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Development of Interactive Learning Application "Smart Educa" as Learning Media for Introductory Business Courses

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A B S T R A C T

The purpose of this research is to develop an interactive learning application based on Android and Desktop "Smart Educa" as a learning media for Introduction to Business courses. The research method used in the development of this interactive learning application is development research with the ADDIE method (Analysis, Design, Development, Implementation and Evaluation). Measuring the ease of use of the application and user feedback on the "Smart Educa" application involved 50 2nd semester students of the Introduction to Business course at IAIN Kediri's Sharia Economics Study Program as respondents selected based on proportional stratified random sampling techniques. The test results show that the assessment of students from various aspects obtained an average value of 2.99 which is included in the feasible category.

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INTRODUCTION

In an increasingly sophisticated digital era, education plays an important role in producing a smarter generation that is better prepared to face future challenges. In an effort to improve the quality of education, the use of information and communication technology (ICT) has become one of the effective strategies in improving the quality of the teaching and learning process. One example of ICT applications that can be used in education is the development of interactive learning applications, which can help students be more active and more involved in the learning process. Mobile learning (m-learning) and PC (Personal Computer) have become part of the educational process that is growing very rapidly along with the development of technology itself. The advantages of utilizing digital-based learning applications in learning activities include helping students understand basic business concepts and develop better business skills. In this application, students can interact with the subject matter through various interactive features, such as quizzes, games, and simulations, which can help increase learning motivation and participation. In addition, it can help students improve literacy and numeracy skills (Bujeng, et al., 2019), encourage independent and collaborative learning, remove the formal form of learning, help overcome barriers to using ICT (Ghavifekr & Rosdy, 2015), help students stay focused for a long time, and increase self-confidence. In addition, independent learning accommodates students with low levels of participation in class, and can also increase students' internal motivation to learn (Luke & Hogarth, 2011). According to Parmin & Savitri, 2020, technological literacy plays an important role in preparing competent graduates in the future, creating a generation that is independent and able to create jobs.

Another benefit of using this digital-based learning application is that the use of interactive learning media provides a new passion in learning, increasing students' excitement and interest during the learning process so as to foster interest and motivation in learning activities (Ahmad, et al., 2014). In addition, learning media has the advantage that it can be developed according to the characteristics and needs of students, so that the benefits of the learning media developed can be directly felt by students. This is inseparable from the increasingly intensive use of smartphones and Personal Computers among students. In fact, research (Nazar, et al., 2018) reported that most students use smartphones more than eight hours per day. Although the Introduction to Business course looks simple and easy to understand, some students are still lacking in understanding the material. The problem of understanding this concept is mostly caused by several things such as the lack of students' ability to solve problems, often ignoring the context of the material, and students tend to generalize problems without considering the theory that supports them. (McArthur, et al., 2016) added that the biggest factor in the lack of concept understanding is the low willingness to read. Reading or literacy is an activity

Learning is the most powerful way for students to master a concept (Sands, 2014), but sometimes reading textbooks for science topics tends to be boring, so the role of learning media is needed. Digital-based learning media is not a new product. Many researchers have developed learning applications using PC and android for learning various scientific fields. (Nazar, M et al, 2020) for example have developed interactive learning applications based on android, (Saputri, E.D. et al., 2023) have developed interactive learning applications based on Telegram Bot, and (Rahmawati & Lutfi, 2018). Similar research was also conducted (Satriani N, et al., 2023) which developed Android-based Economic Learning Media with the kodular platform on introductory economics material.

The application to be made by researchers is called "Smart Educa" which is used for interactive, innovative and interesting electronic learning activities in higher education. The application is an innovation made by researchers as a medium to facilitate the learning process of introductory business courses and can be used as an Android and Desktop-based evaluation media. "Smart Educa" can later be accessed via laptop (desktop) or Android Smartphone with a social media application system in which there is material, viedo and questions about introductory business courses. This research is focused on measuring the feasibility of learning media, not up to the evaluation stage. This study aims to determine how to develop Android and Desktop-based interactive learning application products "Smart Educa" with the ADDIE development model to determine student assessments of the "Smart Educa" application, and determine the feasibility of the "Smart Educa" product.

THEORETICAL REVIEW

Learning is the most powerful way for students to master a concept (Sands, 2014), but sometimes reading textbooks for science topics tends to be boring, so the role of learning media is needed. Digital-based learning media is not a new product. Many researchers have developed learning applications using PC and android for learning various scientific fields. (Nazar, M et al, 2020) for example have developed interactive learning applications based on android, (Saputri, E.D. et al., 2023) have developed interactive learning applications based on Telegram Bot, and (Rahmawati & Lutfi, 2018).

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METHODOLOGY

The research method used is Research and Development (R&D). This research method is used to produce certain products, and test the effectiveness of these products (Sugiyono, 2013: 407). This research procedure adapts the ADDIE development model (Analysis, Design, Development or Production, Implementation or Delivery and Evaluations) The instrument used in data collection in this study is a questionnaire. Questionnaires are research instruments that contain a series of questions or statements to capture data or information that respondents must answer freely according to their opinions (Zainal Arifin, 2014: 228).

This software can be downloaded on the official website at http://smarteduca.my.id/. The user experience (UX) material is made with the help of CorelDraw, and the video is uploaded to the Youtube channel, so to play the video, the user must have an internet connection. The population of this study were students of the Sharia Economics Study Program, Faculty of Economics and Islamic Business, IAIN Kediri. Selection of content and media experts as one of the data sources using purposive sampling technique. The selection of experts in this study was carried out based on their fields of expertise, namely material and media experts are lecturers of the Sharia Economics Study Program, IAIN Kediri who master the field of Business Introduction and learning media experts are lecturers of Informatics Engineering, Faculty of Tarbiyah IAIN Kediri. The data that has been collected is then analyzed to determine the assessment and opinions of the products produced. Product quality assessment data is obtained from the results of questionnaire filling by media experts, material experts, and learning practitioners. The data was then analyzed by converting the qualitative assessment into quantitative with the provisions:

Tabel.1 The Qualitative Assessment Into Quantitative with the Provisions

Category	Score
SS (Strongly Agree)	4
S (Agree)	3
KS (Disagree)	2
TS (Disagree)	1

After changing the assessment, then calculate the average score of each indicator with the formula:

$$\overline{\chi} = \frac{\Sigma \chi}{N}$$

Description:

$\overline{\chi}$ = average score$\Sigma \chi$ = number of scores

N = number of test subjects (Eko Putro Widoyoko, 2014: 237)

The last step is to qualitatively interpret the average score of each aspect using the following criteria:

$$Presentase\ kelayakan\ (\%) = \frac{\sum hasil\ skor\ angket}{\sum skor\ yang\ ideal} \times 100\%$$

Suharsimi Arikunto (2010: 210)

The average score data collected was converted into qualitative values with predetermined criteria as follows.

Source: Eko Putro Widoyoko, (2014: 238)

Tabel. 2 The Average Score Data Collected

Value	Score Range	Category
A	$X > i\bar{X} + 1.8 \times sbi$	Very feasible
B	$i\bar{X} + 0.6 \times sbi < X \leq i\bar{X} + 1.8 \times sbi$	Worth
C	$i\bar{X} - 0.6 \times sbi < X \leq i\bar{X} + 0.6 \times sbi$	Simply
D	$i\bar{X} - 1.8 \times sbi < X \leq i\bar{X} - 0.6 \times sbi$	Less
E	$X \leq i\bar{X} - 1.8 \times sbi$	Very Less Feasible

RESULTS AND DISCUSSION

This research has conducted a needs analysis by identifying problems in students. Based on the observations of researchers that the use of smartphones tends to take up learning time and student concentration on Introduction to Business lectures. This is because it is used to access various kinds of social media, play games, listen to music, or play other entertaining applications. The Introduction to Business course is a compulsory course for IAIN Kediri's Sharia Economics study program which is applied to 2nd semester students. The lecture material contained in the learning media is in accordance with the Semester Learning Plan (RPS).

After completing the analysis stage, the next is the design stage, namely the media design stage which includes making the overall media design (storyboard), compiling material, questions and answers, backround, making logos, images, and buttons that will be used.

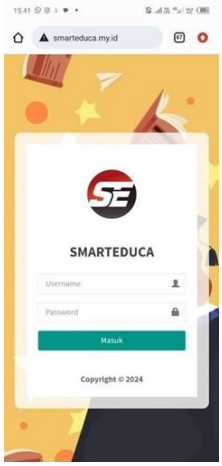

Figure 1. Initial View of "Smart Educa"

Figure 2. "Smart Educa" Menu Display

After testing, all functions in the interactive learning media "Smart Educa" can be operated in accordance with the design of the media through a manual coding process. The development of the "smart educa" application was carried out in accordance with the information available at the design / design stage. The application is made using Intel Core i7 6700k hardware, 16GB RAM, 2 TB hard disk, and software in the form of Android Studio, Webstrom + njws, and manual coding.

SMARTEDUCA is an e-learning system developed using PHP Model-View- Controller (MVC) framework, specifically CodeIgniter 3, with the aim to provide a structured, efficient, and interactive learning experience. By utilizing MVC principles, SMARTEDUCA integrates models to manage learning data, views to design intuitive and attractive user interfaces, and controllers to manage the flow of application logic thus ensuring system consistency and reliability. The system provides various features that support online learning, ranging from interactive learning modules, online exams, to discussions between participants to facilitate collaboration and interaction between teachers and learners.

After completing the application, the next step is testing the feasibility of learning media. Testing is very important because this stage aims to find out whether the functions in the application can run correctly and find out the shortcomings or errors that must be corrected. Testing this application is done by clicking the "smart educa" application link on a laptop or smartphone. Testing this application is done by transferring the Android Package (.apk) file via an internet connection to an Infinix Hot Note smartphone device with CPU specifications: 1.4 GHz Octacore Cortex- A53 Mediatek, Operating System version 4.4.4 (Kitkat), RAM 2 GB and to desktop in the form of HP 11-F105TU laptop with Intel Celeron Processor N2840 2.16 GHz specifications, GB DDR 3 RAM, Windows 10.

Media validation was carried out by a media expert, Mr. Puspoko Ponco Ratno, M.T. which aims to provide improvements and suggestions. The results of media expert validation can be seen in the following table.

Table 3. Media Expert Validation Results

No	Assessment Aspect	Number of Scores	Average Score	Category
1	Engineering Software	18	2,99	Decent Enough
2	Design Counseling	36	3,47	Worth
3	Communion-Visualization	6	3	Worth
Total		62	3,15	Worth

The results of the media expert validation test showed an average score of 3.15 and was categorized as suitable for use. Nevertheless, this application still needs to be revised first in accordance with the suggestions given by learning media experts. The "Smart Educa" application that has been revised, then tested by the material expert Introduction to Business Faculty of Economics and Islamic Business IAIN Kediri, namely Mrs. Sri Hariyanti, M.M. to assess the quality of the material that has been compiled in the "Smart Educa" application. Based on the results of the material expert validation can be seen in the following table.

Table.4 Material Expert Validation Results

No.	Assessment Aspect	Number Score	Flat - Average Score	Category
1	Compatibility Material	24	3	Worth
2	Question	18	3	Worth
3	Grammar	9	3	Worth
4	Applicability	9	3	Worth
Total		60	3	Worth

The table above shows that the level of media validity in terms of material and illustrations used has shown a good value but still has to be improved according to suggestions / input such as typing errors, the use of colors adjusted to illustrations and so on. After being revised then validated to produce the final product so that it is declared suitable for use.

The validation process was carried out by practitioners of learning Introduction to Business Faculty Tarbiyah IAIN Kediri, namely Dr. Erwin Indrioko, M.Pd.I. Validation results by Accounting learning practitioners can be seen in the following table.

Table.5 Practitioner Validation Results Introduction to Business Learning

No.	Assessment Aspect	Total Score	Average Score	Category
1	Engineering Software	18	2,71	Decent Enough
2	Design Learning	38	3,06	Worth
3	Visual Communication	6	3	Worth
Total		62	2,92	Worth

Table 5 above shows the average assessment score of 2.92 and is included in the feasible category. Based on media experts, material experts and practitioners of introductory business learning, the "Smart Educa" learning application can be used at the implementation stage.

The implementation stage of this product was tested in a class with 36 Sharia Economics Study Program students in semester 2, to each respondent given an APK file to be installed on their respective android devices. Each respondent was given 30 minutes to use the application and then asked to fill out the SUS questionnaire developed by (Brooke, 1996). The questionnaire has been modified in the form of a positive statement questionnaire to make it easier for respondents to fill out the questionnaire.

The complete assessment results of Sharia Economics students can be seen in the following table.

Table.6 Assessment Results PB 2A

No	Assessment Aspect	Total Score	Average Score	Category
1	Device Engineering Software	248	2,47	Decent Enough
2	Design Learning	508	3,34	Worth
3	Visual Communication	94	3,23	Worth
Total		850	3,01	Worth

Overall, the results of the assessment of Sharia Economics students IAIN Kediri obtained an average score of 3.01 which falls into the range of X> 2.8 with a decent category. So that the level of feasibility of learning media "Smart Educa" based on the results of the assessment of Sharia Economics students IAIN Kediri into the Worthy category.

The results showed that the assessment of media experts of 3.15 fell into the Worthy category, the assessment of material experts of 3 fell into the Worthy category, the assessment of learning practitioners of the Introduction to Business course of 2.92 fell into the Worthy category. The assessment of Sharia Economics students totaling 36 students obtained an average of 3.01 and fell into the feasible category. Based on the assessment of the four research subjects, the interactive learning application "Smart Educa" is said to be feasible to use as a learning medium for Introduction to Business courses. In this study, the evaluation stage was not carried out, because this study only focused on testing the feasibility of the application.

The final media of this research is an interactive learning application "Smart Educa" as a learning media for Introduction to Business courses. This application is a learning media that can be used as a means of practicing questions and discussing Introduction to Business material. The interactive learning application "Smart Educa" is a final product that can be used by anyone using an android smartphone and desktop in the form of a Personal Computer or Laptop. the interactive learning application "Smart Educa" is relatively easy to operate because it has been adapted to operational standards in Android applications in general. the interactive learning application "Smart Educa" has advantages and disadvantages as a learning medium.

The advantages of this media include the interactive learning application "Smart Educa" is a learning media for introductory business courses that is not only presented on smartphones, but can also be used on desktops (PC or Laptop). Another advantage, the material in the interactive learning application "Smart Educa" is not only limited to the material provided by the researcher, but can be adjusted to the material needed by lecturers and students. interactive learning application "Smart Educa" is easy to carry anywhere and can be used at any time, so that lecturers can still take student grades or provide material to students even though they are not face to face. The drawback lies in the interactive teaching application "Smart Educa" must use an internet connection in order to be used, if the network is unstable then the possibility of the application will error although this is not always the case. Another weakness is that it cannot be downloaded in the playstore, so if there is a feature update, it must be downloaded manually.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of research and development that has been carried out, it can be concluded that the Development of Interactive Learning Applications "Smart Educa" as a Learning Media for Introductory Business Subjects uses the ADDIE development model, namely analysis (analysis), design (design), development (development), implementation (implementation), and evaluation (evaluation). This research was validated by media experts, material experts, learning practitioners and field trials.

Requirement analysis in the learning application development process is necessary in order to produce a good application that meets the expectations of its users. SMARTEDUCA's advantage lies in its ability to provide wider accessibility to learning materials through an online platform, allowing users to learn anytime and anywhere according to their needs. With an effectiveness and efficiency-oriented approach, SMARTEDUCA aims to improve the overall quality of learning by providing a learning environment that is dynamic, adaptive, and responsive to technological developments and modern learning needs. The results of the needs analysis show that the "Smart Educa" application is feasible to use as an interactive learning media for introductory business courses.

Suggestions were raised based on the quality and contribution of the media (digital-based learning applications), weaknesses, and limitations of the study so that researchers can provide some suggestions for utilization and further media development which are described as follows:

1) The interactive learning application "Smart Educa" should also be set for learning outside of lecture hours so that lecturers can provide additional assignments or materials.
2) The interactive learning application "Smart Educa" should be used by students to study independently at home so that they can deepen their understanding of the material they have learned.
3) The interactive learning application "Smart Educa" needs to be developed in terms of broader material and more references.
4) The interactive learning application "Smart Educa" needs to be further developed in terms of its features.

5) There needs to be better time management in preparing the media developed, the material to be presented, and related research time.

FURTHER STUDY

Still conducting further research to find out more about the development of the Interactive Learning Application "Smart Educa" as a Learning Media for Introductory Business Courses

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My gratitude is expressed as a form of deep appreciation to the research and development team, both IT experts, material experts, media experts, and students for their hard work and dedication so that I can present the interactive learning application "SMART EDUCA" as a learning medium for the Introduction to Business course. Do not forget the lecturers of S3 Economic Education FEB State University of Malang for their guidance and motivation so as to facilitate my understanding of economic education during my studies.

This innovative work is a tangible proof of passion and commitment in advancing the world of education. The interactive learning application "SMART EDUCA" not only offers modern and interesting learning methods, but also facilitates the process of knowledge transfer more effectively, interactively and fun. Through creative learning approaches and well-designed features, this application is able to increase student interest and involvement in learning business concepts. This breakthrough is truly valuable, as an effort to produce a young generation that is ready to face the challenges of a dynamic business world.

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