The development of premarital mobile learning version 3.0 with jquery technology to be learning flexibility premarital course application

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Abstract. This research activity aims to develop premarital mobile learning applications v 2.0 to become premarital mobile learning v 3.0 based online with the app store. The focus of the application development is more on the flexibility of the application, namely the ease in the process of editing the application's animated video and e-book content, which will be adjusted to the applicable regulations in the Ministry of Religion. The software v 3.0 premarital mobile learning application that will be designed to build will also be added to the forum feature as a means of communication between the headman, as well as the process of question and answer between the premarital interviewees with the premarital course participants. The approach method used is object-oriented methodology, by implementing UML diagrams as functional modeling, using Javascript programming language, back server database language with php, and using jquery as an interface developer. The framework of application software engineering development with software Development Life Cycle (SDLC), namely the stages of planning, analysis, design, implementation, testing, and maintenance. The result of the research achieved are (1). Developing premarital mobile learning application software v 2.0 into premarital mobile learning application v.30 with all the ease of editing the material to be adjusted to the applicable provisions, material content stored in the html tag server (2). The development of version 3.0 with the flexibility of e-book learning, multimedia animation and forums as a means of communication between the premarital interviewees and the premarital course participants.

1. Introduction

The development of Information and Communication Technology in the current millennial era, which is called as Industry 4.0 Evolution, is already inevitable. The digital age cannot be avoided; therefore, it must be enjoyed and utilized. The development of information and communication technology has penetrated all fields of work, including the development of learning models with multimedia technology that aims to achieve quality education. The target of achieving quality education is marked by developing a multimedia-based learning model with e-learning, m-learning, distance learning, known as online learning, which is widely used in Indonesia today. Known as online learning, which is widely used in Indonesia today. Multimedia-based Pre-Marriage Education with Pre-Marriage Mobile Learning is a learning application software that was built and produced as a development model for the learning of pre-marital education activities in the Office of Religious Affairs. Provisions for the implementation of pre-marital education in accordance with the regulations of the Decree of

the Minister of Religion (KMA) No. 477 of 2004 [1], about providing insight into marriage in the household to the bride and groom. Regulation of the Director-General of Islamic Community Guidance Number DJ.II / 542 of 2013[2], concerning Guidelines for Organizing Pre-Marriage Courses at the Office of Religious Affairs (KUA). Then in Regulation of the Minister of Religion (PMA) No. 19 of 2018 concerning Supervision instructs officials who have duties in the field of Islamic Community Guidance in the Ministry of Religion of the Regency/City to supervise the implementation of Marriage Guidance in KUA. As well as the Implementation of Marriage Guidance regulated in the Decree of the Director-General of Islamic Community Guidance Number 379 of 2018 concerning Guidelines for the Implementation of Marriage Marriage Guidance for Prospective Brides. Conceptually the bride and groom course / premarital education held at the Office of Religious Affairs (KUA) is conducted for 10 working days with a duration of 24 hours of study. There are some course materials that are presented during the teaching and learning process in accordance with the syllabus of pre-marital course materials published by the ministry of religion. These activities are intended to provide sufficient understanding for the bride and groom before the marriage is launched. But in reality, in the field, the contextual can not be fully carried out in accordance with applicable regulations, including the difficulty in managing the time for the bride and groom status as Employees; both civil servants, BUMN employees, private and military employees. Similar to the implementation of marriage guidance (big win) which is carried out by the Islamic Community Guidance of the ministry of religion in the regency/city also experiences several obstacles including improper budget allocation, obstacles for marriage guidance participants who have a residence far from the location of the marriage guidance held. The premarital mobile learning application software was first announced on September 22, 2015, at the Office of Religious Affairs in the Mandai District of the Ministry of Religion in Maros Regency. Then premarital learning application software is used as a learning model to accompany pre-marital education activities face-to-face between speakers and participants of pre-marital courses in several religious affairs offices within the scope of the Maros district religious ministry. Based on the aforementioned things that inspired the need for the development of ICT-based learning media by using Android-based pre-marital mobile learning application software produced. Product Pre-marital mobile learning application version 1.0, which was previously produced, using an object-oriented programming language (OOP) with E-Clips as software programming. The results of the implementation of the application and application system trials on pre-marital course participants, as well as based on input from the functional officials of the prince as a pre-marital education resource at the office of religious affairs, the development of a mobile application for pre-marital marriage based on Android by utilizing Unity 3D technology. Unity 3D technology is generally widely used to create android-based game applications, still experiencing development so that it can also be used for android-based application development [3]. Pre-marriage m-learning application software with version 1.0 and version 2.0 that has been produced and then socialized and implemented in pre-marital education activities in the office of religious affairs is very helpful for prenuptial course participants or brides in accessing premarital materials, but there are still some deficiencies in facilities and features and content material that is still in the form of images (jpg). Therefore, it will be designed to build application flexibility that can be done in the process of editing the material in accordance with the regulations for the implementation of premarital courses or marriage guidance that applies to the ministry of religion [4].

2. Extension-rule based theorem proving method

2.1. Policy on premarital education activities
The juridical basis on which the legal basis for conducting the bride and groom courses is:
a. Decree of the Minister of Religion (KMA) 477 in 2004 [1].
   Through the Decree of the Minister of Religion (KMA) No.477 of 2004 concerning providing insight into marriage and households to the bride and groom, the government mandates that before

the marriage takes place, each prospective bride and groom must first be given insight about the meaning of a household through a bride-to-be course (sustain).

b. Regulation of the Director-General of Islamic Community Guidance, No. DJ.II / 491 of 2009. Regulation of the Directorate General of Islamic Community Guidance, No. DJ.II / 491 of 2009. About the bride and groom course. As a basis for the application of the bride and groom course as a condition of marriage registration This regulation is intended to increase understanding and knowledge about the life of the household/family in realizing a sakinah, mawaddah and rahmah family and reducing the number of disputes, divorce, and domestic violence.

c. Circular Letter of the Director General of Islamic Community Guidance. DJ.II / PW.01 / 1997/2009 With the issuance of the Circular Letter of the Director-General of Islamic Community Guidance Number DJ.II / PW.01 / 1997/2009 regarding the skinny bride and groom brides, which is a follow up to the Regulation of the Director-General of Islamic Community Guidance, No. DJ.II / 491 of 2009, making Suscatin's steps clearer. The birth of regulations regarding the bride and groom course is a form of government's real concern for the high divorce rate and domestic violence cases in Indonesia.

By attending the bride and groom course, the bride and groom couples who want to pitch to the marriage level will be equipped with basic material knowledge and skills about married life. Thus it is hoped that the bride and groom will have insight and knowledge about domestic life, which in turn will be able to gradually minimize the number of divorces and domestic violence.

d. Regulation of the Director-General of Islamic Community Guidance No.II / 372 of 2011
With the Regulation of the Director-General of Islamic Community Guidance No.II / 372 of 2011 concerning guidelines for organizing pre-marital curricula and syllabus courses, it can be more directed towards achieving pre-teaching targets.

e. Decree of the Director-General of Islamic Community Guidance No. 373 of 2017 concerning Technical Guidance for Marriage Guidance for Prospective Brides

f. Regulation of the Minister of Religion of the Republic of Indonesia Number 19 the year 2018 concerning Marriage Registration for Supervision instructs officials who have duties in the field of Islamic Community Guidance in the Regency / City Ministry of Religion to supervise the implementation of Marriage Guidance in KUA. This Marriage Guidance activity within the Ministry of Religion work unit is funded through the National Budget and NR NRB, which runs in accordance with applicable laws and regulations.

2.2. Mobile learning
The use of information and communication technology in the world of education continues to develop in various strategies and patterns, which basically can be grouped into e-Learning systems as a form of learning that utilizes electronic devices and digital media, as well as mobile learning (m-learning) as a form of learning which specifically utilizes mobile communication devices and technology. The level of penetration of mobile devices is very high, the level of use is relatively easy, and the price of devices that are increasingly affordable, compared to PC devices, is a driving factor that is increasingly expanding opportunities for the use or application of mobile learning as a new trend in learning, which forms a paradigm that can increase efficiency and the effectiveness of the process and learning outcomes of students in Indonesia.

Mobile Learning is a learning model that is carried out between places or environments using technology that is easy to carry when the learner is in a mobile/cellphone condition. With its various potentials and strengths, Mobile Learning is expected to be able to be an alternative learning source that can improve the efficiency and effectiveness of the process and learning outcomes of students in Indonesia in the future. There are three functions of Mobile Learning in classroom learning activities (classroom instruction), namely as supplementary (optional) which is optional (optional), complementary (complimentary), or substitute (substitution) [5]:

1. Supplement (additional) Mobile Learning functions as a supplement (additional), namely: students have freedom of choice, whether to use Mobile Learning material or not. In this case, there is no obligation for students to access Mobile Learning material. Even if it is optional, students who use it will certainly have additional knowledge or insight.
2. Complement (supplementary) Mobile Learning functions as a complement (complimentary), namely: the material is programmed to complement the learning material received by students in the classroom. Here it means that Mobile Learning material is programmed to become reinforcement or remedial material for students in participating in conventional learning activities.
3. Substitution (substitute) Some universities in developed countries provide several alternative models of learning activities for students. The goal is that students can flexibly manage their lecture activities in accordance with the time and daily activities of students. There are three alternative models of learning activities that students can choose from, namely: fully face-to-face (conventional) 2) partially face-to-face and partly through the internet 3) entirely through the internet.

2.3. Mobile jquery technology
Jquery mobile is a framework created for designing cross-platform mobile device applications. Part of the application that can be directly dealing with the user (User Interface). JQuery Mobile is an HTML5-based user interface system designed to create responsive websites and applications that can be accessed on all smartphones, tablets, and desktop devices.

JQuery Mobile was developed as an alternative that answers the need for the development of mobile web applications that are easy and have a lot of potentials. JQuery Mobile is possible to create mobile web applications whose appearance and interactivity are consistent across all devices that support, as well as having sophisticated user interface (UI) capabilities. JQuery Mobile is an HTML5-based user interface system, and the development of the popular JQuery and jQuery UI libraries is currently popular. The advantages of jQuery are that the code is lightweight, adopts a design that can adapt to various types of mobile devices, and accentuates semantic markup. Therefore, the design is very flexible and has a theme that can be adjusted [3].

2.4. Parallel proving algorithm based on semi-extension rule
The method used is an object-oriented methodology, by implementing UML diagrams as functional modeling, using the Javascript programming language, the database back server language with php, and using Front-end mobile jquery as an interface developer. The framework of application software engineering development with software Development Life Cycle (SDLC), namely with the stages of planning, analysis, design, implementation, testing, and maintenance [6].

3. Experimental Result

3.1. Premarital m-learning technology
In the beginning, premarital mobile learning application software was given the name of multimedia-based premarital education, with the initial concept that premarital education activities could integrate the concept of face-to-face learning by utilizing information technology devices with presentation files. But in reality, the implementers of these activities at the office level of religious affairs do not all have ICT infrastructure in the form of OHP (Overhead Projector) and LCD (Liquid Crystal Display) media because these media can be an option in learning. Apart from the limitations of ICT equipment that is not owned, sometimes the compatibility of the material with the media to be used is not appropriate because each learning equipment media has advantages and disadvantages.

With the development of the use of mobile phone technology as a learning medium as in several research results such as the Mobile School Service developed by Zoran Vucetic, et al.; in 2010, where the mobile phone technology was utilized as a medium of learning media for students at the University of Novi Sad, Zrenjanin, Serbia. In addition, mobile phone technology is utilized in the

world of education, such as research into the development of mobile Phone-Based Learning designs in SQL courses in the department of engineering education in informatics Undiksha.

Furthermore, premarital mobile learning application software began to be developed by utilizing mobile phone devices that are already owned by participants of the premarital course. The application software is designed to be built using an object-oriented programming language (OOP) with E-Clips as programming software. The prenuptial mobile learning application software version 1.0 produced can have an e-book feature that contains the content of premarital course material. The e-book material prepared in the application is adjusted to the syllabus determined by the religious material. Premarital e-learning Mobile eBook 1.0 can display all pre-marital course material; the appearance can be enlarged and reduced (touch). But in version 1.0 application software that was built was not yet equipped with audiovisual or multimedia to show the process of marriage flow to premarital participants.

To overcome the weakness of the application, then version 1.0 was developed into a premarital mobile learning application version 2.0, which was built using unity technology. Pre-marital mobile learning application features version 2.0 is equipped with an e-book and video animation of marriage flow diagrams and reproductive health animations. However, the e-book feature is still lacking because the material content contained therein is still in the form of jpg files that cannot be edited and added material in accordance with regulations that apply to the implementation of bride and groom courses, premarital courses or marriage guidance that applies to the Ministry of Religion of the Republic Indonesia.

3.2. Premarital marriage planning with mobile jquery technology

To overcome the shortcomings of premarital mobile learning application software that has been implemented on users, and found several weaknesses, version 3.0 will be developed. Premarital mobile learning technology using mobile jquery will provide solutions to any changes in the content of premarital course materials in accordance with regulations of the ministry of religion.

Pre-marital mobile learning application design with mobile jquery technology created can be a responsive and compatible application that will work on all popular smartphone, tablet, and desktop platforms.

Following is the appearance of the premarital mobile learning application software interface developed using jquery mobile technology:

1. Display Login Menu

This display is intended for participants of premarital courses, pre-marital education speakers and premarital mobile learning application administrators by granting username and password permissions.

Figure 1. Login Menu

2. Display the Main Form Menu
In this main Menu Display, if the participant is a pre-marital course participant, a pre-marital course guide or tutorial will be shown containing all material in accordance with the syllabus or curriculum. In this view, it will be equipped with a video animation of a marriage flow chart and reproductive health animation, the material of which works with the health center or health institution. In this main menu, a futuristic digital consultation menu will be added between the general public and various household, marriage, and divorce matters that apply to religious affairs offices.

Figure 2. Main Menu Display

3. Display the Form Editor Menu
The appearance of this editor form menu contains an application mastering intended for the administration team to manage the contents of the material or video that will be displayed on the home menu.

Figure 3. Display the Form Editor Menu

4. Display Form display mobile application tutorial premarital courses
On this menu, display contains an electronic book pre-marital course material that is tailored to the syllabus and curriculum that applies to the ministry of religion
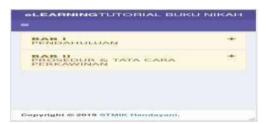

Figure 4. Display the Form Editor Menu

Based on the results of the premarital mobile learning application interface design with mobile jquery technology that has been developed, the futuristic application software will be more flexible with the ease of doing the editing process and adding material that applies in accordance with policies in the ministry of religion, repairing animated videos according to the material content and will add online consultation menu between pre-marital course participants (prospective brides) and resource persons for pre-marital education activities, as well as between the general public who need solutions to household problems, marital problems, and divorce in accordance with operational standards (SOP) for the upstream workgroup on religious Affairs office.

4. Conclusions

Based on the development of application design results that have been carried out, the following conclusions are concluded:

1. Developing premarital mobile learning applications with material content flexibility in accordance with the curriculum applicable to the ministry of religion, the resulting application features make it easy for any policy changes to also make changes to the contents of the application material.
2. Premarital mobile learning application software with mobile technology makes it easy to implement the interface design of the resulting menu form to adapt to various types of mobile devices used by application users.

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FINAL GRADE

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GENERAL COMMENTS

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