety, the human will confuse to select the suitable one.

If high intensity, will make it difficult to adapt, so it is also with anything that is complicated and hard to understand should be made into a pattern so that it's easier to be perceived.

On the other side, personalization in vertical housing dominantly appears on an individual level. The shared space at vertical housing is perceived as private space due to shared ownership rights. On the other hand the community/shared space is also a public facility. Personalization becomes ambiguous when the shared space is perceived as both private and public space. So that interaction between user in vertical housing only appear in secondary areas (semi-public) which is the area closest to their unit at the same floor

4. CONCLUSION

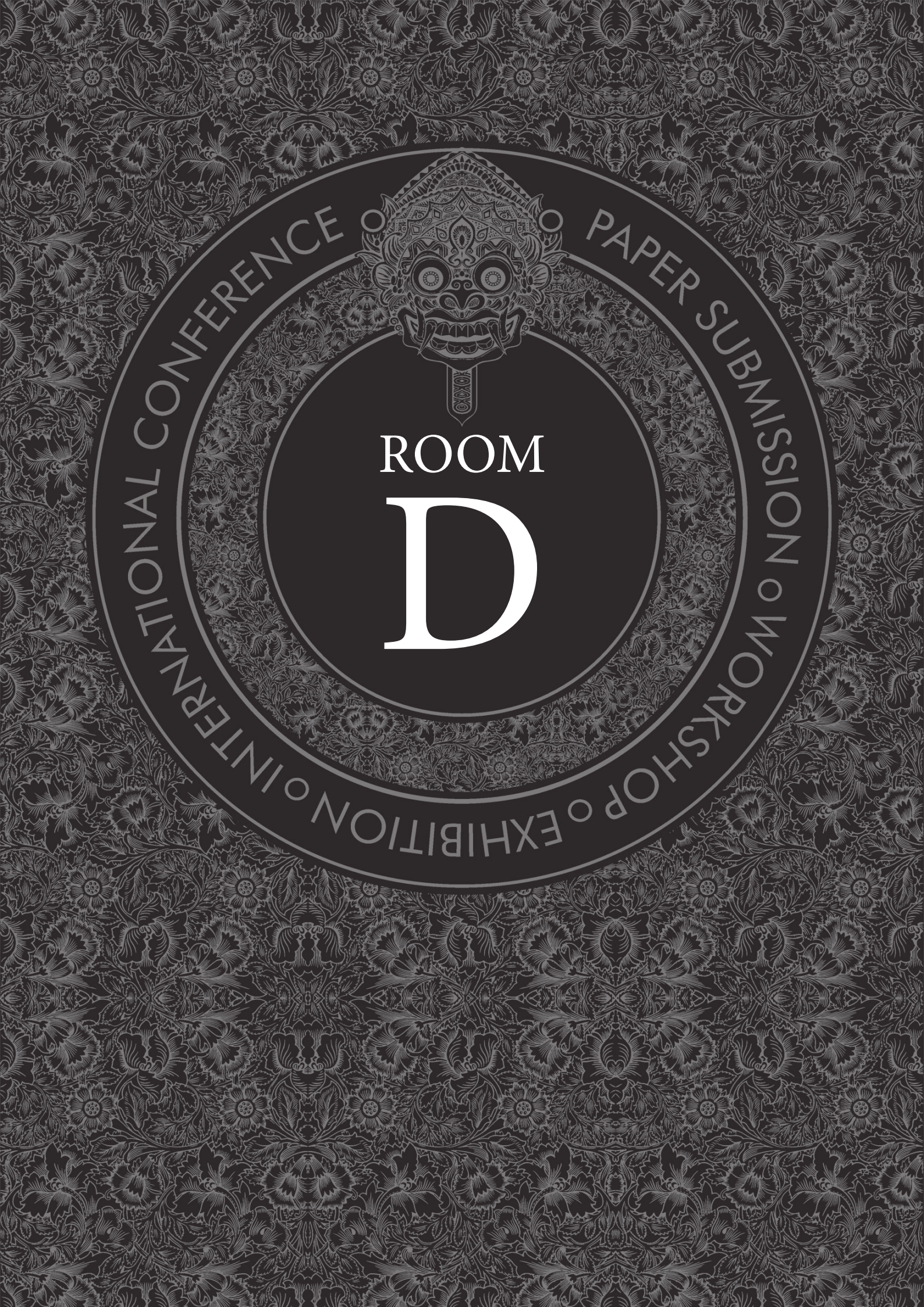
Personalization as a behavior phenomenon should be analyzed together with the physical setting and user group's factors. Table 1 explains the conclusion from literature analysis vertical housing personalization

Table 1. Table Personalization in vertical housing

Personalization		
Preference	**Experience**	**Perception**
Personalization occurs at primary areas (unit) and secondary (Shared space). Shared ownership in shared space creates ambiguity in personalization needs between the individual and public	Less social interaction, more individual, non-physical interaction. Personalization in private scale (primary) and secondary.	Low intensity in social interaction. Shared space is perceived as private space due to shared ownership.

REFERENCES

1. Altman, I (1976), "The Environment and Social Behavior", Monterey, CA, Wadsworth
2. Altman, I and Chemers, M. (1984), "Culture And Environment", Monterey, California
3. Altman,I, Rapoport A and Wohlwill (1980)," Human Behavior and Environment : Advances in Theory and Research", Plenary Press, New York
4. Aziz et.al. (2013), "Block Level Social Contacts in Low-Cost Flats", *Asian Journal of Environment Behavour Studies*, Vol. 4, 4, 2013
5. Barker, R.G. and Wright, H.F. (1955), "Mildwest and its Children", Row Peterson, New York
6. Cho and Lee (2011), "A study on building sustainable communities in high rise and high density apartments-focused on living program", *Building and Environment*, 46, 1428-1435
7. Fisher, A.Bell, P.A dan Baum.A. (2001), "Enviromental Psychology", Harcourt College Publisher, USA
8. Francescato, G., Weidemann, S., dan Anderson, J.R. (1987). "Residential satisfaction: Its uses and limitations in housing research, in *Housing and Neighbourhoods: Theoretical and Empirical Contributions*. Vliet, W.V., Choldin, H., Michelson, W., and Popenoe, D(eds.). Westport, Connecticut: Greenwood Press.
9. Hashim, A. H. and Abdul-Rahim, Z. (2010),"Privacy and housing Modifications among Malay Urban Dwellers in Selangor.Pertanika" *Journal Social Science & Hum.,* 18, 2, 259-269.
10. Kurokawa, K. (1994). The Philosophy of Symbiosis: Academy Editions, Limited.
11. Raman, S. (2010), "Designing a liveable Compact City : Physical forms of City and Social Life in Urban Neighborhoods", *Build Environment*, 36, 1
12. Snyder, J.C and Catanese, A.J. (1979), "Introduction to Architecture", McGraw-Hill, New York, 46-71


INTERNATIONAL CONFERENCE ◦ EXHIBITION ◦ WORKSHOP ◦ PAPER SUBMISSION
ROOM
D


INTERNATIONAL CONFERENCE
PAPER SUBMISSION
WORKSHOP
EXHIBITION
icci
2015

A New Approach for The Teaching of Practical Color Theory

Ng Woon Lam
School of Art, Design and Media
/Nanyang Technological
University, Singapore
ngwoonlam@yahoo.com

Abstract **—**In the traditional teaching for color theory, each pure color (primary or secondary) is assumed to be similar.Therefore the current practical training system like split complementary colors[1], triadic colors[2] or tetradic colors[4] are usingthis assumption.Each pure color can be placed into practical field just like any other pure color based on this guideline. However, in practical situation, different pure colors occupy different size of practical color space as illustrated by Munsell's color tree. Munsell color tree is a practical color system that represents the actual application range of color tone and hue. Munsell color system[6] has not been comprehensively introduced to the educational training of colors. Its strength has not been maximized especially in the teaching of practical color theory. This research paper uses Munsell color theory as the backbone to develop a more robust training of practical color theory to fulfill the needs of current visual art education. Munsell color system introduces transition tertiary colors directly with a practical objective in mind. Therefore it serves as a good system to allow beginners or painting artists to plan their color rhythm logically without too much effort wasted on trial and error processes.

Keywords **–**Practical color theory, Munsell, Color wheel.

1. INTRODUCTION

Visual artists are generally taught with scientific color theory that sees each color being an equal entity. However, in practical terms, colors are like vector components. We may imagine each color as a type of foreign currency. Just like different currencies do not represent the same relative values; colors do not perform through their attributes equally. Therefore practical color theory for visual artists is to be taught with colors' true practical capacity based their three attributes[5]; namely tone, hue and intensity. Munsell color system is used as the skeleton in this development of a new teaching approach to address the weakness of traditional teaching of practical color theory. Of the three attributes, tone and hue are practically more important than intensity. High intensity colors or pure color are generally not used in abundance when we have the luxury of changing tones and hues. Therefore the focus of discussions here will be placed on tone and hue of colors.

2. COMPARISON OF TRADITIONAL AND NEW APPROACH IN THE TEACHING OF COLOR ATTRIBUTES

Tone has been the most critical attribute since there is history of visual art. It is fundamental of visual contrast when the other two attributes are rarely in abundance neither inclassical drawing /painting materials nor in nature. In the classical painting era before impressionist period, most of the natural substances were in earth colors. There was no artificially fabricated material. These earth materials were

used as painting pigments like what we see in Rembrandt's paintings. The intensity is low and the hue change is small as well. Therefore tone had been the most important attribute until the Impressionist period when industrially manufactured chemical colors that offered higher intensive and hue range had become available. Therefore until today, tonal drawing of casts and figures still serves as an important part of foundation in visual art education worldwide.

Since tone is one of the main factors in visual art fundamentals, we therefore have to address the tonal character of each color. Munsell color system in Figure 1 illustrates clearly that each color has a different tonal range. Therefore these colors are not equivalent in tonal application practically. This immediately addresses the first weakness of the concepts of split complementary, triadic and tetradic color system. The later color systems do not address this practical difference at all.For example, yellow is practically light in tone. When a yellow is darken in tone, it will deviate from yellow hue to other hue depending on which dark hue to added to it to make it darker. One example is when black hue is added to yellow hue, yellow hue slowly turning into green hue. Hence we can find out that yellow has not dark tone or pure yellow hue is intrinsically bright in tone. Section 2.1 will illustrate the learning process of tones of colors.

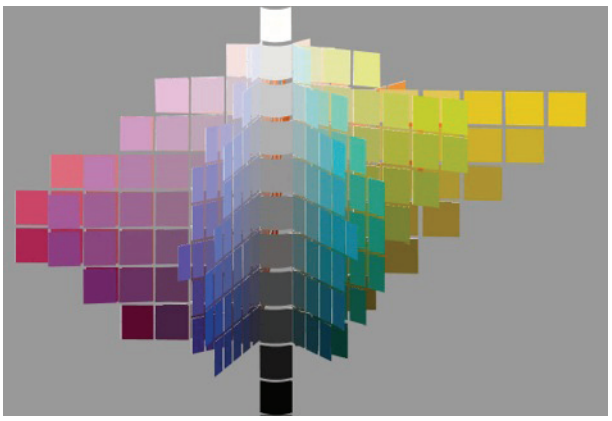


Figure 1[7]. Munsell color tree shows a Munsell practical color system. Each color occupies a different amount of color space in different vector directions. It clearly illustrates that each color is unique in its color attributes.



Figure 2. The dark blues colors show wider tonal range as compared to orange, red or yellow, while yellow has very narrow tonal range. Each color has different tonal range.

Generally it takes a long period of practice for a visual artist to master the tone of each color because the conventional systems mentioned in section one do not provide essential and logical training approaches. Therefore visual artists develop their skills solely through long period of practical experience.

Here, a new step-by-step approach has been developed to resolve this issue. With the help of digital medium, we can simplify this difficult and time consuming training process to a simple exercise for beginners. Section 2.1 with the help of Figure 3 and 4illustrate the sequential steps to learn the tonal range of colors.



Figure 3. A trial that illustrates the process of matching each pure color to its respective tone in gray scale on the top row.

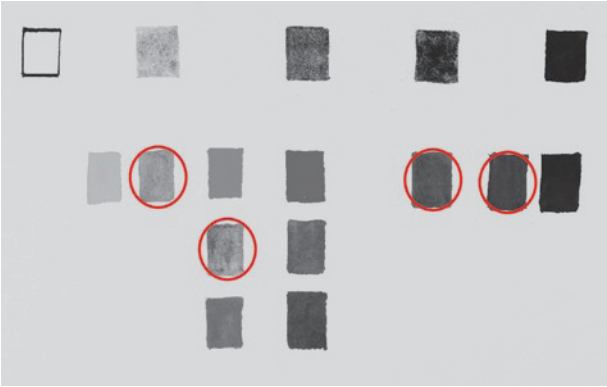


Figure 4. Mismatches of tonal value are identified after changing the color image in Figure 3 to gray scale in a Photoshop.

2.1 Practical steps of learning the respective tonal value of each color

(i) First we paint the top row leftmost corner with white and rightmost corner with black as shown in Figure 3.

(ii) By looking at the tone of white (tone 1) and black (tone 9), we can then decide the middle tone 5. So tone 5 is then determined.

(iii) Tone 3 and Tone 7 can then be determined similarly by looking tone 1 and tone 5, and tone 5 and tone 9 respectively.

All these 3 steps can also be easily achieved with the help of fixed gray scale tonal markers in the market or a desktop printer

(iv) After having the approximately correct tonal scaleson the top row, we can then try to decide the tone of each color by painting each color beneath the tonal gray scale that we believe is right. As shown in Figure 3 for example the selected yellow is though to be tone 2, so it is painted between tone 1 and tone 3 gray scale. The selected red, green and brown are thought to be tone 5. So they are painted beneath tone 5 gray scale. The result is not confirmed to be correct until we see the converted gray scale of every colors painted beneath the top row tonal scale reference.

(v) All the painted color swatches can then be converted into gray scale to verify their correctness in comparison to the original reference grays we prepared at the top row as shown in Figure 4.

(vi) Figure 4 indicates four colors (circle in red) after converted into gray scale, show different tonal value as compared to their top row tonal scale reference. The mismatch shows that the decision is wrong.Repeat step (i) to (v) until all colors are judged correctly in their respective gray scale.After the exercise, a student can immediately understand the actual tonal range of each color one is using in a practical situation.

This process shortens the learning path from having to practically carry many times painting to gain that experience through trial and errors. A beginner grasps the respective tonal range of each color through this exercise. Therefore a better color choice can be made based on original tonal decision.

To further illustrate the weakness of traditional guidelines in the application of tones, we use a split complementary color system as an example in Figure 5. A split complementary pairing of a red-orange with a bluish green is chosen from a conventional color wheel. The guideline shows that by rotating along the color wheel, a new pairing of a purple-blue with a yellow can be found to present a similar visual result. However, the tonal range of these two sets of pairings is different. Therefore in practical reality, the two pairings work differently. The red/orange-green pairing has a narrower tonal range as compared to the blue/purple-yellow pairing. Blue/purple-yellow pairing can stretch from tone 2 (yellow) to tone 9 in their purest form to their mixture form. On the contrary, red/orange-green pairing can only stretch from tone 4 to 7 approximately with the same working approach.

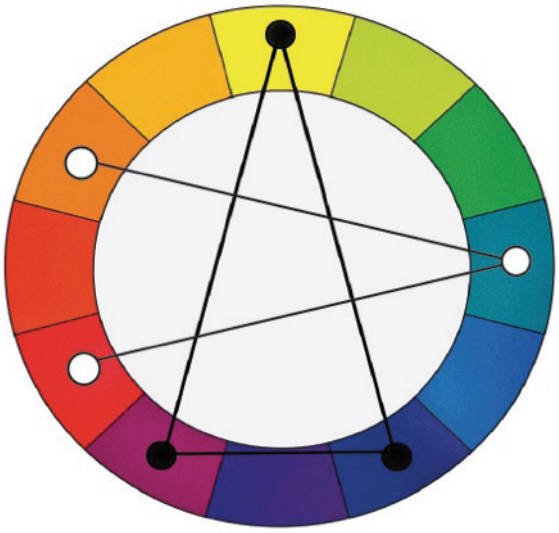


Figure 5[8]. A split complementary color system is shown with a traditional color wheel. The white circles are the initial pairing of red/orange-bluish green pairing while the black circles illustrates the rotated new pairing of purple/blue-yellow pairing.

3. HUE OF A COLOR AND ITS COLOR VECTOR SPACE

A conventional color wheelas shown in Figure 7 distributes each pure color evenly across of the wheel. It gives a beginner an impression that each hue has similar capacity in application. In reality, yellow, orange and red together occupy a smaller color space as compared to blue, purple and green while green occupies the largest color space. Therefore the capability of green color in hue term can never be achieved by any other colors. A painting can be done easily with just green colors and it is able to carry a wide range of hue change. However, this cannot be achieved easily with an orange color or a red color or a yellow color alone.

In practical terms, greens stretch through three different zones in color wheel, namely bluish green, greenish green and yellowish green zone. These three categories of green colors not only present hue difference, they also have different tonal rangelike what has been discussed in section 2. Therefore when a green color is applied, we have to be cautious which hue range of green we are using. This again shows the weakness of the current training system that assumes every color occupies similar size of color space.

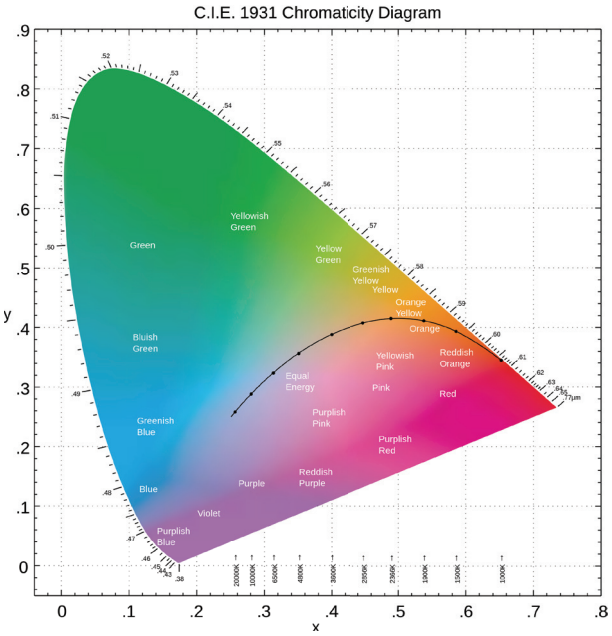


Figure 6[9]. A commonly use Pantone Color Space in the practical industry.

Figure 6, a Pantone color space diagram shows the area covered by green hue is larger than any other colors. Even if we add up the area occupied by red hue, orange hue and yellow hue, the final area is still small than just the area covered by green hue. Therefore the conventional color wheel that assumes each hue having equal practical capacity is misleading to beginners learning color attributes.



Figure 7[10]. A conventional color wheel



Figure 8. A two dimensional version of Munsell Color Wheel simplified from three dimensional Munsell Color Space

To make good hue choices, we thereforehave to pay attention to the asymmetrical nature of color space as shown in Figure 6. A three-dimensional Munsell Color Tree as shown in Figure 1 also indicates this asymetrical property of each color. To overcome this issue, a new practical system is developed through the study of design for color rhythm. It involves the understanding of each pure color and its repective tertiary brown or gray color acting as a transition color. Section 4 explains this concept.

4. TERTIARY COLORS AND DESIGN OF COLOR RHYTHM THROUGH COLOR TRANSITION

Here for practical purpose, three dimensional Munsell Color Tree is simplified down to Munsell Color Wheel as shown in Figure 8. This eases the difficulty for beginner to visualize three dimensional color space. This simplified two dimensional Munsell Color Wheel further allow beginners to visualize tertiary colors, namely browns and grays. These are important colors in practical fields.

The equivalent brown or gray of each primary and secondary color has to be understood in the application of Munsell Color Wheel. These browns or grays are known as the tertiary colors that are heavily related to the design rhythm of colors. These tertiary colors serve as transition colors in the design of color rhythm.

Using pure colors (primary and secondary colors) only allow hue difference with strong intensity difference to form. In order to create different visual rhythm in an image to allow different viewing experience, tertiary colors are necessary. Combining tertiary colors with pure colors, the adjustment of viewing speed can then be possible. Hence the equivalent brown or gray of each primary and secondary color has to be understood. Figure 8 shows five basic equivalent browns / grays nearer to their respective pure colors.

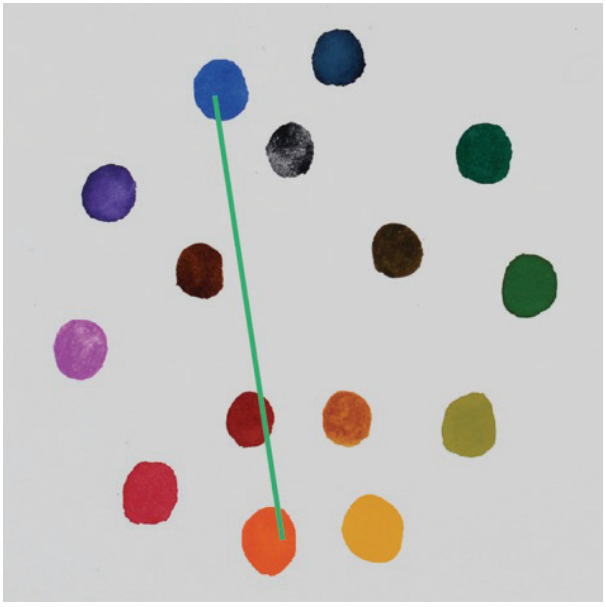


Figure 9. The green line connecting blue and orange passes through a region linearly where a range of linear transition tertiary of blue-orange mixture can be found.

If we draw a linear vector on a color wheel as shown in Figure 9 from one pure color to another pure color that is located far away from the first color, a whole range of tertiary colors can be found. In this process, it is done through mixing two different colors on palette to find their intermediate tertiary colors. Figure 8, the green line connects a pure blue and a pure orange. Along the green line a whole range of tertiary browns are formed by varying the proportion of blue and orange. To apply these linear transition colors directly, it will not achieve very sophisticated design rhythm through colors. Therefore a painter generally deviates away to discover more transition colors as show in Figure 10. Along the red line and the blue line are two different ways will find a range of transition browns / grays between a pure red and a pure blue.

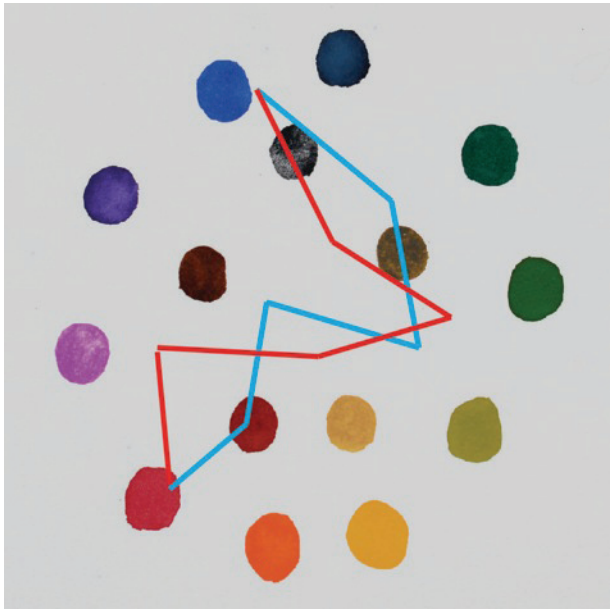


Figure 10. The red and blue color vector lines show that there are many ways to find a range of transition tertiary colors between pure red and pure blue.

This vector system of finding transition color is very scientific but harder to be visualized physically. Therefore a practical method has been developed here. The system is called a *Friend – Enemy Color Design System*.

Friend colors are defined as colors that are nearer to each other on the color wheel while Enemy colors are colors that are further from the major group of colors in the design plan. Figure 11 illustrates one design sample

Group 1 are*Friend* colors. They are located nearer to each other on the Munsell Color Wheel.

Group 2 is nearer to the main group (Group 1, the *Friend* colors); therefore colors falling into group 2 have weaker *Enemy* character. Colors falling in group 3 are further away from group 1 therefore they are stronger *Enemy* colorsagainst group 1. How does that help in the design of color rhythm?

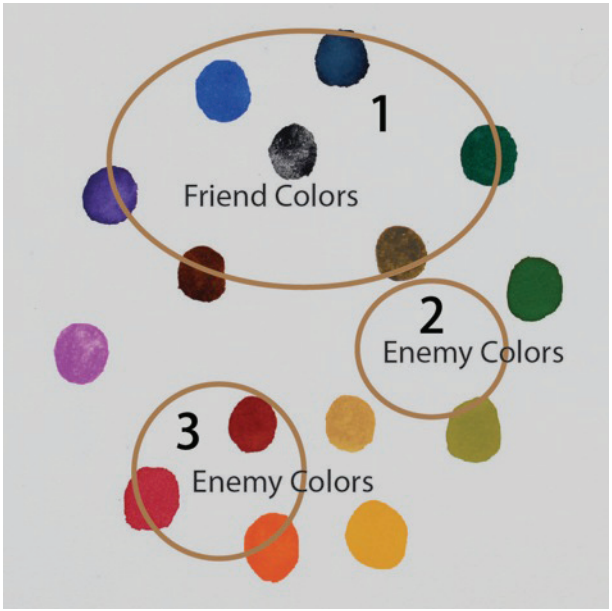


Figure 11. The large circle shows the main group of Friend colors while the other two small circles are the enemy colors.

Basically, in color rhythm design, we are trying to identify various level of transition from one color to another color depending on the required contrast for on a design objective. This approach allows us to immediately identify the level of changes from one region to another on a color wheel.Colors further from the major group of colors, will create more hue contrast to the main group.

Besides this advantage, it does not have the weakness of the current practically system because it does not make any assumption thinking that colors are practically similar. The Munsell Color Wheel is an empirical system. Therefore it is closer to the exact practical situation, especially with all the equivalent tertiary colors present. Transition colors (tertiary colors in between any two pure colors) can be obtained logically through direct observation within the Munsell Color Wheel along any vector directions. Therefore practical design decisions can be made based on this system. Here, a few common requirements can be resolved based on this system.

(i) Color unity or harmony: *Friend* colors from the same region in color wheel without any doubt will be in perfect harmony or unity since they all carry a similar major hue component.

(ii) Color complementary result does not have to come from colors on the opposite side. The colors can come from any region within or on the edge of the color wheel as long as they are not too closed to this region of *friend*colors. The further it comes from the stronger the complementary result it creates.

(iii) Transition colors can easily be identified by looking at this color wheel. These colors will create a bridging zone for friend colors and enemy colors so that they can co-exist in the same picture in harmony

(iv) Decision of design rhythm can be achieved easily using generally more *friend* colors and fewer *enemy* colors for beginners.

An interesting analogous guideline can be used for the application*Friend – Enemy Color System*.

'With more friends life will be better. However, if you only have friends and have no enemy, life will be boring and without any driving force. On the contrary, life with too many enemies will be too difficult, but that doesn't stop you from surviving, if you are truly strong.'

Therefore a more common color system that can arrive at color harmony is with more *friend* colors and a few *enemy* colors. A few *enemy* colors are necessary to create some interesting complementary hue. If an image is filled with mainly *enemy* colors, to arrive at image harmony, it will be very demanding. A great amount of effort in image design has to be employed in this case. Therefore the later case is for more advanced artists who have high level of sensitivity for design of visual tension through combination of various visual elements where color is only one of them. Image balancing requires the artist's sensitivity to transition colors, visual tension of size and shapes of each color placed on the picture plane. Nonetheless, this *Friend – Enemy Color System* does provide a good

Study of the Existence of Traditional Textile for Local People of Tuban District, Kerek Subdistrict, East Java

Fajar Ciptandi
Textile Craft and Fashion Course of Study, Telkom Creative Industries School, Telkom University, Bandung, Indonesia
fajar@tcis.telkomuniversty.ac.id

Agus Sachari
Industrial Design Course of Study, Faculty of Art and Design Bandung Institute of Technology, Bandung, Indonesia
asachari@yahoo.com

Achmad Haldani
Textile Craft Course of Study, Faculty of Art and Design Bandung Institute of Technology, Bandung, Indonesia
achmadhaldani@yahoo.com

Abstract

Textile according to local people of Tuban sub district, Kerek District, East Java, Indonesia is not merely an ordinary body cover, but an object contains of myth and spiritual values that closely relates to a representation towards "Life Cycle" appreciation consists of processes of birth, life and death. The way people of Kerek appreciate the life cycle is by describing it through visualization on their traditional textile made by batik (a technique to make motifs on fabrics using color resistance called wax) technique. Their knowledge of colour is a basic knowledge that represents a concept of philosophy of life, where life starts with white colour that represents absence concept; red and blue represent life; and death is represented by black which means immortality. But nowadays, there is a shift that urges the existence of the tradition to change, like the coming of Islam, industrialization and postmodern issues. This causes part of the identity value that attaches to them gradually replaced by the new culture. It seems that they accept and face an old culture with a totally different appreciation at the beginning. Through a descriptive method there is attempted to comprehend the meaning and function of Sayut (a long cloth wrapped around one's body to cover up the extent of the chest to ankle) and Jarit (a long cloth tied to shoulder for shoring the luggage load) in tradition context as well as its existence in present context.

Keywords: Traditional Textile, Kerek District, Tradition, Textiles

1. INTRODUCTION

Traditional textile of Indonesia is not merely an ordinary textile, it is invented upon needs of

ritual and belief. Art in Indonesian ethnic culture tradition remains serving religious functions. All artists in the ethnic culture tradition work in accordance with its tribes' religious structure. As well as in the making of Indonesian traditional textile, such as weaving, batik making and dyeing, are started with spiritual values and self purification, and see human in the context of universe harmony. Therefore, it needs totality and a long time, days even months, in the making process.

Traditional textile has also some differences with non-traditional textile. One of them is that traditional textile or as known as "adati" textile is made in order to fulfil needs of communities' rituals and non-traditional textile is made as commodity to meet clothing needs. In addition, traditional textile has a contented philosophy meaning related with the origin of the textile. Further is the technical thing where in the making process it needs a high craftmenship based on the attached culture inherited.

It explains that traditional textile in Indonesia has a big role in building a culture and an authentic identity that describe Indonesian tradition and culture. Nevertheless, those values have degraded caused by several factors, such as modernization that creates a perception in most of Indonesian people that the textile should no longer served as adati textile, but develop it according to the latest trend and apply it as current fashion product instead.

Kerek is the latest place in Java that still continues making the traditional textile until now. Starts from make thread, weave it become textile where it is made not merely for industrial purpose but also for special needs such as social status, society's identity, and also a part of life cycle that describes birth, marriage and death. To reach there, therefore textile is usually reprocessed to get color and motif that has certain meanings using techniques of batik and ikat (a traditional Indonesian fabric made through specific weaving process).

2. TRADITIONAL TEXTILE MEANINGS

Refer to a book titled: "Nini Towok's Spinning Wheel", a book of research result conducted by The Flower Museum (2004 – 2010) which one of them studies local people in Kerek, East Java, Indonesia says that textile relates with Life Cycle of its community.

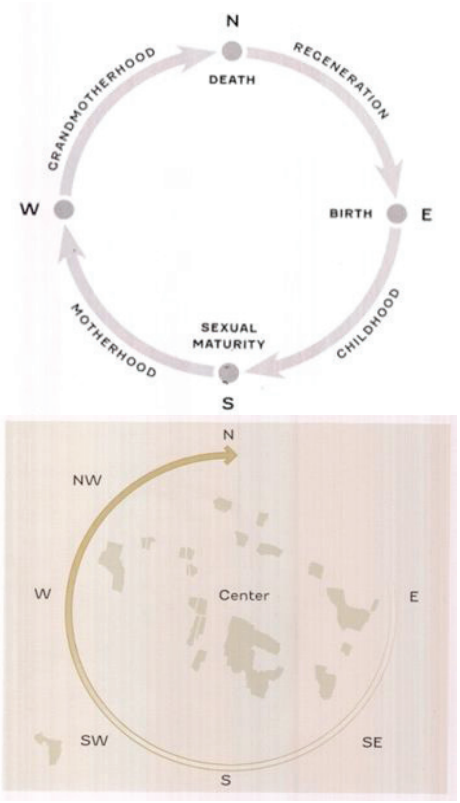


Figure 1. Path of "Life Cycle" to Kerek community ***(Source: Heringa,"Nini Towok's Spinning Wheel", 2010)***

Steps of "Life Cycle" of Kerek people especially for women connected with villages around and spread in accordance with wind directions are as follows:

1) East village has important moments of birth and childhood, 2) South village represents sexuality maturity for a woman, 3) West village represents a moment of motherly, 4) North village represents a moment of becoming grandmother and an important moment that is death, 5) Center village is considered as the most important place and has the highest authority to all other area of Kerek.

Each of Kerek villages also determined certain works, and become the home base

textile and textile product trading or exchange textile product in the community as follows:

1) Initial process is cotton planting which is a specialization of east village of Kerek, where it is also supported by soil and environment conditions. 2) Next process is the community specialization for women in west village is making plain textile with hand weaving as the raw material to make batik. 3) Next process is for elderly women in North village has a habit of doing a spinning and weaving to produce good quality of plain textile to be used as a raw material of batik. 4) Women in Central village has got used on making high quality batik for ceremonies

Almost most of the women are making batik, only those in central village have the best quality of batik. If batik is needed for a ceremony in another villages, can contact to the desire central Kerek.

Life cycle of Kerek people is clearly reflected from their batik product. There are some specializations that have to be followed to produce visual and function characteristic of the textiles. For instance, jarit and sayut with the making process of batik for eastern community tend to make whitish product. It is related with their life cycle, where the philosophy of whitish is meant as the beginning of birth where human is still pure and innocent. As well as those in west to north, they tend to produce blackish product, dominated with dark and black color where it is related with death and end of a human's life which represents in dark and thick color. In their batik visualization of transitioned villages, complexity of colors and motif will be darker and more complex when it comes to west area (clockwise).

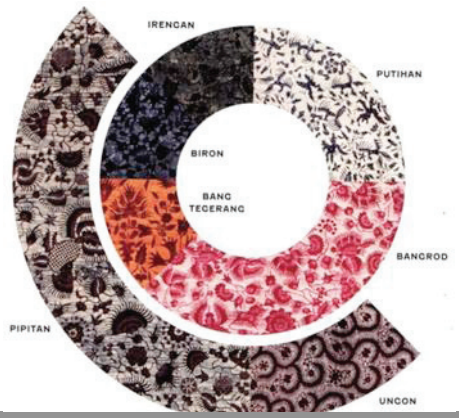


Figure 2. Textile and Life Cycle of Kerek's People (Source: Heringa,"Nini Towok's Spinning Wheel", 2010)

Thinking mapping process of this sayut and jarit study is based on the background on related issues of tradition values shifting in Kerek District in appreciating its traditional textile that has been influenced by islam-a new culture, industrialization and postmodern issue.

Sayut and jarit are studied in craft science which focuses on the traditions discussions. Context in craft itself is limited to product development, behavior of Kerek's local people, meaning and value contained in the textile where it experiences a long transformation in its development, and focuses on the point of view towards sayut and jarit in artifact field. By studying these points, there will be gained a new characteristic of sayut and jarit, both from spiritual values contained in the textile and its wearing function. Function and meaning of jarit and sayut as adati textile and its meaning as artifact product that has experienced a culture transformation can be initially compared

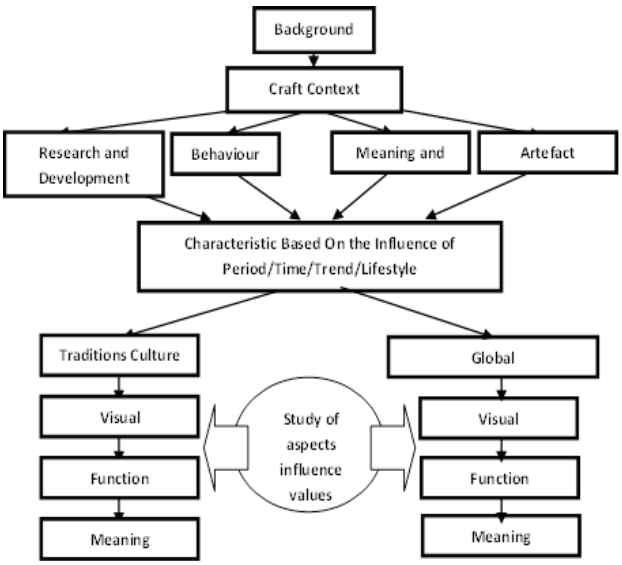


Figure 3. Scheme of Thinking

It is related with the existence of traditional textile of jarit and sayut for Kerek's. It requires attempts to get correlation of the usage of the textiles in the past with current context. One of basic issues is the tradition values shifting in using the textiles to Kerek people nowadays. It is possibly caused by some factors such as social, economic and technology. Social contexts are such as taking count of cultural values and its effect towards popularity, existence and re-appreciation of cultural tradition products. For economic contexts, it can be seen whether there is influence of traditional textile usage towards commodity product and how technology will be able to influence values consisted in jarit and sayut.

The coming of Islam to Java Island gave a comforting visual identity to a group of people. If before Kerek people has an authentic identity in terms of dressing and life point of view in ritual, therefore the coming of Islam has been teaching them to be syar'i (courteous, in accordance with the guidance of Islamic teaching) in their appearance as the so called appearance with the Islam way, makes originality of Kerek people gradually gone and become bias among other areas. The cultural shifting in Kerek community will influence on the producing and using those textiles. Therefore, there is a part of identity value where in prior it has been attached will gradually weaken and eventually replaced by the new culture. They seem to accept and face previous culture and tradition, but with totally different interpretation from the beginning.

Batik industrialization which develops around Kerek will give impact towards pattern of productivity towards pattern of productivity and the community's behavior in Kerek in producing textile and batik.

It becomes an issue how postmodern and technology growth can contribute towards aspects in life of Kereks community's life, especially in terms of tradition existence of using traditional textile of jarit and sayut. The interesting part is that, out there, has been developing in postmodern culture, but in the center of it, there is a community in the same age but still conventional and traditional.

REFERENCES

Bittner, Elizabeth, 2004, *Basic Textile Care: Structure, Storage, and Display, Introduction to the Structure and Technology of Records Materials*, Pavelka

Anas,Biranul, 1995, *Indonesia Indah 8*: Batik, Yayasan Harapan Kita/BP3 TMII, Jakarta, Indonesia

Anas, Biranul, 1995, *Indonesia Indah 3*: Tenunan Indonesia, Yayasan Harapan Kita/BP3 TMII, Jakarta, Indonesia

Anas, Biranul, 1999, *Revival of Natural Colours: Pewarna Alam, Mencari Peluang Kehadirannya Di Masa Kini*, Journal of Nation Craft Council Of Indonesia (DEKRANAS), Yogyakarta, Indonesia

Boas, Philip, Hani Winosastro, 1999, *Warna-Warna Alam yang Digunakan untuk Batik Tradisional*, Yogyakarta, Indonesia

Djoemena, Nian S, 2000, *Lurik: Garis-Garis Bertuah, The Magic Stripes*, Djambatan,Jakarta, Indonesia

Heringa, Rens, 2010, *Ninik Towok's Spinning Wheel: Cloth and the Cycle of Life in Kerek – East Java*, Fowler Museum at UCLA

Koentjaraningrat, 2002, *Pengantar Ilmu Antropologi*, PT. Rineka Cipta, IKAPI, Jakarta, Indonesia

Maxwel, Robyn, 2003, *Sari To Sarong: Five Hundred Years Of Indian Art Indonesia Textile Exchange*, Nation Gallery of Australia

Warming, Wanda, Michael Gaworski, 1981, *The World of Indonesian Textiles*, Kodansha International LTD. Tokyo, New York, San Francisco

Bloombogus, Plastic as a Repurpose Material for Future Fashion and Textiles

Widia Nur Utami B. *Telkom University,Indonesia*
widia.nur.utami@gmail.com

Eka Arifianty Puspita *Maranatha Christian University,Indonesia*
ekaapuspita@gmail.com

Abstract — In Indonesia, it is common using plastic bag for daily activity. Plastic bag is usually used as a "temporary carrier" which has a short usage cycle. For example to carry foods, drinks or wrap disposable goods. Plastic is rarely produced to be a new material that has a long usage cycle. Researchers are trying to cultivate the potential of plastic bags into something new in its own way or Do-It-Yourself. D.I.Y. (Do It Yourself) is an alternative way to get a product that meets the needs, where in the making process involves the user. The pleasure in D.I.Y. comes from the "doing" part. In the process, D.I.Y. relies on the user's skill to fix and repurpose the equipment and material. When user can fix and adjust a product to his/her needs (repurpose), therefore this way is potentially can improve the life cycle of the product[1]. Through this research, researchers tries to process kind of plastic that is used for food or drink wraper to be a new material for fashion or textile (repurpose). Physical form of the plastic will be changed onto new sheet with heating technique (hot textile) manually (D.I.Y) that can be developed towards the user's needs such as accessories or jewelry for example. So that it is expected it can add its usage and economic values, not merely as a temporary carrier.

Keywords – Alternative Material, D.I.Y, Fiber Art, Plastic, Product Usage Cycle, Repurpose

[1] Pardo, Nancy. 2011. *The New Era of Do-It-Yourself Manufacturing*. http://blogs.ptc.com/2011/10/31/a-new-era-of-do-it-yourself-manufacturing/

1. INTRODUCTION

Everybody knows plastic, almost every day Indonesian people use plastic bags in their daily activities. Since the beginning until the end of the day, everyone is very possible to use plastic bags more than one pieces.

Besides that, referring to the App JakPat[2] survey about the use of plastic bags by Indonesian people in 2014, the results were quite astonishing. Here are some key points of the JakPat survey on 1970 respondents :

• From the 1970 respondents, 51.47% of respondents claimed to get a plastic bag 0-2 times a day when buying goods.
• 14.35% of the respondents admitted to often get a transparent plastic bag.
• 86.75% of respondents admitted that they usually get plastic bags when buying food, beverages, raw food, or packaging.

Although not specifically mentioned what kind of transparent plastic bag those were, but it was noted that the transparent plastic bags accounted a large enough portion.



Figure 1. PE (Poly Ethelene) Plastic Bags

There are a lot of examples of plastic bags use in Indonesian society daily life. But in this study, the type of plastic bag that will be studied is restricted to PE (poly ethelene) type of plastic bag. It is a thermoplastics that is easily to be stretched, flexible, has low melting point, transparent, and can be reformed. This type of plastic bag is often sold at retail in the stalls (*warung*) or traditional

[2] JakPat is an *Open Survey Platform* (http://jajakpendapat.net/) that can do survey to segmented users and see their responds in real time. Until now, JakPat has got more than 17,000 mobile panels all around Indonesia.

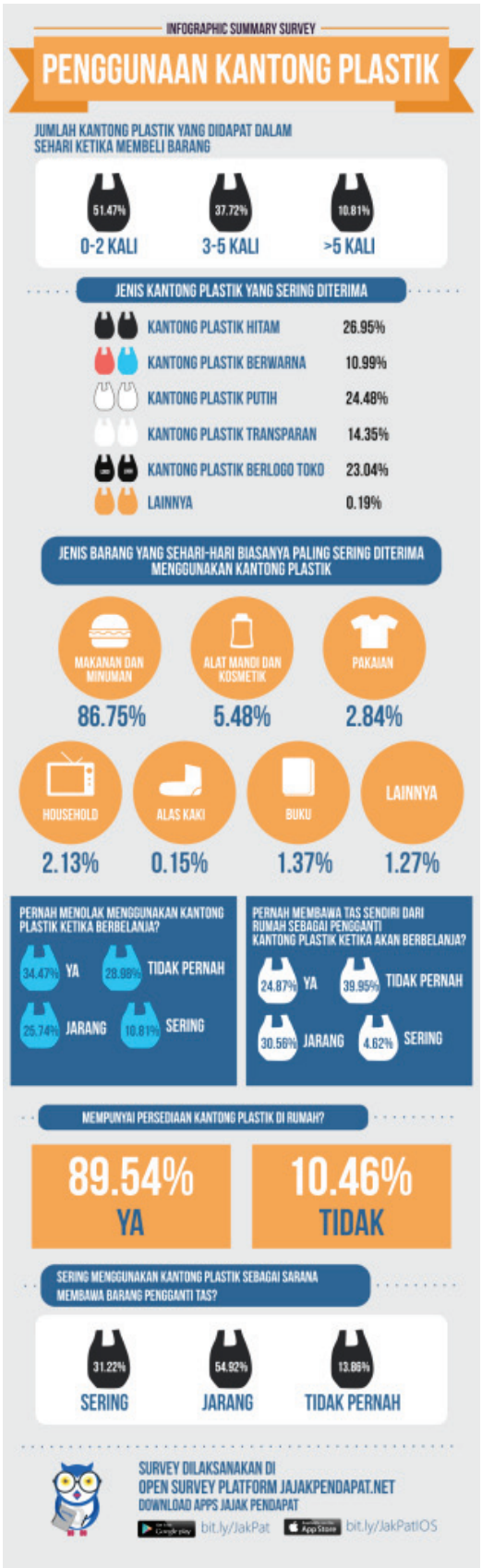


Figure 3. Results of The Plastic Bags Use by Indonesian Society

Researchers ourselves often use plastic bags, especially plastic PE when buying food and drinks, or as a container wrapper when shopping at traditional markets around our residence. Researchers' everyday life often encounter the use of PE plastic bags.

In fact, not only the researchers themselves, but the immediate environment which are researcher's family members, also use it almost every day. This phenomenon attracted researchers to examine it further.

After finding out more about kinds of PE plastic bags, researchers conducted a field survey to determine the extent of its use. Researchers visited the traditional market around the residence of researcher, named *Pasar Kaget Puri* to examine it.

Referring to the journal *Traditional Market Delivery Shopping,* Sebuah Upaya Mengurangi Jumlah Sampah Plastik Pasar Tradisional Dengan Konsep *Socio-Greenpreneur* Pemuda", according to Tutum Rahanta, Chairman of The Indonesian Association of Retailers (APRINDO), that 70% of plastic waste is derived from the traditional markets (Amhariputra, 2014). It convinced researchers to begin examining from the nearest neighborhood, *Pasar Kaget Puri.*

Pasar kaget is the term for the traditional market that is temporarily operates only from dawn until noon. This market initially took place only on weekends, but since 1995 this market operates every day. This market is located in Komplek Puri Cipageran Indah 1, Cimahi, West Java. This residential community is inhabited by about 1,500 families (1,500 houses). Although it is only a residential community market, this market (with has a land area of approximately 100 m^2), is visited every day by 200 citizens and can reach 400 citizens on weekends.



Figure 2. Example of PE (Poly Ethelene) Plastic Bags use at *Pasar Kaget Puri*

Results known from the survey:
• Plastic bags are still considered as the most practical wrapper. PE plastic bags are widely used as vegetables, meat, and food container wrap.

• PE Plastic bag is used because it is easily obtained and the price is quite cheap. Not far from the market there are a grocery stores that sell it by retail. From those stores that the sellers get the supply of this plastic bag every day.

• On average, every sellers spend 1-2 packs of these plastic bags per day, or about 100-200 sheets of plastic bags per day.

Seeing the results of the above survey, we can imagine how big the number of PE plastic bags used is. Although not all sellers use PE plastic type, but most of them do.

During the field survey took place, one thing that caught the attention of researchers that these plastic bags are only used as a 'temporary carrier'. They are commonly used as a tool to take while on the market towards the house, then they are discarded or stored for reuse. Or if a plastic bag is used to wrap food or beverages, it is likely to be

discarded right away, for the reason that a dirty plastic bags can not be used again.

These plastic bags only have a very short usage cycle. It is inversely related to the manufacturing process that takes a long time. Considering that the use of PE plastic bags will be more likely to increased in the future, researchers are interested in finding opportunities in processing PE plastic bags so they are not just used in a short usage cycle.

Researchers want to process these PE plastic bags manually or Do-It-Yourself (DIY) to be developed into a simple creative products, with textile engineering approach in accordance with the researcher's background.

Do-It-Yourself or DIY, refer to the definitions raised by Brit Morin, founder of Brit + Co[3], is any activity that uses the creativity element to create or design something in their own way. Or in the previous explanation, Do-It-Yourself or DIY is one alternative way to get a product that suits your needs, which in the manufacturing process involves the user.

In the process, DIY relies on the ability (skill) from the user to repair and repurpose the tools and materials. When users are able to improve and customize a product to suit their needs (repurpose), then this way could potentially increase the life cycle of the product itself (Pardo, 2011). "The pleasure in D.I.Y. comes from the 'doing' part. "

The PE plastic bags are cheap in price and easily obtained. It is also a major consideration that made researchers chose the way of Do-It-Yourself (DIY) processing. Researchers hope that the DIY process is done in a simple way / technique so it can be done with the tools around. In addition to this easily obtained material, this process can also be done by more people in the future. The more people who contribute, the greater opportunity to extend the PE plastic bags life cycle.

Through this study, researchers hope to process PE plastic bags into a new material that can be applied to a wide range of fashion products, textiles, or other lifestyle products (repurpose). PE plastic bags will be converted into new plastic sheet with heating techniques (hot textile) manually (DIY). This new material has a different character to the pre-heated, but that is an advanced trademark.

Bloombogus is in sheets form, can be redeveloped according to each user needs manually or DIY. This new material processing techniques is differ in adapt to the need of each user. It is expected to provide many alternative ways to process Bloombogus. And of course, produce a lot of variety from other Bloombogus product variants, which in turn can add the purpose, functional, and economic values of PE plastic bags itself.

2. CREATIVE PROCESS STUDY

2.1 Bloombogus

Bloombogus was come from the word *bloom* which commonly known as a transformation stage of a plant, from the bud form into flower shape. However, in this context of work, bloom means a chapter of alternation to a more beauty or perfect stage.

Meanwhile *bogus* means imitation, which is intended to the character of material that we use in this term of work, PE Plastic material.

Since the aim of this project is to reveal new medium of textiles by repurposing the exist material into new form and function, we named it Bloombogus, which deliberately means the transformation chapter of PE Plastic material by repurposing stage, in order to observe the more better implication of PE plastic material.

2.2 Pe Plastic Character

PE or poly ethelene have characteristics such as:

- Thermoplastic, can melt when exposed to heat
- Elastic
- waterproof
- Odorless
- Transparent yet slightly blurry
- strong
- Hardiness of up to 135˚ Celsius

PE plastic is divided into two types, namely:
• LDPE (Low Density Polyethylene)
• HDPE (High Density Polyethelene)

The main difference of the two types of PE lies in its ability to restrain load, resistance to heat and

[3] Brit + Co is a site that provide a place for makers, crafters, designers, cooks, and inventors in creative region to share info. The main purpose of this site is to build creative community for the future.

chemicals, as well as the level of stiffness or thickness.

In this study, PE plastic used is an LDPE plastic. A plastic commonly used for food or beverage packaging, packaging plastic, and or as raw materials for soft bottles.
Products made from LDPE are hard to destroy, but still good as food container because they are difficult to react chemically with the food in it.

Although it is hard to destroy, LDPE plastic can still be recycled, but the resulting product will decline in quality. LDPE-based products usually stamped by recycling logo with number 4 in the middle, and writing LDPE.

2.3 Hot Textile

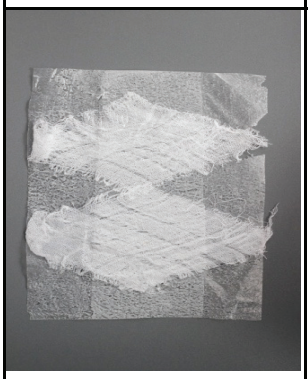
Since the beginning, researcher's main goal is to process manually or DIY with simple tools and techniques that can be easily put into practice by other people

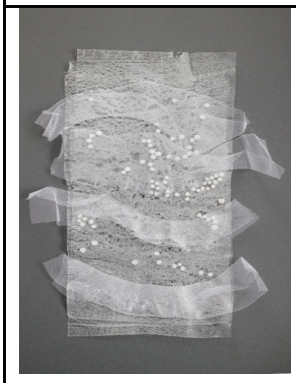
Researchers chose to use hot textile techniques to process PE plastic, because one of the main properties of PE plastic is thermoplastic. Inspired by Hot Textile book written by Kim Thittichai, in processing fabric or other material that is treated like textile material, you can use heating devices such as heatgun or the simplest is the home iron to get the certain effect or texture.

2.4 Initial Exploration

Here are the results of PE plastic bags exploration with hot textile techniques and combined with other materials:

Table 1. Results of Preliminary Exploration Bloombogus

Image	Description
	Results of PE plastic that had been heated for approximately 1-2 minutes, resulting in a unique texture. So it was decided to be furtherly developed.
	In the beginning, there was an experiment combining colorful silk thread, but the yarn was felt too dominant, so the texture and the transparency impression became less prominent. So this exploration was discontinued.
	An experiment combining sterile gauze pads which fibers have been pulled out so the transparency impression became more visible. But the result was not good because the gauze pads was too thick.
	An experiment combining Styrofoam granules. In the final result the material had richer textures, while still had transparency impression.

	In addition, the combination with the colour 'white' seemed the most suitable colour for this new material. The new material seemed clean, simple, modern, and lightweight.
	After combined with Styrofoam, the material then combined with tulle. The addition of tulle increased the transparency effect, seems light, and add more texture.

2.5 End Of Exploration Bloombogus



Figure 4. Results of Chosen Bloombogus Exploration Developed into Product

From the last results of Bloombogus sheet exploration (combined with tulle and styrofoam beads), the sheet was then cut and shaped like a tube shape. This modular was chosen to be developed and applied to the product.

PE plastic characteristics after passing through the heating and exploration stage:
• remain thermoplastic, can melt when exposed to heat
• Rigid, no longer elastic
• basically it remain waterproof, but it's hollow space can become water trap
• Transparent yet more opaque

One of the additional value of this Bloombogus sheet is when the Bloombogus results are still under certain thickness, the PE plastic can easily be re-heated over the Bloombogus sheet so that PE plastic will melt and blend with Bloombogus sheet underneath. This method can be done repeatedly to get the desired thickness of Bloombogus. Also, if there is a damage such as holes during the heating process, it can be re-heated again with PE plastic on it in order to patch up the holes.

3. RESULT

3.1. Product Concept



Figure 5. Results of Chosen Bloombogus Exploration Developed into Product in Detail

The first thing that came to mind when I first saw Bloombogus was the texture that similar to mineral rocks, very rich in texture and had a transparency effect.

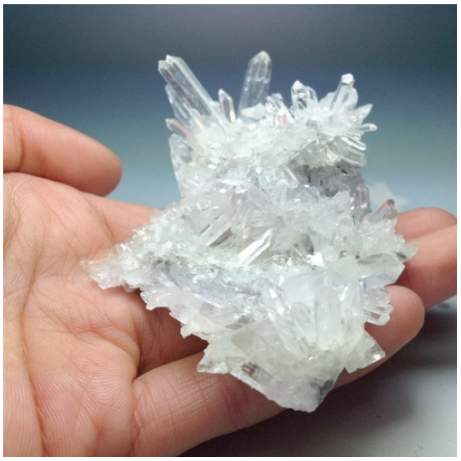


Figure 6. Example of Rock Minerals

Bloombogus is similar to rock mineral in the form of clean, simple, and modern sheet. Although it looks very textured but Bloombogus sheet is quite light. Therefore, the researchers tried to apply Bloombogus in fashion accessories.

Fashion accessories design refers to the WGSN trend report about 2015 jewelry trends. Researchers chose to develop one of the themes in the report trend, which is the theme of Industrial Evolution. This theme prioritizes a balance between function and art. It also includes a rigid silhouette, contain tubular element, combined with metal elements, combined with textured rock, and unconventional laying of rock.

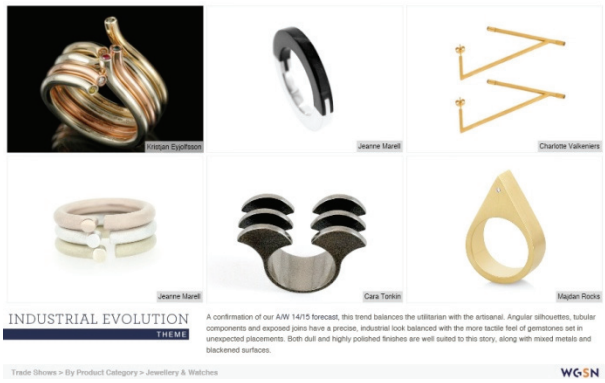


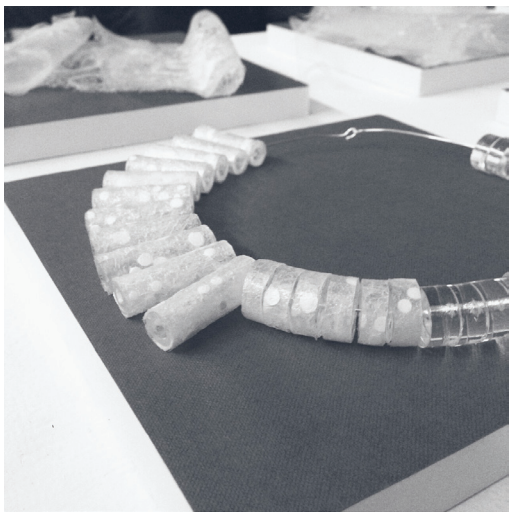
Figure 7. WGSN Jewelry Trend Report: Industrial Evolution

Based on that, the accessories designed are choker. Choker's shape (round), represent form follow function and simple. Rigid impression still shown on the form of conventional choker that is made of a round material containing metal elements. Bloombogus texture that is similar to rock also adds the stiffness impression. Besides, Bloombogus modular is shaped like a tube and is structured as a point of interest of the product.

Accesories product created consists of two chokers and a pair of bracelets.

3.2 Design And Prototype







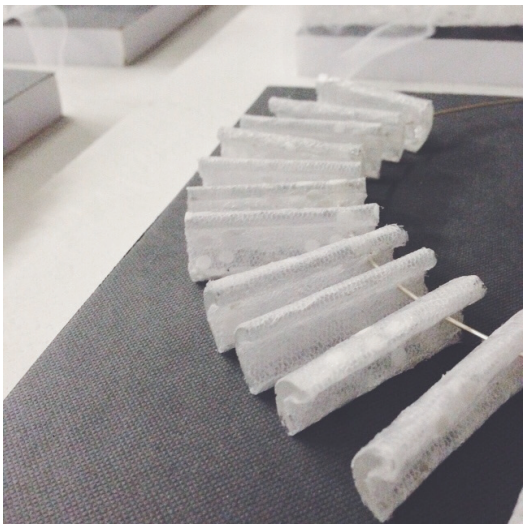


Figure 8. Results of Prototyping Products Consist of Necklace and Bracelet

4. CONCLUSION

- Bloombogus is the result of PE plastic exploration sheet with hot textile techniques, which in this study is focused as an alternative new material that can be applied on fashion products, textiles, or lifestyle products.
- Bloombogus can be widely developed. The addition of other materials is very possible to produce texture and structure variety.
- The primary objective of this study is to extend the product usage cycle, to add purpose, functional, and the economic value of PE plastic. The success of these objectives depends on the final product developed.
- This accesories product is still a dummy, it needs improvement in form and it needs more suitable metal material if it wanted to be sold. To make the choker manufacture to be even more better, it can use the artisan / jeweler services, so the shape and basic materials can be tailored with the user's wishes and the result is much neater. At the beginning of decorating choker, user can do it themselves or DIY. Making the dummy was conducted by researchers manually by using simple tools and materials available, to demonstrate that DIY products can be practiced and developed by anyone.

REFERENCES

Amhariputra, Ghafiqi. (2014, Juni). Traditional market delivery shopping, sebuah upaya mengurangi jumlah sampah plastik pasar tradisional dengan konsep socio-greenpreneur pemuda. *Academia Edu*. Retrieved Januari 20, 2014, from https://www.academia.edu/7272450/Traditional_Market_Delivery_Shopping_Sebuah_Upaya_Mengurangi_Jumlah_Sampah_Plastik_Pasar_Tradisional_Dengan_Konsep_Socio-Greenpreneur_Pemuda.

Fitriana, Dyah R. (2013, Maret). Jenis-jenis plastik. Retrieved April 27, 2015, from http://dyah-dyahrahayu.blogspot.com/2013/03/contoh-makalah-tentang-plastik.html

Jakpat. (2014, December 2014). [HASIL] Infografis Penggunaan Kantong Plastik. *Jakpat App.* Retrieved March 29, 2015, from http://blog.jakpat.net/kantong-plastik/.

Jenis-jenis plastik dan penggunaannya. (n.d). Retrieved April 20, 2015, from http://www.pancabudi.com/pe.php.

Mengenal lebih dalam tentang polyethylene. (n.d). Retrieved April 11, 2015, from http://www.kemasansinergy.com/mengenal-lebih-dalam-tentang-polyethylenepe/.

Morin, Brit. (2013, Februari 7). What is the maker movement and why should cou Care?. *Huffington Post.* Retrieved April 15, 2015, from http://www.huffingtonpost.com/brit-morin/what-is-the-maker-movemen_b_3201977.html.

Pardo, Nancy. 2011. *The New Era of Do-It-Yourself Manufacturing*. http://blogs.ptc.com/2011/10/31/a-new-era-of-do-it-yourself-manufacturing/

WGSN. (n.d). International jewellery London. Retrieved from Februari 3, 2015, from http://www.tadaandtoy.com/wp-content/uploads/2014/10/International_Jewellery_London_2014_-_Trend_Analysis-1.pdf

Production of an Eco-friendly Textile Colorants by Using Bengkoang (Pachyrizus erosus) for Replacing Rice (Oryza sativa) as a Substrates of Monascus purpureus

Ika Natalia Mauliza
Material Science and Engineering, ITB, Indonesia
nataliamauliza@gmail.com

Bambang Sunendar
Material Science and Engineering, ITB, Indonesia
purwa@tf.itb.ac.id

Mardiyati
Material Science and Engineering, ITB, Indonesia

***Abstract* —** Problems of synthetic dyes for textile dyeing process has been a concern to many people since a few years ago. Dyeing textile with synthetic dyes generate a negative impact to the environment. In response to these problems, various studies and applications using natural dyes began to develop after such a long post-substituted retroactively natural dyes by the presence of a synthetic dye. Natural dyes that used for textile processes dependence on environmental conditions, the length of time to grow and harvest period becomes another factor that must be considered. As an alternative solution of such problems, it is necessary to find a dyes that have the potential to be cultivated in a short time, the source of which is not limited to one type of plant or substrate, reproduceable of color characteristics, biodegradable, non-toxic, and the most important is able to interact with the fiber through bonding mechanisms.

Potential coloring material to be developed is dyes from fermentation of Monascus purpureus. Monascus purpureus fermented used as a food coloring, traditional medicine, also for textile processing. Since substrate is derived from rice which is one of the primary foods are used throughout the world. So we have to find another alternatives to replace the substrates with the basic criteria, which have sufficiently carbon and nitrogen, in addition to the determination of the fermentation process parameters such as pH, temperature, humidity, and surface area of the substrate. Selection of bengkoang as a substrate instead of rice because carbon and nitrogen content of natural, in addition to the utilization of by-product of starch production, pharmaceuticals, and cosmetics.

The purpose of this study is to produce a natural dyes that are environmentally friendly and has the potential to be used as textile dyes using Monascus purpureus grown on bengkoang instead of rice. Based on literature, the optimum fermentation process parameters are pH 6, moisture content of 50%, and fermentation temperature 30°C. Monascus purpureus first cultured on Potato Dextrose Agar for 3-7 days. Bengkoang peeled, grated and squeezed. The material is taken from bengkoang lees, then inoculated with Monascus

purpureus for several days to obtain a uniform red color. The substrate is dried and then characterized UV-Vis spectrophotometry and Fourier Transform Infrared Spectroscopy (FTIR).

Results showed that bengkoang lees really potential to give a red color and has a same color characteristics with the standard rice fermented and commercial angkak, which has an absorbance at the same maximum wavelength. Another important information is obtained functional group owned by the fermented material has a relatively similar character. That is, bengkoang lees potential as an eco-friendly textile colorants same as the color produced from the fermentation of rice.

Keywords – i.e. **bengkoang, fermentation, Monascus, natural dyes, textile**

1. INTRODUCTION

Colouring textile use a lot of water contains dyes as a main material, even in dyeing or printing process. A total of 230-270 m3 of water is needed to process one ton of textile materials (Diana de Santis, 2005). This reality will end up in the emergence of a variety of negative effects due to the use of chemicals that are not environmentally friendly. One of the main material in the textile dyeing process is dyes. Dyes which currently dominate the textile dyeing process is a synthetic dyes. More than 100.000 kind of dyes available in the world and 70 % of them are azo dyes. 50 % dyes from 1 billion tons production used for textile processing (Boyter, 2007). Each years, 200.000 tons of dyes in vain to the environment up to 500 ppm (Chequer, 2013). Besides the ecological impact on the environment, health impacts are increasingly popping up. The effects of the use of synthetic dyes such as azo dye of which is the emergence of health problems such as allergic reactions and cancer.

To overcome the problems, research and application of natural dyes in textile processing growing rapidly. Natural dyes has better biodegradability and higher compatibility with the environment than synthetic dyes. Natural dyes that used for textile processes dependence on environmental conditions, the length of time to grow and harvest period becomes another factor that must be considered. As an alternative solution of such problems, it is necessary to find a dyes that have the potential to be cultivated in a short time, the source of which is not limited to one type of plant or substrate, reproduceable of color characteristics, biodegradable, non-toxic, and the most important is able to interact with the fiber through bonding mechanisms.

One of the natural dyes that have been studied for the textile dyeing process is the dye from Monascus. Monascus is one of fungus which has the ability to produce a dyes during a phase of his life. They produce dyes in a short time and easy to control. Currently, commercially available Monascus grown on rice media, known as red yeast rice or should be acquainted with angkak. The use of rice as a medium of Monascus growth is less favorable, especially in terms of utilization of basic foodstuffs. To that end, it sought an alternative to produce dye from Monascus without having to disturb the balance of the ecosystem, through the utilization of waste from another main process. That is the main reason why we choose bengkoang lees as a fermentation media

The purpose of this study was to examine bengkoang as rice substituents media on Monascus purpureus fermentation process in order to produce textile dyes.

2. LITERARY REVIEW

Textile colorants are not only derived from higher plants. Microorganisms such as algae and fungi also have the ability to produce textile dyes. Fungi are ecologically interesting source for the textile colorants. One type of fungus that is able to produce color and has been developed as a dye, is Monascus. Commonly, Monascus grown on rice as a media and its products are known as red yeast rice or angkak.

Monascus species produce orange, water-insoluble pigments such as monascorubrin and rubropunctatin. These well-characterized compounds can be converted to high-purity red,

water-soluble pigments by reaction with amino acids, yielding monascorubramine and rubropunctamine (Horgan and Murphy, 2011).

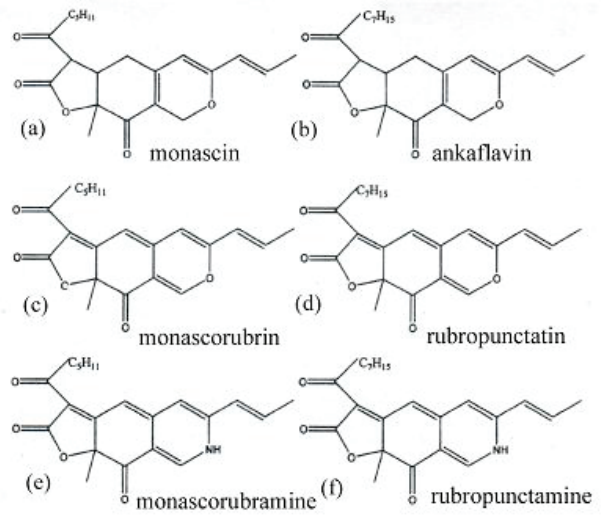


Figure 1. Chemical Structure of Monascus pigments, (a,b) yellow pigments, (c,d) orange pigments, (e,f) red pigments

Parameters that play a role in the production of the dye is nutrient content, pH, inoculum size, temperature, and moisture content (Nur Shazwani, 2012). Substrates that have the potential to produce pigment during fermentation, especially that contain starch (amylose and amylopectin), dextrin, glucose, maltose, galactose, fructose as a carbon source, and a protein as a source of nitrogen. The use of rice as a fermentation medium becomes significant constraints when it is connected to human consumption. Therefore, some of the research that has been developed is the search substrate capable of producing fermentation product quality without having to use a staple food. Media substrate selected in the present study is the yam tubers or bengkoang. Bengkoang provide as a substrate because it is not a staple food, but has a carbon content and nitrogen.

Based on previous research, bengkoang flour had 4.07% soluble dietary fiber, 51.21% insoluble fiber, 19.41% resistant starch, 172.81 ppm inulin, and 85.66 ppm raffinose (Purwandani, 2011).

Production of dyes by fungi is very advantageous because it can grow quickly, so productivity is high. In addition, fermentation methods which can be performed on solid media or better known as solid state fermentation will produce a dye with a large amount but the cost of relatively lower than in the submerged media (Nur Shazwani, 2012).

3. MATERIALS AND METHODS

Monascus Purpureus

Monascus purpureus cultures obtained from the microbiology laboratory of Chemical Engineering, Institut Teknologi Bandung. Culture of *Monascus purpureus* then maintained on Potato Dextrose Agar medium and subcultured every month.



Figure 2. Monascus purpureus culture

Media Preparation

Bengkoang washed and dried, then crushed using a blender. Bengkoang smoothed then squeezed and taken the dregs. Bengkoang lees is dried in an oven at 50 ° C for 2 days.



Figure 3. Step of bengkoang lees preparation

As a standard, rice is washed and dried, then crushed using a blender. The rice is dried in an oven at 50°C for 2 days.

Inoculation

40 grams bengkoang lees and rice put into the different erlenmeyer. Moisture content was adjusted to 50%. Bengkoang lees and rice then sterilized at a temperature of 121°C for 20 minutes and cooled at room temperature. Both media were inoculated with Monascus purpureus suspension of 20 ml to form a permanent red color on a substrate. Every day do the shuffle so that the growth of mold evenly.

The fermented solid was dried for 48 hours at 50°C in the oven. The dried fermented solids then were grind by using blender.



Figure 4. Bengkoang lees and rice before fermentation



Figure 5. Bengkoang lees and rice after 14th days fermentation

Dyes characterization

Each 1 gram of fermented bengkoang and rice mixed with 95% ethanol as much as 5 ml (Babitha, 2006). The mixture is then rotated at 200 rpm for 1 hour, then filtered. Filtrates diluted with dilution factor 20. The optical density (OD) measured using Genesys UV-Vis Spectrophotometer at 400, 470, and 500 nm.

$$Unit\ OD = \frac{OD\ x\ volume\ pelarut\ x\ faktor\ pengenceran}{berat\ media\ yang\ diekstrak\ (g)}\ (\text{UA/g})$$



(a)



(b)

Figure 6. (a) UV-Vis spectrophotometer, (b) filtration of dyes extract.

Dyes measurements

Monascus dyes measured by using 25 ml extraction from previous dyes characterization. Monascus dyes extract dryed at 80°C and solid content remained measured by analytical balance.

$$Dyes\ concentration = \frac{solid\ content\ (g)}{volume\ of\ extract\ (L)}$$



Figures 7. Measurement of total solid monascus dyes extract, bengkoang fermented extract (left) and rice fermented extract (right)

Fourier Transform Infra Red Spectroscopy

FTIR spectroscopy testing done at the Laboratory of Analytical Chemistry ITB. Measurements carried out by a laboratory technician at the Laboratory of Analytical Chemistry, ITB.

Dyeability test

2 grams of monascus dyes powder from bengkoang and rice fermented extracted in demineralized water. Extracts used to check dyeability of Monascus dyes to silk fiber.

4 DATA AND ANALYSIS

Dyes characterizations

Dyes production from Monascus purpureus can be seen at the table below.

Table 1. Optical Density of Each Fermentation Medium Extract

	UA/g		
Wavelength	**400**	**470**	**500**
Bengkoang	**0.713**	**0.375**	**0.367**
Rice	**1.687**	**1.586**	**1.553**

Optical density of each fermentation medium extract showed dyes production. The higher the optical density, means higher dyes production.

Dyes measurements

The concentration of the dye contained in each of the substrate measured by the following values. Measurements were made at three different wavelengths. A wavelength of 400 nm to measure the yellow dye formed in the early phase of production of dye, the wavelength of 470 nm to measure the orange dye that forms after the yellow color, and a wavelength of 500 nm to measure the red wana substances formed at the end of the growth phase of the fungus ,

Table 2. Concentration dyes in each substrate

Media	***Concentration (g/L)***
Bengkoang	1,524
Rice	2.148

On fermented rice, yield of Monascus dyes greater than fermented in bengkoang lees. When we use bengkoang lees, the substrate is a starch residual waste, so that the potential dye formed lower, due

to nutritional deficiencies. Nonetheless, bengkoang lees still potential as a medium and capable of producing Monascus dyes.

Fourier Transform Infra Red Spectroscopy

Infrared spectra is a simple absorption spectra that can identify functional groups. Test sample analyzed shot through the infrared radiation that whenever energy is equivalent to a particular and specific wavelength is absorbed, then the intensity of the radiation that reaches the detector will decrease, and then recorded in the spectrum. Measurement of infrared spectra were recorded using a frequency wavelengths (cm-1) which is an inversion of the wavelength in centimeters (500-4000 cm-1). The energy required to excite vibrations of bond indicated by wavelength or frequency.

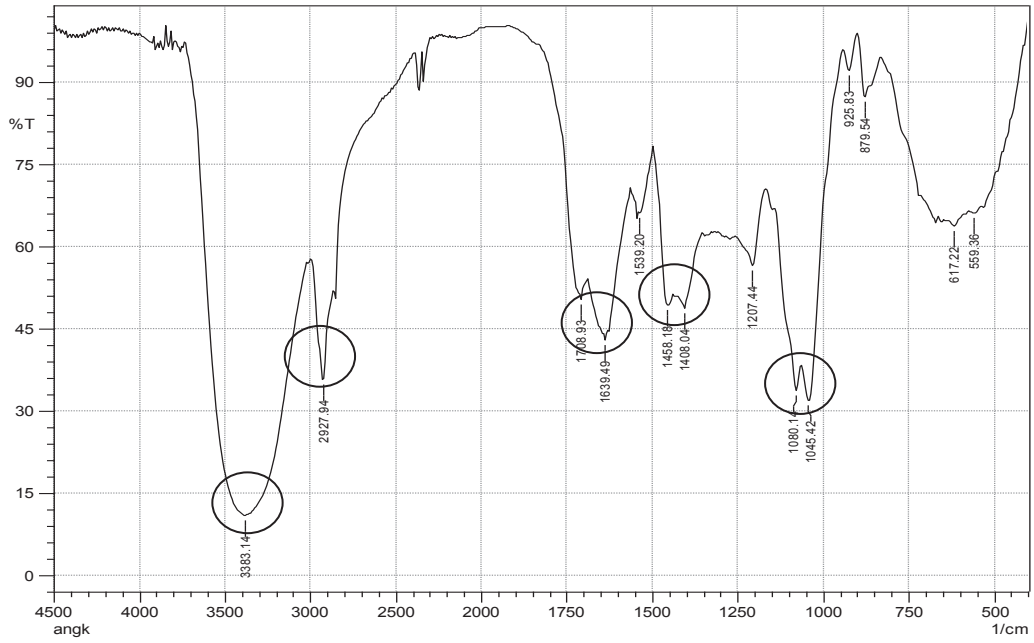


Figure 8. FTIR spectrum of fermented rice

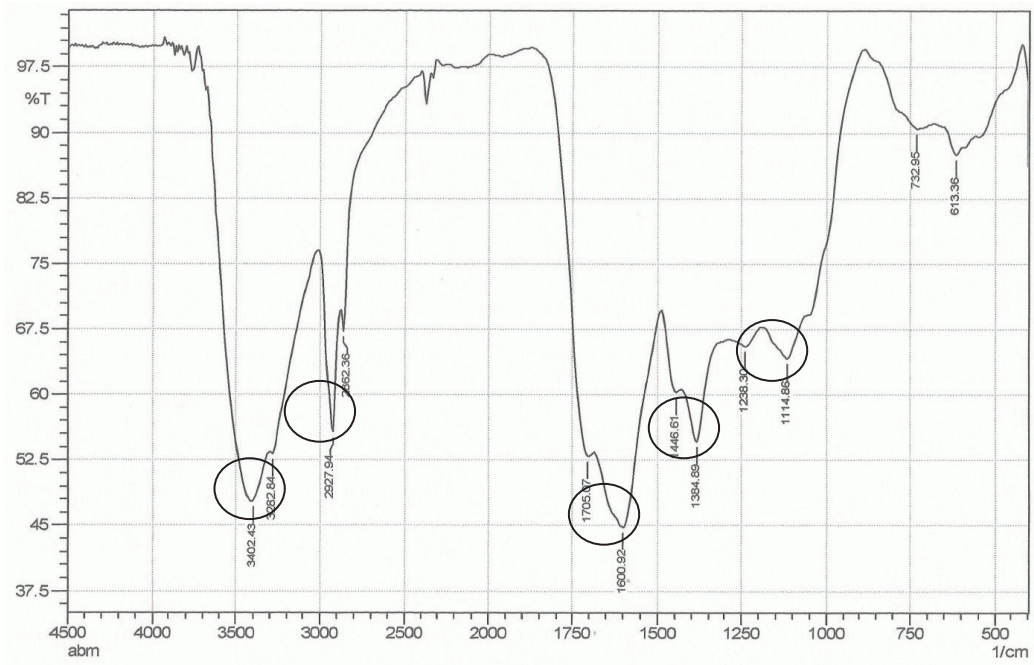


Figure 9. FTIR spectrum of fermented bengkoang

Based on the results of the FTIR spectra, both of extracts from fermented bengkoang and rice can be identified as Monascus dyes. The extracts has an aromatic compound with a ketone group, carboxylic, and other groups that are identical to the criteria of Monascus dyes.

Dyeability Test

Dyeabiliy test determines the potential of the color resulted on silk fiber. The result such as seen in the picture below.

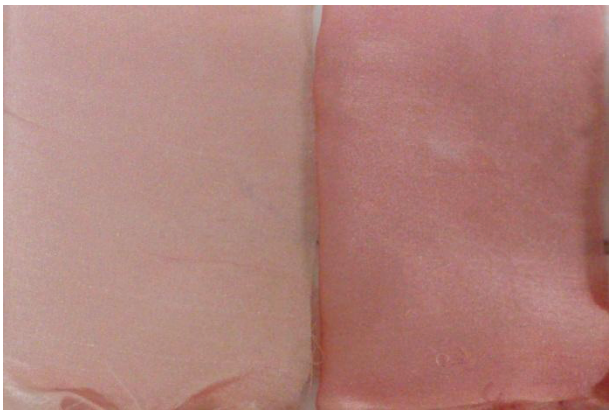


Figure 7. Dyeability test of Monascus dyes from fermented bengkoang (lef) and rice (right)

Through visual observation, dyeing textiles using fermented bengkoang lees extract much younger than fermented rice extract. This is consistent with the data on the measurement dyes. Nonetheless, silk fibers have been successfully stained by bengkoang lees extract, so the tentative conclusion is that the bengkoang waste can be used as a medium for Monascus fermentation, and the dyes are able to dye silk fibers.

4. REFERENCE

Bechtold, Thomas dan Rita Mussak. (Ed.). (2009). *Handbook of Natural Colorants*. John Wiley and sons Ltd. West Sussex

Broadbent, Arthut D. (2001). *Basic Principles of Textile Coloration*. Canada : Society of Dyers and Colourists

De Santis D. et al. (2005) Assessment of The Dyeing Properties of Pigments from Monascus purpureus. *J. Chem Technol Biotechnol 0268-2575*

Feng, Yanli, et al. (2012) Monascus Pigments : Mini Review, *Appl Microbiol Biotechnol 96:1421–1440*, Springer-Verlag Berlin Heidelberg

Pattanagul, P, et al. (2007) Review of Angkak Production (Monascus Purpureus). *Chiang Mai J Sci, 34(3), 319-328*.

Jung, H., Y. Kim and C.S. Shin (2003). Color Characteristics of Monascus pigments derived by Fermentation with Various Amino Acids. *Journal of Agricultural and Food Chemistry. 51, 1302-1306*.

Velmurugan P. et.al. (2009). Assesment of The Dyeing Properties of Pigments from Five Fungi and Anti-Bacterial Activity of Dyed Cotton Fabric and Leather. *Coloration Technology, 125, 334-341*

Velmurugan, P, et al. (2010). Dyeing of Cotton Yarn with Five Water Soluble Fungal Pigments Obtained from Five Fungi, *Fibers and Polymers, Vol.11, No.4, 598-605*.

Velmurugan P.et.al (2011). Monascus Pigment Production by Solid – State Fermentation with Corn Cob Substrate, *Journal of Bioscience and Bioengineering Vol. 112 No. 6. 590 – 594*.

Velmurugan P. Et al (2012). The Use of Cochineal and Monascus purpureus as Dyes for Cotton Fabric. *Coloration Technology, 129, 246-251*

Wastewater Treatment Plant Design of IKM Batik Process with Coagulation-Floculation and Sedimentation Methods

Octianne Djamaludin
Politeknik STTT Bandung, Indonesia
annedjamiil@yahoo.com

Juju Juhana
Politeknik STTT Bandung, Indonesia
JJuhana@yahoo.com

Maya Komalasari
Politeknik STTT Bandung, Indonesia
mayakomala@yahoo.com

Abstract - Batik has been recognized by the UNESCO as a cultural heritage of Indonesia. UNESCO recognition is made batik entrepreneurs advanced in the work, so IKM (Industri Kecil Menengah) Batik production also increased. Generally batik process consist of patterning, "batik", printing or dyeing, "pelorodan" or waxing removal, and finishing. IKM Batik in the production process is much use of chemicals and water that can generate liquid waste, especially in the process of printing and dyeing. The pollutants of batik industry contained heavy metals, suspended solids, or organic substances that can be harmful to humans and the environment. Pollution caused by waste the results of IKM Batik activities need to be treated before being discharged into river as a receiving water bodies. Therefore, this research design a wastewater treatment basin IKM Batik with Coagulation-flocculation-sedimentation methods to tackle pollution caused by production activities in IKM Batik. Laboratory test results show the value of batik is very high COD, 345.7 mg / l, while according to the Regulation, the value of quality standards for COD was 150 mg/l. The treatment plant is designed capacity of 3-15 m^3/day and made simple and practical, so that can be applied easily by practitioners in IKM Batik.

Keyword : Wasterwater, Batik, Coagulation, Floculation, Sedimentation

1. INTRODUCTION

Batik has been recognized by the United Nations as a UNESCO world cultural heritage of Indonesia. The UNESCO recognition makes entrepreneurs of batik create more vibrant in the work. However, the increase in the volume of Batik IKM are not in line with the knowledge of the craftsmen to process waste which can result in environmental damage and pollution can harm the surrounding environment.

Batik process generally consist of patterning, batik, coloring or dyeing, pelorodan or removal wax, and refinement. According Purwaningsih (2008) at Widyaningrum (2012), the production process, especially batik dyeing waste have high COD content, and Kurniawan (2013) revealed that the batik industry is a producer of organic liquid waste with high volume, color density, foul-smelling, has a high temperature, high pH (acidity or alkalinity), high concentrations of BOD and COD, while according to the Regulation of the Minister of Environment in 2010, the value of the quality standard is 100 ppm for COD, BOD 60 mg / l, and TSS of 50 mg / l.

Waste pollution as a result of production activities in the batik IKM can be prevented by treating the waste produced before being discharged into the river. Waste treatment process can be performed by various methods, such as coagulation, flocculation,

sedimentation, adsorption, and electrochemistry. Setyaningsih research results (2007) recording to Riyanto (2012) obtained, "*one of the best ways to waste treatment with efficiency up to 100%, ie with various series of experiments such as coagulation – flocculation-sedimentation, coagulation-floatation, coagulation-flocculation-sedimentation-adsorption or adsorption processes*".

Based on that, the design of wastewater treatment Batik IKM with Coagulation-flocculation-sedimentation methods to tackle pollution caused by production activities in the IKM Batik. The treated waste is expected to lower than the environmental quality standards before being discharged, so the recipient water bodies that serve as a source of clean water for the community is not polluted and can be used as process water or drinking water production.

2. METHODES

This study is limited only to the design of waste processing unit with the process of Coagulation-Flocculation-Sedimentation (KFS). The study begins with the analysis and test characteristics of the waste generated by IKM Batik, either experimentally in the laboratory, as well as with the study of literature. Jartest then performed, in which each type of coagulant with various concentrations added in the same waste. After jartest, conducted an analysis to test the quality of the final waste with a few parameters, namely the degree of acidity parameters (pH), Total Suspended Solid (TSS), Biochemical oxygen demand (BOD) and chemical oxygen demand (COD).

Coagulant types have low concentrations but were able to lower the value of TSS, BOD, COD and high is the type of coagulant that can be recommended for use in the processing of waste and used for the determination of the needs of coagulants and coagulant tank design.

Details and dimensions of the tub is designed in accordance with design criteria contained in some of the literature. For example the design criteria for coagulation-flocculation basin with a paddle as complementary quoted from writings Tchobanaglous Books (1991) or Sedimentation basin in a book written by Syed Qasim R (1985) with a variety of adjustments. Sewage treatment plant designed capacity is limited to 3-15 m3 / day of liters per day. The unit is only designed to treat waste capacity is smaller IKM.

3. RESULT AND DISCUSSION

Management and treatment of industrial waste for a number LH regulated by Decree 51 / MENLH / 10/1995 and followed up Government Regulation No. 82 of 2001 on the Management of Water Quality and Water Pollution Control. The treated waste must meet environmental quality standards in order to receiving water bodies that serve as a source of clean water for the community is not polluted and can be used for other purposes, such as process water or drinking water.

Technically, waste reduction efforts, especially dye produced from batik dyeing process has been developed in a variety of management methods. Management measures need to be implemented in an integrated manner to get results effectively and efficiently, that is minimization of waste, sewage treatment, and disposal.

In the determination of the system and wastewater treatment technology IKM Batik necessary data regarding the condition of the land, the quality and quantity of wastewater generated. According PPLP DPU (2011), in the selection of wastewater treatment technologies, there are several things to be considered, among others; the quality and quantity of waste water to be treated, ease of operation and human resources that meet the qualifications for the operation of selected types of Wastewater Treatment Plant, the amount of accumulated sludge, needs and availability of land, operating costs, the expected quality of processed products, and energy requirements.

The design is based on the design criteria from the literature, so that the resulting performance can reduce levels of waste to below the quality

standards stipulated in the Decree of the Minister of Environment No. Kep-51 / MenLH/ 1995 **(Table. 1)** on effluent standards for industrial activity is expected to have the results of the processing the value of BOD, COD, TSS, and pH of no more than 50 mg / l, 150 mg / l, 50 mg / l, and 6-9.

Tabel 1. Baku Mutu Limbah Industri di Indonesia

Parameter	Satuan	Baku Mutu Lingkungan			
		Kep-51/MENLH /10/1995	SK Gubernur Jawa Barat Tahun 1999	SK Gubernur Jawa Timur No.45 Tahun 2002	Perda Provinsi Jawa Tengah No.10 Tahun 2004
Temperatur	°C	-	-	38	38
BOD	mg/l	60	85	50	60
COD	mg/l	150	250	150	150
TSS	mg/l	50	60	50	50
pH	-	6,0 – 9,0	6,0 – 9,0	6,0 – 9,0	6,0 – 9,0

Wastewater treatment plant is designed with a capacity of 3-15 m3 / day, consisting of tubs and tanks coagulation, flocculation basin, and sedimentation tanks. Coagulation Bak design aims to brief the stirring process with rapid agitation with added coagulant type and dosage appropriate to enable the destabilization of colloids in the waste solution. Flocculation tank designed like coagulation tank but flocculation process requiring mixing speed is slower and more time so that the formation of floc-floc (incorporation of particles larger partike). The next, designed the sedimentation tanks, a bath to precipitate particle coagulation-flocculation process results so that all the particles can settle to perfect.

3.1. Coagulation and Floculation Tank

The type and dosage of coagulant is added is determined from the results of jartest because the results can be different if different types of waste. Jartest results on the graph in Figure shows that the optimum coagulant for treating such waste is Fe_2SO_4 much as 5 g / l of waste.

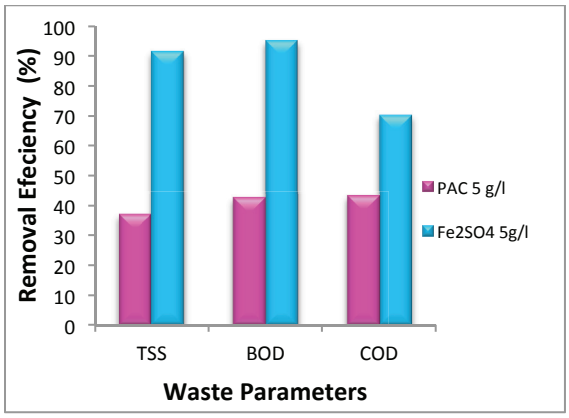
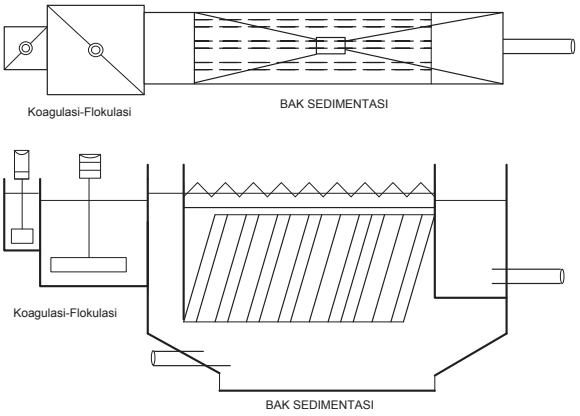


Figure 1. Removal Efeciency of TSS, BOD, COD from Jartest

Bak Flocculation result of this design dimensions 550mm x 550mm x 690mm and is equipped with a mechanical stirrer such as paddle moving at 20 rpm. Paddle mounted 270 mm from the bottom of the flocculation basin with a blade width of 330mm and height of 41mm blade.

3.2. Sedimentation Tank

Sedimentation tanks consist of three zones, namely the inlet zone, the deposition zone and outlet zone. Sedimentation tanks designed square shaped (rectangular) dimension of 1750mm x 350 mm x 1200 mm, based on the calculation of the design flow control surface loading of 0.8 m3 / m2 / h has met the criteria for the design of sedimentation tanks in the amount of 0.8 to 2.5 m3 / m2 / h. The design of sedimentation tanks equipped with plate settlers, that is tilted at an angle 30-60°C media and the perpendicular distance between the plates of 25-50 mm, serves to increase the efficiency of deposition processes of coagulation and flocculation results. Design sketches can be seen in the image below:



Picture 2. Design coagulation-sedimentation-Floculation Tank

4. CONCLUSION

Results of the draft in the form of a coagulant bath with a length of 200 mm, width 200 mm and height of 250 mm are equipped with paddle speed of 100 rpm, and Flocculation tank dimensions 550mm x 550mm x 690mm with a paddle rotating at a speed of 20 rpm. Five (5) g / l Fe_2SO_4 is a coagulant that optimum levels of TSS to set aside up to 91.40%, 94.97% BOD and COD 70.20% with a pH of 3.364. Sedimentation tanks designed square shaped (rectangular) dimensions 1750 mm x 350 mm x 1200 mm and is equipped with a plate settler who has a slope of 60 ^{o} and the perpendicular distance between the plate 50 mm to improve the efficiency of the precipitation floc.

ACKNOWLEDGMENT

Special thanks to Politeknik STTT Tekstil Bandung which give the support for this paper dan experiment facilities.

REFERENCES

Lingkungan Hidup, Kep-51/MENLH/1995 Tentang Baku Mutu Limbah Cair Bagi Kegiatan Industri. Jakarta

Anonim, SNI 6774 :2008, Tata Cara *Perencanaan Unit Paket Instalasi Pengolahan Air*, BSN, ICS 93.025

Kurniawan M. wawan, Purwanto, Sudarno, 2013, *Kajian Pengelolaan Air Limbah sentra Industri Kecil dan Menengah Batik dalam Perspektif Good Governance di Kabupaten Sukoharjo*, Prosiding Seminar Nasional Pengelolaan Sumberdaya Alam dan Lingkungan, ISBN 978-602-17001-1-2.

Qasim Syed R., 1985 *Waste Treatment Plants Planning, Design, and Operation*, New York, CBS College Publishing.

Riyanto, 2012, Penemuan Teknik Baru untuk Pengolahan Limbah Batik, FMIPA, Universitas Islam Indonesia, (bappeda.slemankab.go.id/wp-content/uploads/2012/03/PENEMUAN-TEKNIK-BARU-UNTUK-PENGOLAHAN-LIMBAH-BATIK.pdf)

Suhartini, Mahbubah N.A., Muid Abdul, et al., 2011, *Rancangan Sistem Informasi Pengukuran Green Productivity dan Enviromental Management Accounting untuk Pengembangan Usaha Kecil Menengah*, Prosiding Seminar Nasional Manajemen Teknologi XIII, Program Studi MMT-ITS, Surabaya.

Tchbonouglous M, 1991, *Waste Water Engineering Treatment Disposal System*, Third Edition, Metcalf&Eddy, Mc Graw – Hill Book.co, Singapore.

Widyaningrum, Diana Elma, 2012, *Strategi Pemasaran Kampung Batik Laweyan Solo,* Fakultas Ekonomi Universitas Indonesia, Jakarta.

Utilization of Natural Materials For Textile Dyeing Based Enviromentally Friendly

Maya Komalasari
Politeknik STTT Bandung, Indonesia
Maya.komalasari@yahoo.com

Ika Natalia Mauliza
Politeknik STTT Bandung, Indonesia
Nataliamauliza@gmail.com

Octavianne Djamaludin
Politeknik STTT Bandung, Indonesia
Annedjamiil@yahoo.com

Abstract — *The use of natural dyes this currently developed. Those advantages are environmentally friendly when waste results in the colouring process waste into the environment. This is of concern to developing the potential of natural materials. In the present study were taken from natural materials such as back of wood, bark of plants such as high,skin jelawe seed , bark jambal and tegeran skin. In principle, the skin of the plant etraction process is carried out then the etract solution is used to dye cotton fabric , silk fabric and fixation process using lime/chalk ($CaCO_3$). As for natural dyes dyeing process begins with mordant process with the aim to increase the aborption of color, flatness and color sharpness and then immersion fixation and washing. Testing was conducted to determine the absorption of aging colour (K/S), brightness (L) and colour direction (a,b) on cotton materials using standard spectrophotometer SNI ISO 08-4657-1998. Then testing colour fastness to washing with laounderometer machine using standard SNI ISO 105-C06-2010. And colour fastness to perspiration using standard SNI ISO 105-E04. The result for absorption of aging colour (K/S) was obtained at λ maks 360 nm, the skin Tegeran with K/S 33,422 brightness value (L) 69, 703 and direction colour for (a) 8,806 and (b) 59,751 leads to yellow, for silk the skin Tegeran with K/S 14,463, brightness value (L)52,561 and direction colour for (a) 14,907 and (b) 17,899. Bark Jambal absorption of aging colour K/S 4,805 brightness value (L)73,351, and direction colour for (a) 9,417 and (b) 11,4 leads to cream, for silk K/S 33,422 brightness value (L) 63,67 and direction colour for (a) 8,806 and (b) 59,751 leads to yellow, for silk with K/S 2.76, brightness value (L)52,561 and direction colour for (a) 11,245 and (b) 21,21 Jelawe seed coat absorption of aging colour K/S 6,845, brightness value (L) 68,693 and direction colour for (a) 17,91 and (b) 20,926 leads to brownish green, for silk K/S 2,631 brightness value (L) 64,86 and direction colour for (a) 3,054 and (b) 28,132. Bark of plants such as high K/S 34,346, with brightness value (L)44, 978 and direction colour for (a) 19,575 and (b) 19,643 leads to brown. For silk K/S 31,967 with brightness value (L) 54,787 and direction colour for (a) 19,035 and (b) 23,767. The result colour fastness to washing give a good wash for all that 4-5. Experimental result with the use of dyes using lime fixation give direction resulting colour is closely related to the type of material nature, fixation material and the duration of the dyeing process.*

Keywords-natural dyes, extraction,cotton, silk, lime

1. INTRODUCTION

Concern for the environmental, depletion of fossil fuels, and consumer demand for eco-friendly products and well being are driving force to develop green process in textile

dyeing and finishing areas. Eco-friendly and biodegradable dyes derived from natural resources have emerged as important alternative to synthetics dyes. The use of natural dyes may be more beneficial especially if dyes are extracted from unused waste products such as pomegranate hull removed during food processing. Pomogranate hull contains various phenols such as ellagitannin, ellagic acid and so on. (*Yoounshook Shin*, *2010*). Natural dyes are extracted from different parts of plants including bark, leaf, root, fruits or seed and flower that contain coloring material such as tannin, flavonoids and quinnoids. The natural dyes also come from some types of microorganisms such as fungi, algae and bacteria, These dyes can offer not only a rich and varied source of dyestuff, but also could be considered as safe environmentally friendly and low-cost treatment with additional benefit of coloring in a single stage (*Samantha 2011*).

Natural dyes can be produced from plants such as from parts of stems, roots leaves, flowers, bark, and so on. The resulting color covers basic color and color-warrants combinations like brown, orange and indigo. In this research is in the form of wood bark wood plant that is steeper (C*eriops candolleanaarn*), skin jelawe seeds, bark jambal (*Peltthophorum ferruginium),* and skin tegeran (*Cudraina javanensis*). To obtain a high fastness performed fixation process that aims to sharpen the color and the color does not fade.

II. Eksperimen

Coloring process is done by dyeing using natural coloring materials such as bark high, jalawe grain leather, bark and wood jambal tegeran. Fikasasi used is Lime. Other materials used are distilled water, soda ash, sodium chloride. The dyeing process is done on the materials Cotton and Silk. The tests were conducted aging tests Colour and direction of colors using the spectrophotometer and color-fade resistance tests to washing using Standard (SNI ISO105-CO6: 2010), colour fastness to perspiration using standard SNI ISO 105-E04 and testing used Gray Scale and Staining Scale (ISO 105-A02-2010) using a cloth Multifiber.

2.1. Extraction of natural dyes

Extraction of dyes from the natural sources could be one of the most important steps for the treatment step for the treatment of textiles to achieve the desired dyeing properties. Moreover obtaining a standard extraction process and optimizing the extraction variables for particular natural sources are economically important and consequently affect the end-product price.

Extraction is done by using the extraction 1: 15, ie 1 kg of material by as much as 15 L of water, boiled till it becomes 1/3 volume. Extraction resulting solution is filtered and ready to be used as natural dyes.

2.2 Mordanting and dyeing process

Staining of cloth covering pemordanan, dyeing with dye and fixation process using lime. After the dyeing process is done the washing process.

2.3 Application of natural dyes on textiles

In application of material from natural sources onto textiles, fastness properties such as wash, light, and perspiration are often in low and undesired level. This can be due to heterogenicity, diversity and complexcity of natural matters as well as their weak or negligble interactions with textiles. Low fastness properties limit the application of such useful eco safe, low cost natural material in the treatment of textiles in spite of their various beneficial properties. Hence, to surpass this drawback, additional treatment are often needed to enhance the durability and value of textile product. Treatment processes can be performed be on textile. (Cash.et.al, 2009). In this research application of natural on textiles for cotton fibers and silk fibers.

Stucture modification of textiles

Silk fibers are protein-based and both have a general chemical formula NH_2.CHR.COOH. There are various functional groups that can be

found in proteins, which determine the polymer properties. The most important ones for the dyeing of wool and silk with acid dyesare COOH and NH_2 (Khan, 2011). Cotton fiber are selulose-based with functional group COOH. In dyeing process, dyes in solution are adsorbed and diffused into the fiber, establishing with it physico-chemical interactions (Broadbent, 2001). However, the dyeing process with natural dyes is still quite empirical. The process is scarcely reported in literature, as well as investigations related to the sorption mechanism.

2.4 Testing

To determine the affinity of the dyeing results of testing carried out include: using Standard (SNI ISO105-CO6: 2010)colour fastness to washing, colour fastness to perspiration using standard SNI ISO 105-E04 and testing used Gray Scale and Staining Scale (ISO 105-A02-2010) using a cloth Multifiber**.**

3. RESULT AND DISCUSSION

3.1 Testing K/S with Spektrofotometer

Based on the above test results of test results K / S obtained at λ max 360 on Cotton and silk can see in Tables 1. The value of K / S highest extraction results obtained in the use of bark as high as for materials Cotton and Silk, whereas for all brightness values provide a good value that is 40 to 70 percent, while for the color direction with fixation using chalk provide direction different colors ranging from yellow, beige to brown color. Generally the direction of color fixation with the use of lime is brown.

Tabel 1. Testing Aging Colour K/S with Spektrofotometer from different natural material

Application on textiles	Cotton				Silk			
Natural material	K/S	L	a	b	K/S	L	a	b
tegeran skin	33.422	69,703	8,806	59,751	14.463	52,561	14,907	17,899
bark jambal	4.805	73,351	9,417	11,400	2.761	63,673	11,245	21,217
skin jelawe seed	6.845	68,693	17,91	20,926	2,631	64,860	3,054	28,132
bark of plants such as high	34.346	44,978	19,575	19,643	31.967	54,787	19,035	23,767

Note : K/S : Ketuaan warna, L = Lightness, a = hue , b = hue

3.2 Colour Fastness To Perspiration Acid and Alkali

3.2.1 Cololour fastness to acid perspiration

Tabel 2. Testing Colour Fastness to Acid Perspiration with different natural material

Appliation on textiles	Cotton						Silk					
Multifiber	asetat	cotton	nylon	poliester	Acrylic	wool	asetat	cotton	nylon	poliester	Acrylic	wool
Natural material	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
tegeran skin	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
bark jambal	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
skin jelawe seed	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
bark of plants such as high	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
tegeran skin	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5

3.2.2 Colour fastness to alkali perpiration

Tabel 3. Testing Colour Fastness to Alkali Perspiration with different natural material

Appliation on textiles	Cotton						Silk					
Multifiber	asetat	cotton	nylon	poliester	Acrylic	wool	asetat	cotton	nylon	poliester	Acrylic	wool
Natural material	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
tegeran skin	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
bark jambal	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
skin jelawe seed	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
bark of plants such as high	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
tegeran skin	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5

Based on the results of resistance testing good color fastness in perspiration acid and alkaline is done on fabric Multifiber give 4-5 can be seen in Tables 2 and 3. This value has been qualified at least 3 (Kasmudjo, et.al 2007). This is presumably because the material can bind strongly fixation dyes on fabrics and dyes can fixate into the fabric fibers perfectly. This is because that the dye is already fixed into the cloth fibers perfectly and washing process after dyeing. The dye will not loose by perspiration acids and alkali..

3.3 Colour Fastness To Washing

Tabel 4. Testing Colour Fastness to Washing with different natural material

Appliation on textiles	Cotton						Silk					
Multifiber	asetat	cotton	nylon	poliester	Acrylic	wool	asetat	cotton	nylon	poliester	Acrylic	wool
Natural material	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
tegeran skin	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
bark jambal	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
skin jelawe seed	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
bark of plants such as high	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5
tegeran skin	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5	4 - 5

Based on the results of testing color fastness to washing is done on fabric Multifiber give 4-5. This value has met the minimum requirement 3-4 (*Kasmudjo, et.al 2007*). The nature of color fastness to washing is determined by the strength of the bond occurring between the fiber with dye. Testing of textile materials made by using a solution of soap and

mechanical movement, if the bond stronger the color of the fabric will not fade, and it is also influenced by substances fixation in this case Ca^{2+} from a solution of lime would cause the bond between these ions with tannin has been in the bonded fiber so that dye molecules nature inside the fiber becomes greater. This resulted, molecules of natural dyes would be difficult to get out of the pores of the fiber and will strengthen fastness.

4. CONCLUSION

Natural materials such as wood bark of plants like *tegeran skinbark jambal, skin jelawe seed, bark of plants such as high, and tegeran skin* can potentially be used as natural dyes.

Fixation with the use of lime can provide a direction different colors on cotton and silk, the color tends toward brown.

Quality colour fastness to washing, and colour fastness to perspiration acid and alkali the result good value i.e 4-5.

5. REFERENCES

Younshook Shin., (2010) Green Chemistry in Natural Dyeing:Application of Chitosan for Dyeing Protein/Cellulose Belnd Fabric.

Agarwal, (2009), Ali Husain T Nazar, (2009) Optimization of alkaline extraction of natural dye from Henna leaves and its dyeing on Cotton by exhaust method.

Samantha (2011) Dyeing of textiles with natural dye In Kumbaar EPA (ed) Natural dyes.

(Kasmudjo, et.al 2007). Pemanfaatn daun Indigofera Sebagai Pewarna Alami Batik.

(Kasiri, 2011). Photooxidative decoloration of two organic dyes with different chemical structure by UV/H_2O_2 process experimental design.

(Broadbent, 2001)Bacholt T, (2007) Reuse of ash-tree (Frashinus axolsior L) bark as natural dye for textile dyeing process condition and process stability.

Noor Firtihana, ST , Teknik Eksplorasi Zat warna alam pada Pencelupan Bahan Tekstil.

Masoud B.Kasiri., (2013) Natural dyes and antimicrobial for green treatment of textiles.

SNI ISO105-CO6: 2010 : Colour fastness to washing.
SNI ISO 105-E04 colour fastness to perspiration.
ISO 105-A02-2010 evaluate for colour change testing used Gray Scale and Staining Scale.

Experiments of Utilizing Wasted Onyx Stones as Jewelry

Evan Primavera
Sepuluh Nopember Institut of Technology, Indonesia
evanprimavera@gmail.com

Eri Naharani Ustazah
Sepuluh Nopember Institut of Technology, Indonesia
naharani@prodes.its.ac.id

Abstract — Onyx is one of the natural stones that is commonly treated as a craft. Onyx has a white background color and has a multi-layered fibers with different colors such as brown and black. The appearance of onyx stones are clear, translucent and a bit opaque. Small pieces of onyx sized 0.5 – 5 cm are usually left as wasted onyx after a production process. The amount ofwasted onyx is abundant and reusable. Wasted onyxs with small size is processed into onyx powder then sold to feed mills as a mixture of concentrate feed. However, beautiful appearance of small sized onyx should be an opportunity to processit into jewelry. Through design development of wasted onyx as jewelry, it will be a way to increase the value of wasted onyx.

The study began with data collection consisted of observation, dept interviews and literature reviews. To develop wasted onyx into jewellery requires exploration of treatment possibilities, including experiments incutting, forming and combining it with other materials such as silver and other gems. Wasted onyx from Bawean was cutted using rough cutting technique. Meanwhile, *cabochon* cutting technique was applied to wasted onyx from Nganjuk and Blitar because the latter tended to be hard and have a contrasting fibers, which is unique. Extreme treatments by burning and dipping wasted onyx into HCL was also done, in order to know the endurance of the onyx resulted from the experiment.

Next is dying process of onyx using chemical and organic material in accordance with the characteristic of material. Brush technique was applied during dying technique. The next stage is the development of the aesthetic aspects of the jewelry. The design development was conducted by using morphological chart with thematic concepts.

This experiment resulted in a variety of wasted onyx for jewelry with the concept of natural and coralia series. The processed wasted onyx was also combined with silver or gems, then developed into rings, bracelets and necklaces.

Key words - **Jewelry, wasted onyx stone, craft**.

1. INTRODUCTION

This research departed from efforts to explore the abundant wasted materials of onyx stone craft as well as efforts to develop the potential of jewelries in Indonesia. The wasted onyx stones can be easily found in Tulungagung, East Java as the marble and onyx craft industry center. The industry absorbed around two thousand craftmen with production that reached 4.570.000 unit per year.

The onyx stones utilized as craft material were taken from Bawean, Nganjuk and Blitar. The onyx from Bawean is white colored, glassy and translucent. Meanwhile, onyx stones from the Nganjuk and Blitar came with more varied colors and fibers. Each of the onyx stones has distinct characteristic. The stones were then processed in the craft center in Campurdarat village, Tulungagung. These crafts include lampshade, vase, jar, statue and other interior ornaments, to name but a few. However, these products left unutilized wasted materials.



Figure 1. Pile of wasted onyx cuts in one of onyx craft centers in Tulungagung.(Source: personal document)



Figure 2. Flakes of wasted onyx products (source: personal document)

The issues raised within this research are as follows:

- How to explore the potential of wasted onyx crafts to be jewelry.
- How to design jewelries made of wasted onyx stones combined with silver and other gems.

2. LITERATURE AND THEORY

Characteristics of onyx stone

Onyx is under the categorization of chalcedony. It is basically white and consisted of multi-layered fibers with different colors such as brown and black. Also, onyx has the quality of being clear and transculent but some are a bit opaque. The black onyx were often utilized as jewelries but they were usually resulted from dying process. The characteristic of onyx can be seen from the following table:

Tabel 1. Characteristic of Onyx

Color	White, black, grey, yellow, brown, multilayer
Solidity	7
Crystal system	Hexagonal
Transparancy	*Translucent* to *Opaque*
Radiance	Glassy
Mineral class	Quartz (Chalcedony)

Since long time ago, onyx has been utilized as ornament such as statues and carvings. It also used to be cutted into small pieces to make cabochon and beads, which then were developed into necklaces, bracelets and rings.



Figure 2.Utilization of onyx (Source: https://www.pinterest.com/)

Cutting technique

Cutting (or lapidary) is a technique of processing rough stones to be jewelry. This process comprises shaping the stones, revealing their radiance and colors quality, and preparing them to be jewelries. The following is an instance of how cutting was applied to onyx:

a. Facet
It is a conventional gemstone cutting technique.The shape resulted is geometric with flat surface.

b. Cabochon
This cutting technique is applied to make the whole surface of the stone flat and smooth

Stonesetting studies

Stonesetting is an art of combining stones with jewelries. There are various stonesetting techniques, which depend on the shape, size and number of stone to be set up. Some different stonesettings are Prong, V-Prong, Bezel, Channel, Pave, Tension, Bar.



Figure 3. Various Stone setting Techniques. (Source:http://www.allaboutgemstones.com/gemstone_settings.html)

3. RESEARCH METHODS

The method applied in this research was :

Preliminary study

This research was started with collecting data about posibilities of utilizing onyx stone as jewelry. The data were collected via observation of and interviews with onyx and jewelry craftmen as well as documents/ literatures studies.

Experiment and analysis

This is the phase of studying the characteristics of onyx material and its processing. It was then followed with experiment of processing onyx to be stone jewelry. This process refered to literature-based ideas and techniques of processing onyx material discussed later within this article.

Design Development

The result of the experiment was then developed into jewelries such as rings, bracelets and necklaces. The process was began with designing the jewelries according to their serial themes and utilities.

4. RESULT AND DISCUSSION

Onyx is under the categorization of chalcedony. It is basically white and consisted of multi-layered fibers with different colors such as brown and black. Also, onyx has the quality of being clear and transculent but some

are a bit opaque. This research applied experiments that followed the below scheme:

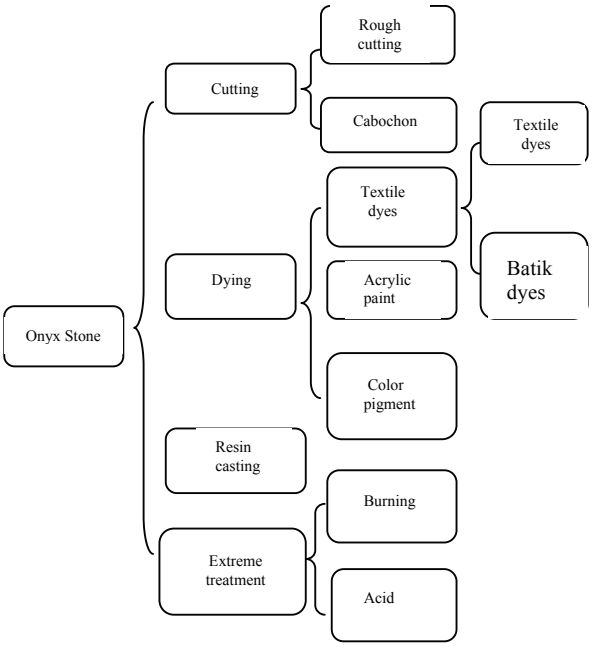


Figure 4. Experiment scheme of onyx

1. Cutting

a. Rough cutting

There are several types of onyx with different levels of solidity. The onyx from Bawean is more fragile compared to onyx from other two regions. Therefore, rough cutting is applied to this type of stone. To get desired shapes, the stone should be cutted into small pieces. The stone with 5x5 cm size need to be hitten with hammer three to five times to get four to eight stone cuts. Then, to smooth the sharp surface, the stone should be polished by using sandpaper.



Figure 5. Experiment of rough cutting applied to onyx. (Source: personal document).

b.Cabochon

Onyx stones from Blitar and Nganjuk tend to be more solid and have contrasting fiber colors, which is unique. These stones can be cutted to be cabochon and polished by using machine.



Figure 6. Experiment of cabochon cutting techniques applied to onyx. (Source: Personal document)

2. Dying

Onyx stones found around East Java were usually white, yellow and grey. To make them having more varied colors, dying experiments were applied. In this experiment, the textile dyes and ink were used in the dying process.

1. Textile dyes

The dying stage was begun with boiling the dye powder. Then followed by putting the onyx cuts into the boiling water for about 20 minute. After that, the stones were dried.



Figure 7. Experiment of dying onyx by using textile dyes . (Source: Personal document)

The next step was washing the stone cuts and redrying them. The result of the process were onyx stones with light colors. The colored stones should not be washed to get more solid colors.

2. Batik dyes

Next, experiment with batik dyes. The experiment showed that while the light colors cannot sink at all below the surface of the stones, the dark colors can only be slightly absorbed.



Figure 8. Experiment with batik dyes. (Source: Personal document)

3. Color ink

The dying process by using ink was begun by painting all the stones surface by using brush. Having all the surfaces painted, the stones were then dried. After that, the stones were washed before being dried for the second time.



Figure 9. Experiment with color ink. (Source: Personal document)

4. Acrylic paint

The next experiment was using acrylic paint. Firstly, the acrylic paint was mixed with water before then the stones were dipped into it and dried.



Figure 10. Experiment with acrylic paint. (Source: Personal document)

5. Color pigment

The next experiment was dying the stones with color pigment and drying them. Unfortunately, the colors were imperfectly absorbed.



Figure 11. Experiment with color pigment. (Source: Personal document)

Based on the experiments, it can be concluded that dying the onyx stones by using color ink and pigment was taking shorter time and easier to be done compared to using textile dyes. However, the latter made a better result as the textile dyes can better sank below and more evenly spread over the stones surfaces compared to the former substances. Meanwhile, batik dyes and acrylic paint cannot really sank bellow the stones surfaces.

6. Resin Casting

The other experiment was mixing the small pieces of the onyx stones with resin. The first step was making a mould master according to the desired shapes. After that, the process continued with making mould made of rubber

silicone. The small cuts of the onyx were then mixed with resin before being poured into the shaped mould and allowed to stand for a few minutes to dry.



Figure 12. Experiment with resin. (Source: Personal document)

7. Finishing

The final stage was finishing, that is, making better durability of the stones. In this stage, the surfaces of the stones were sprayed with colorless laminating substances so that the dyes will not be washed out when exposed to water.

3. Endurance test with extreme treatment

In order to know its durability and endurance, there were two extreme treatments were applied to the stone, burning and dipping the stone into Hcl.

a. Burning

The first experiment was burning the onyx stones with several different media. The first medium was using candle that gave black color to the surface of the stones. Another burning medium was stove by which no reaction happened to the stones.

b. Acid (Hcl)

The second experiment was dipping the stones to acid (Hcl). This experiment was applied to both the resin-mixed colored stones and the one without resin. The result was the onyx with no resin corroded for about 2.5 mm but the color became clearer and glowing. Meanwhile, there was no significant change that happened to the resin-mixed onyx.

Results of the Experiment

The onyx stones that have been treated with the experiments can be divided into three serial types named as Natural, Coralia and Crystasia. The Natural series resulted from cabochon technique are as follows:

Table 2. The Natural Type

Stones	Serial Names
	**Tigrisa** Name 'Tigrisa' was derived from the scientific name for tiger, *Panthera tigris*. This name was chosen as the motif of the stones looks like tiger skin.
	**Quagga** Name "Quagga" was derived from the scientific name for zebra, *Equus quagga*. This name was chosen as the motif of the stones looks like zebra skin.
	**Sciurusia** Name "Sciurisia" was derived from the latin name for squirrel, *Sciurus*. This name was chosen as the color of the stones resembles squirrel's skin.

	**Agarica** Name "Agarica" was derived from a genus of mushroom, *agaricus*. This name was chosen as the motif and color of the stones look like the mushroom.
	**Phillia** Name "Phillia" was derived from the scientific name of a frog with bicolor, black and orange, *Phyllobates bicolor*. This name was chosen as the motif of the stones look like the frog.

The following are some stones from Coralia Series dan Crystasia Series. Name "Coralia" derives from an English word, *coral*. This name was chosen as the stones' rough texture resembles coral.



Figure 13. Coralia Type (Source: Personal dokument)

The following are some stones associated with the beautiful colors of butterflies found in Sulawesi. The names for the stones were also adopting the scientific names of the butterflies.



Figure 14. Coralia Type (Source: Personal dokument)

Table 3. Crystasia Type

Stones	Serial name
	**Crystasia** The name "Crystasia" derives from word 'cystal'. It was chosen as the stones' texture resemble crystal.
	**Gracia** The name "Gracia" derives from an English word *Gradation* as the stones consist of two gradating colors.
	**Multi-colored Cystasia** Consisting of various colors made to be resembling the glowing crystals.

These stones were then utilized as part of various jewelleries such as ring, bracelet and necklace. The making of the jewelleries was begun with defining the theme, sketching, drawing technical plan and, then, making the prototype. In this research, the jewelleries were designed by using silver as their

subtitutive materials. The following are pictures of the experiment results, the 3D design of the jewelleries and the prototype of jewelleries weared by a model.

The implementation of the results of the experiment can be seen as below. A set of jewelleries were weared for different activities: jewelleries for casual, semi-formal and formal appearence. The following is the documentation of jewellery products weared by a model.



Figure 15. Jewellery product weared by model. (source : personal document)

CONCLUSION

This research resulted in some methods of processing wasted onyx products:

1. Onyx processing method through cutting, dying and resin-mixed printing.

2. Resin casting was the most appropriate method to make stones with thematic designs.

3. The cabochon technique is suitable for making natural appearence of the stones.

4. Dying the onyx stones by using color ink and pigment was taking shorter time and easier to be done compared to using textile dyes. However, the latter made a better result as the textile dyes better sank below and more evenly spread over the stones surfaces compared to the former substances. Meanwhile, batik dyes and acrylic paint cannot really sink bellow the stones surfaces.

5. For its durability and endurance, there were two extreme treatments were applied to the stone: burning the stones and exposing the stones to acid solution. There was no reaction reasulted from the burning experiment by using stove. Meanwhile, there was no significant change that happened to resin-mixed stones dipped into acid.

ACKNOWLEDGEMENT

This research was part of final assignments. The writer thanks to the Industrial Product Design Program, ITS, Surabaya for facilitating and supporting this research until its final stage.

REFERENCES

Allaboutgemstone.com (2012). Gemstone Setting Type. Retrieved April 10, 2014, from http://www.allaboutgemstones.com/gemstone_settings.html

Benham, Key, Tom, Simply Beautiful BezelsBasic and elegant frames for pretty earrings, Lapidary Journal Jewelry Artist, (2010 January). Retrieved April10,2014from http://www.jewelrymakingdaily.com

Berita Metro. (2013, September 01). Batu Onyx Bawean, Potensi yang diabaikan Pemkab Gresik. Retrieved April 10, 2014, from http://www.beritametro.co.ic/ekonomi/batu-onyx-bawean-potensi- yang- diabaikan- pemkab- gresik.

Herman, Danny Z,Pendayagunaan mineral untuk menjadi permata, Retrieved April 10, 2014from http://psdg.bgl.esdm.go.id/buletin_pdf_file/BulVol3no.3thn2008/1.BATUmulia.pdf

Jhonson, Carrie, Jewelry Color Theory for Fashionistas : 3 easy steps to perfect color . Retrieved April10,2014 from http://jewelrymakingjournal.com/jewelry-color-theory/

Lurie, Mark, Functional Flair Whether designing for clients or competitions, Llyn Strelau fashions jewelry with people in mind. 50 Years of LAPIDARY JOURNAL, (1997, July) Retrieved April10,2014 from http://www.jewelsbydesign.com/Published_Articles/files/1997_07_Lapidary_Journal_Functional_Flair.pdf

Developing Skills of The Women Group of Pelem Watu District by Making Crafts from Banana Stem and Leaves

Asidigisianti Surya Patria
Unesa,Indonesia
asidigisianti@yahoo.com

Imam Zaini
Unesa,Indonesia
zainiunesa@gmail.com

Siti Mutmainah
Unesa,Indonesia
sitimut1967@gmail.com

Abstract —This community development activities is one of application of art theory which the team have. The team took two less productive group partners who are the RW 03 and RW 04 of district Pelem Watu of Menganti Region of Gresik. This art theory which is applied is the making of craft made from stem and banana leaves. This community development activity was divided into two steps, first guiding skills through the training of making craft using waving techniques. This training was given for the PKK women groups. The Team held workshop for the partners to develop creative economy using waving stem and banana leaves. Second, the training and guiding of production management and marketing. The team gave guidance in production management and marketing system of the craft that they have made. The partners guided till they can be independent in producing and managing the craft. The output of these activities are the craft which are made from stem and banana leaves. All the activities that have been done by the team went well. All the craft products were in good and looked like the prototype products. The participants made tissue place (in four and five shapes), tissue box and jewelry box, also handbag.

Keywords: *woman community development, PKK in Menganti Gresik*

1. INTRODUCTION

At the local level, when women come together to form a group, they are able to identify their needs and find ways to help themselves. The local NGOs have created space for women's voices either through participatory processes or by encouraging the women to challenge and change the development plans that are biased against women. Women should be targets of development; they have to be agents of development (Gurung, 2004:15).

According Internal Ministry Regulation (*Permendagri*) 2007 No 5, PKK (*Pemberdayaaan dan Kesejahteraan Keluarga* - Family Welfare and Empowerment) is one of government partner as national society organization. PKK has great role in helping government in district level to improve the family welfare toward cultural, happy, wealthy, independence and harmonized family. Beside family to improve welfare, PKK also improve women's potential and role in the society to increase family income.

PKK grows from bottom up as woman is moving force in development, guiding and forming family to increase welfare in family and community. The welfare becomes the main goal of PKK because family is the smallest unit the society which will effect of the development of the country. From the wealthy family will achieve nation social life that is safe and secure, harmony and peace. Therefore

the welfare of the family becomes of the barometer of the nation developing.

PKK is social capital that is resource that inhere family relations and in neighborhood social organization that are useful for an individual's cognitive, social and economic development (Jagannathan, 2011:411). PKK that is one of Woman in Development program in Indonesia has number activities that support increasing family welfare. This paper presents the university (UNESA) helped the women group (PKK) in Pelem Watu District to develop their community by providing workshop and training program.

2. LITERATURE AND THEORY

The Woman in Development perspective was a reaction to women being seen as passive beneficiaries of development. It marked an important corrective, highlighting the fact that women need to be integrated into development processes as active agents if efficient and effective development is to be achieved. Programs are informed by a WID approach addressed women's practical needs by, for example, creating employment and income-generating opportunities, improving access to credit and to education (Baden&Raves, 2000:33)

Woman in development (WID) is based on Liberal feminism, which means modernization (industrialization) and human capital investment would raise women's status and standards living. Practical action contains skills training, improved technology transfer, appropriate technology for women, income generation and women's integration into development (Gurung, 2004: 16),

Community development is defined as a process of building and strengthening the community. Accordingly, community development refers to the creation and maintenance of community as a social characteristic of a local population. As a process, community development involves purposive, positive, and structure-oriented actions, and exists in the efforts, as well as in the achievements, of people working together to address their shared interests and solve their common problems (Theodori, 2005:665). The practice of community development (or advancement, betterment, capacity building, empowerment, enhancement, or nurturing) provides clues for improving the success of partnerships of federal experts, local facilitators and concerning community interests to identify, discussing and resolving local environmental concerns (Wise, 1998)

Ife and Tesoriero (2014:256-257) states that becoming self supporting community, it is needed to explore the possibilities of developing and benefit local resources rather than depending from outer. These resources are involved many kind, such as skills, humans, competences, land and building. One of value local resources is the value local indigenous. It is one of empowering local skills. To find local skills can be done their side or main jobs during their spare time. It is one of way to dig local skills.

Asset-based Community Development is based on the skills, talents and gifts of the local community members. An asset based approach to community level-micro planning encourage a shift orientation from "need' and problem toward "asset" and opportunity for sustained livehood security. By recognizing the potential of existing skills, resources and organizing capacity, villagers are in a better position to take advantage of opportunities to livehood security and sustainability (Coyle, n.d).

As leaning process, for the community development, it is important to assume that the community change contains learning value. The learning values are: first, we can not change the community directly but we can help the community changes by themselves. Secondly, the positive changes concept, it means that the members of the community must have self esteem that they are capable of make the changes. The third, the community members will get involved by themselves if the community programs fulfill their willing and needs. Fourth, every adult will hope that they can direct their own changes according their expectations. Fifth, the community development programs should be fun. It is involved holistically not only physicals but also minds, emotions, and intuitions (Suhud, 2005: 9)

3. METHODS

Based on the problems that the women group (PKK) of Pelem Watu district, it is started with approaching to the partner to know directly the real problem which partners confronted then the team coordinated inside the team member. Based on Green and Haines (2007) Community Development Process has four stages. It begins

with Community Organizing, Visioning, Planning and Implementation. The team offered to the partner the solution which would be implemented by the team member can be described as some stages below.



Figure 1. Community Development Process Green and Haines (2007)

Community organizing. The authors did this appropriate study to know the further properness of the partner to follow the training and developing activities. The authors have offered it was based on the partner's problem. This stage used interview technique and group discussion to the member of women group in Pelem Watu district. After interviewing, it was continued to observe directly in the location to know the geographic and demographic condition.

Visioning. The authors and the assistants of the study analyzed the data which collected in the field to create a module and handout which is based on the condition and situation of the women group in Pelem Watu district.

Planning. While the team was completing the module and handout the team also made some prototype products which are the examples of the result of the training. The prototype products are suit into the ability of the participant. They are designed easily so that the participant can make them.

Implementation. In order the participant can make the craft, it was given training skills using banana stem and leaves. The training used gluing and weaving techniques. The training also used some methods, such as: presentation, demonstration and some practices. During the training skills it was needed some materials such as banana stem, leaves and gluing. The methods of training are presentation, demonstration, and some practices. This was also the production management that will guide the participants through partner guidance. The team gave guidance and consultation in production management and marketing system of the craft products. The partner was guided untill they were capable of managing the craft products.

4. RESULT AND DISCUSSION

Weaving is one of creative industries which has rooted in society life. In its development, weaving has spread out in many shapes and products that are more modern and far from tradition look such as household and furniture. It means that weaving has wide potential economic and provides job opportunities.

The rattan furniture industry in Pelem Watu district has been supported by PKK (Woman Organization) in Pelem Watu district informally. These women weave rattan especially for chairs based on orders from the factory. The factory gives the frames to be weaved in their spare time between their everyday routine.

If it has been seen in financial aspects, these weaving jobs can increase the family income. PKK do not have any order regularly so that they can't get family income routine. Related with orders, it depends on the rattan furniture factory. For example if they don't have any order, they will work as housewives. It means they can't get income.

It is known that there are many banana trees in Pelem Watu district. Furthermore most of the women have weaving skills specially rattan. Based on that problems, the team proposed to teach weaving using banana stem and leaves because the women can easly find the materials around their environment.

There are some reasons why it is the banana used banana stem. The first stem texture has unique texture and different from other texture plants. Second, the texture is strong but soft and tender. The third, younger stem is softer so that it is easier to be weaved. Moreover creating products from the banana stem actually is not difficult. The stick of stems is dried by laid them in the sun. The chosen banana stem dan leaves texture are weaved then somewhat produce crafts such as: bags, furniture and accessories. The craft from banana stem and

leaves are being paint by transparent spray paint so that it looks shiny.

The women organization (PKK) of Pelem Watu district is a group of future entrepreneur which has craft scope. This business group using banana leaves and stem as basic material can be developed as new craft business because the banana plants that grows in surrounding of Pelem Watu district. The craft bussiness is including as creative industry which has potentially developed. The government also support of the growing of new business in creative industry. However the design development is needed to be guided.

Based on the explanation above the priority problems of new business of the women group PKK in Pelem Watu district is to give development skills of craft that uses the natural potential in Pelem Watu district which is banana trees. This banana trees can be used as the basic material of craft that has high economic value. This craft can be produced in the spare time weaving rattan from the furniture factory that has been mentioned above.

This program was started with compiling the handout and creating the modules. It is used for the training participants. The creating of the handouts has been done in two stages. First stage was collecting the materials which would be put in the handout. The material came from variety of literature either from books or internet. The second stage is the creating the handout from the source to become whole handout.

After the handout was finished, it is continued by giving the training. The meeting of the training was started by giving short explanation of the programs. It was held on Saturday at July 12, 2014 in the meeting room of the office of the Pelem Watu district Menganti Gresik. The training started at 09.00 am, by giving the recalling of the steps of making craft products from dried banana stem and leaves. This training was attended by 10 participants of women group (PKK) in Pelem Watu district. In this meeting the third author also explained the way to manage the banana stem and leaves before they are used as the material of the craft products. She also taught how to make jewelry box and small tissue box from the dried banana stem and leaves. At first, she described the making process of the frames of the boxes. The boxes were made from thick hardboards which were cut and glued tightly. After making frames she showed the steps of weaving and gluing the dried banana stem and leaves into the frames. To shorten the time the team provided the frames of the tissue and jewelry boxes that the team had made before so that the participants only glued the dried banana stem and leaves. The training was finished at 12.00. The third author gave appreciation and evaluation of the craft products that the participants made. She gave some suggestion of each product especially in designs. She suggested how to compose color the dried leaves so that became more harmony. She also gave some alternative advises how to decorate the tissue and jewelry boxes. The participants paid attention of the explanation and suggestion so that the next products would be better.

The second meeting of the training was held on Sunday at August 24, 2014 from 09.00 until 12.00 am. The place was still the same in the meeting room of the office of Pelem Watu district Menganti Gresik. The procedure was still the same. It began with presentation and ended with practicing. In this chance the team gave different products to be practiced. The craft product is tissue bigger tissue boxes. In the end of the meeting the third author gave the appreciation and evaluation one by one. The suggestions were given usually from design aspect and the neat of the products. The aim of this evaluation is so that the participants could fix the next product.

The last training was ended in the third meeting. It was held of on Saturday, September 26, 2014 from 09.00 until 12.00 am. The place was still the same in the meeting room of the office of Pelem Watu district Menganti Gresik. The procedure was still the same. It began with presentation, than with practicing and ended with evaluation.

After all the participants could make the tissue boxes, they were thought how to make bags. There are two models of handbags, called messenger bag and hand bag.. The fact shows that making the bags are more difficult than making the tissue boxes so that the training was started by by giving the short explanation of the steps how to make handbags. The bag has higher difficulties then tissue box. Next it was also demonstrated how to wave and glue dried banana stem and leaves. Besides making the handbags, this meeting also did the finishing of the product. This finishing means that the products were sprayed by transparent paint so that the stem and leaves became glossy and stainless.

During the training and assistances the participants could finish variety of craft products from the dried banana stem and leaves. These craft products can be seen below.



Figure 2. Variety crafts are made from banana stem and leaves.

It can be conclude that the community development team was started by compiling the handout and module, then makin the prototype products, and finally the sosilatization and training of the woman groups (PKK) in Pelem Watu district Menganti Gresik. All the activities that have been done by the team went well. All the craft products were in good and looked like the prototype products. The participants made tissue place (in four and five shapes), tissue box and jewelry box, also handbag.

ACKNOWLEDGMENT

The author would like to thank to the Research and Community Perpetuation of Department of National Education for financial support year 2014.

REFERENCES

Coyle, M. (n.d) *An Asset-based Approach to Community Development: A Manual for Village Organizers*. Canada: Coady International Institute. Retrieved May 13, 2015 from www.coady.stfx.ca/tinroom/**assets**/file/SEWA_ABCD_Manual.pdf

Green, Gary P. & Haines, Anna (2007). *Asset Building and Community Development, Second Edition*. Thousand Oak, CA: Sage Publication.

Gurung, Manaslu (2004). *Woman and Development in The Third World*. Kathmandu: WWF Nepal Program Office, 15-16.

Ife, Jim & Tesoriero, Frank (2014). *Community Development.* (Sastrawan etc).Yogyakarta: Pustaka Pelajar. (original work published 2006). 256-257.

Jagannathn, R., Camasso, M.J., & Mend S.G, (2011) University-Community Partnering Using a Targeted Mutual-Interest. *Community Development, 42 (3)*. Retrieved November 23, 2014, from http://dx.doi.org/10.1080/15575330.2010.551662. 411.

Reeves, H. & Baden, S. (2000). Bridge Development Gender. *Gender and Development : Concept and Definition*. Retrieved May 9, 2015 from www.bridge.ids.ac.uk/reports/re55.pdf. 33.

Suhud, A.M.(2005). Pendidikan Adragogi dalam Pengembangan Masyarakat. *Aplikasia, Jurnal Aplikasi Ilmu-ilmu Agama VI(1)p. 1-13.*

Theodori, G. (2005). Community and Community Development in Resource-Based Area: Operational Definitions Rooted in an Interactional Perspective. *Society and Natural Resources.* Retrieved May 5, 2014 from www.shsu.edu/~org_crs/Publications/Theodori%2 02005.pdf. 665,

Wise, G. (1998). EPA/USDA. Discussion Paper Appendix A. Definitions. *Partnership to Support Community-Based Education.* Retrieved May 5, 2015 from www.uwex.edu/ces/erc/pdf/appa_communityeddefinitions.pdf

Innovation and Creativity of Batik Tulis on Jacquard Weaving with Laser Cutting Leather

Janet Rine Teowarang
Universitas Ciputra, Indonesia
janet.teowarang@ciputra.ac.id

Abstract —From the time when Indonesian Batik wasacknowledged by UNESCO in 2009, fads and enthusiasms of Indonesian Batik has arisen. The case has brought to designer'sinterest to explore more Indonesian Batik as became individual encouragement. The Objective of The Research is to increase the knowledge and understand about current trend, market for creating concept, ideas and innovation, where this has leadthe designer for acollaboration with non sarong company Marrakech by Gajah Duduk. The Method Objectives are bringing the paper for Creative Industry Case because the creative and innovative idea able to be extracted at many points. As to personal achievement the designs for collection are derived from Data Collection of Literature Review, where there are creative motif of Batik Tulis combination from parang to free style motif from weaving jacquard were processed for Women's and Men's Ready to Wear by combining Batik Tulis with the real leather using own designed laser cutting motifs. Definitely the process or methods shall consume more time than most of normal production of Batik clothing.As The Analysis for the reason on using Batik with leather and laser cutting is because being different and innovative is important as for designer's future reference.

Keywords – Batik Tulis Jacquard Weaving, Innovation, Creativity, Leather Laser Cutting

1. INTRODUCTION

Since Batik in Indonesia has become nation – wide famous few years ago, the variety of innovation for Batik motif design and material or combining Batik with other unique material is rarely to find, whereas many foreign fashion designer or brands are re – creating Indonesian Batik design and has made the collection into international fashion trend and showcase.Therefore, the creative head of designer has thewill to introduce the creativity of Indonesian Batik for being able to modernized by combining laser cutting on leather material and new techniques of Batik on jacquard weaving textile.

2. LITERATURE AND THEORY

It is stated in a study that "in many Indonesian societies textiles are ritually important, as well as being items of trade and inheritance, and great care and skill are invested in their manufacture" (Hitchcock, 1991). Batik has the strong interest for personal research, since Batik has brought Indonesian culture famously known worldwide.The trend benchmarking has obtained theme one Alliance (Edifice, Oblique, and Terrain) in which Solo the city of Keraton, where classical Batik is derived, has become representative as contemplation and harmonize city, in between maintaining the tradition and getting influenced by modern society (Jasmine, Nur, and Lydia, 2014).

Furthermore, an interesting topic to enhance knowledge about laser cutting is studied by Nayenggita and Sunarya in 2012. The study discussed anexploration technique of laser cut in batik decoration as fashion products.In this study, the author has given the analysis of Batik motif exploration into laser cutting motif on clothing, therefore it will produce three dimensional looks.

3. DATA AND METHODS

In order to achieve the result from discovering problems, the designer shall require to identify the ideas in order to arise with the concept collection of jacquard weaving Batik with laser cutting technique on leather.The ideas are achieved from the needs of innovation for Batik textile and its merger with other material to create different collection of looks. Besides, the ideas are based onthe designer'surge to make the development of new style of Batik wearas following modernization of century. The idea was obtained by doing the observation that final boredom of usual Batik clothing ready to wear are emerging as many brand creating the same items. The inspiration and concept for collection theme are derived from trend forecasting 2015 – 2016 with main theme Alliance where it has three subordinate themes: Edifice, Oblique and Terrain.All of them are related to culture recovery, blending traditional and technology within contemporary occurence, whether this put the interest for the designer to discover the inspiration of American Art Deco architecture and interior as the main inspiration into the theme collection named Stratified Deco. The definition word of Stratified is something in formed, arrange in layers or we can decsribe as layering. As for the design process, starting from the process of jacquard weaving in order to gain more variation in webbing, first the movement is starting by motif design making on computer, later the machine shall be working as shown below following the instruction. Afterward, the process of choosing Batik motif, do the batiking process on jacquard weaving textile. When the textiles are available, the designer will do the fashion illustration on design and technical drawing to create the looks from concept mood board with theme title Stratified Deco. Based from technical drawing, production of the clothing began with pattern making, laser cutting placement on pattern making, dividing progress of sewing process and laser cutting on leather into different tailor specialized in garment and leather. The progress of production shall be longer than usual Batik wear manufacturing because it consumes more time on combining the woven and non woven material to achieve neat, satisfactory product. The jacquard weaving Batik textile shall be placed below the motif of laser cutting on leather. Other supporting materials the designer used for completing the collection are Satin Silk, Raw Silk, and Cotton Lawn as the inside lining.

3.1 Figures and Tables

The figure one until three enclosed on below are some process from production flow of jacquard weaving textile developed into Batik Tulis procedure. Also, on the table is showing variety of laser cut design on leather in order to combined with jacquard weaving Batik, stated on the table measurement of finished laser cut design and its placement.



Figure 1. Jacquard Machine processing Jacquard Weaving Textile



Figure 2. Colet coloring process



Figure 3. Calendering Process

Table 1. Laser Cut Design and the placement

Type of Laser Cut Design	Size	Design Placement
	W: 16 cm L: 21 cm	Sleeve area on Men's Leather Jacket
	W: 15 cm L: 24 cm	Sleeve area on Women's Top Blouse
	W: 16 cm L: 37 cm	Upper Shirt On shoulder Women's Shirt

3.2 Fashion Show Collection at Indonesia Fashion Week 2015 in Jakarta, February 2015



Figure 4. Women's Wear with Jacquard Weaving Batik, Satin Silk and Laser Cutting Motif on Sheep Skin Leather on right shoulder area



Figure 5. Men's Wear with Jacquard Weaving Batik, Leather, Raw Silk and Laser Cutting Motif on Sheep Skin Leather on lower sleeve

4. RESULT AND DISCUSSION

The design creation result showedthat the completion of the products isin satisfaction and meeting the standardization which the designer has expected. Further discussions for the result of collection creation with some fashion industry people gave the affirmative and definite opinions for the collection.The opinions stated that the collections are being different, creative and original, following the designer's characteristic also able to meet the style behavior.

5. CONCLUSION

This study has shown the kind of creation of collectionthat the designer has been aiming for some period of time.Therefore, this is going to be the designer's leap for achieving and learning to create the cutting edge collection.

The designer has receivedacknowledgement and some feedback from media and own appraisal, where fashion media Mr. Dean Syahmedi, Managing Editor at Dewi Magazine Indonesia has given the encouraging feedback and praised some of the collection, even though, some design are quite crowded. Other than Mr. Syahmedi, from Femina Magazine, Ms. Deary Erstafloria has conveyed the similar feedback.

ACKNOWLEDGMENT

Acknowledgement to Marrakech by Gajah Duduk as the sponsor of collaborationfor contributing special design of jacquard weaving Batik at the occasion of launching new textile material for the designer's brand.

REFERENCES

Alexander, E. (2012, September 16). Giles Deacon Spring/Summer 2013 Ready – To - Wear. *Elle Magazine*. Retrieved November 15, 2014, http://www.vogue.co.uk/fashion/spring-summer-2013/ready-to-wear/giles

Breeze, C. (2014). *American Art Deco*. U.S.A: W.W. Norton & Company.

Dhange, K. Vaibhav & Webster, Lynn & Govekar, Amrita (2012). Nonwovens in fashion apparel applications. *International Journal of Fiber and Textile Research 2012, 2*(2), 12 - 20.

Hitchcock, M. (1991). *Indonesian Textiles*. Singapore: Periplus Editions Ltd.

Jasmine, U. R & Nur, I & Lydia, V. M. (2014). *The Trend Forecasting Book: Re+habitat* (1st ed.). Indonesia: BD+A.

Nayenggita, L & Sunarya, Y.Y. (2012). *Exploration Technique of Laser Cut in Batik Decoration as Fashion Products*. Retrieved November 15, 2014, from Institute Technology Bandung University, Department of Art and Design. Website: http://jurnal-s1.fsrd.itb.ac.id/index.php/craft/article/view/90

The Influence of Young Entrepreneurs in Utilizing The Potential Of Indonesian Culture And Craftsmanship

Rahayu Budhi Handayani
Ciputra University,Indonesia
rahayu.handayani@ciputra.ac.id

Abstract — This paper discovers phenomenon of young entrepreneurs in small and medium enterprise sector who are able to package traditional culture and craftsmanship into contemporary fashion. Nowadays, there is an emerging phenomenon of young entrepreneurs who see the potency of craftsmanship in Indonesian traditional culture as an opportunity to contribute towards development of Indonesia economy and creative industry by presenting their fashion brands with valueable contemporary design, branding, visual, and technological assistance in marketing the products. This paper is descriptive qualitative, based on observation and purposive sampling which were selected based on several criteria. This paper shows how young entrepreneurs make Indonesian traditional culture and craftsmanship possible to be treated modernly and be accepted by young generation.

***Keywords*– Craftsmanship, Creative Industry, Fashion, Young Entrepreneurs**

1. INTRODUCTION

Indonesian consumer report issued in 2014 by McKinsey & Company stated that Indonesia is expected to achieve nearly 40% of the Asean growth by 2050 with a large amount of young population as a driving factor. Currently, Indonesia is one of the 16 largest economics and has about 5 million people entering the urban consuming class each year. (Razdan, R. Das, M. and Sohoni, A., 2014: 4-8)

The trends of Indonesian consumption are seemingly not equal with the supply of domestic production. As expressed by the former minister of Economy of Indonesia, Chatib Basri, due to the increase of their economic capacity, so they consume imported goods. (Wright, C, 2014)

Creative industries are one of the Indonesian government's strategies in an effort to resolve some of the socio-economic problems, such as low competitiveness of industry in Indonesia. (Ministry of Trade, 2008: i)

The term 'creative industries' itself was popularized by British Government as in 1998 they gave awards to 14 sectors: advertising, architecture, art, crafts, design, fashion, film, music, performing arts, publishing, leisure software, toys, TV and radio, and video games. (Howkins, 2001: 7)

Fashion and crafts are the two largest sub-sectors contributor to GDP in the creative industry in Indonesia. Contribution of the fashion industry almost reached 46 trillion rupiah in 2006, with an average percentage contribution of creative industries to GDP over 44%. The industry is also the most labor-intensive, which has reached 2.6 million workers. However, craft subsector is currently experiencing a decrease demand and Indonesian government is in efforts to redevelop it through improving the quality of product, creativity in product design, the creation of better process technology and materials, the rules and incentives that attract and promotional support to the market inside and outside country. (Ministry of Trade, 2008: 16-17)

Author sees a phenomenon which some young entrepreneurs are able to cultivate Indonesian traditional fabric or craft into contemporary fashion products with good quality and attractive packaging. The author is seeing it as

potency and great asset which is needed to be supported and developed.

2. LITERATURE AND THEORY

2.1 Craftsmanship in Indonesian Traditional Culture

In general, crafts are handmade objects, not only for function but also with aesthetic qualities. Term 'craft' is used in two separates art market. First, is high-end market, part of art market which is exhibited in art galleries, or high-end fashion brand such as Louis Vuitton, Hermes, or John Lobb. Second, is larger fashion, tourism, and leisure markets. Many popular tourist destination have large craft industries, and Indonesia is one largest markets besides Thailand, India, Brazil, Japan, and Russia. (Howkins, 2001: 162-164)

Craftsman (from *ars*, means skill) is a skilled manual worker who makes items that may be functional or strictly decorative, including furniture, sculpture, clothing, jewellery, household items and tools or even machines (example: the handmade devices of a watchmaker). They practice craft and may through experience and aptitude to reach the expressive levels of an artist. Craftsmanship is the quality of being craftsman.

Indonesia is the outcome of a long history of crafts, famous for its handicrafts and cultural richness. Craftsmanship continues to be passed from one generation to the next. Until now, several areas in Indonesia become the center of industry and produce handmade stuffs such as leather, woven, batik, etc. Mostly, Indonesian crafts are flourished in tourism and leisure markets. (Purser, 2005: 10-15)

2.2 Young Entrepreneurs and Business Model Generation

There is an emerging phenomena in Indonesia to foster entrepreneurial spirit of the college student for reducing the level of unemployement. One of the reasons it is because the number of young entrepreneurs, which is only 1,56% (3,5 million) of total population, still needs to be increased. (Kaijun, Y. and Sholihah, P, 2015: 1-2)

There are also universities that make entrepreneurship as their main major, such as Ciputra, Podomoro University, as well as the established universities that make the course or program of study supporting entrepreneurship, such as Prasetya Mulya, ITB, UI, UGM, etc. These universities have created some young entrepreneurs who are currently starting business ventures.

Business Model is one of the methodologies known in the world of entrepreneurs, particularly in making start-up. There are 9 basic building blocks in a business model that can show us the company ways of thinking:

a. Customer Segments; a group of people who want to be reached by the company.
b. Value Propositions; value of products or services offered by the company.
c. Channels; how company reach their customers.
d. Customer Relationships; relationship of company with their customers.
e. Revenue Streams; something that is produced by the company.
f. Key Resources; resources needed in the activities of the company.
g. Key Activities; key activity performed in company activity.
h. Key Partnerships; partners who help company.
i. Cost Structure; cost needed for company operational. (Osterwalder, A. And Pigneur, Y. 2012: 17-41).

3. DATA AND METHOD

Author is using purposive sampling, which is choosing several brands that have this criteria: Indonesian brand, managed by young entrepreneurs, and the products have craftsmanship element.

The representatives had been depth-interviewed about their brand and basically about Indonesian craftsmanship they know. Author also did a digital observation to the activities of several brands that are considered as representatives through social media.

Literature about craftsmanship and entrepreneurship are available at books,

journals, articles, and so on.

Using content analysis method with Business Model Generation, this study intends to see how the young entrepreneurs process their product which provide craftsmanship in traditional culture into contemporary fashion and prove it potential.

4. RESULT AND DISCUSSION

4.1 Craftsmanship in Indonesian Brands that Owned by Young Entrepreneurs

There are several brands that are owned by young entrepreneurs, trying to cultivate traditional techniques and craftsmanship into contemporary fashion.



Figure 1. Bluesville Batik Kerang Shirt

Bluesville, Jakarta-based Indonesian brand is one of brands which is using traditional techniques on their product-making process. They are using batik technique which is handwritten using molten beeswax from Kalimantan. Bluesville presents their product contemporarily. They have been reviewed by international youth lifestyle magazine.

There is also AFFAIRS from Yogyakarta that is using handwoven material from Pedan Central Java where is well-known as woven-centred industry. They also use the leather taken from the best Indonesian sentra tanery, such as from Malang and Magetan. The products of the brand are mostly done by hand.



Figure 2. Bluesville Pop Up Store at Jakarta

There is also Pvblic Affair owned by Sulung Koesuma which is based in Jakarta, Indonesia. Pvblic Affair is now sold in several stores in Department Store in Indonesia. One of the stores is Linea, a retail shoe store that sells a curated European craftsmanship shoes.



Figure 3. AFFAIRS Luggage Bag Using Pedan Handwoven Fabric

Currently Sulung entrusts its shoe production to a production partner, where for cutting and sewing the workers are relatively young, aged around 22-27, and for lasting process older crafters are around or more than 30. The shoes are produced with the attention and quality similar to artisan made. Pvblic Affair shoes are mostly done by hand, and using goodyear welted method which is the oldest and most durable shoe-construction.

4.2 Business Model of the Brands

After some observation, the author found out that the brands have similar business models. Here are the building blocks of their business model:

Table 1. Business Model of the Brands

	Affairs	Bluesville	Pvblic Affair
CP	Segmented (young pro, mid-up, early adopter)	Segmented (young pro, mid-up, early adopter)	Segmented (young pro, mid-up, early adopter)
VP	Handmade stuff, hand woven, in affordable price. Contempor ary design.	Natural dye-ing, Batik, hand woven, in affordable price. Contempora ry design.	Handmade stuff in affordable price. Contempor ary design.
CH	Social media, flagship store	Web, flagship store, dealer	Web, dept store
CR	Customer service,	Customer service	-
RS	Sales, Services	Sales	Sales
KR	Human	Human	Human
KA	Product-making	Product-making	Product-makin
KP	Fabric craftsmen, tanery	Dye-ing workshop, fabric craftsmen	tanery, manufactur er
CS	Value-driven	Value-driven	Value-driven

5. CONCLUSION

Indonesian crafts are great assets and are possible to be expanded to contemporary fashion, through series of process that require knowledge and creativity such as what have been done by the young entrepreneurs. This phenomenon is potential to be flourished through an effort to develop creative and knowledgeable people by fostering entrepreneurial spirit to young people. Last but not least, this paper is expected to become an input for policy maker or any stake holders to support any development related to this industry.

6. REFERENCES

Howkins, J. (2001). *The Creative Economy: How People Make Money From Ideas*. London: Penguin Book

Kaijun, Y, and Sholihah, P. (2015). *A Comparative Study of the Indonesia and Chinese Educative Systems Concerning the Dominant Incentives to Entrepreneurial Spirit (Desire for a New venturing) of Business School Student.* Journal of Innovation and Entrepreneurship, 4:1

Ministry of Trade of the Republic of Indonesia (2008) *Creative Industries Development Work Programme 2009-2015*. Jakarta: Ministry of Trade

Osterwalder, A. And Pigneur, Y. (2012). *Business Model Generation*. Jakarta: Elex Media Computindo

Purser, Warwick. (2005), *Made In Indonesia: A Tribute to the Country's Craftspeople*. Jakarta: Equinox Publishing

Razdan, R. Das, M. and Sohoni, A. (2013). *The Evolving Indonesian Consumer*. Retrieved March 30, 2015, from http://www.mckinsey.com/~/media/McKinsey%20Offices/Singapore/Indonesia%20Consumer%20Report%202014.ashx

Wright, C. (2015). *Indonesian Finance Minister Interview: The Economy Stalled Because We Wanted It To*. Retrieved April 6, 2015, from http://www.forbes.com/sites/chriswright/2014/06/23/indonesian-finance-minister-interview-the-economy-stalled-because-we-wanted-it-to/

Resiliency in Batik Industry using Inclusive and Eco-Design Strategy

Paulus Bawole
Duta Wacana Christian University, Indonesia
paulus_bawole@yahoo.com

Puspitasari Darsono
Duta Wacana Christian University, Indonesia
pdarsono20@gmail.com

Eko Prawoto
Duta Wacana Christian University, Indonesia
ekoprawoto@yahoo.com

Winta Guspara
Duta Wacana Christian University, Indonesia
Abot110@yahoo.com

Abstract **—**Shifting perception from a mere commodity to a cultural product will ensure the sustainability of batik making as a way of life. The real batik cloth is a piece of a deep philosophical artwork as it contains prayer and hopes for the person who wears it. Resiliency in batik as an intangible cultural heritage can be achieved by encouraging batik making as a way of life as well as a way of make a living. Therefore batik making should become a skill for the common, including the challenged one. This project incorporates two different studies; ergonomic and energy efficiency using DC current. The result of the ergonomic research and energy experimentwere used as a specification of product performance for designing inclusive electrical batik equipment. Measurement using RULA method showed that both extreme impaired users are comfortable in using external precision grip. NBM and HTA analyzes concluded that if wax heating unit could be integrated with *canting*, it will eliminate one production step.The new equipment has acquired 95WDC with 15 minutesheating time. The heat wax viscosity quality test concluded that it has the same quality as using traditional *canting*.

Keywords – Eco-design, DC Current, Impaired Batik Artisan, **Inclusive,** ***Resiliency*****,**

1. INTRODUCTION

Batik as a way of Javanese life for centuries has found its place in the industrial era. From birth till death, Javanese has been using batik cloth for daily life as well as rituals. In the past, it was the man who wrote their prayer – *djopo* – in the form of batik pattern on a piece of fabric and the woman delivered the prayer into existence – *noto* – by a meticulous technique of putting hot wax on the pattern using a tool called *tjanthing*. The act of *Djopo Noto* which also symbolizes Javanese man and woman have made batik as a piece of a deep philosophical artwork for it contains prayer and hopes for the person who wears it. Resiliency in batik as an intangible cultural heritage can be achieved by encouraging batik making as a way of life as well as a way of make a living.

There are three factors found as a source of high production cost in hand-made batik; time, energy, and high skill artisans. Innovation in batik production tools so far had been focused on practical usage of liquid wax, energy efficiency using AC current and health problems as a result of worker's low working position. There were no research and design for manual batik production tools that consider impaired users within the limited supply from national gas and electrical company. Impaired batik artisans are trained to adapt with existing batik tools that suitable only for normal artisans. Tools and man-made environment should be designed to meet human needs, not the opposite. Previous research related to batik activities have focused on health risk as a result of low working position while making batik (Dominica and Sutalaksana, 2000;

Agustina and Maulana, 2012). In addition, the static sitting position among women batik artisan has forced them to twist their body in order to scoop out the liquid wax, the awkward position may result in reproduction health disorder (Setyawati, et.al., 2001). The energy usage measurement of two electrical wax heater sold in the market is 265 Watt. The electrical capacity can be adjusted according to temperature and heating time variables. Wax temperature in the electrical wax heater can reach 100 degrees Celsius. While the measurement found that the liquid wax temperature needed to penetrate the back of the cloth is only 87 degrees Celsius. The electrical *canting*for single user that is sold in the market using AC current is using 125 Watt. Our early experiment in replicating the electrical canting using DC current shows that it only needs 8 WDC. Both early experiments showed that wax heating equipment sold in the market can be reduced in its energy usage.

This project incorporates two different studies; ergonomic and energy efficiency using DC current. The goal of the ergonomic research using case studies of impaired batik artisans is to get an understanding of user capabilities and musculoskeletal problems of users while operating standard batik equipment. The result was used as a specification of product performance for designing inclusive electrical batik equipment, which can be operated by most users, from beginners to advance artisans, with normal fingers as well as challenged.

Research Question:

- How is the variation of physically challenged batik artisan in using *canting*?
- How many working steps can be reduced?
- How is the heating installation using DC current with energy usage 50 – 120 Watt?
- How to minimalize the vaporization of wax element during heating?
- How can the heating unit and *canting* using DC current be integrated?

2. LITERATURE AND THEORY

Unnatural or awkward wrist position may decrease handgrip power. There is a decrease as much as 27% when wrist is in flexi position, 23% in extension position, 17% in radial deviation position and 14% in ulnar deviation. Awkward position can also result in RSI or repetitive strain injuries (Terrel & Purswell, 1976).

Environment condition has strong influence in the handgrip ability that rely on the friction of fingers on the object surface. It requires a stronger grip when the hand is sweaty or when the object surface is wet and slippery. Vibration, movement and visibility is also influenced the hand grip in doing precision movement (Clarkson, et.al., 2007). There are two kinds of precision grip according to Helander (1995). One is the internal precision grip where the thumb and index finger pressed both sides of the front part of handle, while the edge of handle is inside the palm. The other is external precision grip where the thumb and index finger pressed both sides of the front part of handle, while the edge of handle pass over the curve between both fingers.Bennett (McCormick & Sanders, 1982) suggested that the ideal handle design is the one that capable of keeping one straight line from lower arm to middle fingers. Therefore a downward curve handle shape with optimal angle of 19° ± 5° is ideal to avoid ulnar deviation. By freeing the index finger, Bennett curve produces an increase in accuracy and dexterity.

Electrical current that is commonly used today for most electrical equipment is an alternating current (AC) where the voltage and its current change periodically following sinus curve. The benefit of using alternating current is that the voltage is constant and can be adjusted easily. This current can also be transmitted long distance and distributed easily. The disadvantage is that it requires a complicated and expensive isolation and is creating a huge energy loss. Direct current (DC) is a kind of electrical current that is recently been applied to various electronic gadgets and transportation mode in the search of affordable

energy consumption. It is an efficient energy for it has a power factor equals to one, a simpler system that it doesn't require a complicated and expensive isolation and its transmission can be packaged in small container so that it is more practical and transportable. The disadvantage is that air transmission is limited to less than 400 km and ground transmission is less than 50 km.

3. DATA AND METHODS

3.1 Research Diagram:

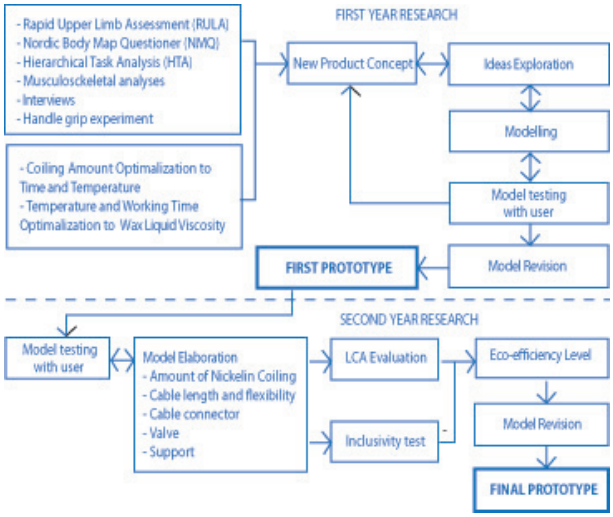


Figure 1. Two years research diagram

This is a two years research that is divided into two sections. The first year research is focused on research findings to determine the product specification performance in user need and utility. While the second year research is focused on refining the first prototype and measuring the degree of inclusivity and eco-efficiency of the new product.

3.2 Ergonomic Research Instrument:

Goal: Determining Product Specification Performance in User Need

User interaction with working tools research is using the following measurements (Wilson, J. R. and Corlett, N., 2005):

1. HTA or *Hierarchical Task Analysis*
2. *RULA*: to determine unnatural posture on upper bodies and parts on bodies that need correction.
3. *Nordic Musculoskeletal Questionnaire* (NMQ): to determine problem prevalence on whole body.
4. *Non-participatory observation*
5. *Hand grip experiment*
6. *Video recording*

Type and Research Model:

This is an experimental research using qualitative analyses. It is a treatment by subject research where a treatment group is also a comparative group in different time.

Population and Sample:

This research is using all samples from the population of physically handicap batik artisan in batik company "Nyonya Indo," Yogyakarta from beginner to advance category.

Variables:

1. Physical Condition: various physical handicap condition in batik artisan
2. Skill: beginner to advance category
3. Handicap type: incomplete or low functional hands or legs.
4. Work configuration: one wax pot for several artisan
5. Batik wax: wax composition, melting quality and time
6. Cloth: spreading on batik cloth hanger
7. Batik quality: speed of blocking and drawing lines with wax on 10 x 10 cm cloth
8. Working tools: pot, stove, chair, batik cloth hanger.
9. Energy: the amount of energy used to block and draw lines with wax on 10 x 10 cm cloth

3.3 DC Current Experiment Instrument:

Goal: Determining Utility Specification:

1. Optimalization of Wire Heat Coiling to Temperature and Time

- Making Temperature Indicator Control (TIC) circuit and wax dispenser
- Measuring the amount of nickelin coiling and wax heating until optimum liquid melting (87°C).

- Measuring time needed for wax liquidification in 87°C and measuring the upper and lower limit of working temperature.

2. Optimalization of Temperature and Working Time to Wax Liquid Viscosity

- Measuring batik activity using DC current dispenser
- Measuring optimum integral gain (time and temperature) for batik activity

4. RESULT AND DISCUSSION

4.1 HTA Analyses

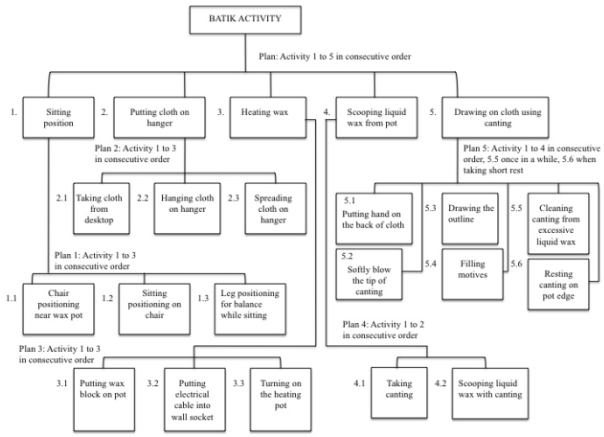


Figure 2. Five steps in Batik Activity.

Hierarchycal Task Analyses showed that there are five steps in batik activities. Eliminating one step requires a technological intervention. Step four which is scooping liquid wax from pot requires the eyes to turn its gazing away from the cloth momentarily in order to focus on scooping the hot liquid wax. When the eyes return its gazing to the cloth, it will need time to locate the motive that needs waxing. If step four can be eliminated, it will reduce work time.

4.2 NBM

NBM Measurement of Artisan with Paraphlegia: spastic on legs will occur when the artisan doesn't take rest after 2 hours work. The sudden spastic leg may kicks hand that is holding canting full of hot liquid wax. The artisans always feel uncomfortable on waist and buttock because of her sitting on wheelchair. This problem will increase after working for four hours and decrease after one hour rest. But the whole complaints will only subside after seven hours of rest. After working four hours, the artisan also feel pain on both upper arms and hands, right thigh and both sole of feet. The pain on these area subside after one hour rest.

NBM Measurement of Artisan with Brachydactyle showed that there are no complaint before work. All parts of body is in pain after four hours of work, except on both elbow. The pain is reduced after one hour rest, except for right shoulder, right thumb and right sole of foot that is used to support body while working.

4.3 RULA

RULA measurement showed that the activity "Taking and Puting Cloth on Hanger" is scored 6, while the activity "Scooping Liquid Wax with Canting" is scored 5. This means that both activities need further research and immediate change to reduce work risk. Meanwhile the activity "Doing Batik" is scored 3, which means that it needs further research and necessary changed.

4.4Hand Grip

Internal Precision Grip

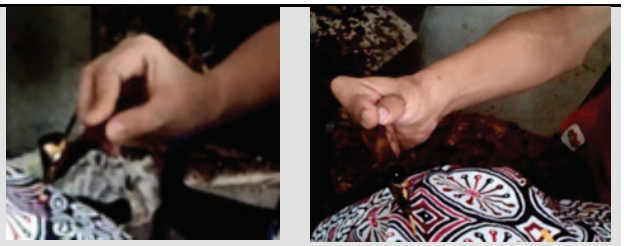
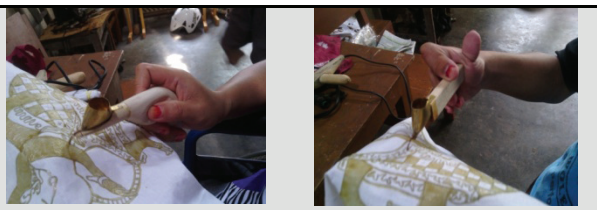


Figure 2. Hand grip on traditional canting.

Normal hand grip is in dorsi flexi position. While the brachydactyle artisan is using neutral position because of his short fingers

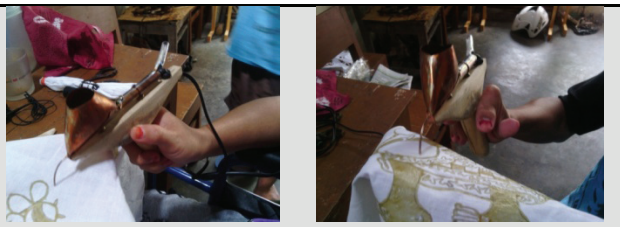


Normal Hand | Brachydactyle

Figure 3. Neutral position hand grip.

Neutral position is achieved by normal hand using Bennett Curve 19˚± 5˚ handle (McCormick & Sanders, 1982). While the brachydactyle artisan's handheld-flops is in neutral position using small and flat handle.

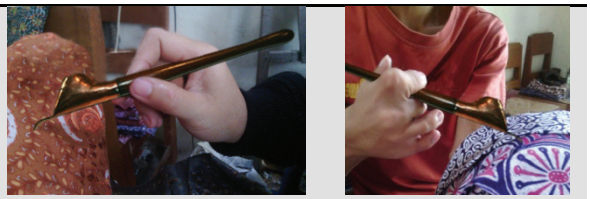
External Precision Grip



Normal Hand | Brachydactyle

Figure 4. Handgrip on existing electrical canting.

Both artisansare using dorsi flexi position because of the handle width is 5 cm. They both feel uncomfortable because of the weight and width of handle.



Normal Hand | Brachydactyle

Figure 5. Agreement on handle design.

Both artisans are using external precision grip (Helander, 1995) on thin, long handle. The normal hand is in dorsi flexi position because of the angle of wax container. The brachydactyle artisan is using handheld-flops because of his short fingers. Both feel comfortable on the handle design.

4.5 Result of DC Current Experiment



Nickelin coiling outside container	Nickelin coiling at the bottom container	Nickelin coiling inside cable	Wax melting and current measured

Figure 6. Nickelin coiling experiment.

Early experiment focused on the placement of nickelin coiling for optimum heating. The experiment concluded that nickelin coiling should be placed at the bottom-inside of the heating unit and along cable. Experiment in 12 VDC, current measured 1,68 A, the electrical power acquired is 20,16 A with 18 minutes heating time. Liquid starts to solidify at the edge of outlet that is not covered with nickelin. For installation longer than 5 cm, it requires more than 20, 16 W.

4.6 New Product Performance Specification

- Thin-long handle using External Precision Grip for neutral hand grip position
- Integrated heating and *canting* design to reduce work steps
- DC Current 60 - 100 watt
- HTA (Wilson, J. R. danCorlett, N., 2005) using step 1,2,3dan 5.

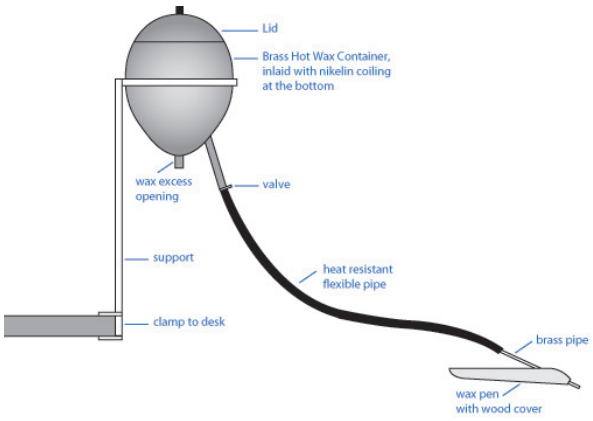


Figure 7. Diagram of New Product

Wax heating unit is connected with a cable which carrying hot liquid wax to the tip of pen.

4.6 First Prototype

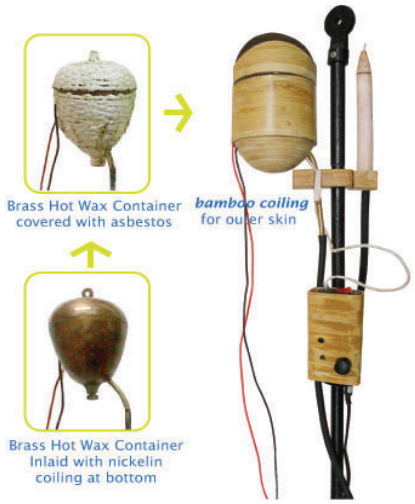


Figure 8. Integrated Wax Heating and *Canting* Model.

Nickelin coiling is placed at the bottom-inside the hot wax heater. The brass container has bamboo coiling as outer layer with asbestos filler. Switch panel and pen hanger is placed at a retractable pole support within arm reached. First prototype wax container has 8 cm diameter and 8 cm height, for single user. It required 60Watt DC and 15 minutes heating time.



Figure 39. User Test on New Product

Putting wax block in heating container: user can easily pull and push the retractable pole support to adjust its height. But the height needs to be at least 150 cm high.

Preparation to work: Switch button and wax pen at the middle of pole is within reach

Doing batik: drawing lines and filling motives with liquid wax is done easily. The result has the same quality as using traditional canting.

Resting: A few moments after the switch is off, wax temperature is lower, liquid flow is slower so that when the pen is hanged, wax won't overflow.

Evaluation: electrical cable needs to be tidy, hot cable needs to be covered, wood handle needs to have a better heat insulation, other immediate supplies need to be placed near user such as wax stock, different pen tips, and drinking glass.

4.6 Model Elaboration

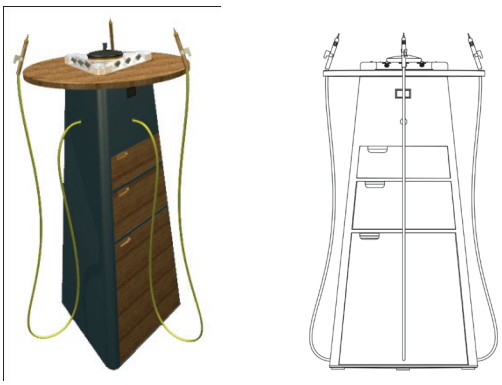


Figure 4. Batik Workstation

In order to lower the height of the wax heating container, this product use small piston pump for each pen. The container is now rest on 90 cm height from floor. It has a 60 cm in diameter desktop to put user's immediate supplies, and some drawers to keep other supplies. The work station can be used comfortably for 3 batik artisans. Wax container has 10 cm diameter and 10 cm height. Other model elaboration version without piston pump for three users required maximum height of 100 cm from floor for wax liquid to flow to the tip smoothly. Both models required 95 Watt DC and 25 minutes heating time with 1 cm in diameter pencil handle type.

4.6 Conclusion

These final prototypes using 95 Watt DCwith and without piston pump needs to be tested on wider users to determine the degree of its inclusivity. LCA measurement will determine its eco-efficiency level.

ACKNOWLEDGMENT

This research is accomplished by the research funding from The Directorate General of Higher Education. Technician from CV. Pirus has been working tirelessly to produce the prototype while some students from Product Design Department participate in the early model making.

REFERENCES

Agustina, F., and Maulana, A. (2012).Analisis Postur Kerja dengan Tinjauan Ergonomi di Industri Batik Madura. *Jurnal Inovasi dan Kewirausahaan.Vol.1/No.3 Sept 2012, h. 167-171*.

Clarkson, J.; Coleman, R; Hosking, I. and Waller, S. (2007). *Inclusive Design Toolkit.* Cambridge: Engineering Design Centre, University of Cambridge.

Dominica, M. R. T. D and Sutalaksana, I. Z. (2000). *Master Theses: Analisis Ergonomis tentang Kerja Pembatik pada Industri Batik Tulis*. Bandung: Industrial Engineering and Management, ITB.

Helander, M. (1995). *A Guide To the Ergonomics of Manufacturing.* London: Taylor & Francis.

McCormick, E.J. and Sanders, M. (1982). *Human Factors in Engineering and Design*. New Delhi: Tata McGraw-Hill Publishing Company Ltd.

Setyawati, L. et.al. (2001). *Pengadaan Peralatan Kerja Yang Ergonomis, Perspektif Jender Bagi Pembatik Tulis Dalam Kaitan Dengan Tingkat Kelelahan Kerja dan Stres Psikososial*. Pusat Studi Wanita, UGM.

Terrel, R. and Purswell, J. (1976). *The Influence of Forearm and Wrist Orientation on Static Grip Strength as a Design Criterion for Hand Tools.* Proc. Hum Factors Soc., 20:28-32.

Wilson, J. R. and Corlett, N. (2005). *Evaluation of Human Work 3rd Edition.*Boca Raton, FL: CRC Press.

Applied Creative Pedagogy: A Practical Approach from the Creative Educators' Perspectives

Victoria Kuan
Tunku Abdul Rahman University College, Malaysia
kuantl@acd.tarc.edu.my

Kendy Mitot
Tunku Abdul Rahman University College, Malaysia
kendyam@acd.tarc.edu.my

***Abstract* —** Creative and critical thinking are two inseparable thinking skills. One needs to embrace that one is "creative" enough to recognize one's authenticity of thoughts, and willing to let oneself taking the space and time to build some explicit models from one's imagination.

This requires that individual be mindfully versatile to construct arguments during group practice. Every individual in the group will be encouraged to search for new knowledge based on the original working models that all members agreed on resulted from the initial stage of the project.

Students are expected to carefully construct any further thoughts that will form the basic platform of original inquiries. All groups will be facilitated to move through that processes of gaining the specific knowledge and skills, to analyze what is observed and apply what is learned into final piece of work as group outcome.

This paper will discuss the processes of how students will be guided and facilitated in the knowledge searching (creativity) and experiential learning (critical thinking) stages, elaborating on and presenting a working hypothetical model, to manage and reflect on the achievements resulting from the structure of learning influencing the creativity procedures, creative act processes and progresses rather the outcome of creations.

***Keywords* – Creative Thinking, Creativity, Critical Thinking, Design Practice.**

1. INTRODUCTION

Creativity is important to every smart learner. One definition of creativity is the capacity of mindfulness of how we can relate the known to the unknown; it is a kind of process and practice instantiated in the human mind that help us expand and relate all conceived knowledge to a new dimension. For example, it is that particular visualizing skill that helps us connect the dots in order to see the big picture of the unknown. As always, this thinking process will draw us a step closer to searching for the truth of what we imagine in the first place. A one-way creative thinking practice is only the fundamental starting point in every creativity process. Essentially, creativity explorations or creative design activities alone are of no significance if these practices are not leading us to explore yet another thinking domain, that is, the critical thinking skill. Transformation of ideas can only take place when both creative and critical thinking are engaged and applied in creative activities. Ideally, the continual development

and refinement of these repetitive creative mindfulness approaches will then drive us to achieve a state of near "equilibrium" (see Figure 1) between knowledge searching (in creativity) and experiential learning (in critical thinking practice) in the creation processes. As stated by Kiely (1999) in her abstract of her paper entitled, "A piece of good news", she noted that the Piagetian approach to creativity emphasizes on the active pursuit of intellectual activity which leads us to the state of ongoing "adaptation, knowledge-in-evolution", that is, a state that demands us to carry out a continuous practice of "cognitive and affective disequilibrium-equilibrium and adaptation".

Therefore, the argument of this paper is that understanding the role that creativity plays in the process of knowledge searching and experiential learning is crucial, especially if we as educators wish to concern ourselves, on how we can better foster, encourage and support the interplay of knowledge searching process while developing individual strength and group learners creativities. Ensuring an experiential learning experience among individual learners and or supporting productive group critique sessions when conducting our creative project based activities for students are the objectives of our practical research inquiry in this case. We classified this dual-way of processing individual and or group knowledge exchanges as a form of subjective level of achievement for our creativity projects. Kiely (1999) in her paper's abstract, suggested that, "the academic system must allow for individual differences and diversity, for the time to supervise creatively, thus redirecting the emphasis from product to process".

2. THE PROCESS - KNOWLEDGE WORKFLOW CYCLE DIAGRAM

It is known that creativity or creative thinking is classified as a form of "higher-order thinking" as defined by Schultz (n.d.) in the "Bloom's Revised Taxonomy Planning Framework" based on the work of "Anderson (a former student of Bloom)". According to Schultz (n.d.), this work was specifically updated by Anderson to reflect the intellectual behavior in learning suitable for twenty first century learners.

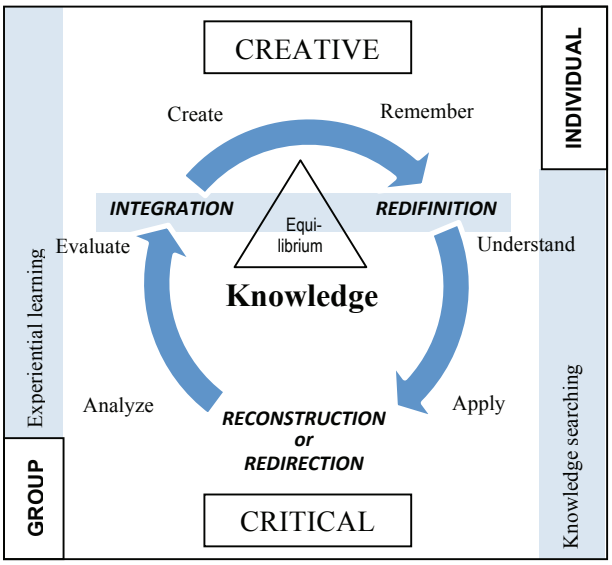


Figure 1. Creativity Mindfulness Workflow Cycle: *Exploring creativity starts with redefining creativity and its associated tasks as illustrated in this Knowledge Workflow Cycle diagram (from clockwise direction).*

In this project, it began with our facilitators playing the leading role for the individual learners, tapping into their own past encounters, reflecting on his or her (the learner) former knowledge searching experience based on his or her own level of understanding (See Figure 1, in the 'Remember' and 'Understand' stages). Singer (2010) expressed his ideas in his book entitled: 'Modes of Creativity', saying that in creative learning, one needs to learn how to be creative, and this "depends upon one's facility in learning by and for oneself" (p. 60):

> "To do that, one must get from a teacher, or similar authority figure, the ability to learn that this person has and then imparts to us in whatever manner ... The teacher teaches by reinforcing the pupil's desire to appropriate the teacher's own capacity to learn." (Singer, 2010, p. 60).

Hence, to elaborate on our teaching objectives specifically from creative pedagogical perspectives, we developed this integrated structure of a 'simplified' hypothetical model as a guide for creative learning, known as the "Creativity Mindfulness Workflow Cycle" as illustrated in Figure 1. This engaged model serves as a form of knowledge workflow cycle

diagram in our project. It is in fact a guiding map in motivating and driving the creative individual learners as well as group learners to work through from the beginning until the final stages of the project.

The module and structure for learning for this creativity project are also drawn from the work of Sternberg's concept (as cited in Sawyer, 2003, p. 101). In Sawyer study, he pointed out that Sternberg's concept further classifies creativity as "eight types of creativity as a decision-making process". In fact, the 'simplified' framework within the knowledge workflow cycle diagram is to reflect on the time constraint (a total of six intensive weeks in the specific module structure for the creative learning) that the students have for completing this project. This 'simplified' working model or our working hypothesis is, to some extent, helps us to project and map our students' learning milestones. As clarified, it includes the adaptation from the classification of levels of intellectual behavior in learning, illustrated as in the Bloom's Revised Taxonomy diagram reproduced by Schultz (n.d.).

This paper will, however, not be enough to cover and address all the concerns from us as teachers or educators role, to specifically measure or assess the engagement level of knowledge searching experience against the products of students' creations, that is in technical sense, the intended explicit quality design models as creativity outcome. In order to meet our challenging objectives (from the educators' perspectives) due to time factor effecting the guiding of these creativity knowledge workflow experience of our learner groups, we strategically focus on the processes that deal with the creative act itself rather than the product of creations.

This being said, the capacity of students in terms of our practical approach to reflect on the meaningful knowledge searching experience in creativity are set and these are namely the phases that involve: our explorations, identification and discussion of a number or set of applicable teaching or guiding principles for the case. The working model that we develop is to reflect on the discovering and exploring of creativity based on the work of Sternberg's concept (as cited in Sawyer, 2003) which classifies the eight types of creativity as a decision-making process (p. 101). Also development of this study takes into consideration of an important variable of the project, that is, its intensive timeframe of study for our learners to work through all phases of the knowledge exchanges process. Therefore, we decided to focus on three relevant aspects out of the eight listed types of creativity as a decision-making process as defined by Sawyer (2003) in his study. These three identified processes will be exlored and discussed in accordance to the project cases where students were facilitated through the defined stages of the project. The three main defined stages examined in this paper based on our hypothetical model are the three types of creativity as categorized by Sternberg's concept indicated in Sawyer's report. These three identified types of creativity to be engaged as a decision-making process are namely: "the Redefinition", "the Reconstruction or Redirection" and "the Integration" types (Sawyer, 2003, p. 101).

The final objective is to draw conclusion on the level of students' experiential learning with regard to the structure and modes of providing supportive learning environment to the students by the facilitators; The definitions of our engaged steps are necessarily aimed at encouraging and supporting individual as well as group learners, to drive the agenda of this design thinking project (creativity procedures) through from the perspective of acquiring quality experiential learning skills (creative act processes and progresses) so to fulfil the learning objectives, within the given timeframe of the study for our specific learners in this module of study.

In such a case, the principal objectives of this research are associated with the specific engagement of students in creative and critical thinking skills. Our ultimate aim is to examine

our own specific engagement techniques and stages in managing students' creativity and development processes, as individual as well as when individuals are working in group. We were given six intensive weeks to drive students through and engage them in knowledge searching and experiential learning in the second year of the Creative Arts program with our faculty.

The achievable outcome as stated in our course objective is, to ensure learners are able to grasp the concepts and applied creative and critical thinking skills in this and their future practical projects, and to produce a reflective statement or report as a valid record of their experiential learning process that they have been through based on the milestones of this specific model that we developed.

3. REDIFINITION

As stated by Sawyer (2003), creative thinking as defined by Mednick in his Associative Theory is "the forming of associative elements into new combinations" (p. 26). Fink and Benedek's (2013) study also agreed that creativity can be enhanced by providing the means and opportunity for learners to engage in cognitive stimulation (p. 220). The means and opportunity here referred to as the "divergent thinking" and the state where learners group are engaged in "confronting people with the ideas of others" (Fink et al., 2013, p. 220).

3.1 Exploring Divergent Thinking

Hence, the design practice at this stage is to include students to practice divergent thinking skills and to encourage students to record the thinking results in the form of schematic models. In this case, divergent thinking and associative thinking will be expressed based on individual's strength in problem-solving. Students are allowed to practice own's cognitive style during the ideation processes, focusing on their written and or visual images expressions.

The guided practice at this stage will be considered as the initial development stage of concept formation in response to the topic at hand as instructed by the facilitators. Recorded outcome will be through a series of individual presentations on how they have driven themselves through in the creative and decision-making processes to redefine their various sources of thoughts.

The importance of having students expressing themselves and working through in making individual's decision at this stage are critical as according to John-Steiner (1997), she noted that the Swiss psychologist Jean Piaget stated that "Knowledge is tied to actions" (p. 15). Therefore students should be working on constructing the schematic models as an individual outcome for comments during the design practice. This is the stage at which facilitators will advice and give constructive feedback to students' specific models of design. With guided practice, students will be moving through the design and creative process and finally confirm their concepts relevant to the chosen topics at the beginning of the project.

3.2 Self-Actualization In Group Practice

While it is a conventional practice to engage students in groups after the beginning stage, the second challenge will be the facilitation of student groups moving through from the initial stage of exploring and redefining creativity to the critical thinking process. According to Gryskiewicz (1993), critical thinking can be defined as 'rationally evaluating ideas from multiple perspectives – from a "multilogical" point of view (Hitchcock, 1983; Huff, 1978; Paul, 1990)' (p. 190). Therefore it is important to ensure students will be engaged in the reconstruction or redirection of thoughts relevant to the project contexts during the design practice as a form of critical thinking process.

4 RECONSTRUCTION / REDIRECTION

Reconstruction or the redirection phase in the knowledge workflow cycle diagram as illustrated in Figure 1 is in fact, the stage where learners will bring in their dream ideas and

work on confronting the possibilities of achieving the "innovative dreams" – it is a stage at which Edwards (2010) explained in his book entitled: "The Lab" (p. 49). The mission for him and his organization's work in this "idea translation lab" with the students group is, tapping into the possibilities of transforming and generating reality based on the "seed ideas" developed (p. 49). He also noted that achieving a transformational experience in "idea-translation experience" is the very essence of a successful experiential learning process in creativity (p. 49).

4.1 Group Critique Sessions

In this case, to enhance our learners' experiential learning process, the facilitators will ensure students group work on their variety of concepts formed during the previous stage. Ideas will be thoroughly explored, analyzed, discussed and finally synthesized in this project. The objective is to engage students so that quality final outcome as students' group findings is assured and meeting the requirements as set out in the main objectives and aims of this project.

At this critical stage, all groups are advised by facilitators to "screen, synthesize and separate ideas" (Gryskiewicz & Taylor, 2007), while group members are invited to deconstruct and or redirect those "promising ideas" that have gained the most support from the team members (p. 27). Students are expected to have developed the capacity of putting initial concepts into new perspectives. The facilitator's role in this case is to ensure that student groups are capable to address these problem-solving scenarios by proving their abilities during their progress in constructing arguments and developing new insights. The expected tasks will be on developing new intended models of design that will meet the final groups' objectives and requirements.

4.2 Achieving Ideational Fluency

At this stage, the important mission of facilitators is to ensure that a state of "ideational fluency" will be achieved at some point and occurs in students' overall design experience. Fink and Benedek (2013) suggested in their related work that creative thinking is a practice of ideational fluency (p. 219). While in Sawyer's study (2003), he indicated that creativity, being a state of achieving ideational fluency, Csikszentmihalyi and John-Steiner termed it as the state where learners have "internalized the rules of the domain" or field (p. 226). Guilford (as cited in Fink et al., 2013) specifically defined ideational fluency as one's abilities to have a novelty or original approach to generate large quantity of ideas with flexibility in terms of the variations or differences of the set of ideas (p. 207). Also it was mentioned in Fink and Benedek's (2013) work that emphasized the evidential research done by other creativity researchers such as that of Torrance's in 1966, has developed the "Torrance Tests of Creative Thinking (TTCT)" as well as that of Guilford's in 1967, "the divergent production tests" as the creativity measures (p. 207). However, it is argued that, the guidance such as that provided by the facilitators in this project, to help develop the capacity of individual and student groups' learning in achieving "ideational fluency" are the main discussed factors concerned, drawing more on which Sawyer's 2006 (as cited in Fink et al., 2013) work that aimed to focus on the pedagogy or the educational domain (p. 208). Hence, it is absolutely crucial that we understand the aspects of creative processes as to how it should be managed and assessed as these factors all determine student groups' abilities in developing a high level of creative and critical thinking skills that will in turn influence their successful contribution in moving the field or domain. This contextual guidance should focus on exposing students to new oriented possibilities such as, by providing adequate designing practice opportunities to students during the stage where mapping of all promising ideas to reconstruct and or redirect group findings.

Ideally, the ultimate objectives of the entire project are to ensure that students will move through the design processes with self-

actualization being shared in the group practice (see Figure 2). The implications from the reconstructed arguments and insights gained at this stage will support them in achieving better and innovative outcome or results in the following design activities.



Figure 2. Self-actualization process demonstrated and feedback given to student group after reflecting on ideational fluency: *A group findings shows a design model "Marina Sculpture Garden" as an object of design to enhance the Green environment.*

5. INTEGRATION

The next stage following an established "Reconstruction/Redirection" stage in the creativity process is the "Integration" stage – A stage at which evaluation and communicating achievements phases occur. Evaluation stage begins with the practice of evaluative thinking skills. As stated by Chesters (Ed., 2012), "evaluative thinking" is a pattern of thinking that "allows us to reconsider or evaluate knowledge" (p. 121). Hence it is important for students to thoroughly evaluate and make sound decisions to determine and adapt the most suited approach as a creative solution to solving their design problems.

5.1 Evaluative Thinking Process

At this stage, all members need to reach to an agreed objective, going through five interrelated stages such as that pointed out by Chesters (Ed., 2012): "reasoning, analysis, evaluation, valuing, and judgement" before making the final decision (p. 121). Student groups should have moved through and engaged in the collection of final thoughts and insights with regards to the final group design model, completed and presented for evaluations. By then students will have reached to a stage to conclude the project by presenting a workable and acceptable design models for feedback sessions with the facilitators. Final sessions with the facilitators should include tasks such as engagement in creative inquiry and dialogue as to the how-and-why of the functions of the design models, elaborating and providing some creative ways and insights to contextual approach as the final design solutions.

5.2 Creativity Dialogue via Caring Thinking

At "Integration" stage, students will also be engaged in "care thinking". As analyzed by Chesters (Ed., 2012), her concept of "care thinking" is ideally a form of communication and inquiry stage where all participating agents of thinking are engaging in an open and "effective dialogue" given a conducive environment (p. 133). Chesters (Ed., 2012), in reporting Ann Sharp's study, agreed that 'care thinking "suggests a certain view of personhood and pedagogical process"' (p. 134). Therefore at the crucial stage, students group are expected to effectively communicate their final outcome as a measure of the group's creative achievements. Also, facilitators will need to ensure that students are aware of the current issues in design solutions relevant to topic. As expected, in the pedagogical process of having effective dialogue and inquiry sessions during the final presentations, facilitators should address all specific issues presented as a form of "philosophical inquiry" despite that it is called a "caring thinking", as argued by Chesters (Ed., 2012) in her report (p. 134). She also emphasized that in Hult's study, he used the term "pedagogical caring". In the situation where facilitators have the full authority to engage in the measurement of students' creative achievements in this case, effective feedback sessions by the facilitators will set the stage for caring setting in education context. Also, Stronge's (2007) work argued that "effective teacher builds the capacity for students to be

able to think critically about their own work and the work of others", and obviously he also pointed out that, "feedback gained from oneself, one's peers, and the teacher enhances the learning process" (p. 89).

5.3 Reflective Learning and Pedagogical Caring

As defined in Stronge's (2007) work, the role of caring is, "an act of bringing out the best in students through affirmation and encouragement" (p. 23). To manage this caring setting, students are expected to have reasonably justified their working models presented while facilitators will have attentively acknowledged that students' creative input and justifications provided will be addressed and appraised most appropriately in the open inquiry and caring dialogue sessions. An explicit measure towards the creative achievement values in students' work will be, have the students to prepare a short summary of creative or the design statement about the project's final design model or object of design by the student groups. The statement in this case should include the design objectives verses the group's final creative achievements. The statement will specifically focus on elaborating the mapping of the strategic purpose for the project model in relations to its functional context development as evidenced and presented in the final object of design or model developed by the students group.

6. CONCLUSION

As a summary to conclude this writing about the study, what we the educators have learned about while conducting this project is that, by driving our students undergoing open philosophical inquiry sessions, not only it brings the learners an enlightened experience in a pedagogical caring mode. The final findings of this study suggest that the learning experience itself is in fact a creativity development process that is more than a decision-making process. As argued in an educational context, the overall findings are, creativity projects do encompass a far more rewarding sense of multi-dimensional experiential learning for the individual as well as peers setting in groups; it allows learners opportunities to make mistakes and support the idea of taking risks, for which these factors are exceptionally mandatory requirements in all creativity learning projects. Chesters (Ed., 2012) in her study proposed an education setting that explores multidimensional thinking, which includes generative, evaluative and caring or rather, more specifically, he uses the term "connective thinking" instead (p. 3).

In this overall connective context, not only will learners take into consideration the societal expectation (participants as agent thinkers with students, peers in groups, facilitators as active audience), and practice a sensibly active connecting and communication skill to learn to connect with others. Facilitators themselves for which, in the case of engagement in most philosophical inquiry sessions, find it extra-challenging when participating in those conducive knowledge-sharing open dialogue sessions. They will have to make sure that as educators, they explore the strategic ways to make the "Socratic classroom" (Chesters, Ed., 2012), filled with a roomful of philosophical inquiries, and to successfully demonstrated the concept analyzed in Sawyer's report (2003) that suggests the concept of "maximize Person-Environment Fit" (p. 130).

An appropriate interpretation of the concept is that, teachers' role are important agent to "prepare students to choose environments that are conducive to their creative success" (Sawyer, 2003), and while at the same time as facilitators, attentively preparing themselves in structuring these "connective" mode of creative experiential learning (p. 130). They too should "examine the environments" (Sawyer, 2003) to ensure themselves successfully forging a teaching delivery experience that will promote a sense of motivation in their students' learning (p. 130). To further conclude this study, the implication is that creative and critical thinking project involves a critical mission of preparing smart and active participating learners in the classroom that are always aware of and can appreciate the conceptual model of "Person-Environment-Fit", as suggested in Sawyer's

analysis (2003, p. 130). Sternberg and Williams (1996) also noted that students need to ensure that they themselves should identify and "capitalize" on their strengths, showcase and express their talents in meeting the creative challenges ahead of them (p. 46).

ACKNOWLEDGMENT

We thank the reviewers for suggestions on related work and other useful comments. We also appreciate the support of our staff members from the Department of Creative Arts namely, Chu and Shaharuddin, for their contributions and team effort in guiding the students successfully through the design thinking practice and processes in all structured creativity experiential learning scenarios.

REFERENCES

Chesters, S. D. (Ed.). (2012). *Socratic Classroom: Reflective Thinking Through Collaborative Inquiry*. Rotterdam, DEU: Sense Publishers. Retrieved from http://www.ebrary.com

Edwards, D. (2010). *Lab : Creativity and Culture.* Cambridge, MA, USA: Harvard University Press. Retrieved from http://www.ebrary.com

Fink, A. & Benedek, M. (2013). The Creative Brain: Brain Correlates Underlying the Generation of Original Ideas. In O. Vartanian, A. S. Bristol & J. C. Kaufman (Eds.), *Neuroscience of Creativity*. (pp. 207-231). Cambridge, MA, USA: The MIT Press. Retrieved from http://www.ebrary.com

Gryskiewicz, S. S. (Ed.). (1993). *Discovering Creativity*. Greensboro, NC, USA: Center for Creative Leadership. Retrieved from http://www.ebrary.com

Gryskiewicz, S. S. & Taylor, S. (2007). *Making Creativity Practical: Innovation That Gets Results.* Greensboro, NC, USA: Center for Creative Leadership. Retrieved from http://www.ebrary.com

John-Steiner, V. (1997). *Notebooks of the Mind: Explorations of Thinking.* Cary, NC, USA: Oxford University Press, USA. Retrieved from http://www.ebrary.com

Kiely, M. C. (1999). "A piece of good news": Teaching as a creative process [Abstract]. *Canadian Psychology, 40*(1), 30-38. Retrieved from http://search.proquest.com/docview/220811487?accountid=38945

Sawyer, R. K. (2003). *Creativity and Development.* Cary, NC, USA: Oxford University Press. Retrieved from http://www.ebrary.com

Schultz, L. (n.d.). *Bloom's Revised Taxonomy: Bloom's Taxonomy, Lynn Schultz, Old Dominion University.* Retrieved February 08, 2015, from Portland Public Schools – Portland, Oregon Website: http://www.pps.k12.or.us/schools/forestpark/files/school-forestpark/BloomsPoster.pdf

Singer, I. (2010). *Modes of Creativity : Philosophical Perspectives.* Cambridge, MA, USA: MIT. Retrieved from http://www.ebrary.com

Sternberg, R. J., & Williams, W. M. (1996). *How to Develop Student Creativity.* Alexandria, VA, USA: Association for Supervision & Curriculum Development (ASCD). Retrieved from http://www.ebrary.com

Stronge, J. H. (2007). *Qualities of Effective Teachers (2nd Edition)*. Alexandria, VA, USA: Association for Supervision & Curriculum Development (ASCD). Retrieved from http://www.ebrary.com

Vartanian, O., Bristol, A. S., & Kaufman, J. C. (2013). *Neuroscience of Creativity*. Cambridge, MA, USA: The MIT Press. Retrieved from http://www.ebrary.com

Design With Petungan (Java Size System) Method In Graphic Design Implementation

Irwan Harnoko, S.Sn., M.Ds.
Bina Nusantara University, Indonesia
irwanonni@yahoo.com

James Darmawan, S.Sn., M.Sn.
Bina Nusantara University, Indonesia
james.darmawan@binus.edu

Drs. Lintang Widyokusumo, MFA.
Bina Nusantara University, Indonesia
lintangw@binus.edu

Abstract **—** The world recognize the Golden Section (also referred to as 'the great proportion' or 'golden ratio'), discovered by Leonardo Fibonacci of Italy in the 12th century, the application can be used in a variety of scientific and graphic design world. While in Indonesia we have known Primbon provide a benchmark series of comparative size, which by many Java community known as Petungan. The long-term goal of this paper is to put Petungan as one measure in addition to the Golden Section proportions to create a system that can be used in compiling the balance of a graphic design. Specific target of this research is to optimize the layout Petungan resulting proportions are ideal for graphic design Indonesia, and socialize it to fellow designers, industry and the general public, so that the primacy of this study is to provide inspiration to develop Local Genius Indonesia others, especially in the proportion of diverse beauty culture in Indonesia in 2015 AFTA competition. This writing will result in visual design as a preliminary study for further research. In scientific writing, the author team will produce a visually Petungan proportion formulation in the context of graphic design in the context of the logo down a city, as well as decreases in the specific context in the two logos city in Central Java.

Keywords **—** Graphic Design, Local Genius, Petungan, Measure Proportion.

1. INTRODUCTION

Graphic design is the art of communicating using text, space, and images. The science of graphic design includes visual art, typography, layout, and interaction design. Architecture is the art and science of designing buildings. In a broader sense, the architecture includes the design of the total built environment, from a macro level, namely urban planning, urban planning, landscape architecture, down to the micro level, namely the design of the building, parabot design and product design. Architecture also refers to the results of the design process. This equation lies the knowledge of graphic design and architecture are both concerned with the proportion of beauty that in this case the tool is used as a universal guide is Golden Section.

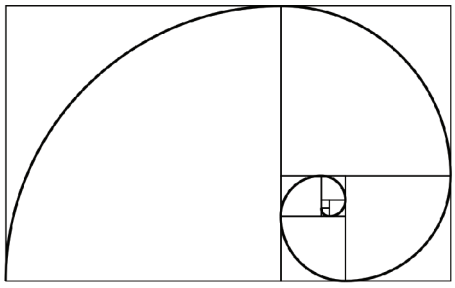


Figure 1. The division of the Golden Section on conch Segmentation. Source: http://mathworld.wolfram.com

Golden Section or the golden ratio is a term widely used in the field of mathematics. Something called the golden ratio if the ratio of the sum of the two parts (small against large) is worth 1.61803398874989. From the Golden Section, can be formed perfect rectangles, which, when arranged continuously as in the illustration below will produce a spiral shape pattern, such as a spiral pattern on snail segmentation. This Golden Section is widely applied as a rule of design in the classical architecture.

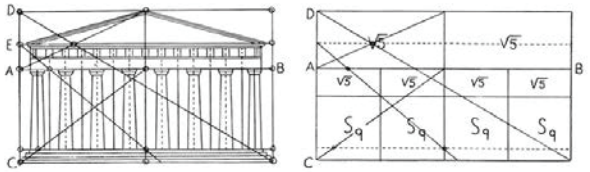


Figure 2. The division of the Golden Section in building the Parthenon. Source: http://mathworld.wolfram.com

For example in following this Parthenon building, which uses rectangles golden rule (or golden proportions) from the scope of the building as a whole until the smallest detail. These rules not just used in the architecture, but also applied to many classic works of art, such as sculpture or painting.

In Java architecture also known and use proportions. Indeed it does not have the Leonardo da Vinci's Golden Section which is very popular among technicians and artists everywhere. However, the Java community has its own norms in determining proportions; which are called Petungan. This Petungan uses calculation: Sri (as number 1), Kitri (as number 2), Gana (as number 3), Liyu (as number 4), and Pokah (as number 5). This thing was expressed by Zein Moedjijono WP (1985) in an article entitled 'Arsitektur Jawa (ayu-ayom-ayem)'. In this study the authors will use the development of Moedjijono studies, that is study belonged to Josef Prijotomo, where the study of this development is more in the form of mathematical formulas with the formula (5n + p). The value of 'n' is an integer value (which is also noted in the study Moedjijono), whereas in this study the number n plus 'p', which is an additional value of n is divided by five (which is also mentioned in the study Moedjijono).

Petungan related to geometry, this geometry is a rationale of forms, ranging from forms that exist in nature until to the application in knowledge (including architects and graphic design). However, is it applies in every form of knowledge; which should consist of the elements of geometry? To answer this question, it should be known in advance what is called geometry. According to the World Book Encyclopedia, the geometry is defined as follows:

> "Geometry is a branch of mathematics. It involves studying the shape, size, and proportion of geometric figures. Reviews These figures include plane (flat) figures, such as triangles and rectangles, and solid (three-dimensional) figures, such as cubes and spheres "(The World Book Encyclopedia, 1993).

In that definition, it is explained that the geometry is a mathematical science that is closely related to the shape, size, and pemposisian. This definition is very broad, so with just based on this definition, each knowledge which has proportion, can be consisted by the elements of geometry.

In graphic design, we know the famous designer; Josef Muller-Brockmann from Swiss. His works in graphic design was very geometrical and/or architectural, he also explained that in the geometry: "The proportions of the formal elements and their intermediate spaces are almost always related to Certain numerical progressions logically Followed out " (Elam, 2004: 5).



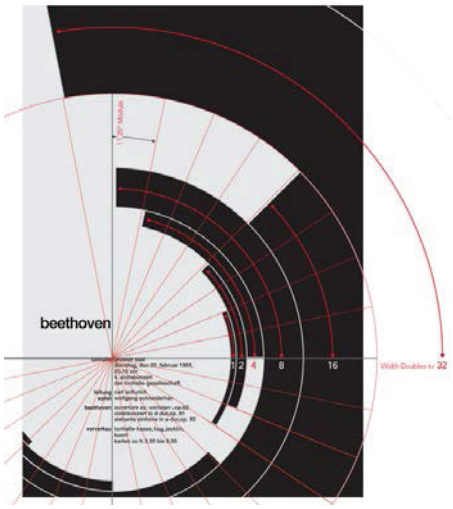


Figure 3. Brockmann poster with Golden Section by Kimberly Elam. Source: Müller-Brockmann's Beethoven Poster.

According to the additional explanation of Muller-Brockmann, the proportion of formal elements and the geometry of space is always associated with a logical numerical calculations. As one of mathematics, geometry must have rules that limit its forms.

By the nature of geometric shapes associated with numerical element and must have a logical form, then the variation in the geometry has been poor. The objects that are abstract, tend to have a shape that is not logical and can not be defined as a numerical form. This is because its elements are not measurable. Therefore, these objects can not be categorized as a form of geometry.

Based on the above explanation, the researchers will make the method ideal proportions graphic design Indonesia, especially in the context of Central Java through petungan which it is done is inspired by Josef Muller-Brockmann. Because both of these have application proportion in the scientific world of graphic design, the researchers believe can also make the application process as well proportions in scientific graphic design, but using the proportion of petungan.

2. DATA AND METHODS

Through the matching process in this study, authors conducted a comparison of the proportion of petungan with real objects in graphic design applications along with applications, which is run by entering in a phase of phenomenology (phenomena as distinct from that of the nature of being). So that the design of graphic design may be found similarity, resemblance, similarity, or the difference, and the formulation of new proportions kebedaaan of this petungan.

In the phase of data analysis in the form of graphic design petungan this, basically have two types of analysis were conducted. The first analysis of construction and tectonics. Determination of two types of analysis done by placing the data and graphic design issues as the primary consideration. Both of these analyzes are run so that it can reveal how graphic design is present as knowledge of graphic design applications.

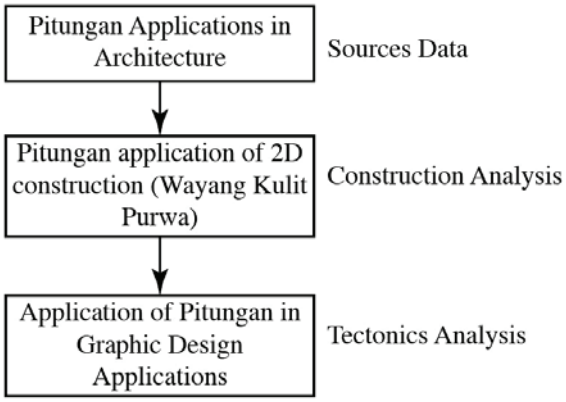


Figure 4. Two Analysis Methods of Petungan for Graphic Design. Source: Author's Work.

Petungan is a series of benchmark of comparison contained in the Primbon size. There are various benchmarks with sufficient detail and depth in the calculation of the Java universe, the problem is most of these standards are not presented in a language and commonly dish can be found incontemporary knowledge. For example: measure proportion in Javanese architectural. This is the fact that the calculation of Java has a different system than the system that is widely used in scientific calculations in the present. Starting from handling petungan in every script and consider each element plays a role in the process as well petungan petungan, it can be made a general rule as follows: $Y = Xn + p$.

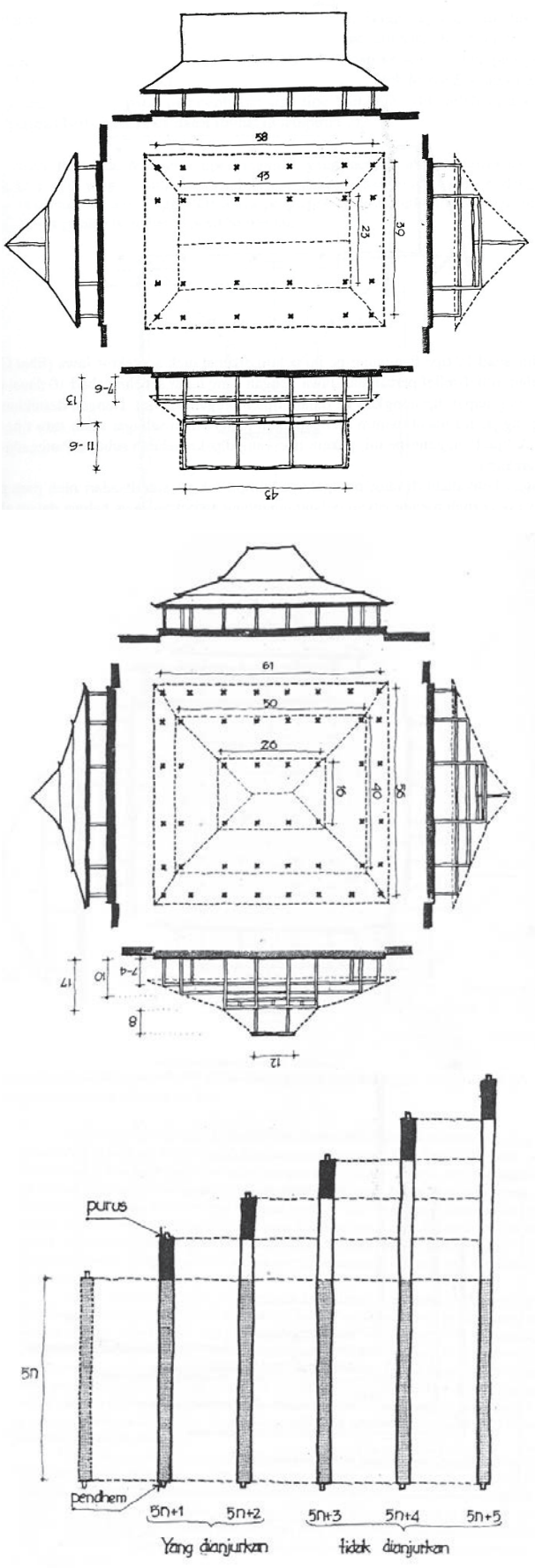
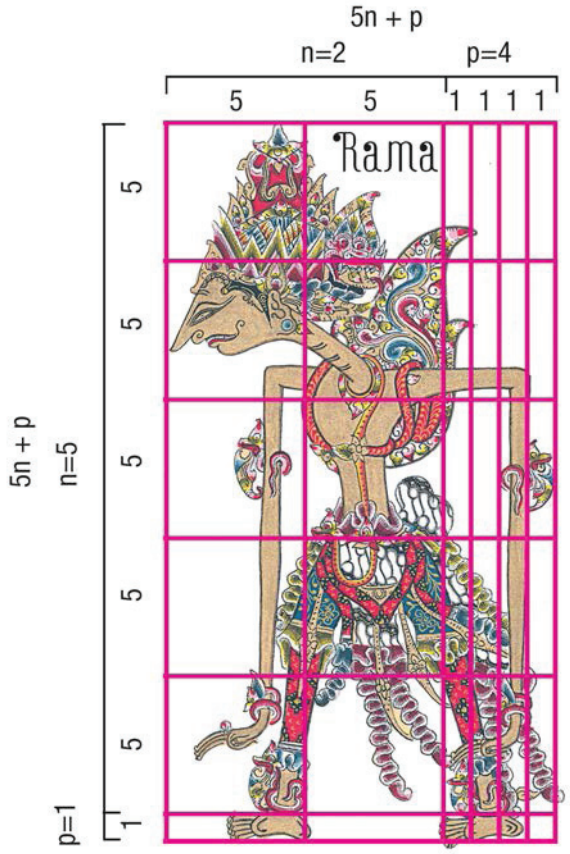
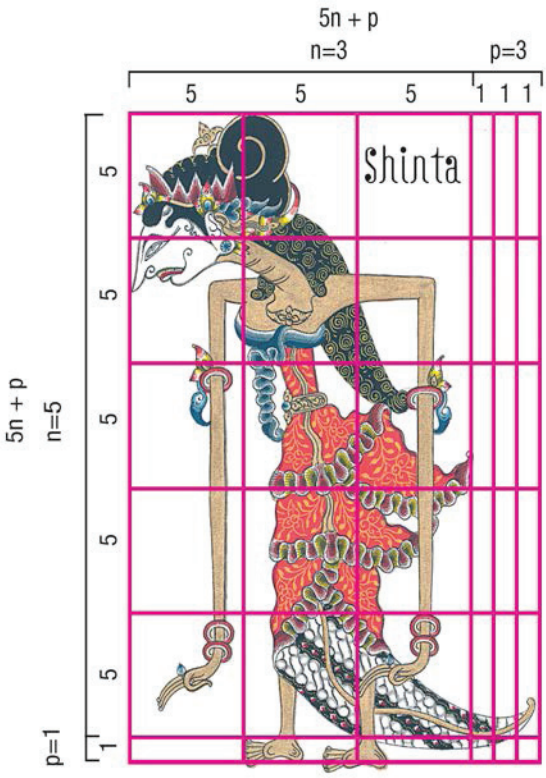


Figure 5. Pitungan Measure Proportion in Architecture Applications. Source: Petungan, by Prijotomo.

In practice, this will petungan formulas are applied with a matching system in the formula proportions. Role object for examining the scientific field as graphic design, making field research is required to answer the question; how a proportion presents itself according to tectonic processes or the art of constructing (considering the research conducted, dealt in the field of architectural).

The author tries to apply this petungan proportions, the arts Wayang Kulit Purwa who has two-dimensional field. On this application, the authors found similarities preferentially in proportions used. Given Wayang Kulit Purwa itself is a cultural heritage of Indonesia since the 9th century on the island of Java. This proves that the calculation of the proportion of pitungan is the legacy method of Indonesian measurement system.





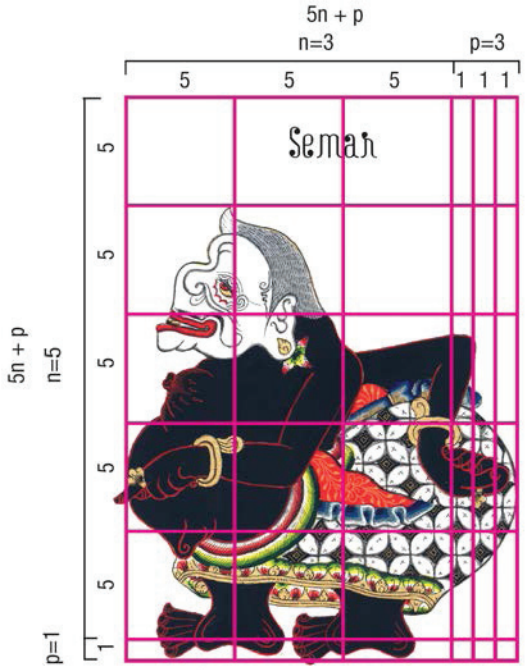
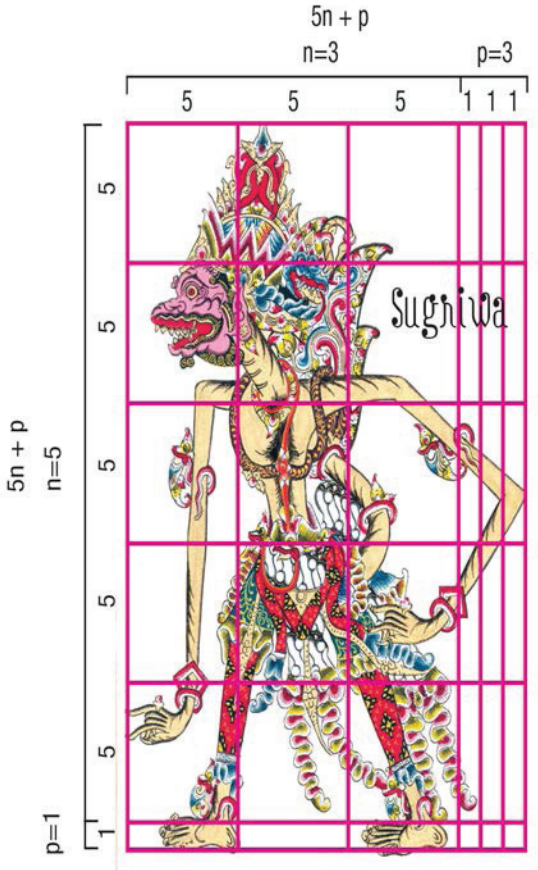
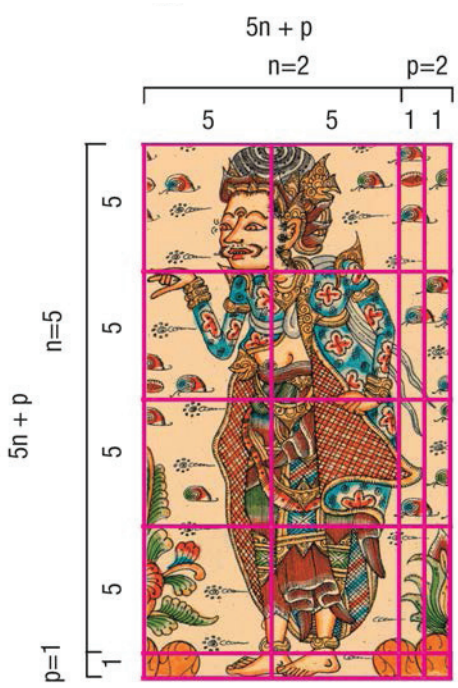


Figure 6. Pitungan in Wayang Kulit Purwa Proportion.
Source: Author's Analysis.



When observed, in addition to the formulation of 5n + p, the application of 'p' can be more than 1. Basically, 'p' is a measure of the soul over the petungan. Such as Prijotomo's research; overage 'p' is a character that tells construction. Thus the proportion of petungan a measuring system which takes into account the proportion of natural proportions, especially on the island of Java.



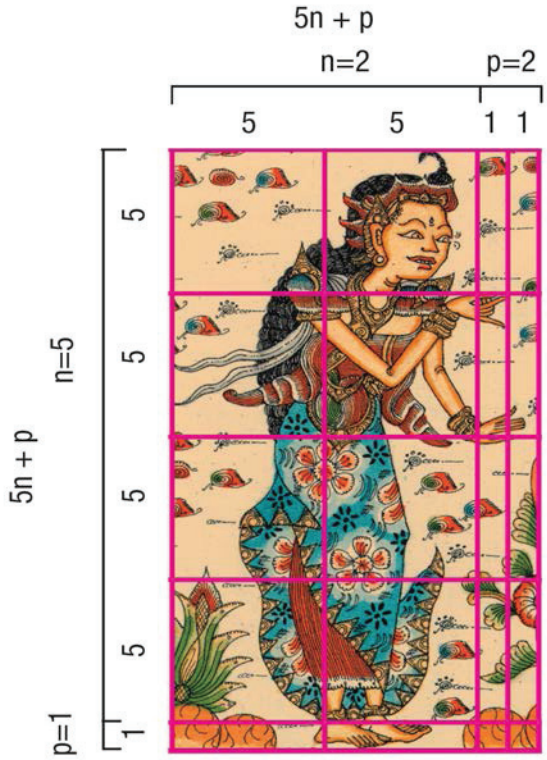


Figure 7. Pitungan in Wayang Bali Proportion.
Source: Author's Analysis.

It is returning surprising, because the authors also found similarities in proportion to the puppet Bali. Historically, Wayang Kulit Purwa born in Java in the days of empire Majahit, then this also affects the cultural heritage of Balinese culture which also has a puppet heritage. Within the scope of this paper, although the form of puppet experiencing many changes, but in proportion, petungan retained.

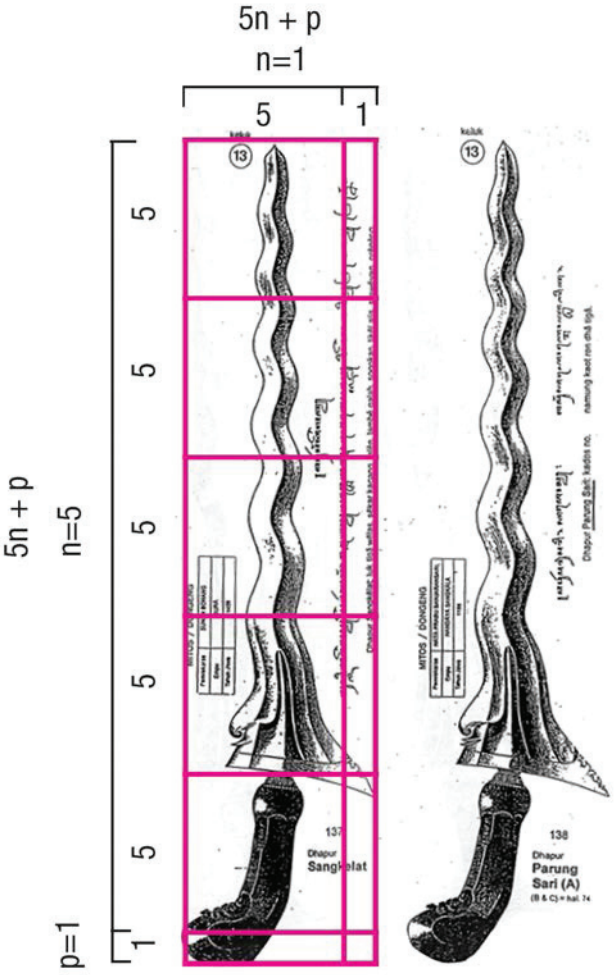


Figure 8. Pitungan in Keris Proportion.
Source: Author's Analysis.



Figure 9. Pitungan in Candi Borobudur's Reliefs Proportion.
Source: Author's Analysis.

Similarly, on the application of the Candi Borobudur's reliefs and Javanese dagger, the proportion pitungan back a reference in determining the size. This opens up the mindset of designers (particularly in scientific architectural and graphic design) about the existence of an alternative pattern proportional calculation which also has aesthetic value, also raised the cultural values (local genius) that are essential within the scope of the proportion of scientific aesthetic graphic design.

3. RESULT AND DISCUSSION

Through the matching process in this study, researchers conducted a comparison of the

proportion of petungan with real objects in graphic design applications along with turunannnya, which is run by entering in a phase of phenomenology. So that the design of graphic design may be found similarity, resemblance, similarity, or the difference, and the existence of a new formulation petungan this proportion.



Figure 10. Petungan in Letterhead A4 Size Proportion.
Source: Author's Analysis.

On A4 size paper (21 x 29.7 cm), when applied in proportion petungan will change; in which the author uses the benchmark 'n' as integer of 20 cm for the width and 30 cm for the height (base multiple of 10). Value 'p' become overage by 1, so the application petungan for A4 size paper into 20 + 1 cm for the width and 30 + 1 cm for the high, or total measurement is 21 x 31 cm.

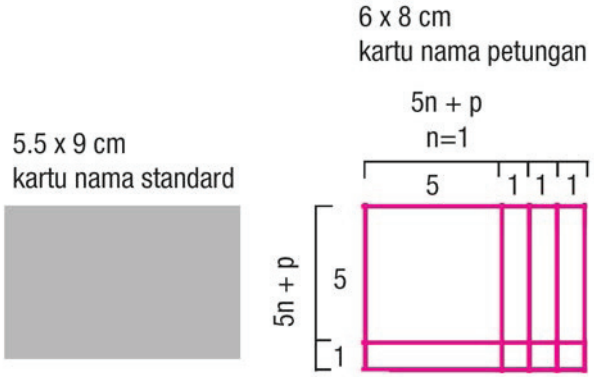


Figure 11. Petungan in Namecard Size Proportion.
Source: Author's Analysis.

This methods is also can be applied for golden section namecard size. On namecard common size (5.5 x 9 cm), when applied in proportion petungan will also change; in which the author uses the benchmark 'n' as integer of 5 cm for the width and 5 cm for the height (base multiple of 5). Value 'p' become overage by 1, so the application petungan for A4 size paper into 5 + 1 cm for the width and 5 + 1 + 1 + 1 cm for the high, or total measurement is 6 x 8 cm.

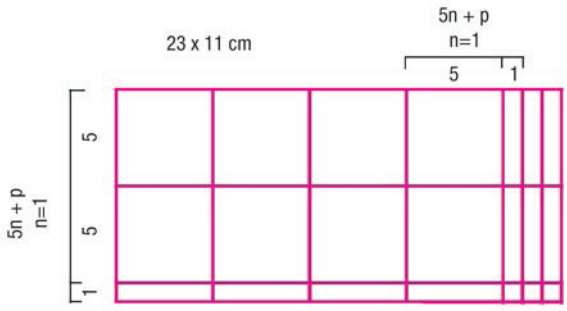


Figure 12. Envelope Size Proportion Already in Petungan.
Source: Author's Analysis.

Things are different, when authors apply it to the general size of an envelope, the envelope is surprising that a general measure that does not follow the golden section proportion was in accordance with the proportion petungan. It is assumed that in fact the author of that

envelope serves as a container folding A4 paper 3, it would be appropriate to be made in proportion to the size of petungan.

In practice, this will petungan formulas are applied with a matching system in the formula proportions. Role object for examining the scientific field as graphic design, making field research is required to answer the question; how a proportion presents itself according to tectonic processes or the art of constructing (considering the research conducted, dealt in the field of architectural tectonics).

Besides this research also will undergo a phase of phenomenology, which is an amalgamation of tectonic processes with the element of wanting; which is undergoing a process seen, felt, experienced and well thought out research on an object. This means researchers observe and experience in such, aesthetics, structure, construction, impression, the atmosphere, and the quality of the object.

REFERENCES

Elam, Kimberly. (2004). Müller-Brockmann's Beethoven Poster - Geometrc Analysis. Princeton Architecture Press. New York.

Frick, Heinz. (1997). Pola Struktural dan Teknik Bangunan di Indonesia. Kanisius. Jakarta.

'Geometry' (1993). The World Book Encyclopedia. Chicago, IL : World Book, Inc.

Moedjijono, WP, Zein. (1985). 'Arsitektur Jawa (ayu-ayom-ayem). Wastu Lanas Grafika. Malang.

Sariada, Ketut. Kawal Wayang Tradisi, Garap Wayang Inovasi. Retrieved March 1, 2003, from http://www.balipost.co.id

Poespoprodjo, W. (1987). Interpretasi: Beberapa Catatan Pendekatan Filsafatnya. C.V. Remaja Karya. Bandung.

Prijotomo, Josef. (1995). Petungan: Sistem Ukuran dalam Arsitektur Jawa. Gadjah Mada University Press. Yogyakarta.

Prijotomo, Josef. (2004). Dari Lamin dan Bilik Pengakuan Dosa. Wastu Lanas Grafika. Malang.

Prijotomo, Josef. (2006). (Re-) Konstruksi Arsitektur Jawa: Griya Jawa Dalam Tradisi Tanpa Tulisan. Wastu Lanas Grafika. Malang.

Prijotomo, Josef. (2008). Pasang Surut Arsitektur Indonesia. Wastu Lanas Grafika. Malang.

Weisstein, Eric W. "Golden Ratio." From MathWorld - A Wolfram Web Resource. Retrieved April 1, 2005, from http://mathworld.wolfram.com/goldenratio.html

The Aesthetic Sensibility of *Nirmana Dwimatra* through Design Methods Based on Stimuli of Senses (Study Case of *Estetika Rasa* Project)

Dyah Gayatri Puspitasari
Binus University, Indonesia
dyah@binus.edu

Hanny Wijaya
Binus University, Indonesia
hwijaya@binus.edu

Sri Rachmayanti
Binus University, Indonesia
srachmayanti@binus.edu

***Abstract* —** This research will discuss about the structure of '*Estetika Rasa*' (aesthetic taste) project using case study that is idealised and visualised by the first semester students of *Nirmana Dwimatra* (Two-Dimensional Form) module from BA Visual Communication Design course at Binus University. This study is interesting since it is based on synesthesia of sight and taste. Using the structural approach from Ferdinand de Saussure and the theory from Primaldi Tabrani, creativity process and relation between elemental forms that referred to a modulation of link stimulus could be identified. There were also other discoveries about how the elemental form structure from aesthetic taste could relate to each other and construct an art union with various interpretations. Besides, it was discovered that the creation process was not only a single method, but also an accumulative of expression and experience from psychology and cognitive approach in a total bodily experience. Hopefully, this research could become a contemporary way of *nirmana dwimatra* module that could be able to develop and create aesthetic sensibility as the intellectual basic for art and design studies.

***Keywords* – Nirmana, Senses, Sensibility, Aesthetic**

1. INTRODUCTION

Nirmana dwimatra (two-dimensional form) is a subject that give a space to break from daily chaotic imageries. Students, as learner, are delivered to come inside the room of imagination, perception, and personal association that were born from the processing and composition of visual elements. Students are taught to communicate with visual elements so that they will not only see the form but also understand it literally (precision form-mechanistic).

Besides, the students are also taught to enrich their vocabularies in visual language instead of verbal or textual structure. Just as Cassirer has stated, visual elements like point, line, shape, form, and colour could perceptibly not just a part from technical instruments, but the inevitable moments that are required in that production process (1987, p. 215), and also as a part of artistic intuition itself (1987, p. 235).

Shortly, abstract value has become the fundamental, and sensibility has become the development centre of student's aesthetic sensibility. Therefore, as the portal of fundamental curicullum for design study,

nirmana dwimatra has placed sense elements as the central of study systematically so that students could see the crystallisation of depth from aesthetic belief.

There will be a preparation of stimuli modulation as 'reality' (external-stimuli) that are used as connection. This connection will link up artwork with imagination space, which become the main core of creativity. Thus, the stimuli modulation are not only act as reference, instead it will become 'critically thinking' medium through reflection, inspiration and exploration of meaning in depth.

Hereby, we will know the relation between visual elements during unification process of creativity from the outcomes of *nirmana dwimatra Estetika Rasa* case study. Therefore, this research is expected to be beneficial for contributing practically, especially in *nirmana dwimatra* subject about aesthetic sensibility for both students and lecturers, whilst giving benefits for other subjects in advance level.

2. LITERATURE AND THEORY

2.1 Structuralism

This research will be based on structural approach that was pioneered by Ferdinand the Saussure. Using this approach, *nirmana dwimatra* project's outcomes could be reviewed from the relation between its elemental structure.

Structuralism study will be reviewed from Acep Iwan Saidi's monograph *Narasi Simbolik Seni Rupa Kontemporer Indonesia* (2008). From his study, structuralism is interpreted as an approach that perceive problems as a network of structure or system. In that network structure, relation becomes really important. Structure is composed by some components that have relation one to another specifically. Therefore, structure could be defined as a construction, whilst system acts as a set-up relation of each component. However, Saussure noted that relation in a system could be an infrastructure relation as well, and that relation called syntagmatic. Moreover, the relation between each component in structure with entity of other structure is called associative relation or paradigmatic (Saidi, 2008, pp. 42-45).

Shortly, syntagmatic has denotative meaning. This relation is *in praesentia*, which means all elements exist factually in that series of speech. Whereas paradigmatic is *in absentia* relation that has associative meaning. (Saidi, 2008, p. 45)

2.2 Creativity

Study about creativity could be found in Primadi Tabrani's monographs: *Proses Kreasi, Apresiasi, Belajar* (2000); and *Kreativitas dan Humanitas: Sebuah Studi tentang Peranan Kreativitas dalam Perikehidupan Manusia* (2006). In those studies, creativity was interpreted as a biological function with restructure pattern, which consist of some learning phases.

Creativity is the problem solver in biological function, which also the highest level of learning process. Whereas, the attainment of insight in creativity creates 'new rationality' or 'new sensibility'. Tabrani has proven that external stimuli and internal stimuli have important roles substantively. He stated that human's thinking process is also the process of design and memory.

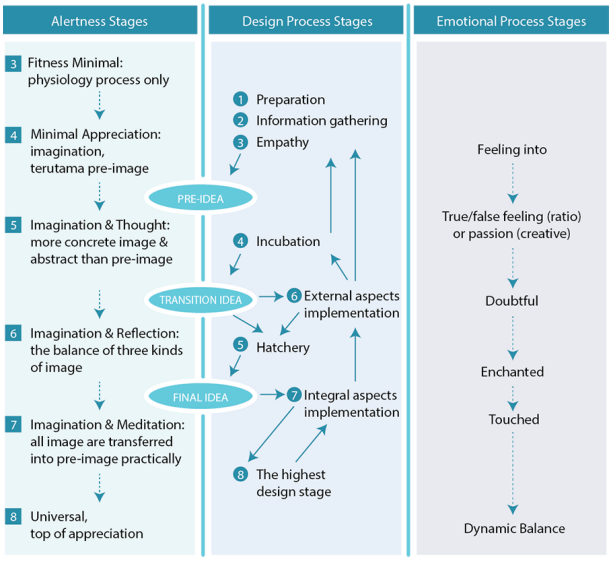


Figure 1. Design Process Scheme (reconstructed from Primadi Tabrani's *Kreativitas dan Humanitas*, Jalasutra, 2006, 292)

Design process includes three main phases i.e. alertness stages, design process stages, and emotional process stages. Tabrani stated that there are two main stages that could be described from a design process i.e. idea stage and implementation stage. All stages in implementation stage are numerised from 1-8, and he also noted that all those stages are not always consecutively happen, they could change order, overlap, and integrate to each other. (Tabrani, 2006, pp. 280-291)

2.3 Fundamental Design

Study about fundamental design could be reviewed from Wucius Wong: *Principles of Form and Design* (1993). In that study, element and principle of fundamental design were applied as achieving manifestation of 'truth' value, aesthetic value, in design. The value of 'truth' was interpreted as an approach that could be done by looking at a composition as a structure equilibrium of each design element with design principle. Therefore, the formal-structural aspects have become the fundamental principle of 'truth' composition in the artworks.

2.4 Aesthetic

Based on a definition from Jakob Sumardjo's *Filsafat Seni* (2000), the term 'aesthetic' emerged in 1750 from a minor philosopher, Alexander Baumgarden (1714-1762). This term originated from Ancient Greek, *aistheton*, which means an ability to see through senses. Baumgarten categorised art as a sensoric knowledge, while logic was categorised as intellectual. (2000, pp. 24-25) He naturally categorised beauty into human's sensory and intellectual ability. He also considered beauty as empirical and trancendental phenomena. (2000, p. 285)

Moreover, Sumardjo stated that art presents in human life through experience, especially senses. Art is something that has been perceived by human senses, it could generate their intellectual and emotional consciousness. (2010, pp. 91-92)

3. DATA AND METHODS

This research used exposition method that explain many different analysis into texts. Value and analysis paradigm were based on insight and interpretation from literature, theoritical, and classroom action research.

3.1 Method and Manner

Structural method that are based on Ferdinand de Saussure thought will be used in this research. In addition, Primadi Tabrani's theory of creativity and Wucius Wong's fundamental design theory will also be used to support this research. Moreover, there will be other ontological based theories about interpretation that are relevant with the main theory.

The structural study about students' artworks for *nirmana dwimatra* subject will be focused on the relation between structural elements to create wholeness of creativity. The associative signification that emerges will also be part of this study.

3.2 Conceptual Framework in Structuralism

As what has been stated before, this research will be based on Saussure's structuralism since this method will support researcher to see the outcomes of *Estetika Rasa* as autonomical texts, as a structure that constructs meaning based on each elemental relation.

During design phase, the outcomes of *nirmana dwimatra Estetika Rasa* will be considered as a design system that refers to its sources i.e. sense of taste stimuli modules. In this phase, Primadi Tabrani's theory of creativity and Wucius Wong's fundamental design theory will be used to support researcher analising design process from the sensation of stimuli module into art forms. Through these two supporting theories, researcher will be able to identify two main aspects of design process i.e. sensation-perception and cognitive aspects. With Tabrani's theory of creativity, the design process of sensation-perception aspect will be identified into three phases i.e. pre-idea, transition and final idea. Whilst cognitive aspect of design process will be identified through formal structures in Wucius Wong's

fundamental design theory. Henceforth, there will be an overall image about design process through those two supporting theories.

4. RESULT AND DISCUSSION

Visual content will be discussed based in three different connective stimuli. *Estetika Rasa I* will be using peanut as stimuli modulation, *Estetika Rasa II* will use marshmallow as the stimuli modulation, and *Estetika Rasa III* will be using tamarind candy as its stimuli modulation. Whereas investigation and analysis for this research will go through two phases i.e. design process and structural analysis.



Figure 2. Three different connective stimuli (left to right: peanut, marshmallow, and tamarind candy)

4.1 Samples of *Estetika Rasa* Artworks

There are two pieces for each module from students' artworks that have been chosen as samples for good work of this project.

4.1.1 Samples of *Estetika Rasa I*

As what that has been mentioned before, *Estetika Rasa I* will use peanut as its stimuli modulation. This module has characteristics i.e. yellow brownish colour, coarse-textured, hard and has ability to break into pieces inside the mouth, and salty-taste.

Estetika Rasa I - Melina

Sample of artwork from Melina (female) that used mixed media (water colour and pencil colour).



Figure 3. *Estetika Rasa I* – Melina

4.1.2 Samples of *Estetika Rasa II*

The next sample: *Estetika Rasa II* will use marshmallow as its stimuli modulation. This module has characteristics i.e. white colour, soft textured and chewy, sweet-taste.

4.1.2 *Estetika Rasa II* - Melina

Sample of artwork from Melina (female) that used mixed media (water colour and pencil colour).



Figure 4. *Estetika Rasa II* – Melina

4.1.3 Samples of *Estetika Rasa III*

The final samples for *Estetika Rasa III* will use tamarind candy as its stimuli modulation. This module has characteristics i.e. yellow-brownish colour, soft textured, smooth, sour-taste, and has ability to break into pieces and melt inside the mouth.

Estetika Rasa III – Jessica

Sample of artwork from Jessica (female) that used mixed media (water colour and pencil colour).



Figure 5. *Estetika Rasa III* – Jessica

4.2 Design Process Analysis

From students' interview results, there will be an identification about how the creation process that includes its two main aspects i.e. sensation-perception and cognitif aspects. Following samples of artworks will show the analysis of students' creation process.

4.2.1 Design Process - *Estetika Rasa I*

The first analysis that will be explained i.e. design process from Melina.

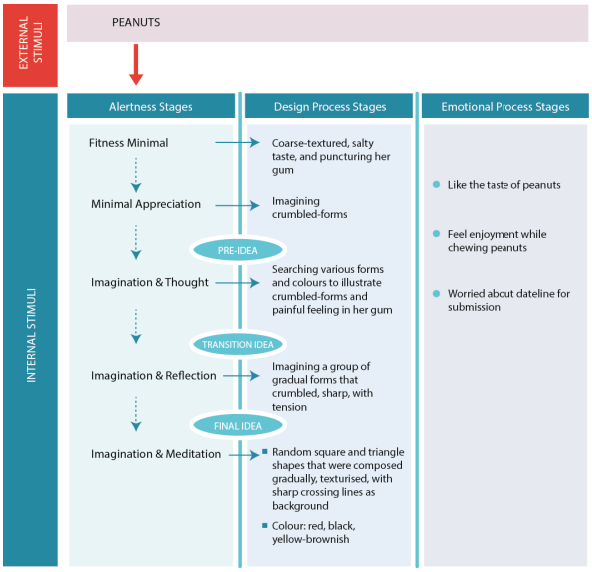


Figure 6. Design Process Scheme *Estetika Rasa I* – Melina

4.2.2 Design Process - *Estetika Rasa II*

The first analysis that will be explained i.e. design process from Melina

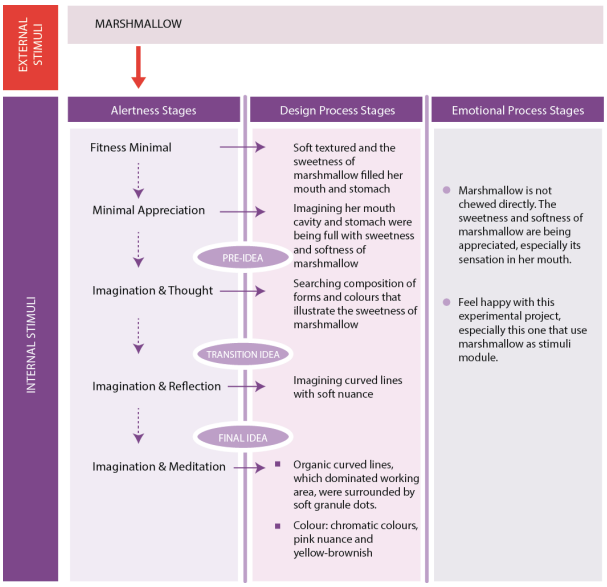


Figure 7. Design Process Scheme *Estetika Rasa II* – Melina

4.2.3 Design Process - *Estetika Rasa III*

The first analysis that will be explained i.e. design process from Jessica

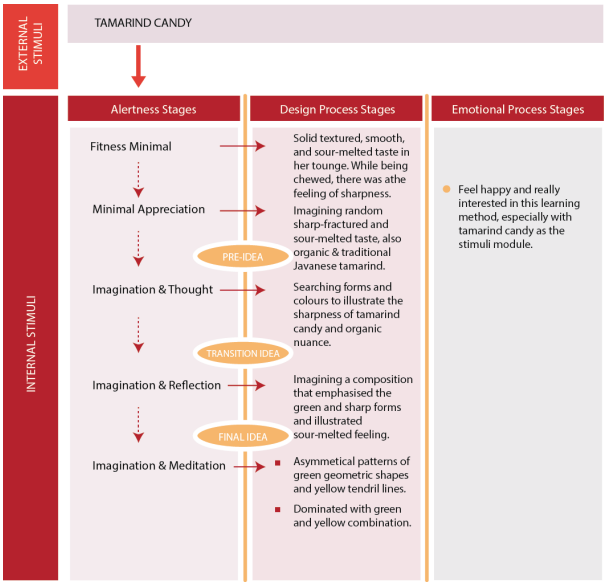


Figure 8. Design Process Scheme *Estetika Rasa III* – Jessica

4.3 Structural Analysis

To know how structural elements from *nirmana dwimatra* relate each other so that they could develop associative meaning and aesthetic value, there will be an analysis from structural elements that forming the artworks composition. On the structural elements, there will be two stages of analysis i.e. syntagmatic-paradigmatic relation and elemental relation.

4.3.1 Syntagmatic-Paradigmatic Analysis

The artworks of *nirmana dwimatra* are the visual idealisations that deliver explicit narratives, which based on structural elements in a dynamic frame of abstract composition. Collectively, all the experience from texts become synesthetic, integrating all kinds of the observation from human senses that create associative meaning.

4.3.1.1 Syntagmatic-Paradigmatic Analysis *Estetika Rasa I*

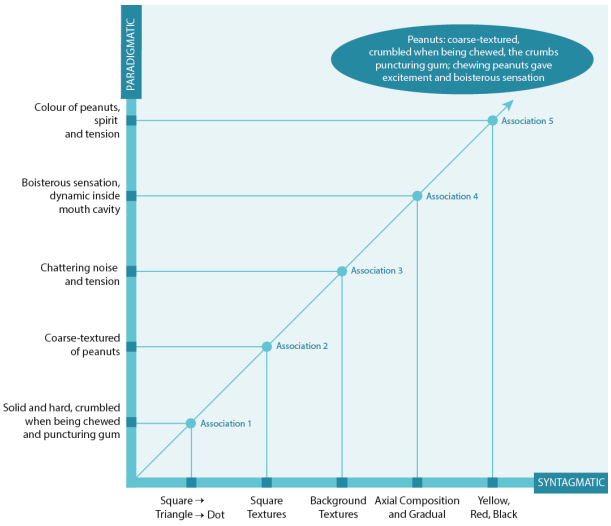


Figure 9. Syntagmatic-Paradigmatic Relation Scheme *Estetika Rasa I* – Melina

4.3.1.2 Syntagmatic-Paradigmatic Analysis *Estetika Rasa II*

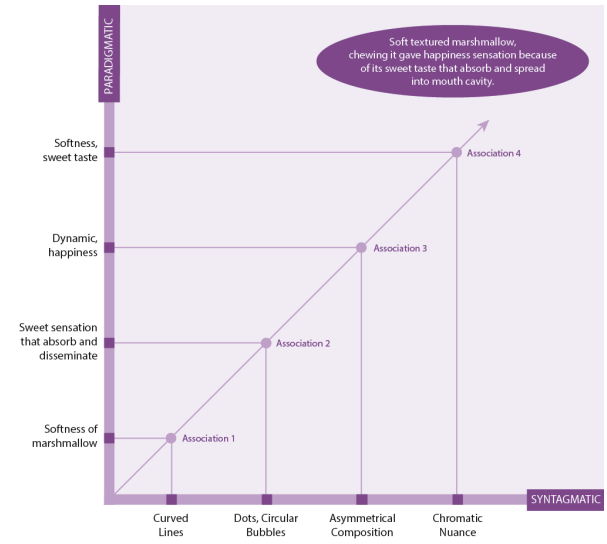


Figure 10. Syntagmatic-Paradigmatic Relation Scheme *Estetika Rasa II* – Melina

4.3.1.3 Syntagmatic-Paradigmatic Analysis *Estetika Rasa III*

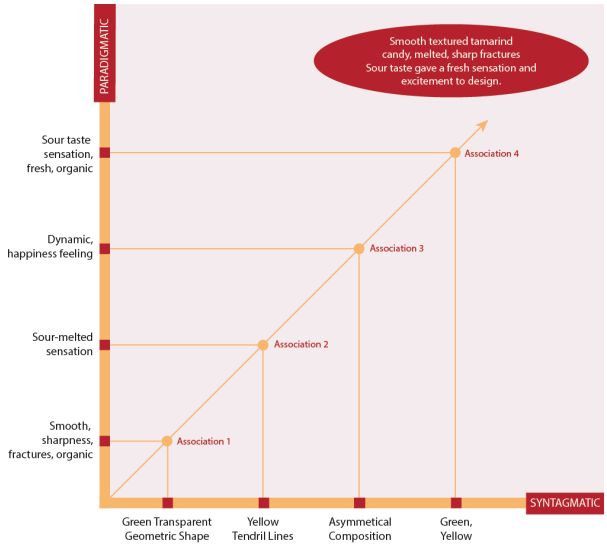


Figure 11. Syntagmatic-Paradigmatic Relation Scheme *Estetika Rasa III* – Jessica

4.3.2 The Relation of Elements Analysis

The most important element that has to be considered is design elements. Therefore, design element has a specific power to create associative meaning that motivated the narration. In a composition, it could be seen how elements exist as aesthetic moment in other forms. Through the analysis of relation between Saussure's elements and Wucius Wong's formal structure, there will be an identification about relation of form elements that create narration with vary associative meaning.

To analyse further about different kinds of associative meaning in the artworks of *Estetika Rasa*, there is a syntagmatic-paradigmatic analysis to the artworks.

4.3.2.1 The Relation of Elements Analysis – *Estetika Rasa I*

Relation of *Estetika Rasa I* - Melina

Figure 3 (p.4) shows that by using axial form, design elements such as line, dots, and shapes relate to each other gradually. The emphasis of composition could be seen in the texture of squares, random triangles, then change into dots. Likewise, the background formation that crossing the elements of line and dots, making

it into a composition gradually. Yellow-brownish colour was applied to dominate the artworks' tone, and also using black and red as the background colours. The rhytm of artwork has become the main objective of this artwork's composition.

Analysis of Relation

Through relation between these elements, there were associative meanings that represent the noise of peanuts when they were chewed, and also the spirit and inspiration of hard and coarse-textured peanuts. The dominance of rhtym structure and axial position was showing more dynamic intention. Whereas, the peanuts as module representation could be seen at the application of textures in the form of square shapes (as hard and coarse-texture of peanuts) and domination of yellow-brownish colours (as the colour of peanuts). The crossing lines and black-red colour dots on the background represent tension spirit, the punctured pain in gum, also emphasise the representation of noise inside of mouth when peanuts were chewed.

4.3.2.2 The Relation of Elements Analysis – *Estetika Rasa II*

Relation of *Estetika Rasa II* - Melina

Melina's artwork for *Estetika Rasa II*, figure 4 (p.4) could be seen as asymmetrical composition that was dominated by curved lines and created fluidity. These curved lines were clearly standing as barrier of two areas, and also acting as the centre of relation between each element gradually. Therefore, these curved lines overall could create a wholeness of flexibility from movement aspect. Whereas, the colours of this artwork were dominated by chromatic colours, which accompanied by the existence of white on its foreground.

Analysis of Relation

Through relation between these elements, there were associative meanings that represent soft textured, flexible movement of absorbability power, and distribution of marshmallow's sweetness. This matter could be represented by curved lines fluidity, distribution of dimensional circles, gradually composed dots. Likewise, the chromatic colours that dominated overall artwork also strengthen the soft sensation of marshmallow. Two areas with different tone colours represented those two areas into the creator's concentration for design process i.e. mouth cavity and stomach.

Analysis of Relation

Through relation between these elements, there were associative meanings that represent spirit, happiness, sweet sensation and uniqueness. The domination of granules form that disseminated and fulfilled work area, gave a unique visual sensation from circular shapes and white colour from the stimuli modul, however the expression of colour application inclined to sensation-perception of sweet taste, and designer's happiness emotion in her artwork. Colours were not always into white tone or soft chromatic colours, but more into green, blue, pink, and yellow polychromatic.

4.3.2.3 The Relation of Elements Analysis – *Estetika Rasa III*

Relation of *Estetika Rasa III* - Jessica

Jessica's artwork for *Estetika Rasa III*, figure 5 (p.5) could be seen as a asymmetrical composition with relation between transparent geometric shapes on one side, and yellow tendril lines on the other side. The group of these two elements led the perspective horizontally, so that it could follow the yellow curved lines. Although there were tension at the pointed-end of green area, however the combination between these two compositions supporting movement aspect undoubtedly. Besides, there were also contrast, fresh, dynamic aspect that could be perceived directly, which also could become an individual energy overall.

Analysis of Relation

Through relation between these elements, there were associative meanings that represent sour taste, textures, also the meltable character of tamarind candy. The transparent greenish

geometric shapes represented the organic base material, also the smooth textured and sharp from candy's fractures. The sharp fractures could also represent the tension of sour taste sensation from tamarind candy. This matter then was related with candy's meltable by combining that character with a composition of curved lines that create a fluidity and movement aspect from the melting process of candy inside mouth cavity. Overall, this artwork gave a specific energy like fresh and vibrant sensation.

5. CONCLUSION

Creativity is a biological function with structural pattern, which consists of some phases of idea gathering process. This process refers to form and source of image. This statement strengthen the thought that imagination is based on aesthetic sensibility, which presupposed the value of integrity and the potention of synesthetic power from human senses. This thought substantively holds the most important role in creativity.

First, the phase of understanding aesthetic potention and searching the abstract meaning undoubtedly involves physiology and psychology aspects. This fact shows that *nirmana dwimatra Estetika Rasa* artwork is not only an outcome of sensation-perception, which has psychological quantity, but also an artwork that applies cognitive aspect.

Secondly, from structural analysis of *Estetika Rasa*, there is a conclusion that stated *Estetika Rasa* is a *nirmana dwimatra* (two-dimensional form), which plays with structural elements to create specific narrative, aesthetic experience.

Structural elements from *nirmana dwimatra Estetika Rasa* could relate to each other while creating the unity of *nirmana dwimatra* that is full of associative meanings through symbols from design elements. Moreover, there is more understanding that design process did not only a single process, but also a psychological accumulative and cognitive based on synesthetic power of senses (especially the sense of visual and taste).

ACKNOWLEDGMENT

The research for this paper was financially supported by Bina Nusantara University, grant no. 015.A/VR.RTT/IV/2014. In developing the ideas presented here, we have received helpful input and material from our students from *nirmana dwimatra* (two-dimensional form) class at Bina Nusantara University.

REFERENCES

Andry. (2000). *Kajian Materi Perkuliahan 3 Dimensi Sebagai Salah Satu Mata Kuliah Pendidikan Dasar Seni Rupa dan Desain, Dalam Relevansinya Dengan Beragam Pergeseran di Bidang Desain.* Unpublished master's thesis, Institut Teknologi Bandung, Bandung, Indonesia.

Saidi, A. I. (2008). *Narasi Simbolik Seni Kontemporer Indonesia.* Yogyakarta: ISACBOOK.

Cassirer, E. (1987). *An Essay on Man.* Yale University Press.

Beier, J. (2013). Visual Literacy and the Untimely Transmogrification of the Problem. *Journal Visual Arts Research , 39* (76), 35-51.

Gao, X.-P., & H.Xin, J. (2006). Investigation of Human's Emotional Responses on Colors. *Journal Color Research and Application , 31* (5), 410-417.

Hyoen, J. S., & Irtel, H. (2010). Emotional Response to Color Across Media. *Journal Color Research and Application , 35* (1), 64-77.

Sumardjo, J. (2010). *Estetika Paradoks.* Bandung: Sunan Ambu STSI Press.

Sumardjo, J. (2000). *Filsafat Seni.* Bandung: ITB.

Tabrani, P. (2000). *Proses Kreasi, Apresiasi, Belajar.* Bandung: ITB.

Tabrani, P. (2006). *Kreativitas dan Humanitas: Sebuah Studi tentang Peranan Kreativitas dalam Perikehidupan Manusia.* Yogyakarta: Jalasutra.

Wong, W. (1993). *Principle of Form and Design.* New York, United States: John Wiley & Sons, Inc.

Creative Learning through Experience and Innovation in M!ND's Class for High School Education

Antonius Malem Barus
St. Hendrikus Senior High School, Surabaya, INDONESIA
antonius.mb@gmail.com

Abstract **—**Nowadays, schools in Indonesia focus on the academic activity. Most of them use teacher-centered learning, in which the key of activity is in the teacher's hands. There are many students' skillsand knowledge that are not accommodated because the learning process is only focused on cognitive. Teachers usually ask the students to do a project. However, after they assess it, it is neglected. It only ends on the teachers' desk. Teachers do not dig more the students' creativity.

Therefore, schools have to change the mindset of teaching and learningprocess from teacher-centered to student-centered model. The teacher has to create an experience for the students by letting themfind a problemfrom the phenomena that is happening in the environment as a learning process. From the problem they find, the students have to solve the problem in a creative way. They will have to create an invention as a solution of the problem.At the end, the teacher may encourage the students to dedicate the invention. Through this process, teachers and students will learn together through the experience.

St. Hendrikus Senior High School (SHS) is the school which has a local program namely Students and Teachers Empowerment Program (STEP). This program consists of 14 clusters. One of them is M!ND (Make the Innovation and Dedicate it!). In the beginning of the school year, M!ND students have to solve a problem that they find in their environment or society creatively. After they find the solution, they will dedicate it to the society.

This paper discusses how the process of creative learning through experience and innovation in M!ND Class for High School Students. This research finds that M!ND students are able to find the solution of the problem by following the creative learning process.

1. INTRODUCTION

Curriculum in Indonesia focus on improving the students' cognitive, psychomotor, and affective. However, in the implementation of the curriculum itself, many teachers give pay attention more on students' cognitive development. In this case, teachers are more on score oriented than on process. It is similar to what Dr.dr.B.M Wara Kushartanti (2011) said. She said that education system in Indonesia will not make student creative because they just focus on the logic process, words, math and sequence. If it happens continuously, it will decrease students' brain development. Teacher-centered model that is mostly used by Indonesian teachers makes students not have opportunities to develop their creativity. Teachers only assign the students to do a project, but they do not pay attention on the process of doing it. They only know that their students have made the project and after they score it, they just put the project away. This condition makes students do their work only to get high score. They don't know what it is for and what valuescan be learned by doing the activity.

Students-centered teaching method can be one of the best solutions to answer this problem. Student-centered teaching method shifts the focus of activity from the teacher to the learner. In this teaching method, students learn more from their experience. They solve problems, answer questions, formulate questions of their own, discuss, explain, debate, or brainstorm. In this case, students will have more opportunities to expand their creativity by solving the problem by themselves with their own way.

St. Hendrikus Senior High School applies this students-centered teaching method in its programcalled STEP (Students and Teachers Empowerment Program). This program was created by Yefri Kuncoro (2011) which was explained deeply in his thesisabout Student Empowerment Program. In this program, students and teachers learn together to solve a problem from the experience. Now, STEP has 14 clusters. Each cluster has different concentration. It depends on the teachers's passion. One of the clusters in STEP is M!ND (Make the Innovation and Dedicate IT!), a cluster which is focused on creativity and innovation in daily life. In M!ND class, the students have to solve a problem that happens in their daily life. The students will experience the problem and solve it creatively, invent the solution and dedicate it. Thus, this paper will explain about how the process of creative learning through experience and innovation in M!ND Class for High School Education.

2. LITERATURE AND THEORY

2.1 Creativity and Innovation

Creativity is the thinking associated with ideas, imagination, inspiration, intuition and ingenuity (Byron, 2006). Creativity is about ability to find new things, to connect unrelated phenomena and to generate an unusual solution. Many people think that creativity and innovation are same. Innovation is a connected process in many activities that support to each other and are integrated to achieve a common goal (Byron, 2006). In other hand, innovation more concernson making a creative idea in the reality.

2.2 Teacher-Centered vs Student-Centered

In education, there are two types teaching and learning methods that are used. They are teacher-centered and student-centered method. Both methods have great aspects, but one is clearly better than the other. The teacher-centered method expects students to learn from their class notes, textbooks, worksheets, quizzes and tests. In the student-centered method, a teacher allows students to take a more "hands on" approach, in which students are encouraged to think outside the box. In this method, students are challenged to think critically, participate in any class discussions and learn from their own personal experiences.

2.3 Experiential Learning

The theory of experiential learning is built on six propositions from some scholars which are resumed by Kolb (2005):

> a) Learning is best conceived as a process, not in terms of outcomes. …. b) All learning is relearning. Learning is best facilitated by a process that draws out the students' beliefs and ideas about a topic so that they can be examined, tested, and integrated with new, more refined ideas. ……. c) Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world. d) Learning is a holistic process of adaptation to the world……. e) Learning results from synergetic transactions between the person and the environment…… f) Learning is the process of creating knowledge. (p. 194)

2.4 Creative Problem Solving

Another way to apply student-centered method is creative problem solving process. Creative problem solving was introduced by Osborn-Parnes (1952). Technically, Creative Problem Solving can be applied by following the stages and phases as shown on Figure 1.

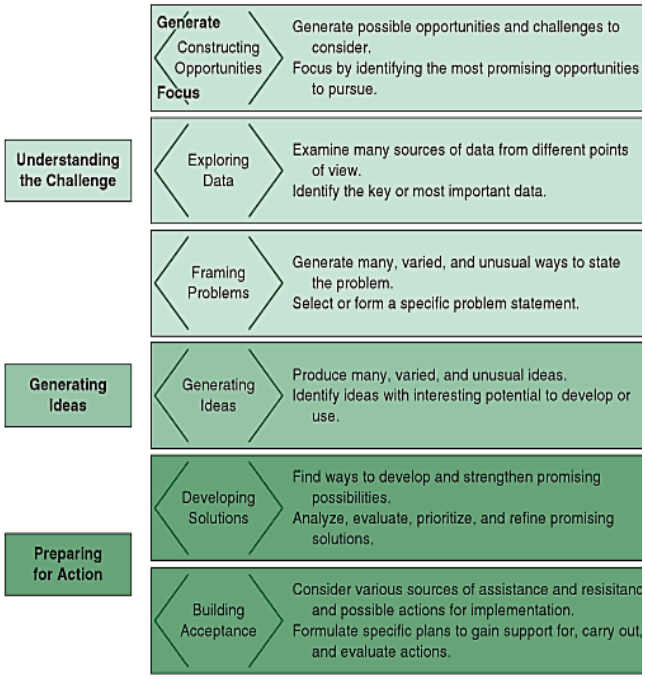


Figure 1. Stages and Phases of CPS (Isaksen, 2011)

3. DATA AND METHODS

This research is a qualitative research. Creative problem solving and experiential learning are used to describe how the creative learning occurs through experience and innovation in M!ND class. In this paper, researcher chose M!ND class in the academic year 2013-2014 (3rdGeneration) in St. Hendrikus Senior High School as the object in this research. The M!ND 3rd Generation consisted of 14 students from grade 10 and 11. The researcher chose this generation because their invention has made an achievement in the International and National Competition of innovation. Now, the Great Chair is massively produced and is being used in some classes in St. Hendrikus Senior High School.

The data that is used in this research is the documentation of learning process (photo of the activity, students workbook and the product) and the document of students learning achievement of the 3rd Generation in M!ND's Class . The data is used to explain the learning process, the outcome of the process and students' achievement at that time. Stages and phases of CPS (Figures 1) will be used as a guidance to reach the objectives of this research.Experiential Learning Theory will be used to analyze the CPS process in this class.

4. RESULT AND DISCUSSION

4.1 Creative Learning Process

Creative Learning is developed by combining experiential learning and creative problem solving. This concept is built to encourage the students to follow the learning process.

a. Understanding the Challenge

Creative learning in M!ND Class is started bygiving a brief for the students. The brief informs the students about the theme of the project in the beginning of school year. At that time, the theme was about learning conveniently in the classroom. The experience was created by asking the students toexperience school daily activities in the classroom.This activity is called Discovery, Exploration and Observation. From the experience, the students and teacher wrote down their reflection about their experience.

Besides from their experience, the students and teacher also examined many sources of data from different points of view. They got it from newspaper, magazines or internet. After all information were collected, they identified the most important data. In this part, they generated possible opportunities and challenges to consider. Finally, they generated the problem statement of this project.

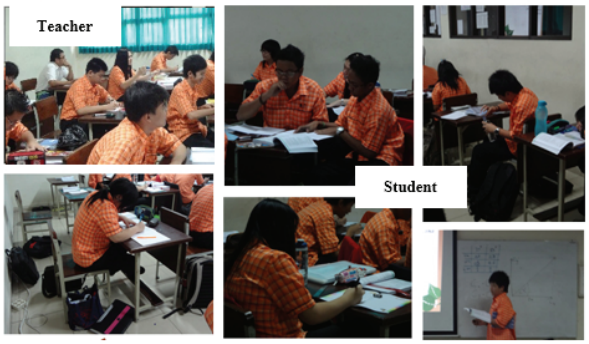


Figure 2. Understanding the Challenge: Students and Teacher experienced the learning process in the classroom.



Figure 3. Understanding the Challenge: Students and Teacher examine many sources of data from different points of view.

b. Generating Ideas

In this stage, students and teachers generated many varied and unusual ideas to solve the problem. It free for the students and teacher to express their idea in their own way. The process can be realized by using post-it or mind mapping. They can write all ideas, choose what problem that they are concerned more and state the problem.They can also visualize the ideas in sketch to make their idea can be seen clearly.



Figure 4. Generating Idea: Students and Teacher did brainstorming to get the new idea

c. Preparing for the action

In this stage, the students and teacher triedto find the solution of the problem. The solution later on is called *finding*. This process can be done through analyzing the needs, evaluating the idea, making the prototype and evaluation. In M!ND class, evaluation can be implemented by inviting the guest teacher/ professional to criticize the idea or joina competition.

In the competition, students will learn more about the knowledge of what they need in implementing their idea. From the evaluation, the students will refine their idea. In evaluation session, students get the knowledge to enrich their idea to be a good finding which can be used as a new invention.

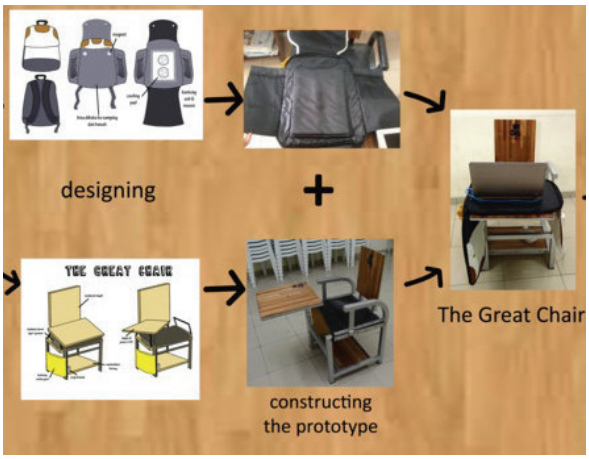


Figure 5. Preparing for the action: Design of the solution.



Figure 6. Preparing for the action: Evaluation session with the judge (professional) in Competition.



Figure 7. The Great Chair in the Classroom.

4.2 Creative Learning through Experience and Innovation in M!ND Class

In the creative learning process, all students have more opportunities to participate actively in the learning process. They will learn many things besides the cognitive knowledge. It is like what Dewey (1976) said that learning is best conceived as a process, not in terms of outcomes.

In "understanding the challenge" stage, students learn how to identify the problem and how to state it. In "generating ideas" stage, they are taught to think out of the box. In this process, they are free to express their unique ideas. This idea later on will be a unique finding when they execute the idea in "preparing for the action" stage. In "preparing for the action" stage, students will have evaluation. During the evaluation, they will meet the expert to give them the needed information and related knowledge to implement their idea. In this case, we can see that learning is best facilitated by a process that draws out the students' beliefs and ideas about a topic so that they can be examined, tested, and integrated with new, more refined ideas (Kolb, 2005).

In the end of the process, students invent a new invention as a solution of the problem. that they have. Innovation is applied in the process. Students learn not only the result of cognition, but also learning involves the integrated functioning of the total person - thinking, feeling, perceiving, and behaving. In the work book, students state:

> "Every member learn many things about time management and finance. Every member learn how work with the team and build the relation each other" (The Great Chair Workbook)

In this creative learning, the teacher is the one who encourages the students to dedicate the invention. In this case, teachers and students learn together through the experience and innovation.

ACKNOWLEDGMENT

I would like to thank my students in M!ND (Make the Innovation and Dedicate IT!) Class especially The 3rd Generation who created *The Great Chair*, the principal of St. Hendrikus Senior High School, Mrs. Sintowati Soetanto who have supported me, Ms. Tetty who has inspired me for this writing, Ms. Arum, Lana and Liza who have helped me in writing this paper in good English, and all of the teachers of St. Hendrikus Senior High School Surabaya.

I also would like to dedicate this paper for Mgr. Vincentius Sutikno Wisaksono (the Bishop of Surabaya) and all teachers under "Keuskupan Agung Surabaya". Hopefully this writing can give another point of view about teaching, learning and education development in Indonesia.

REFERENCES

Byron, Kevin. (2006). *Creative Problem Solving*. Retrieved April 25, 2015, from http://www3.wooster.edu/teagle/docs/Byron%20Creative%20Problem%20Solving.pdf

Dewey, J. (1897). My pedagogic creed. *The school journal. LIV(3)*: 77-80

Isakse, Scott G., Dorval, K Brian.,&Treffinger, Donald J. (2011). *Creative Approaches to Problem Solving: A Framework for Innovation and Change.* California: SAGE Publication, Inc

Kolb, Alice Y., & Kolb, David A. (2005). Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education.*Academy of Management Learning & Education. 2005, Vol. 4, No. 2*, 193-212.

Kuncoro, Yefri. (2011). *Pengembangan Student Empowerment Program membantuSiswamemilih Program Studi di PerguruanTinggi.* Unpublished master's thesis, KridaWacana Christian University, Jakarta, Indonesia.