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Development Of Interactive Learning Applications For English Subjects

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ABSTRACT

The use of technology in learning is used as a means of learning. Learning media is anything that is used in the process of learning activities and can stimulate students' thoughts, feelings, interests and attention when learning, so that the process of interaction, communication and education between teachers and students can take place in accordance with the learning objectives. This research aims to produce a product in the form of a web-based interactive multimedia learning application, which is of good quality and highly suitable for use as a learning medium for students in English subjects. The research location was conducted at UPT SMP Negeri. 35 Medan. This multimedia learning product has gone through a strict review and revision process, based on suggestions from teachers and supervisors. This product was tested in a class with 31 students. The results show that learning management at UPT SMP Negeri 35 Medan using this interactive application has achieved learning management well, this can be seen from the acquisition section to the retrieval system of existing information/learning. Thus, this product can be used in the learning process to provide new, more meaningful experiences to students. In addition to this multimedia product, the teaching materials can be studied anywhere and at any time, which can increase students' learning motivation.

INTRODUCTION

Technological developments have a great influence on the process of learning activities. Due to the continuous development of technology, teachers must be able to keep up with technological advancements so that they are in tune with the benefits of technology in the learning process which aims to create an innovative and effective learning process . Many educational developments are occurring currently, which means that education will continue to experience changes in the coming era (Iqbal et al., 2021). Education is a determining factor for the future progress of the nation (Budi et al., 2018). One of the things that is done to advance education is to update the curriculum. Currently, the 2013 curriculum is the one that applies in Indonesia (Muhammedi, 2016).

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As an educator/teacher, you of course have a certain degree of lifelong learning. In addition to being able to foster lifelong learning, an educator must also continue to learn so that their insight and abilities continue to develop and be creative. (Hartiyani and Ghufron, 2020). Supporting learning activities in terms of media can be done in different ways, including developing innovative products that are easy to use for educators and students (Purmadi et al., 2022). According to Ilma & Lutfi (2020), learning is successful if you can apply media suited to the desired objectives. Media helps present the topic, makes it clearer, and reduces the flaws of direct human observation (Kaniawati, 2017, Hakim & Windayana, 2016; Puji et al., 2014). Learning media as a delivery system in the teaching and learning process is optimal based on a certain approach (Fanny & Suardiman, 2013; Harjono et al., 2015).

The use of technology in learning is used as a means of learning. Learning media is anything that is used in the process of learning activities and can stimulate students' thoughts, feelings, interests and attention when learning, so that the process of interaction, communication and education between teachers and students can take place in accordance with the learning objectives. The use of technology has now become a demand, although designing technology-based learning materials requires special skills to be able to create them. This does not mean that technology-based learning supports are avoided or abandoned. School teachers can use the Internet, cell phones and other technology- based tools. Technology was created to facilitate human activities in order to exert a positive influence on human life.

However, in reality, according to (Syafii et al., 2021), many educators think and believe that learning resources are just textbooks, PowerPoint materials, etc. Until now, educators more often use teaching materials in the form of textbooks

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and use whiteboards as support in the teaching and learning process in the classroom, which results in students not understanding well material and ultimately affects their grades and learning outcomes (Dwiranata et al., 2019).

SMP Negeri 35 Medan is one of the high schools located in Medan city. As in other schools,English one of the compulsory subjects that students must master. However, in today's digital age, education is no longer limited to face-to-face learning in the classroom, but can also be done with the help of technology. The use of interactive learning applications is a solution to provide more interesting and interactive learning in English subjects. Based on the Big Indonesian Dictionary (Neyfa & Tamara, 2016), it is explained that application is the process of using system design principles in data processing using a certain programming language. This interactive learning app developed by SMP Negeri 35 Medan is equipped with various features and learning modules that can help students improve their English skills.

One of the features of this app is the listening comprehension module, where students can practice their ability to understand English conversations with different difficulty levels. The module is equipped with audio and text displayed simultaneously, so students can easily understand the meaning of the conversation. Apart from this, there is also a grammar module which can help students learn English grammar more easily and Interactively. This module is equipped with various practice questions and brief explanations of English grammar. This interactive learning app is also equipped with a vocabulary module, where students can learn English vocabulary using interesting images and animations. In this module, there are different types of practice questions, such as multiple choice questions and matching words with pictures.

With this interactive learning app, students of SMP Negeri 35 Medan can learn English in a more interesting and interactive way. This is expected to increase students' interest and motivation in learning English, so that they can master the language easier and faster. This research aims to achieve the development of interactive learning applications in English subjects at SMP Negeri 35 Medan. Then, analyze the implementation of creating interactive learning applications for English subjects at UPT SMP Negeri 35 Medan using PHP and MySQL programming languages as database processors.

LITERATURE REVIEW

This research uses the library study method as a method for collecting research data in the form of journals, articles, and so on. Literature studies are used as a reference for conducting research with several relevant sources. The following is an overview of the literature used in this research:

1. Research conducted by Rita Irviani, et al with the title "Designing Android-Based E-Commerce Applications in the Community Self-Help Group of Margakaya Pringsewu Village" in 2018 produced system test results that the resulting application could help marketing small and medium enterprise products (Irviani et al al., 2018).
2. Research conducted by Chintia Dwi Utami, et al with the title "Analysis and Design of Mobile-Based E-Commerce YoPlant" in 2023 provides attractive design results that can provide comfort to customers in shopping activities (Utami et al., 2023).
3. Research conducted by Santoso and Jeferson Hutahaen with the title "Mobile E-Commerce Based Online Bookstore Application" in 2018 resulted in a mobile application that had been system tested and produced satisfaction for its users (Santoso & Hutahaen, 2018).
4. Research conducted by Wayan Windane and Lathifah with the title "Android Based E-Commerce Toko Fisago. co" in 2021 resulted in good criteria for the system testing carried out (Windane & Lathifah, 2021).
5. Research conducted by Lukman Sunardi, et al with the title "E-Commerce Design for Pesona Sriwijaya Lubuk Linggau Based on Mobile Web" in 2022 resulted in a mobile web-based e-commerce system (Sunardi et al., 2022).

METHOD

The system development method used is the Waterfall method. The Waterfall method is a system development method that is carried out in stages, in the process each stage must first be completed before proceeding to the next stage.

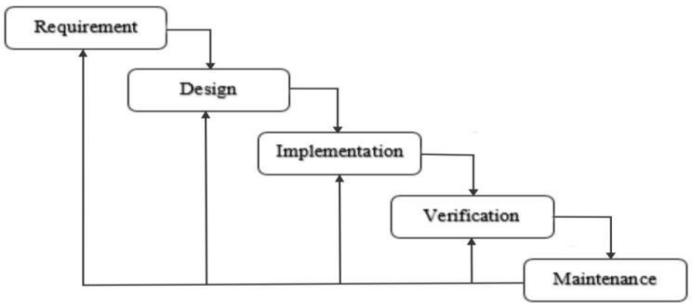


Figure 1. The flow of the Waterfall Method

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The description of the flow of the waterfall method used in this research is as follows:

1. Requirements
   At this stage, a system requirements analysis is carried out which aims to determine the criteria for the system you want to design. At this stage, several research needs data were collected through literature studies, observations, and interviews with the owner of the Audio Technics Shop.
2. Design
   At this stage, a design or planning process is carried out which aims to help provide an overview of the architecture of the system to be built.
3. Mplementation
   This stage is the implementation stage or implementation of the design that has been created. At this stage, to develop an information system, coding or coding is usually carried out.
4. Verification
   At this stage, unit testing and integration of several features that have been created are carried out. Testing is carried out to ensure the system is running correctly.
5. Maintenance
   The final stage of the waterfall method is maintenance which aims to carry out maintenance on the system that has been successfully developed. Correct errors if bugs are found in the system that has been developed.

RESULTS

Special Theory

System Implementation

At this stage, the author tests and implements the information system that has been built after going through the analysis and design stages. In the process of testing activities and implementing learning applications, the author uses the required hardware and software. The following are the tools used in testing and implementing applications, namely: :

Hardware

1) Laptop ASUS E402YA
2) AMD® Carrizo-L APU E2-7015 Processor
3) Display 14.0" (16:9) LED-backlit HD (1366x768) Glare 60HzPanel with 45% NTSC
4) Memory 4 GB DDR3L 1333MHz SDRAM

Software

1) *Sistem Operasi Windows 10 Home*
2) *XAMPP*
3) *Pemrograman PHP*
4) *Sublime text*
5) *Database MySQL*
6) *Browser Mozilla Firefox*
7) *Microsoft Visio* And other supporting Software

UML (Unified Modeling Language)

UML (Unified Modeling Language) is a visual modeling model that is used as a means of designing object-oriented systems (Arianti et al., 2022).

System Design

The application design process that will be built uses the Unified Modeling Language (UML) model which includes: use case diagrams, sequence diagrams, activity diagrams and class diagrams

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Use case diagrams admin

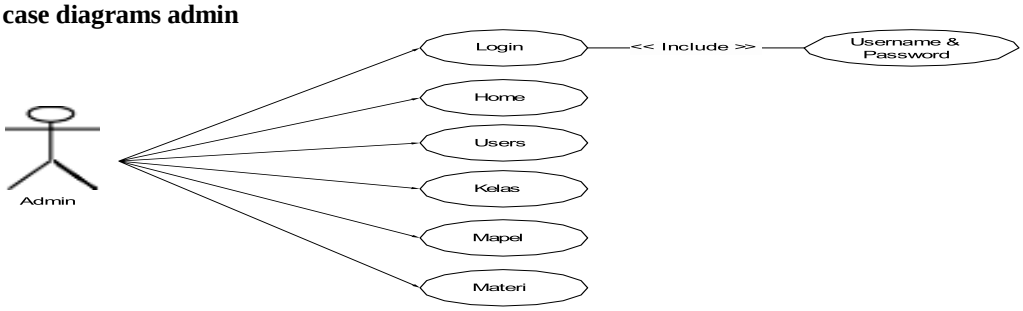


Figure 2. Use Case Diagram Admin

Administrator use case diagrams are used to describe the interactions that users can perform with the system. The use case diagram can be seen in Figure 2.

Use Case Teacher

The Guru Use Case Diagram is used to describe the interactions a user can perform with the system. The use case diagram can be seen in Figure 3.

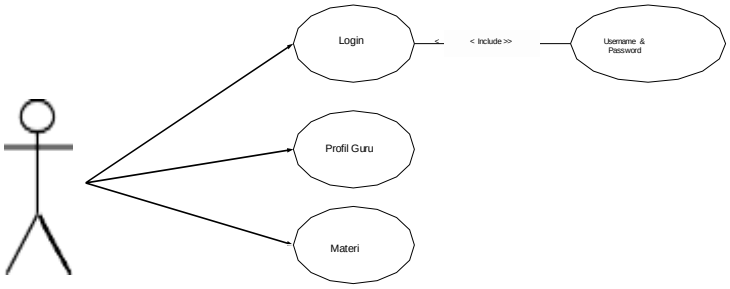


Figure 3. Use Case Teacher

Use Case Student

Student use case diagrams are used to describe the interactions users can perform with the system. The use case diagram can be seen in Figure 4.

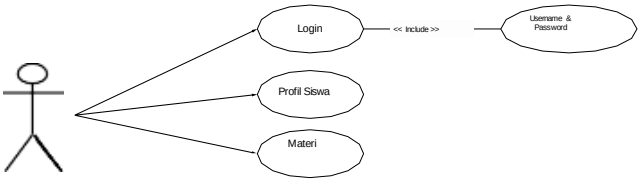


Figure 4. Use Case Student

Activity diagrams

Activity diagrams or also called activity diagrams, are diagrams that describe the activities of a system, how the system performs an activity in the execution of certain functions.

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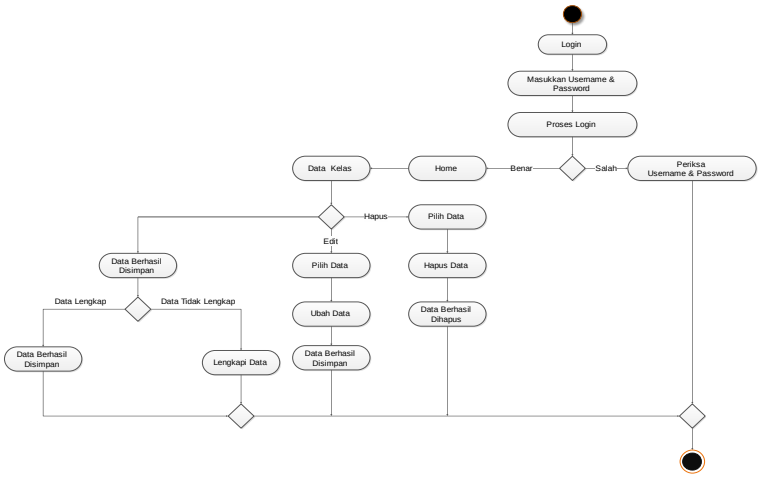


Figure 5. Activity Diagram

Sequence Diagram

Sequence diagrams describe how users interact with the application to get the learning information they need.

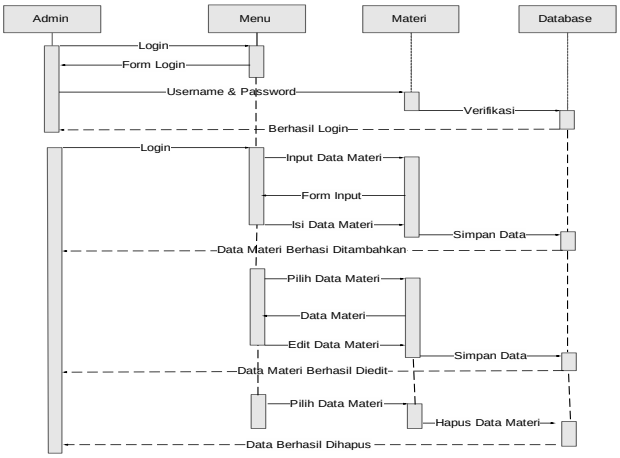


Figure 6. Sequence Diagram

Implementation

The following are the results of the implementation of the system created.



Figure 7. Application Home Page

On this page, is the initial display of the learning application being developed. This page contains the home, about, gallery, contact and login menus. The page display can be seen in the following image:

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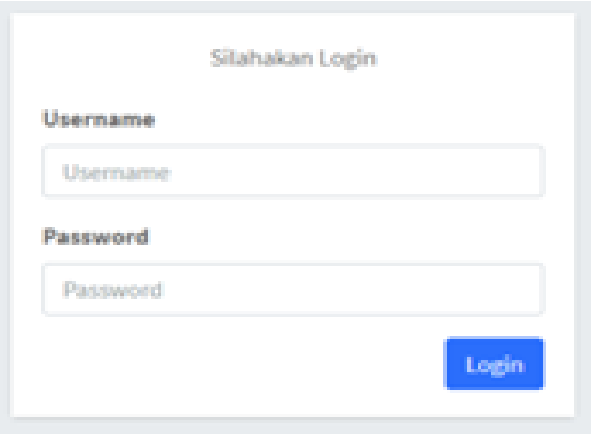


Figure 8. Admin Login View

On this page, the admin logs in by entering the specified username and password. The page display can be seen in the following image.



Figure 9. Admin Page View

After the admin has successfully logged in, the admin can enter the learning application and select the available menu. The page display can be seen in the picture.



Figure 10. Teacher Login View

On this page, the teacher logs in by entering the Teacher Identification Number and password that has been determined. The page display can be seen in the following image:

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Figure 11. Teacher Page Views

After the teacher has successfully logged in, the teacher can enter the learning application and select the available menu. The page display can be seen in the following image:



Figure 12. Student Login View

On this page, students log in by entering their Student Identification Number and specified password. The page display can be seen in the following image:



Figure 13. Student Home View

After students have successfully logged in, students can enter the learning application and select the available menu. The page display can be seen in the following image.

DISCUSSION

Arif & Mukhaiyar (2020) stated that interactive multimedia has more value than other media because it can increase students' motivation, activity and learning outcomes due to the advantages of multimedia which can present text, images, videos, sound and animations. with presentations that can generate reciprocal actions with users. Using learning multimedia, students should be able to learn independently, increasing their independence by providing direct assistance features as a replacement for educators who will not be fully developed by media, as well as by developing multimedia usage features that make the task of educators easier. Monitor and find out how many times students access learning multimedia. so that in the future, multimedia learning can be more effective.

Santhalia & Sampebatu (2020) stated that effectively developed multimedia learning can increase students' understanding of the knowledge concepts and research of Santhalia & Sampebatu (2001), which enables students to explain the knowledge taught through this media. It is proven and in accordance with this research, that the developed interactive multimedia can effectively help the teaching and learning process.

At this stage, the author tests the payroll application that has been built. Testing is carried out on every process contained in the payroll application with success and failure conditions. The test results can be seen in the following table:

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Table 1. Test results

Tested Module	Testing Procedure	Inputs	Outputs	Conclusion
Admin login	- Open the app - Enter username "admin", password "admin" - Click Login	Username "admin", password "admin"	admin can enter into the application and select the available menu	Succeed
Admin login	- Open the app - Enter username "admin", password "xxx" - Click Login	Username "admin", password "xxx"	Admins don't can enter into the application	Fail
User Data	- Open the app - Login - Select the User menu - Enter User data directly complete - Click input	Complete user data	User data added successfully	Succeed
User Data	- Open the app - Login - Select the User menu - Clear one of the User data - Click input	User Data does not complete	User data failed to add	Fail
Class Data	- Open the app - Login - Select the Class menu - Enter job data in a way complete - Click input	Class Data complete	Class Data added successfully _	Succeed
Class Data	- Open the app - Login - Select the Class menu - Leave one of the Class data blank - Click input	Class Data No complete	Class Data Added failed _	Fail
Material Data	- Open the app - Login - Select the Material menu . Enter Material data individually complete - Click input	Complete material data	Material data added successfully	Succeed
Material Data	- Open the app - Login - Select the Material menu . Clear one of the Material data . Click input	Material Data does not complete	Material data failed to add	Fail

CONCLUSION

Learning management in UPT section of SMP Negeri 35 Medan has done learning management well, this can be seen from the acquisition section to the existing information retrieval/learning system. However, on the other hand, the maintenance and upkeep of interactive learning applications have not been carried out optimally because there is no special place for maintenance and upkeep of interactive learning applications. interactive learning as well as support tools to preserve and maintain these applications, for example. example of spraying/fumigation for learning. Thus, this product

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can be used in the learning process to provide new, more meaningful experiences to students. In addition to this multimedia product, the teaching materials can be studied anywhere and at any time, which can increase students' learning motivation.

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