DEVELOPMENT OF ANDROID-BASED INTERACTIVE MOBILE LEARNING TO LEARN 2D ANIMATION PRACTICE

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Abstract

Mobile technology is one of the technologies that may be utilized in the learning process, which has become an important component of education. With mobile technology, learning may occur anywhere and at any time, without regard to location or duration. Mobile learning can also make students more engaged and independent in their learning, hence enhancing their independence in connection to their ability to utilize information technology. This research focuses on developing interactive mobile applications for 2D animation practice material at the vocational high school level because practice material is often difficult for students to comprehend; therefore, the existence of alternative mobile-based learning media can make difficult material easier for students to comprehend. Application features are adapted based on the needs analysis, and testing with students and subject matter experts demonstrates that interactive media applications for learning 2D animation practices based on android can be an alternative for students and teachers in supporting practicum material at school, so that the existence of alternative learning media can provide options for students to learn independently and improve their skills.

Keywords: Interactive Mobile Learning, Learn 2D Animation Practice, Alternative Digital Learning Media

1. INTRODUCTION

Mobile technology has become a fundamental component of human existence. Mobile devices such as smartphones and tablets are being used for a variety of daily tasks, including the learning process. The emergence of mobile learning technology has had a good effect on the world of education, particularly in the new normal era, when the pandemic period has brought about significant changes to the teaching process at all levels of education [1], [2]. With mobile technology, learning may occur anywhere and at any time, regardless of location or time. Mobile learning can also make students more engaged and independent in their learning, hence enhancing their independence in relation to increasing their information technology skills[3].

The development of information and communication technology encourages education to be able to adapt quickly in applying technology to the learning process [4], [5], including applying technology to mobile devices to facilitate the learning process at school, one of which is at the Vocational High School education level, which is primarily designed to prepare a middle-level skilled workforce to support the development of a sector of the national economy[6]. At the vocational level, there is a 2D animation course that teaches the fundamentals of creating 2D animations. This course is obviously highly intriguing because it provides a venue for students’ creative skills[7].

Due to the ease of online facilities in supporting the dissemination of knowledge [8], [9] and applying technology-based learning media [10], [11], it is crucial to develop an engaging and enjoyable learning process. Teachers are the driving force behind digital-based learning. This
indicates that teachers have the necessary competencies and are familiar with the use of digital-based media to create and use interactive learning media to support the learning process[12], [13]. Teachers are also able to design learning methods that incorporate technology, including interactive learning media.

In supporting learning can apply technology such as interactive learning media so that students can be interested in learning, and with the visualization of material through learning media is expected to facilitate the delivery of difficult material to be easily understood [14], [15]. For example, 2D animation practice material that focuses on the practical ability of students, of course the lecture method is not effective, it requires visualization of the explanation of each stage of the animation creation technique, so that it can be easily understood by students and can be viewed at any time from the student's smartphone device [16]. One of the technologies that can be used is mobile learning, which is making learning media applications that can be applied and accessed through mobile devices, there are features for students to find out the stages of 2D animation making practice lessons.

Similar studies on interactive learning media at the Vocational High Schools level are [17][18], which demonstrate that the use of interactive learning media is extremely beneficial for visualizing and can facilitate more effective learning for teachers and students. Other research [19] [6], [20] demonstrate that interactive learning media can assist teachers in establishing an engaging learning environment and can be customized to the learning curriculum in order to satisfy learning outcomes [21]–[24]. This research is distinguished by the development of mobile-based, interactive learning media, particularly regarding the practice material for creating 2D animation in vocational schools, so that it can be accessed from teacher and student devices to maximize the learning process and delivery of learning materials.

The research objectives are to create interactive media for learning 2D animation practices specifically for vocational school students to support the learning process, and to make the application mobile-based so that it can be accessed from student and teacher devices in the future to make it more accessible.

2. METHOD

The media development technique employs the multimedia development life cycle model[25], which defines the data analysis phases of the media creation process in tangible terms[26], [27]. This study's data was collected by distributing questionnaires using Google Form[28] to randomly selected vocational school students in the Bekasi area, regarding their comprehension of the practice of creating 2D animation and the learning materials they got. This is done to determine the extent to which students have grasped the topic, and responses can be tied to material points that can be presented on the produced interactive media application.

3. RESULTS AND DISCUSSION

Application Menu Flow Design Phase

Developing the menu flow of the interactive mobile learning application of 2D animation producing practices is the first step in the design phase. By designing the menu flow, it is easier for users to determine the application's navigation. The menu flow is depicted in Figure 1.
In the introduction of this interactive multimedia design, the start button for the interactive media will be displayed. When the start button is pressed, the main menu will display the materials and tasks. There are fifteen questions connected to the content of the animation making exercise on the task menu. If the material menu is selected, a screen including 2D animation definition material, animation principle material, and animation creation practice material will be displayed. Each material's contents can be viewed by pressing the button corresponding to that material. What is two-dimensional animation? will give an explanation of two-dimensional animation. Then, if you press the button, you will see relevant examples of twelve animation principles, twelve fundamental animation concepts to be learnt. When the button is pushed, a video tutorial of the procedures for creating 2D animation will play, focusing on the practical material for creating 2D animation.

Application Implementation Phase

The implementation phase begins with an analysis of the software requirements for interactive multimedia development. This application utilizes Adobe Animate, Adobe Illustrator, and Adobe Premier. In implementing each menu structure produced from the previous design phase by studying the results of student questionnaires, we analyzed their demands. Moreover, the application's menu is organized. Process of design and implementation: At this point, the application's design and implementation were completed. The objective of design is to create an appealing and user-friendly appearance. Implementation is performed to develop a menu of learning-facilitating resources and exercises for pupils. Figure 2 below illustrates the appearance of the application.

Application Testing Phase

In the process of evaluating an application, both students and teachers serve as subject matter experts. According to the findings of a survey administered to 25 students, 84% of respondents felt that the learning media application was easy to use and exciting for the learning process, whereas 16%...
of respondents disagreed. 76% of students claimed that they comprehended the 2D animation making practice material in the program, whereas 14% of students stated that they preferred to view the practice directly. 67% of teachers deemed the content of the learning media application to be appropriate, based on the results of testing with material experts, and 33% of material experts provided comments about animation practice content. The overall test results indicate that the interactive mobile learning application for learning 2D animation practices based on Android can be an alternative for students and teachers in supporting practicum material at school, so that the availability of alternative learning media can provide options for students to learn independently and enhance their skills.

4. CONCLUSION

The conclusion of the study is that the produced interactive multimedia application of 2D animation practice has been modified based on an analysis of the needs of students and instructors so that it can be used as an alternative to support learning activities. To make it easier for pupils to learn, the application has been adapted for mobile use, particularly on Android devices, and its menu has been made user-friendly, interactive, and visually appealing. The overall test results indicate that the interactive mobile learning application for learning 2D animation practices based on Android can be an alternative for students and teachers in supporting practicum material at school, so that the existence of alternative learning media can provide options for students to learn independently to improve their skills and assist teachers in making difficult material easier to comprehend by utilizing technology.

Reference


