ABSTRACT

Outbound activities can be an effective means to strengthen relationships between individuals, both in work and educational environments. These activities are often used to enhance team collaboration, communication, and leadership through various exercises. However, in the practice of outbound activities, there are still many challenges faced, particularly in terms of integrating technology to support services and provide a more interactive user experience.

Anima 4111, as one of the outbound providers in Sidoarjo, focuses on organizing outbound and team-building activities. However, Anima 4111 faces various challenges in improving the quality of its outbound services due to the lack of digital integration. The absence of technological support in outbound activities can reduce the efficiency of program implementation. Therefore, an innovation is needed to help enhance the quality of outbound services.

This research aims to design and develop a gamification application called "Unbound Space" to support outbound services at Anima 4111. The development of this application uses the Extreme Programming method, an agile approach that allows for rapid and flexible software development. The Extreme Programming method consists of several processes: planning, design, coding, testing, and software increment. In the planning phase, the researcher identifies the current business processes (as-is) and designs the future business processes (to-be) for Anima 4111. In the design phase, the researcher creates Unified Modeling Language (UML) designs and the user interface for the "Unbound Space" application. The coding phase involves implementing the UML designs and the application interface. The testing phase involves standard testing of the application.

The technologies used include React Native as the main framework for developing the application interface, Firebase Realtime Database for data storage, and Figma for designing the user interface. React Native was chosen as the main framework due to its efficiency in application development, and Firebase Realtime Database was selected for data management because it can store and manage

data in real-time, enabling quick and responsive interactions between users and the system. Additionally, this research utilizes Unified Modeling Language (UML) for system design, including use case diagrams, activity diagrams, robustness diagrams, and sequence diagrams to model system interactions more structured.

The "Unbound Space" application is a system that supports services at Anima 4111 by integrating the personality test process, which was previously done manually using paper, into a digital format. With this application, users can directly take the test through the available features. Furthermore, the scoring and ranking process, which was previously done manually, can now be automated using the application, especially for games played by 2 to 3 groups, with one main winner determined. The second and third positions are still determined based on how close users are to the finish line or specified limits.

The "Unbound Space" application has main features such as Treasure Hunt, Personality Test, and Personal Results. The Treasure Hunt feature is designed to assist facilitators in conducting games in each outbound area, allowing participants to complete challenges given by the facilitator and earn scores based on their group's performance. The Personality Test feature helps clients understand their potential, and the results can be used as a factor in team division during outbound activities. The Personal Results feature is designed to display the results obtained from the Treasure Hunt and Personality Test features, enabling users to track their progress during the outbound activities.

The results of this research show that the implementation of gamification through the "Unbound Space" application can help improve the quality of outbound services at Anima 4111. Testing was conducted using Blackbox Testing and Whitebox Testing to ensure that each feature functions according to user needs. Blackbox Testing focused on testing functionality without looking at the internal code structure, while Whitebox Testing was used to examine the programming logic. The results of these tests indicate that each feature of the application meets the expected functionality standards.

Additionally, Think Aloud Usability testing was used in this research to evaluate the usability level of the application. This method involved users being asked to

use the application according to given tasks and expressing their thoughts while interacting with the available features. The results of this testing identified several usability shortcomings, such as an unattractive background, the absence of a leaderboard for scores, and others. Based on these findings, recommendations for improvements were provided to enhance the user experience when using the "Unbound Space" application.

This research is expected to contribute to the development of digital-based services for outbound activities, not only improving the competitiveness of Anima 4111 but also serving as a reference for other developers or providers in implementing gamification elements in outbound activities. In the long term, this application is expected to continue to be developed to support various other types of outbound services by integrating more innovative technologies and additional features. Thus, this research not only provides a solution to the needs of Anima 4111 but also strengthens the understanding of how gamification can be used to enhance user experiences in the context of outbound activities.

Keywords— ***Gamification, Extreme Programming, Mobile Applications, Outbound***