



## Development of Digital-Based Interactive Teaching Materials in Draping Courses

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### ABSTRACT

Interactive teaching materials are learning media that combine various formats such as audio, text, images, animations, and interactive videos. Thus, there is a two-way communication between the teaching materials and their users. The purpose of this research is to make interactive teaching materials for draping courses which are expected to produce products in the form of teaching materials that suit the needs of students. The research method used is development research with the stages of designing, producing, evaluating, and analyzing data with percentages. The results of this study indicate that learning media in the form of interactive teaching materials developed in draping courses are appropriate for use in learning. Based on the trial stages, this interactive teaching material is categorized as valid with a feasibility level of 84% with good criteria. This digital-based interactive teaching material is expected to be learning media in draping courses because the presentation of interesting material makes it easy for users to understand, how to access interactive teaching materials is easy, and able to increase user learning motivation.

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## 1. INTRODUCTION

In the field of education, technology is important. Technology has become a tool that really helps the world of education and also seeks the latest information. Technology will continue to develop in a better direction by being utilized in a positive direction. Technology helps us in enhancing our work (Bangkerd & Sangsawang, 2021). The development of technology in the world of education is a facility to expedite the learning process. The use of technology has a significant effect on students' learning interests (Ahmad *et al.*, 2020).

The utilization of technology in the learning process can be in the form of media to assist the learning process (Haristiani & Rifa'i, 2020; Suherman *et al.*, 2023; Winarni & Rasiban, 2021; Glorifica, 2021; Huwaidi *et al.*, 2021; Bedua *et al.*, 2021). Learning media can support the student learning process following the advantages of learning media, including teaching attracts more students' attention so that it can increase learning motivation, learning material is clearer and easier for students to understand. Thus, students can achieve learning goals (Warkintin & Mulyadi, 2019). There are two important aspects of the learning methodology, namely learning methods, and media (Nursyam, 2019). Media is a tool in the learning process that can make it easier for educators to convey learning material and make it easier for educators to master the class so that students stay focused on the material provided.

Based on observations made by students of the Fashion Education Study Program, Universitas Negeri Yogyakarta in the even semester Draping course in 2022. The learning outcomes from these learning are not optimal, because the teaching methods used are in the form of lectures and direct demonstrations in class which have not maximized learning-based media. technology. The limitations of learning media result in the learning process of students being less than optimal because students tend to have difficulty accessing or repeating material that has been taught, resulting in delays in submitting assignments. In this regard, efforts to improve the learning process which is expected to maximize learning outcomes, interesting media are needed to enhance, attract and activate students in the process of teaching and learning activities. One way to overcome this problem is to use digital-based interactive teaching materials. The development of learning materials in the learning process must be carried out to create effective and efficient learning (Nurhairunnisah & Sujarwo, 2018).

Teaching materials are all forms of material that are systematically arranged so that students can learn independently and are designed according to the applicable curriculum (Magdalena *et al.*, 2020). Teaching materials can be made in various dynamic and interactive formats and forms so that students will be motivated to be more deeply involved in the learning process. The types of teaching materials according to form include (1) printed materials including handouts, books, and modules, (2) listening teaching materials (audio programs) including radio, cassette, and vinyl records (3) audio-visual teaching materials including films and videos, and (4) interactive teaching materials including CDs and interactive applications (Kuswanto, 2019; Nafidah & Suratman, 2021). Teaching materials used in learning should be interactive so that students are interested and motivated to learn these teaching materials. The interactive teaching materials developed are equipped with various formats of learning content such as audio, text, images, animations, and videos that can be used as learning resources in draping courses.

The purpose of this research is to make interactive teaching materials for draping courses which are expected to produce products in the form of teaching materials that suit the needs of students in the Fashion Design Education Study Program, at Yogyakarta State University.

## 2. METHOD

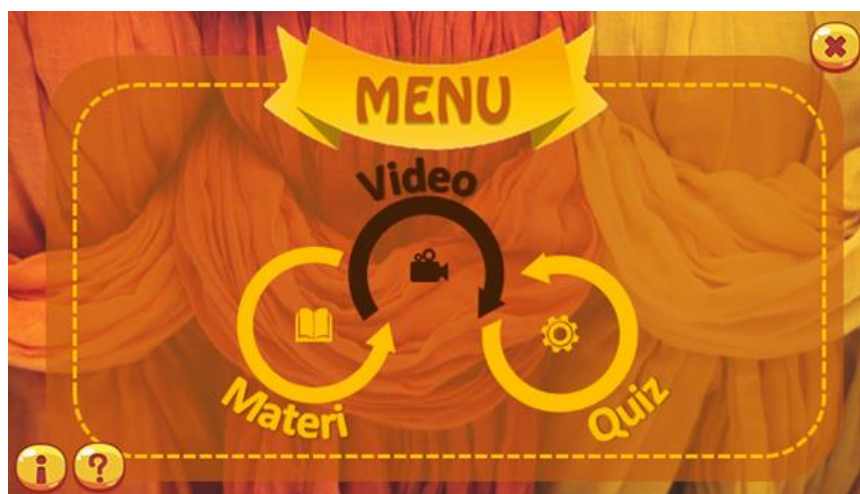
The methodology used in this research is educational research and development which is oriented toward developing and validating products used in education. The development of this interactive teaching material uses a process model, namely a descriptive model which shows the stages that must be carried out in making a product. The stages of the development process include the stages of design, production, and evaluation. The design stage is carried out to design teaching materials to be made, the design stage includes data collection criteria, flowcharts, and sketches (storyboards). The production stage is the stage of realizing the plans that have been made in the design stage so that they become a product. The evaluation stage is the validation stage of the product that has been made. The type of data used in this study is qualitative data obtained from the results of assessments by material experts and media experts. Furthermore, the product was tested on students of the Fashion Design Education Study Program at Universitas Negeri Yogyakarta who took draping courses. The instrument used to collect information in data collection for development research is in the form of a questionnaire. Questionnaires are used to obtain information and data to measure the feasibility of the products produced.

## 3. RESULTS

This development research aims to produce a learning media product in the form of interactive teaching materials. The steps in producing interactive teaching material products are through the design, production, and evaluation stages. In the design stage, the results of the needs analysis are obtained in the form of draping materials that are following the curriculum. The next stage of production is teaching materials developed in the form of interactive teaching materials that combine audio, text, images, and video. The next stage is evaluation, which consists of expert and individual evaluations, followed by field trials.

The results of this study are interactive teaching materials used as learning media in draping courses. The application consists of interconnected pages. The appearance is explained in the following.

**Figure 1** is the main menu page which contains buttons to make it easier to access or use the desired application. The buttons on the main menu page include materials, videos, quizzes, info, question marks, and close.



**Figure 1.** Main menu display.

**Figure 2** shows a material menu display that contains buttons to access material about draping, including the concept of draping, differences in draping technique pattern systems and construction techniques, advantages of making draping technique pattern systems, tools, and materials, and steps for making draping technique pattern systems. In addition, there are also home and close buttons. If one of the material buttons is selected, the material page will appear, as shown in **Figure 3**. On each material page, apart from displaying text, users can also activate audio from the narrator, besides that the display of images and text is also equipped with transition effects and animations.



**Figure 2.** Display of the draping material menu.



**Figure 3.** Display of material contents page.

**Figure 4** shows a display of the menu pages for several video tutorials for making patterns with draping techniques, starting from making bodyline, making basic upper body patterns, making various body cups, making various collar patterns, and making basic skirt patterns. If one of the video buttons is selected, it will appear, as shown in **Figure 5**. The video shown is connected to YouTube. Thus, the size of the application is not too large.

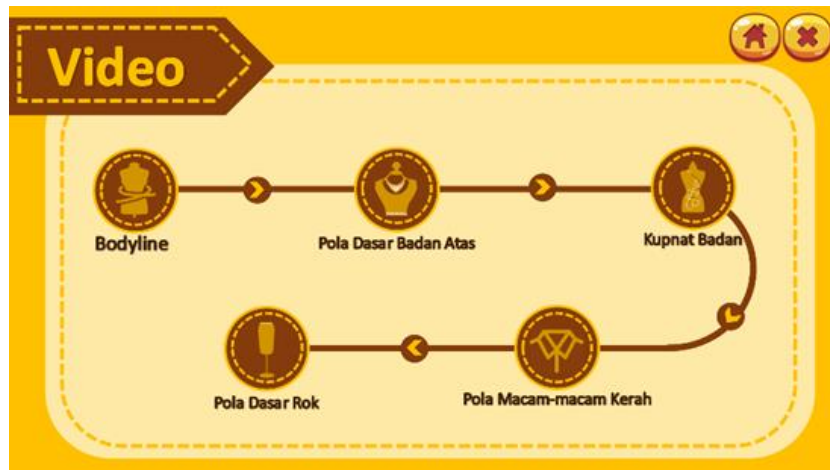


Figure 4. Display of the tutorial video menu for making pattern draping techniques.



Figure 5. Video tutorial display.

The quiz page contains questions that are used to measure students' abilities through interactive teaching material products. For each answer the user chooses, a response will appear based on the right and wrong answers as shown in **Figure 6**.

This interactive teaching material has gone through the pre-master stage which is validated by experts. The results of the validation carried out by subject matter experts obtained a percentage of 82.5% with good qualifications. While the results of the validation carried out by media experts obtained a percentage of 84% with good qualifications. On the individual scale test, they get a good rating with a percentage of 85% with good qualifications, then for field tests, they get a good rating with a percentage of 84%.



Figure 6. Quiz page display.

#### 4. DISCUSSION

The previous report raised the issue of developing sigil teaching materials (Purinda & Puspasari, 2022). These interactive teaching materials use a sigil application that can support editing code based on Electronic Publication (EPUB) files. The media development model was made using the ADDIE model which consists of analysis, design, development, implementation, and evaluation, but in this study, researchers only carried it out to the development stage.

Developing interactive PowerPoint CD-based teaching materials (Warkintin & Mulyadi, 2019), these teaching materials were made using Microsoft PowerPoint software which was developed with a programming language in the form of commands in Hyperlinks. Thus, they are used together in the order arranged in the slides. PowerPoint is effective as teaching media (Kurniawati, 2022; Firman & Nandiyanto, 2023). The media development model was created with ten steps for implementing development research strategies, namely (1) research and information collecting, (2) planning, (3) developing a preliminary form of product, (4) preliminary field testing, (5) main product revision, (6) main field testing, (7) operational product revision, (8) operational field testing, (9) final product revision, (10) Dissemination and implementation.

While this educational development research is interactive teaching materials made through Microsoft PowerPoint software equipped with commands in hyperlinks, then the PowerPoint file is converted to HTML and then converted to Android (APK). Thus, users can access these interactive teaching materials via an Android-based smartphone. The videos contained in this interactive teaching material are connected to YouTube so that when the user wants to play the video they must be connected to the internet network, this is because the size of the application that the user downloads is not too large. Even so, users can still access material in the form of text and audio narrators and quizzes even without the need for an internet network. For this reason, it would be nice for future researchers to develop applications that are easier and more flexible to use.

#### 5. CONCLUSION

Based on the results of the research and discussion, the following research conclusions can be put forward:

- (i) The development of digital-based interactive teaching materials begins with analyzing the need for draping materials that are following the curriculum. The material is compiled and storyboarded first and then made into interactive teaching materials.
- (ii) Interactive teaching materials in Draping courses are appropriate as learning media according to material experts and media experts. The percentage of eligibility based on the assessment of material experts is 82.5% with good qualifications. The percentage of eligibility based on the assessment of media experts is 84% with good qualifications. On the individual scale test, they get a good rating with a percentage of 85% with good qualifications, then for field tests, they get a good rating with a percentage of 84%.

Overall the interactive teaching materials developed have the advantages of presenting interesting material so that it is easy for users to understand, easy access to interactive teaching materials, and being able to foster user learning motivation. However, this teaching material also has drawbacks, one of which is the need to use the internet to access this interactive teaching material.

## 6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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