CHAPTER I INTRODUCTION

1.1 Research Background

Everyone has activities to meet the needs of premier, secondary, and tertiary. Activities carried out by each person are different including activities when outside the home and activities while at home. Activities in the home are activities that consist of household activities including washing, cooking, ironing, sweeping the floor, mopping and much more. These household activities are usually carried out by housewives or can also be carried out by household assistants who is given the obligation to help complete household activities.

Ironing is an activity that aims to support the appearance to look neat. A person's need to keep the appearance makes this ironing activity is an important activity to do. Ironing able eliminate bacteria that still attached to clothes, as well as in underwear if not ironed can be a place to transfer germs into the genitals. Therefore, by heating using an iron can kill bacteria, fungi, and parasites able to avoid germ infections through underwear (Marhaeni, 2016). Furthermore, ironing is an appropriate means to reduce Gram-negative bacteria in particular (Bockühl, et al., 2014) and Motivations for implementing personal hygiene include reducing illness, healing, optimal health and a sense of well-being, social acceptance and prevention of self and the spread of disease to others (Sharma, 2015).

Various types of ironing tools in the form of electric irons, steam irons, and automatic ironing machines that are very practical to use. Electric irons and steam irons available on the market still require other facility such as ironing boards, in contrast to automatic ironing machines that no longer need other supporting facility. However, automatic ironing machines is less attractive to people in Indonesia, because the price is more expensive. The following are the results of google trends statistical data that show the results of searching for irons in Indonesia:
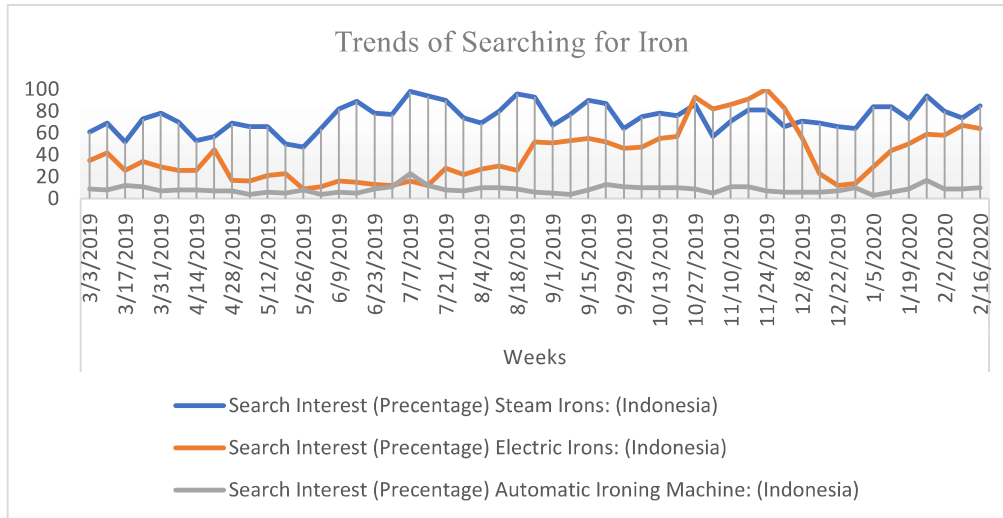
Figure 1.1 The trend of searching for irons

The picture above shows the activity on Google Search starting from March 2019 to January 2020, where after comparing between searches for steam irons, electric irons and automatic irons is dominated by searches for steam irons followed by electric irons while automatic irons is located at the least search level. This shows if the interest of Indonesian people towards steam irons and electric irons is still much even though the activities carried out are still manually supported by other ironing facilities such as ironing boards.

Ironing board is a board that is made and designed to facilitate ironing in carrying out its activities. The advantage of this ironing board product, the product is easily stored folded and has a special base to place the iron that can withstand the iron heat. The following is an example when using an ironing board:

Figure 1.2 Existing ironing activity
(Source: Observation of housewife)

Based on the figure above it is known that user conduct the activity on existing products in a standing position, where the standing work position has a correlation with musculoskeletal complaints (Oktafiannisa, et al., 2019). Based on the previous study household workers in several places in Denpasar 80% the respondents stated in the most complained about work process among all household chores is the ironing (Dinata, et al., 2015), so it needs to get priority in order to immediately find a solution. The following is the virtual environment of the ironing when using the ironing board which consists of the position of the ironing reaching the clothes, the position of being ironing and the position when putting the clothes along with the ergonomics analysis using RULA:
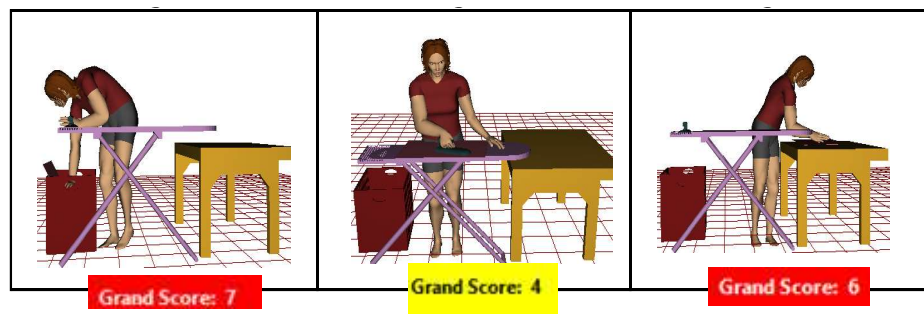

Figure 1.3 RULA Output

Based on the figure above, ironing activities with a reaching position get a score of 7 (See appendix D), which means this position has a very high risk, so an immediate change is needed. The ironing position gets a score of 4 (See appendix D) which means this position further more investigation is needed. The position of putting clothes gets a score of 6 (See appendix D) which means this position has a risk so that immediate investigation and change is needed.

Based on the RULA results using an ironing board, the positions of workers created from these activities required immediate changes. Non-physiological work positions can be caused by characteristics of task demands, tools work, work station, and work position which is incompatible with workers' abilities and limitations (Grandjean, 2000). Improper location of the facility can cause early fatigue which is a risk of musculoskeletal complaint (Mindayani, 2018). Departing from this background, this research is intended to provide product designs for the proposed ironing board using Kansei Engineering so that it can meet the needs of consumers which are supported by attractive product appearance and safe facilities used in terms of ergonomics.

1.2 Problem Formulation

The problem formulation is how to generate the concept design of ironing board product according to the user needs.

1.3 Research Objective

Implement Kansei Engineering method for generating the concept of ironing board product.

1.4 Research Benefit

Providing product design recommendation of the ironing board based on the user needs

1.5 Research Limitation

Limitation problems in this research to focus on product development goals are as follows:

1. Respondents is the users of ironing board product and in the age range of productive age.
2. Ergonomics research using Jack software.
3. This product development did not reach the prototype manufacturing stage.

1.6 Writing Systematics

This thesis research is described in the systematic writing as follows:

CHAPTER I	**INTRODUCTION**
	Chapter 1 contains an explanation of the research background, problem formulation, objectives, benefits, research limitation and writing systematic of the research.
CHAPTER II	**LITERATURE REVIEW**
	Chapter 2 contains an explanation of the theoretical basis that supports the research to be carried out sourced from books, research journals, other literature sources, and previous research sources.
CHAPTER III	**RESEARCH METHODOLOGY**
	The Research Methodology in Chapter 3 explains the stages of the research to be carried out using Kansei Engineering as the method used.
CHAPTER IV	**COLLECTING AND PROCESSING DATA**
	In this chapter contains the stage of collecting the Kansei Word from various sources related to ironing board product, and the data processing by following the Kansei Engineering Type 1.

CHAPTER V   **ANALYSIS**

In chapter 5 an analysis of the results of data and information processing is carried out by comparing the actual design with the improvement of the resulting design.

CHAPTER VI   **CONCLUSION**

In chapter 6 the results of the analysis are summarized and recommendations regarding of Kansei Engineering implementation.