

C11 Developing a multimedia presentation for making fragments of passepille pockets as a learning solution for the 21st century

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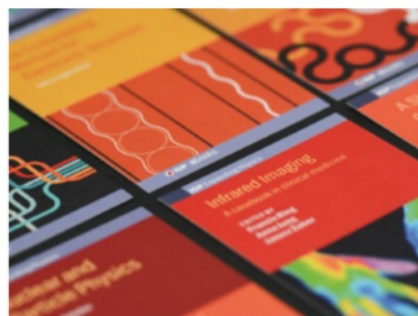
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Developing a multimedia presentation for making fragments of passepoille pockets as a learning solution for the 21st century

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Abstract. This study aimed to produce a multimedia presentation for making fragments of passepoille pockets and determine its feasibility level based on the assessment of theoretical experts, media experts, and students. This research was done referring to the research and development (R&D) procedure with the 4D model developed by Thiagaraja (1974). The subjects of this study were 2 theoretical experts and 1 media expert who was a lecturer of the Culinary and Clothing Department, Faculty of Engineering, Universitas Negeri Yogyakarta and the teacher of sewing technique at Vocational High School 1 Ngawen and 30 students of X class in Fashion Design. The results of this study were the developed product of multimedia presentation for making fragments of a passerelle pocket and the results of the feasibility of multimedia presentations based on the assessment of theory and media experts with the percentage of 100% (very feasible); limited trial results obtained the percentage of 88.35% (very feasible), and the real test results obtained the percentage of 94.98% (very feasible). The appropriate multimedia presentation showed that this media was suitable to be applied in the learning process based on the 2013 curriculum and it was able to help teachers and students to achieve the expected learning competencies.

1. Introduction

The learning process, especially in the current era, has shifted to the domain of the adoption and innovation of media communication with the use of digital technology. The challenges in 21st-century learning and changes in the 2013 curriculum require the teacher's teaching capacity to be able to design learning which is interesting and meaningful. The teaching and learning activities must be expanded beyond class boundaries. It has been emphasized by the Regulation of Minister of National Education No. 16 of 2007 which states that one of the compulsory competencies of teachers is to use information technology for the benefit of organizing learning activities [1].

In line with this condition, Zin (2013) in his research entitled "Relationship Between the Multimedia Technology and Educational in Improving Learning Quality" puts forth the importance of technology application in educational practices to prepare generations who are able to face challenges, one of which is the application of multimedia technology [2].

Based on Computer Technology Research (CTR), people are only able to remember 20% of what is seen and 30% of what is heard, but people can remember 50% of what is seen and heard and 84% of what is seen, heard and done mutually [3]. From several studies that are used as a reference in this

study, it can be seen that the use of long texts in slide presentations can disrupt students' cognitive processes. The use of text in presentation slides makes students' understanding of learning material slow, unfocused and boring. It is different from the presentations that contain dynamic images that make students' attention-getting higher and do not impose students' verbal modalities in capturing the information given [2-6]. The use of multimedia presentations in the learning process makes learning effective and innovative in order to achieve learning goals.

In fact, the teachers' ability to create and develop learning media that is effective and in accordance with the demands of technological development is still lacking. This problem was also expressed by Zin (2013) in his research [2]. These problems have an impact on more than 50% of the practicum results and the grades of X class students of Fashion Management at Vocational High School 1 Ngawen in the previous semester (odd semester) are less satisfactory or below the Minimum Completeness Criteria. Meanwhile, the practicum material in this semester (even semester) has a higher level of competence/ difficulty, one of which is in the material of making passepoille pocket fragments with klep.

This research aims at developing a multimedia presentation material for making passepoille pocket fragments with klep. This multimedia was developed as one of the solutions to face the challenges of learning in the 21st century and the demands of the 2013 curriculum. The learning process in the 2013 curriculum is expected to be achieved through the use of this media, as well as the ability of critical thinking and analysis. The students identify and analyze the simulation images into a practical procedure for making passepoille pocket fragments. This media also gives students the autonomy to be creative through the making of various pocket/klep covers [7].

The purpose of this study is to produce multimedia presentation material for making passepoille pocket fragments with klep and to determine its feasibility based on the assessment of the material experts, the media experts, and the students.

2. Methods and Instruments

2.1. Methods

This research can be categorized as Research and Development (R&D) with a 4D model developed by Thiagarajan (1974) which consisted of 4 stages, namely: Define, Design, Develop, and Disseminate [8]. Referring to the 4D research and development model, the activities in the context of developing multimedia presentation material for making passepoille pocket fragments with klep at each stage of development can be seen in Figure 1 as follows.

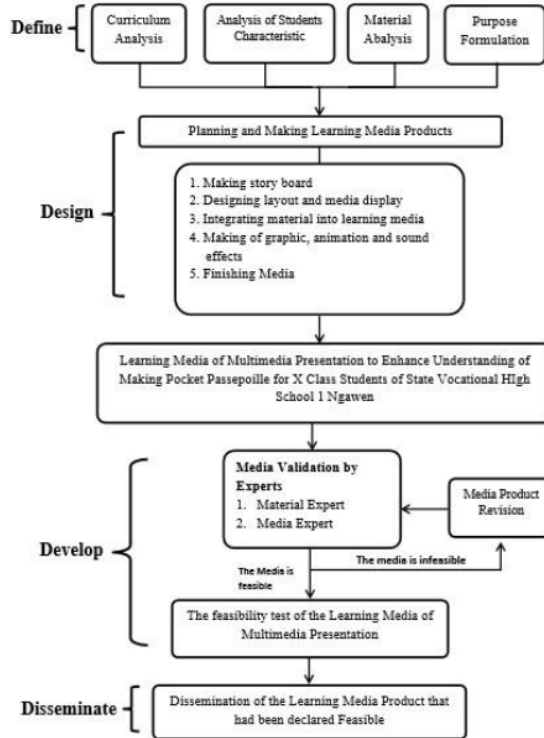


Figure 1. The flowchart procedure of multimedia presentation development.

2.2. Instruments

The data collection techniques included (1) observation and documentation, (2) interviews, and (3) questionnaires. Meanwhile, the data collection instruments were in the form of a non-test questionnaire.

The data analysis technique in this research used the quantitative method. The quantitative data were obtained from the scores from the material expert questionnaire, the media expert questionnaire, and the students' responses of the questionnaire. The data analysis was carried out by taking the average of quantitative data. The results of data collection from the material and the media experts using the Guttman scale questionnaire which was categorized into 2 feasibility categories as in Table 1 [9]. Also, the results of data acquisition from the students used the Linkert scale questionnaire which was classified into 4 feasibility categories as presented in Table 2.

Table 1. Assessment category from the experts.

Category	Score Interval
Feasible	$(S_{\min} + p) \leq S \leq S_{\max}$
Infeasible	$S_{\min} \leq S < (S_{\min} + p)$

Explanation:

S = score

P = class range

Table 2. Assessment category from the students.

Score Range	Category
$X \geq 0.80 \times \text{Highest Score}$	Very Feasible
$0.80 \times \text{Highest Score} > X \geq 0.60 \times \text{Highest Score}$	Feasible
$0.60 \times \text{Highest Score} > X \geq 0.40 \times \text{Highest Score}$	Less Feasible
$X < 0.40 \times \text{Highest Score}$	Infeasible

Explanation:

X= students' scores

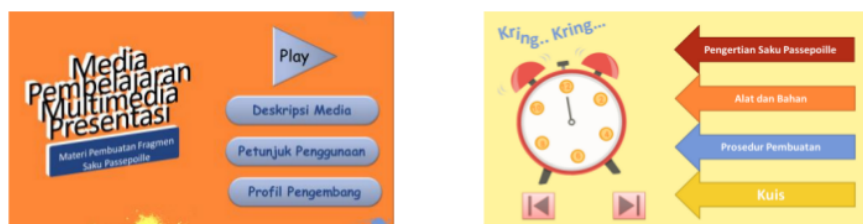
3. Results

3.1. The results of initial product development

The define phase included the analysis of the curriculum, students' characteristics, learning material, and objectives formulation (Table 3). The design phase involved pre-production and production activities. The pre-production stage was carried out by making the flowchart and storyboard. The production stage was making multimedia presentation products using the Software of Microsoft PowerPoint 2010 which consisted of determining the layout design and media appearance, integration of material into learning media, provision of graphic effects, animation and sound; and finishing (Figure 2 and 3).

Table 3: Content of multimedia presentations

Basic competencies	Sub Competence	Subject Matter
3.8 Analyzing fashion parts in one product	3.8.3 Analyzing various pockets (Passepoille pocket)	<ul style="list-style-type: none"> • Definition of Passepoille Pocket • Tools and materials needed
4.8 Make fashion parts in one product	4.8.3 Making various pocket fragments (Passepoille pocket)	<ul style="list-style-type: none"> • Steps/procedures for making a passepoille pocket without valve. • Steps/procedures for making a passepoille pocket with a valve.

**Figure 2:** The results of multimedia presentation product.**Figure 3:** Graphic and animation effects.

The develop phase, at this stage, was an assessment performed by the experts of their fields and the product trials on the research subjects (Developmental testing). The Disseminate stage was done by making articles for journal publications and limited distribution of multimedia products in the form of

Compact Discs (CD) to the teachers and the students of Vocational High School 1 Ngawen. The results of each stage are presented in Figure 4 below.

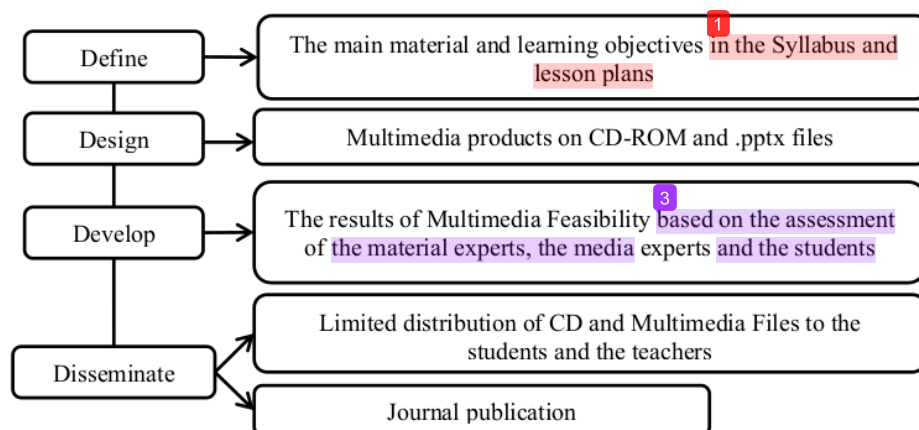


Figure 4. The results of initial product development.

3.2. The feasibility results of Multimedia product

The validation or assessment of the material experts aims to determine the feasibility of the material contained in the multimedia presentation in the aspects of its guidance, information and implementation, as well as the benefits aspects and of the material content. The validation results of this material were obtained from the assessment from 2 validators. Meanwhile, the validation/assessment from the media experts was to determine the feasibility of the media in terms of its guidelines, information and implementation, as well as the benefits aspects, media operations and appearance or aesthetics. The results of this media validation were obtained from 2 validators. Then multimedia products were tested on students on the small-scale (limited trials) with 10 respondents and the large-scale (real tests) with 30 respondents. The feasibility results of the media can be seen in Table 4 below.

Table 4. Results of product feasibility

Assessment stage	Number of validators	Percentage (%)	Feasibility level
Material expert	2	100	Very Feasible
Media expert	2	100	Very Feasible
limited trials	10	88.35	Very Feasible
real tests	30	94.98	Very Feasible

The above data showed the feasibility of the multimedia presentation on several aspects, i.e. the aspects of guidelines, information and implementation, benefits, material content, operations, and aesthetics with the results as shown in Figure 5. (a) in the limited trials and (b) in the real test. With these results, it can be concluded that multimedia learning with the presentation material for making passepoille pocket fragments with klep for the X class of Fashion Design in Vocational High School 1 Ngawen was considered "Very Feasible".

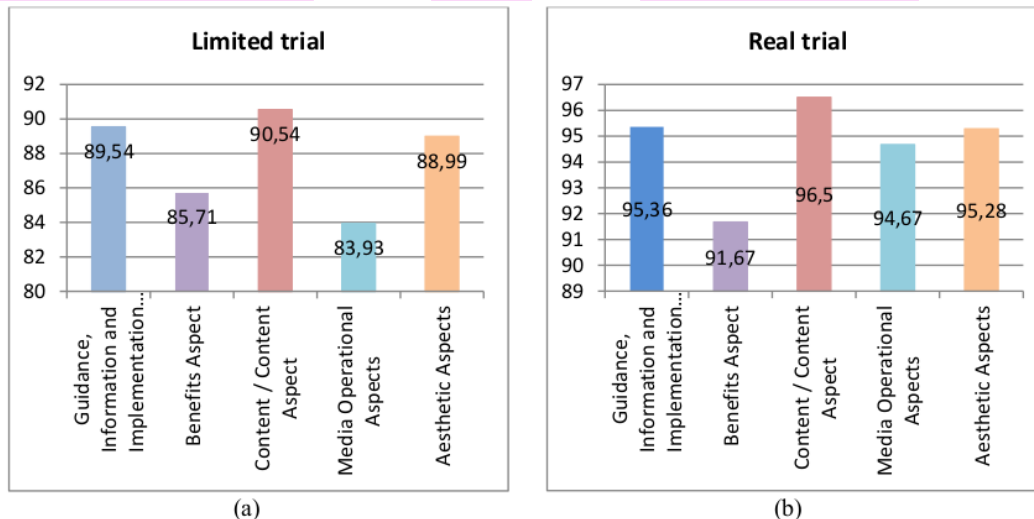


Figure 5. Diagram of feasibility results of the multimedia product, (a) limited trial, (b) real test

4. Discussion

The results of this study indicated that the use of multimedia in the learning process has a positive impact on improving cognitive abilities among students and it can help them to achieve the expected learning goals. Similar results are also found in the researches that are used as a reference in this study [2, 4, 5, 6]. The Multimedia Learning in the form of Media Presentation for the Material on Making Passepoille Pocket Fragments with klep in this study was declared "Very Feasible" to be implemented in the learning process at school. The advantages of this multimedia are (1) able to present learning material more interesting and more understandable; (2) easy to be found and accessed; (3) easy to be operated; (4) able to provide a new learning experience; (4) able to promote independent and classical learning.

Meanwhile, the limitations of this multimedia are (a) on its limited access, i.e. Microsoft Office PowerPoint programs with the minimum version of 2007. (b) the display, objects and animations on the multimedia slides that cannot be locked so that it can be edited or changed on its appearance.

5. Conclusion

Based on the results and discussion, it can be concluded that this research was done with Research and Development (R&D) with the 4D model, i.e. define, design, develop, and disseminate stage. The results of multimedia presentation products are Compact Disc (CD) and multimedia files in the .pptx format. The results of the media feasibility test show that the developed media are "Very Feasible" in the case of each aspect and as a whole.

The results also indicate that the developed learning media can be used as the learning media for X class of Fashion Design in vocational high school because it can help teachers to enhance the learning process and also improve students' understanding of the materials in order to achieve the expected competence. The application of multimedia presentations in learning can be an alternative way to face the challenges of 21st-century learning.

Though this research implementation is still limited to the small scope and the limited number of the respondents, this research can be a beneficial reference for further development of multimedia presentations with a wider scope and diverse respondents as well as along with the current advancement of technology.

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