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User Interface Design Information on Traditional Games in East Kotawaringin using UCD Method

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Abstract−This research aims to design the user interface of the Android application "BorneoTraditional Games" which introduces and preserves the traditional games of East Kotawaringin through the user-centered design method. The user-centered design method used includes Plan The Human Centered Design, Specify the Context of Use, Specify User and Organizational Requirements, Produce Design Solutions, and Evaluate Design Against User Requirements. The traditional games explained include balogo, bagasing, sepak sawut, manyipet, batukupan, and egrang. The user interface design is created using the Figma application and evaluated using the cognitive walkthrough method that refers to exploratory learning. The goal of this application is to introduce and preserve the unique culture of Central Kalimantan as traditional games are being eroded by electronic games. This design is created to be accessible and usable by various groups and to attract tourists through the information provided and a unique design that is characteristic of the local area. The user interface display created includes a Splashscreen, Dashboard containing the latest recommended information, a search menu containing a list of traditional games from East Kotawaringin and a detailed information page of traditional games complete with photos and videos. The results of usability testing using the cognitive walkthrough method showed good user satisfaction. Through usability testing, the researcher could identify problems experienced by users and provide improvement recommendations. The next development needs to create a more comprehensive testing procedure and involve various techniques as well as expanding the scope of participants. Subsequent research can also pay attention to ISO standards in user interface testing to ensure product safety and quality and provide optimal user experience.

Keywords: Borneo; Culture; East Kotawaringin; Tradisional Games; User Interface

1. INTRODUCTION

Traditional games are one form of the diversity of Indonesian culture that is passed down from generation to generation by our ancestors, which contains local wisdom, rules that contain noble values and elements of education[1]. Traditional games that develop further will be adapted to the local cultural traditions, which may change its name or form, but still retain the original characteristics of the region, with the goal of providing enjoyment and entertainment for players. Traditional games from a region represent the culture of that region[2]. Traditional games from a region represent the culture of that area and are usually educational, competitive, recreational and creative in nature[3]. According to data collected from the Department of Culture and Tourism of East Kotawaringin Regency, there are 6 types of traditional games recorded. Interestingly, some traditional games are the same, but have different names because they are named using the local language. Each region has tourism potential which is marked by a unique history and culture and is the hallmark of that area[4]. However, there are also some traditional games that only exist in certain regions, depending on the local geography and available materials/media used as game tools. Traditional games are considered as one of the cultural elements that gives a unique character to a particular culture[5]. Therefore, traditional games are a cultural asset, serving as a means for a society to maintain its existence and identity among other societies.

Nowadays, every region is trying to preserve the existence of its culture, including its traditional games or sports, through various methods such as promotion using media such as T-shirts, banners, and cultural festival events[3]. According to research by Yudo Harvianto and Andi Tenri Abeng, in Central Kalimantan, particularly Palangka Raya, preserving the values of Dayak culture is done through sports and cultural festivals, such as the Isen Mulang. Some cities in Central Kalimantan also hold cultural events such as Kotawaringin Timur, which holds the Habaring Hurung event. The cultural festival in Palangka Raya is known as the Isen Mulang Cultural Festival (FBIM). This festival is held every year to celebrate the anniversary of the Central Kalimantan Province, which is held every 19-24 May[6].

Adzhal Arwani Mahfudh's study in TPQ on the design of the Android-based E-Ngaji application's user interface and experience using the User Centered Design (UCD) method revealed that usability testing with the cognitive walkthrough method was successful in determining user satisfaction with using the E-Ngaji application. However, additional work is still required, including the implementation of the design, the addition of new features, and the creation of a more complex User Interface design[7]. The research by Wahyu Kurniawan Hartanto et al. on the design of the Angklung Game's user interface using the User Centered Design method (Case Study of Saung Angklung Udjo) is another study that is related and which revealed that the QUIM Angklung Learning Game application can meet the needs and abilities of users as seen from the lowest usability score of 86%, which indicates that it already meets the aspect of usability. The Angklung Learning Game prototype is still being developed, and this involves the addition of features that need to be again tuned for real-world usage[8]. Additionally, Ghivari Zakaria's use of the Child Centered Build technique to design the User Interface on Educational Games For Kids led to recommendations for a new User Interface design. Anyone who wishes to add to or enhance the game's menu material can do so by using the User Interface design's outcomes[9]. The difference between this research and the previous ones lies in the focus of the application being developed. The research on the design of User Interface for the introduction of traditional games in Kotawaringin Timur using the User Centered Design method focuses on the development of an application for the introduction of traditional

games, while the previous research focused on the E-Ngaji application and the Learn to Play Angklung game. However, all of these studies used the User Centered Design method and evaluated user satisfaction through usability testing using the cognitive walkthrough method, as well as recommending further development.

The existence of traditional games is increasingly overshadowed by modern games, such as video games and other virtual games (Suryawan, 2018). The rapid development of electronic games has eroded the position of traditional games and is almost unknown. The survey results of 136 young respondents in the Kotawaringin Timur Regency showed that they are less familiar with the traditional games of Kotawaringin Timur, such as Balogo, Bagasing, Manyipet, Sepak Sawut, Egrang, and Batukupan. The survey results showed that only 33% of the 136 respondents were very familiar with the East Kotawaringin traditional games. Based on the survey results, the lack of information about traditional games requires certain methods to popularize and introduce them to the community, especially the young generation.

Traditional games can endure or be preserved because they generally contain cultural elements and high moral values, such as honesty, skill, solidarity, unity and bravery, and skills. Further developed traditional games will be adapted to the local cultural traditions, which may change the name or form, but still maintain the original characteristics of the area, with the aim of providing enjoyment and entertainment for the players[10]. Traditional games can be used as a tool for developing cultural values for the development of Indonesian national culture[11]. Considering this, efforts from various parties are needed to study and preserve their existence through modification processes that are adjusted to current conditions. Traditional games must be assisted by technology to target young people because the current generation is highly dependent on gadgets and smartphones. Smartphones as tools make access to information easier, making information about traditional games faster and easier to access by young people. This will help popularize and preserve local culture and traditions that are now almost extinct. Therefore, technology assistance is very important in preserving and increasing awareness of the importance of traditional games for the younger generation. This study aims to design a User Interface for a traditional game application using the User Centered Design (UCD) method based on Android, in an effort to maintain its sustainability or promote the traditional game to the people living in the modern era based on modifications that are in line with current conditions. The User Centered Design method is a commonly used method to describe app design. The User Centered Design concept focuses on the user as the main focus in system development, with their needs and preferences as the top priority[12].

The objectives of this research include increasing awareness about the values of local culture and tradition that may be forgotten if not studied and applied in a more modern form, providing a contribution to the development of education that is attractive and interactive for children and teenagers to learn about their local culture and tradition, assisting in the development of culture- and tradition-based tourism that can attract tourists to come and enjoy the wealth of culture and tradition in Kotawaringin Timur region. These goals are being accomplished by combining anthropological, educational, and tourism approaches. The study and understanding of the regional cultural and traditional values that must be preserved uses an anthropological method. Children and teenagers learn about their local culture and traditions in an engaging and participatory environment thanks to the teaching approach. Meanwhile, the East Kotawaringin region's cultural and traditional diversity is promoted in order to draw tourists to the area and let them experience the region's natural beauty.

2. RESEARCH METHOD

The methodology used in this research includes data collection methods and user interface design methods. The data collection methods used are:

a. Survey, which is conducted by distributing a questionnaire to children and adolescents in Kotim to determine their level of knowledge and involvement in traditional games. All data obtained through an analysis of behavior patterns through a survey will be processed to determine a user-friendly interface design[13].
b. Direct interviews, which are conducted by visiting and directly communicating with the local culture and tourism department to obtain more detailed and in-depth information.
c. Literature study, through books on the Habaring Hurung cultural festival, tourism books, and scientific journal articles related to traditional games to obtain information on the history and background of the traditional games under study and as a reference for the research.

The method used in designing the user interface of the traditional game information recognition application is the User Centered Design method. This method focuses on the user as the main focus in system development. This method is chosen to obtain comprehensive and accurate information about the user's needs and preferences, which can help in determining the design and features of the system that meet their needs. The purpose of using this methodology is to ensure that the system developed is truly in line with the user's needs and expectations. During the design process, the same comfort as when using other systems must be created, so that the user does not have to change their behavior. In the User Centered Design method, there are 4 stages that must be iterated through[14]. The steps are as shown in Figure 1 below :

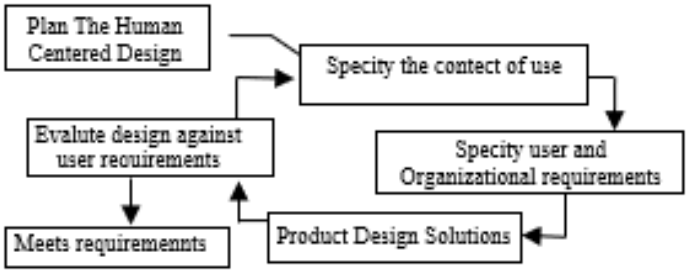

Figure 1. Stages of User Centered Design Method.

a. *Plan The Human Centered Design*

The first step is to hold discussions with individuals involved in the research such as the Culture and Tourism Office and conduct a survey among teenagers in Kotawaringin Timur to gather information on the needs of potential users. The next step is to conduct a literature study on relevant research, books, and journals related to the ongoing research.

b. *Specity the contect of use*

The second step is to identify the people who will be the users of the application. The researcher aims for all people to be the users of this application, because it is in line with the purpose of creating this application to introduce traditional games through the digital world.

c. *Specify user and organizational requirements*

Step three is defining functional requirements based on user needs. To enhance the User Interface of the application, it is first necessary to identify the users, then this identification will provide solutions to existing problems. To study and preserve the existence of traditional games, modifications have been made by several parties, such as the research conducted by Ati Bahiyati Utami Putri and Noor Hasyim with the title "Efforts to Preserve the Traditional Game Engklek through Interactive Digital Technology." The final result of this research is an Android game PERON Engklek that can introduce the traditional engklek game through digital technology to modern children and is expected to preserve the game from extinction. Research conducted by Gunanto with the title "Creation of Digital Educational Games Based on Cultural Awareness and Character Education." The result of this research is the design of a game that raises cultural and local wisdom-based design can be done while still maintaining the entertainment and education aspect raised. In addition, it is able to describe the attitudes that should be instilled early on in children.

d. *Produce design solution*

Step four is designing the User Interface of the application, which is implemented using a prototype designed using the Figma application. Figma is a cloud-based design application and a prototyping tool for creating digital projects such as UI/UX design that can be accessed without time limits[15].

e. *Evaluate design against user requirements*.

Step Five is to test the designed application in accordance with user requirements. In this testing process, usability testing of the traditional Kotawaringin Timur game user interface design is conducted using the cognitive walkthrough method, which refers to explorative learning, solving a problem (scenario) by "trial and error" (Mahfudh & Saputra, 2022). The steps of testing using this method are as follows:

a. *Preparation*

Steps in this stage include a literature study, which involves studying the system to be tested and determining the respondents to carry out tasks that the user must perform when using the Kotawaringin Timur Traditional Game Application. The application is tested with the assistance of the Figma Mirror application. The following are the tasks that must be carried out by the respondents listed in table 1.

Tabel 1. Respondent Task

TR	Tujuan
TR 1	Splash Screen
TR 2	Choose News
TR 3	Dashboard Page
TR 4	Menu List
TR 5	View Menu Details

Explanation : TR (Respondent Task)

b. *Execution*

This stage includes the sequence of walk-through activities and the replication of problems in the form of noting any difficulties that will arise for each task carried out by the respondent. Then an analysis of the usability test results and identification of problems is also conducted, resulting in improvement recommendations. Here is evidence during the

testing carried out on junior high school students. The evidence of testing conducted on respondents can be seen in Figure 3 below:

Figure 2. User Interface Design Testing

c. *Evaluation Implementation.*

Third, the evaluation team runs the evaluation by asking the users to perform the tasks that have been determined in the task scenario. During the evaluation, the evaluator pays attention to the readability of the application.

d. *Data Analysis.*

Fourth, the evaluation team analyzes the data obtained from the evaluation and records all problems found during the evaluation.

e. *Report.*

Fifth, the evaluation team creates a report explaining the results of the evaluation, including the problems found and recommendations for improvement.

3. RESULTS AND DISCUSSIONS

The work flow of implementing the user interface design for a traditional game information application can be depicted through wireframe and schema design to visualize the layout and interaction between pages in the application, user interface design and prototype creation using Figma software, and user interface design testing and evaluation through methods such as cognitive walkthrough. The user interface flow of the application is as follows:

a. The user will enter the splash screen of the application and will go to the home page.
b. The home page provides 2 slides containing images and greetings.
c. The home page must be passed to access the dashboard page.
d. The dashboard page contains recommended news items.
e. Each news item has a detail page.
f. The search button contains a list of game types.
g. Each game type list has a detail page.
h. The detail page will display a video, photo, and detailed description of the game.

The flow of the application user interface is described in the form of a flowchart which can be seen in Figure 4 below :

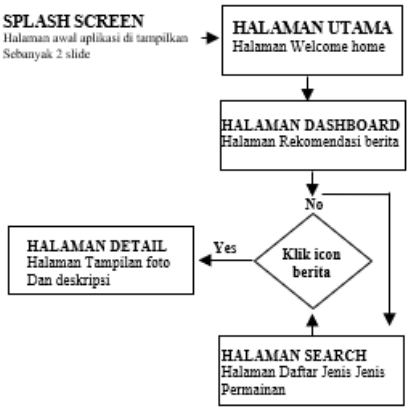

Figure 3. Task Flow User Interface

The application can be used by users without any restrictions, users do not need to register or log in to access the menu. The application is named "Borneo Traditional Games". The icon of the Kalimantan Traditional Game can be seen in Figure 5 below :

Figure 4. Icon of The Borneo Traditional Games Application

On the home page of the application, there is a slide that displays the description of the character animation cartoon of Central Kalimantan and the traditional games designed to attract users when accessing the application for the first time. Here is the user interface design of the Borneo Traditional Games application using Figma tools as a solution from the design of the system through existing problems. The application home page display design is shown in Figure 6:

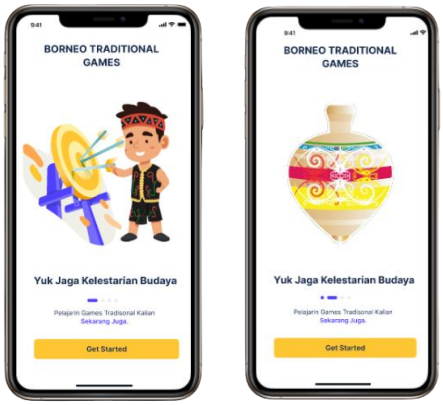

Figure 5. Display of The Borneo Traditional Games Application Splashscreen.

After displaying the Splashscreen for 6 seconds, the user is taken to the Dashboard page, which displays recommended news, and at the bottom right corner there is a search button to go to the list of game category menus. On this page, if the news icon is clicked, it will display a detailed description. The Dashboard page display is shown in Figure 7 below:

Figure 6. Display of the Borneo Traditional Games Application Dashboard.

Next, if the user clicks on the search icon, they will be directed to the display of the category page of traditional game types. The menu page display can be seen as shown in Figure 8 below :

Figure 7. Display of the Borneo Traditional Games application game menu.

On each game type icon menu, there is a Click icon button which will go to the Details page of the game's menu icon. This detail page contains information including videos, photos and information about traditional games. The detailed description page display and how to play traditional games are shown in Figure 9 below :

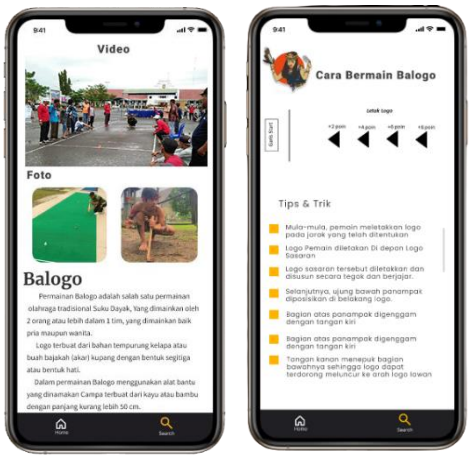

Figure 8. Detailed description page display and how to play traditional games

After the User Interface design was successfully created using the UCD method, then a usability test was carried out using the cognitive walkthrough method. The prototype flow that the user must go through is one of the applications of the cognitive walkthrough method which aims to achieve goals in the task flow that has been made. The test results are explained as in table 2.

Table 2. Test Results

No	TR	Objective	Indicator Testing (Second)	Percentage error
1	TR 1	Splash Screen	8	1
2	TR 2	Choose News	10	3
3	TR 3	Dashboard Page	10	3
4	TR 4	Menu List	15	4
5	TR 5	View Menu Details	15	4
The Final Result			Average 11,6	5,8 %

One user interface design evaluation technique that may be used to assess a design's performance and usability is testing utilizing the cognitive walkthrough method. With the labels TR 1 through TR 5, five testing scenarios have been developed. Each testing scenario has unique objectives and metrics.

The test findings reveal that respondents' average completion times (8 to 15 seconds) do not go over the predetermined time limit, with a percentage of errors between 1 and 4. However, the final test results reveal that all jobs took an average of 11.6 seconds to complete, with a 5.80% mistake rate.

Overall, the testing outcomes demonstrate that the user interface design has good performance and may assist users in successfully completing tasks. However, some testing situations that exhibit larger mistake rates than others still have space for research and improvement. This suggests that in order to give a better user experience, some components of the user interface design still need to be updated or modified. In this situation, a more thorough investigation into the mechanisms producing these errors and the development of countermeasures is required.

The testing of design functionality, such as buttons that guide users to the proper pages as needed, is not also covered by the aforementioned testing results. To assess the viability of the user interface design, further detailed analysis and retesting using more thorough and in-depth methodologies are required. Testing the usability of buttons and other design elements as well as user satisfaction with the design are some of the techniques that may be employed. The user interface design is anticipated to offer a better user experience and aid in achieving the objectives of the application with more thorough testing. This may enhance both application performance and user happiness.

Furthermore, further development can be done by retesting the testing scenarios using more specific methods or even adopting different testing methods to obtain more comprehensive results. With more comprehensive testing, it is hoped that the user interface design can provide a better user experience and help achieve the goals of the application. This can improve user satisfaction and overall application performance.

After that, the testing results can be used to develop a better user interface design and improve the errors found to improve overall user performance and experience.

4. CONCLUSION

The User Interface design is one of the steps in the process of creating or developing an application. Designing User Interface using UCD method can result in a good layout, color, and button placement of the navigation of the Borneo Traditional Games Android application. This has been proven with the results of usability testing using the cognitive walkthrough method. The cognitive walkthrough method is considered to be effective in providing valuable user satisfaction information when using the Borneo Traditional Games application. Through usability testing, the researcher can also identify problems experienced by users during the simulation of using the Borneo Traditional Games User Interface, thus being able to determine the improvement or development recommendations that need to be made. The development that needs to be done is the creation of more thorough testing procedures and the blending of various techniques. To strengthen the validity of the research findings, future research might be expanded to include a wider range of participants. Future research can also focus on ISO standards for user interface testing to guarantee the safety and quality of the product that complies with performance and safety standards and offers the best user experience.

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