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Traditional Cultural Learning System for *Batak Toba* Wedding Using Multimedia Approach

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Abstract

Indonesia is a country with diverse cultures. Indonesia comprises numerous tribes, including *Batak Toba*. The *Batak Toba* people actively practice their traditional rituals, including wedding ceremonies. Their traditional wedding ceremony involves several rituals, symbols, and attributes with different meanings. Today, learning resources for traditional rituals, attributes, and others can be accessed through experts' knowledge, video tutorials, and scientific journal. However, all sources have failed to attract attention. Thus, only a few generations are concerned and interested in studying culture. And threatens the dissappear of cultural experts. The research objective is to develop a system based on a multimedia approach that provides learning materials about the traditional rituals of *the Batak Toba* wedding ceremony. The multimedia development life cycle method is used for system development. Based on the research result show that 90% responded easier to understand the content.

Keywords: Traditional, culture, *Batak Toba*, wedding, multimedia

1 Introduction

Indonesia is a country with diverse cultures. This cultural diversity includes different ethnicities, religions, and local languages. Indonesia comprises numerous ethnic groups, such as the *Javanese, Bataknese, Baduy, Asmat, Mentawai, and Minang Kabau*. Each ethnic group has specific and complex attributes for celebrations, such as weddings, births, and funerary rituals [1]. For example in *Batak Toba* wedding always involve a traditional shawl [2] called *ulos* (weaving).

The *Batak Toba* people are one of the tribes in North Sumatera, Indonesia. Apart from the *Batak Toba*, other tribes make up the region, namely, the *Batak Simalungun*,

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Batak Karo, *Batak Pakpak*, *Batak Angkola*, and *Batak Mandailing*. The *Batak Toba* people represent 50% of all Batak tribes in North Sumatera. Batak culture is based on the behavioral values of the people's ancestors. All the tribes in the Batak lands have a distinct language; however, a few similarities in writing and pronunciation exist. Moreover, each Batak tribe uses a different script, though the variants do not differ considerably [3]. Geographically, the *Batak Toba* tribe lives around Lake Toba [4]. Generally, the *Batak Toba* people believe and follow the *dalihan na tolu* philosophy. *Dalihan na tolu* is advice deriving from ancestors. Specifically, the *dalihan na tolu* philosophy represents three social community groups, namely, the *dongan sahuta* (friends from same village), *hula-hula* (a man in our mother family), and *boru* (daughter). *Dalihan na tolu* is considered an important set of rules for every ceremonial event, including wedding ceremonies. All the symbols and supporting attributes involved have important meanings for the bride, the bride's family, and everyone around them [5]. Often, the meanings of the symbols or attributes are religious [6][7]. Some attributes used in the wedding ceremony are traditional cloth called an *ulos*, a cuisine called *arsik (goldfish)*, cooked rice called *indahan na las*, water called *aek sitio-tio*, betel leaf called *napuran*, a sarong called *mandar hela*, money called *tuhor*, rice called *si pir ni tondi*, and meat called *jambar*. By protocol, each attribute is called by a different name during the ceremony. The *Batak Toba* wedding ceremony consists of three stages, namely, the pre-wedding, wedding, and post-wedding stages. The pre-wedding stage consist of *mangalua, marhusip, marhata sinamot, pudun saut, martumpol, and martonggo raja.* Then, the wedding ceremony consists of *manjalo pasu-pasu*, *pesta unjuk*, and *daulat ni si panganon*. Last is the post-wedding which consists of *paulak une, manjahe,* and *maningkir tangga*. Each stage has different meanings and different supporting attributes. In addition, the duration of each stage also different. According to the *dalihan na tolu* philosophy, the completion of the three stages is called the full ritual or *adat na gok* [8]. Some *Batak Toba* people believe that not being able to practice their cultural rituals would be disastrous.

All of the rituals or ceremonies above is an interested object for tourists. It can often attract and motivate tourists to visit any place in Indonesia. Many tourists are interested in purchasing the miniature of the attributes. They are also interested in studying about the culture for a long time.

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Unfortunately, their enthusiasm does not accord with the enthusiasm of Batak youth in learning their culture. The complexity of the processes and rituals attributes of wedding ceremonies just attracting only a few of *Batak Toba* youth to learn. A lot of Batak youth people also choose to move to other city even other country for studying or leaving. Moreover, owing to current habits, most people prefer to learn things instantly and only subjects that are beneficial to them. Thus, knowledge transfer is poor, and few people understand traditional ceremonies. Finding a person who is knowledgeable related to all rituals, attributes, and process above is difficult. It is hard to imagine someday when the ceremonial rituals cannot be performed because no more expert of it.

Many communities are trying to maintain and preserve all these cultural rituals in every celebration. They try to organize sharing knowledge periodically from the expert to other people, transfer knowledge through directly communication between expert and interested people. Another method is to record the knowledge in a book or scientific journal or video tutorials. However, all of methods are ineffective for the following reasons.

a. Knowledge transfer is difficult when only a few experts exist, and such experts have poor communication skills. Communication skills are essential for transferring knowledge.
b. Finding literature or scientific journals that address the topic is difficult. Such references are often expensive, and a very limited number of journals focus on Bata Toba wedding rituals.
c. Video tutorials is good but can not cover all process or attributes because it will be boring if the duration is too long.

Based on literature reviews, several researchers conducted relevant studies. This first research develops a multimedia system for Hindu wedding ceremonies that could be accessed via mobile phones. The system consists of different types of Hindu weddings, Hindu wedding rituals, prerequisites of Hindu weddings, and the objectives of Hindu weddings[9]. Moreover, the project is an interactive multimedia system for learning the culture of Indonesia. In addition, the research aimed to increase children knowledge about Indonesia culture [10]. Other researcher developed mobile platforms with augmented reality technology for learning media the traditional houses in North Sumatera of

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Indonesia. The learning media are used for kids. This augmented reality (AR) technology aimed to visualize traditional houses [11]. Meanwhile, another study used AR as learning media for Papua cultures based on a website. Specifically, the researcher developed a website for children showing the art and culture of the province of Papua[12].

The problems above motivates us to involves information technology. Information technology plays an important role in people's lives. It's enables everything, including learning media. One information technology support to solve the problems above is the multimedia system. Therefore, this research proposes to develop a multimedia-based system that contains information about the wedding ceremony rituals of the *Batak Toba*. Finally, the output of this research is an information technology that present information or knowledge about traditional rituals of *Batak Toba* wedding.

2 Research Methodology

The objective of this research is to develop a computer system based on a multimedia approach to help anybody learn about the traditional rituals of *the Batak Toba* wedding. The systems contain information about the process, attributes, symbols, and techniques of *the Batak Toba* wedding from scientific literature and from experts related to traditional rituals. Researchers collect information from experts through several Batak communities/organizations in Indonesia. The data collection process was done directly through interviews with community representatives who are experts on traditional Batak wedding processions and direct observation of several traditional wedding events.

Research activities are carried out in sequence, including problem identification, literature study, problem formulation, data and information collection, and the system development stage using the multimedia development life cycle (MDLC) method, and conclude.

The multimedia development life cycle (MDLC) method was used for system development. In addition, observation and interviews were conducted to collect the required data. Subsequently, the research team used the black box method to evaluate the system. *Multimedia* is defined as a collection or combination of different types of media.

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Moreover, multimedia involves only the sense of sight and hearing. However, this definition has continuously changed and developed. Other researchers stated that multimedia is a computer-based system for interactive communication capable of creating, storing, presenting, and accessing text, graphics, animation, image, and video information [13]. Therefore, if one of these components is absent in a system, the system cannot be interpreted as multimedia Numerous system development methods exist. However, not all can be applied to create multimedia systems. An approach that can be used for multimedia systems is Luther's method. Luther's approach consists of six stages: concept, design, material collection, development, testing, and distribution [14].

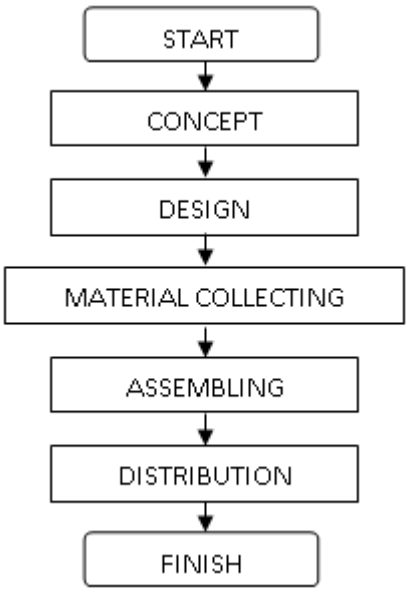


Figure 1. Multimedia Development Life Cycle Research Flow

Concept denotes the process of determining research objectives, user candidates, and the type of system required. Meanwhile, the design aims to arrange the system specifications, user interfaces, system architecture, and materials needed for the system. The material collection involves the accumulation of the necessary data. Generally, this stage is carried out in parallel with assembly. Assembly denotes developing the multimedia system, which involves all the related objects. A system is developed based on the design results and the collected materials. When the system is ready, it is tested using a system evaluation approach. This step involves the detection of bugs in the

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system. Finally, the system can be installed on a computer when all the bugs are detected. Thus, a user can utilize the system continuously. Figure 1 presents all steps in MDLC.

3 Results and Discussions

The output of this research is a multimedia learning system that can help users learn about traditional rituals of *Batak Toba* wedding. The system was developed using the MDLC method and contains all the processes or attributes involved in the *Batak Toba* wedding ceremony. Result from each step of the MDLC method are discussed below.

a. Concept

The observation and interview results show that the objective of the system is to help users understand *Batak Toba* wedding rituals. Thus, the users of the system are the public, especially parents planning to celebrate their children's wedding. To meet this need, the application is developed based on interactive multimedia. All data regarding traditional marriages' processes, attributes, and symbols come from interviews with experts, observations with Batak organizations/communities, and participation in several traditional wedding events.

b. Design

The outputs of this step are a use-case diagram, storyboard, navigation structure, and system user interface. A use-case diagram is a type of unified modeling language (UML) diagram. UML is graphical notation for system developments. UML comprises numerous diagrams with different functions such as use case diagram, activity diagram, and others [15][16]. The use-case diagram describes the interaction between a user (named actor) and a system. It's describe how a system works. [17]. Figure 2 is the use case diagram for the system proposed.

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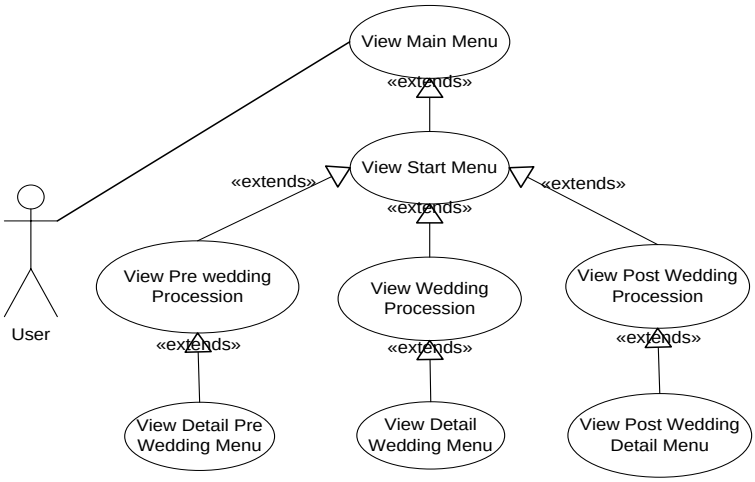


Figure 2. Usecase Diagram Multimedia Proposed System

Besides the use case diagram, the design step generates the navigation structure. It serves as a guide for operating the system, specifically where it starts and finishes. Figure 3 shows the navigation structure of the proposed system.

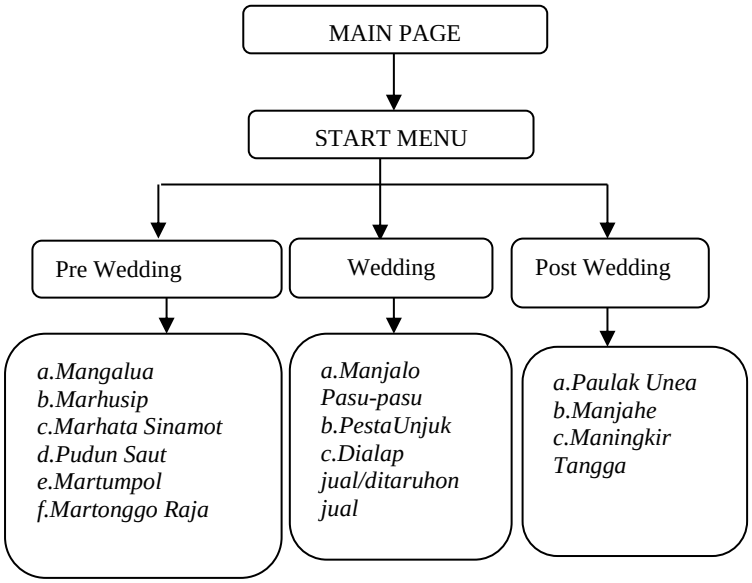


Figure 3. Navigation Structure

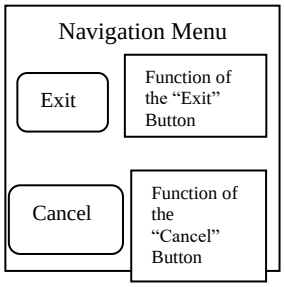
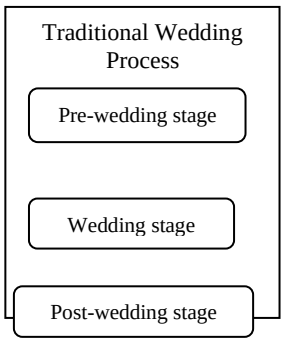
The following design is a storyboard. A storyboard can help convey a story quickly. Storyboards are widely used for making short films. However, storyboards can also be used in the system development life cycle (SDLC). In the SDLC, storyboards are used for

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multimedia-based systems [18][19]. Table 1 presents the story board design for the proposed system.

Table 1. Storyboard of System Proposed

Scene	Board	Story
1		This scene will show the main menu of the system
2		This scene will present explanations for the functions of buttons in each menu
3		This scene will present the process of each stage of the traditional *Batak Toba* wedding. All scenes involve multimedia attributes: images, animation, audio, and videos.

Last design is a user interface. It is a mockup design to help system developers build a system easily, as it provides access to actual descriptions of a system before development. The navigation structure design is clarified by the graphic user interface. The user interface of the proposed system starts on the menu of the main page. Subsequently, the start menu contains the three stages representing the main ritual. Finally, the detailed menu shows the processes of the *Batak Toba* wedding ceremony. This user interface design is simple to meet user requirements. All the processes include several images, audio, and animation.

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c. Material Collection

In this stage, the materials collected for the system are information or knowledge about the *Batak Toba* ceremony and supporting images relevant to the system, including animation and audio related to the wedding rituals. The system requirements obtained from observations and interviews are presented below.

- The system should be easy to use and have navigation symbols for users.
- The system should include text, images, audio, animation, and videos. Such media will help users understand the system easily.
- Supporting attributes should be relevant to the *Batak Toba* traditional wedding ceremony. In other words, all the materials should represent the rituals.
- Colors and symbols used should represent the actual colors and symbols used in traditional *Batak Toba* wedding rituals. Dominant colors of the *Batak Toba* ethnic group are red, blue, yellow, and black. All colors have different and distinct meanings.

Based on the explanation above, the necessary materials include images, animation, videos, textual information, symbols, colors, and buttons related to traditional *Batak Toba* wedding rituals. Certain collected images depict a goldfish, meat, rings, and a *Batak Toba* wedding couple. Several animated elements, made by the research team, are included in the system.

d. Assembly

In this section, the system is developed using Macromedia Flash with an action script programming language. This system does not involve the database because all of data just for displaying or no relation among all data. According to all process also attributes, system presents all of that completely and exactly. System displays 3 (three) big menu/window/layout that's describe 3 stage rituals of the wedding ceremony. Each window shows attributes through image, text, or video. Figure 4 is window for the first wedding stages (pre-wedding).

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Figure 4. Pre-Wedding Stages Menu

Figure 4 explains the stages of pre-wedding. According to the previous explanation, the pre-wedding stage includes several stages, namely *mangalua, marhusip, marhata sinamot,* finally *matonggoraja*. At each stage, attributes are signs, such as rings to bind them, betel leaves during processions and other attributes.

e. Testing

The system is evaluated as a functional system using black box method. This method identifies and match system requirements with the features provided. The black box method is focuses on identifying whether a program meets the requirements mentioned in the specification. To test this evaluation approach, units or models in a system are executed and observed to determine whether the results correspond to the business process. If certain units or features generate unsuitable outputs, a second test, namely, the white box test, is employed [20][21]. Table 1 presents the evaluation results of the system using the black box method.

Table 2. Black Box Methodology Results

Menu	Information Displayed	Information Will be Displayed	Result
Main Menu	• System Title • Image as which represents *Batak Toba* Wedding Ceremony	• System Title • Image for Main Menu • Navigation Button	Matching

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	• "NEXT" and "CANCEL" Button		
Start Menu	• Menu contained three stages of *Batak Toba* Wedding Ceremony • Multimedia supporting attribute relate to the topic • Navigation Button	• 3 Stage of *Batak Toba* Wedding Ceremony • Navigation Button • Multimedia supporting Attribute	Matching
Navigation Menu	• A guidance to operate the system • Explanation about all the button in navigation menu	• A menu contain explanation how to operate the system. • Explanation about the button function.	Matching
Pre Wedding Procession Menu	• All procession detail in pre wedding stage • All supporting attribute used (image, audio, video, etc) • Navigation button	• Show all detail procession for pre wedding stage • All menu equipped with easy navigation button. • All menu equipped with multimedia attribute relates to the topic.	Matching
Wedding Procession Menu	• All procession in wedding ceremony, • Supporting attribute based on multimedia (image, audio, video, etc) • Navigation button	• Show all details process in wedding procession • Each menu equipped with easy navigation button. • Each menu is equipped with multimedia supporting attribute relates to the stages	Matching
Post Wedding Menu Procession	• All procession in Post wedding • Multimedia Supporting Atrribute • Navigation button	• Show all detailsprocess in post wedding stage • Each menu equipped with easy naviagation menu • Each menu equipped with multimedia supporting attribute	Matching

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4 Conclusions

In summary, based on the research output, multimedia components, such as images, audio, videos, and animation, can help make learning materials easy to understand. Subjective testing through direct interviews with 30 respondents as system users showed that 27 people easier understood the content through a multimedia-based system. Moreover, they become interested in wanting to learn about their traditional culture. It means, multimedia components can help make a system interactive and interesting. Finally, multimedia learning system can be a solution to the problems faced such as the scarcity of experts, lack of user interest in learning, and very little amount of literature related to the problem domain raised. Future research should develop a mobile system to grant access to users anytime and anywhere.

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