

# Adobe Flash CS6-Based Interactive Multimedia Development for Clothing Pattern Making

Dina Ampera  
Universitas Negeri Medan  
Medan, Indonesia

**Abstract**--In the Curriculum 2013, the Pattern Making subject is oriented towards the basic knowledge of students in making clothing patterns. Competencies that must be achieved by students in the pattern-making subject include changing blouse, shirt, and skirt patterns. Once students is competent in making the pattern, then they can continue learning master the next competency. Pattern Making Course is an early stage of the process of clothes making. Pattern making includes processes such measuring, drawing patterns, making a description of patterns, designing materials and lastly designing prices. This research aims to develop Adobe Flash CS6-based interactive multimedia on the subject of pattern making for students of class XI Fashion Design program SMK Negeri 3 Tebing Tinggi. This research adopts a research and development approach, using Borg and Gall development model which includes: 1) potential and problem, 2) data collection, 3) product design, 4) design validation and design revision, 5) small group test, 6) media revision, 7) medium group trials, 8) media revision, 9) large group trials, 10) media production. The results of this research are 1) interactive multimedia products based on Adobe Flash CS6 in making pattern suit the learning materials of pattern making with the competence of changing the pattern according to the design for the students of Fashion Design program. Interactive multimedia products are created in .exe format, so interactive multimedia products can be used on many types of computers without the need to install Adobe Flash CS6 program. 2) Adobe Flash CS6-based interactive multimedia on the pattern making subjects is deemed eligible by media experts and material experts. Media experts rated interactive multimedia in very good criteria with a score of 86.67%, and material experts rated interactive multimedia with a score of 89.5%. In the small group trial, the score obtained is 63%, 74.49% in group trial, and 90.54% in large group trial with the criteria strongly agree, which means Adobe Flash CS6-based interactive multimedia is feasible to use in learning activities.

**Keywords:** *Development of interactive multimedia, Adobe Flash CS6, pattern making.*

## I. INTRODUCTION

Learning activities will be done well if all the factors in the learning process run properly, these factors are school conditions, the readiness of teachers and students, teaching materials, and learning media. If the learning media is chosen properly and correctly then the continuity of the learning process can run optimally. While the demands of Curriculum 2013, on the subjects of Pattern Making with competencies that must be achieved by students, is to change the pattern of a blouse, change the pattern of the shirt and change the pattern of the skirt, in other words, if the student has been competent in

making the pattern, then the student can proceed to the competence of the next.

Vocational High School has a group of subjects with more learning hours than the compulsory subject group. It aims to maximize learning according to the chosen majors of the students. One of the important subjects in improving the skills of dressmaking in Vocational High School Fashion Design major is Pattern Making. Pattern Making Course is the first stage of the process in dressmaking and the basic competency that must be possessed by students in order to continue to the next competency. The process of Pattern Preparation includes measuring, drawing patterns, making a description of patterns, designing materials and lastly designing prices. To achieve these outcomes, the components of learning is the key. These include the competence of teachers in teaching, teaching materials used, completeness of the materials, as well as the media who used the teacher, where learning media can facilitate the achievement of the information subjects so that competence can be achieved.

The use of appropriate learning media can have an effect on the achievement of learning objectives. The use of appropriate learning media can create a conducive and interactive learning activity if the students are active in the learning activities. According to Sadiman (2008), the use of appropriate and varied educational media can overcome the passive attitude of students. In this case, the educational media is used to generate excitement in learning, enabling direct interaction between students with the environment and allow students to learn according to their abilities and interests.

Learning media is used as an intermediary tool for lesson information or as a tool for teachers to deliver lesson material. One type of learning media that can be used is interactive multimedia. The use of interactive multimedia can help overcome the problems of learning, increase student learning activities that have not been maximized to improve student learning outcomes. However, this is not supported by the practice of learning in schools. It is still rare to find teachers who use interactive media as a medium of learning in the classroom. Especially on pattern-making subjects due to lack of teacher knowledge about interactive multimedia. Interactive multimedia can facilitate teachers and students in the learning process. Since it is a learning media created with the aid of a computer, the presentation of the material making of patterns can be made as attractive as possible with the addition of video or animation so that the material patterning can be informed to the students with a more effective, efficient and interesting.

Making an interactive multimedia cannot be separated from the involvement of software computer. Today the development of software happens very rapidly. One of the software that can be used to create interactive multimedia is Adobe Flash. Adobe Flash is a graphics animation program that many designers use to produce professional works, especially in the field of animation. But along with the development of technology, Adobe Flash is not only used for animation but has been used for aesthetic purposes, presentation to the media as a pursuit. The use of Adobe Flash as an interactive learning media will help the realization of a good learning process because it becomes easier for students to receive the subject matter.

Making and using interactive multimedia in the learning process is also not independent of the conditions and needs of students. Interactive multimedia should be made in such a way that students get information about the pattern-making lesson well. Pattern making is a basic lesson on how to create patterns correctly so that if you already understand about the basic pattern making, it will not be difficult for you to change other clothing patterns. Therefore, the learning media used must be able to attract students' attention, effectively and appropriate deliver the subject matter so that students can remember the process of making the pattern. Based on the above description, the purpose of this study is: to develop interactive multimedia based on Adobe Flash CS6 on pattern making a subject for class XI students.

## II. METHOD

The research was conducted in SMK Negeri 3 Tebing Tinggi, with the subject being the students of XI Class in the Fashion Design program. The object of the study is a pattern-making lesson made in the form of interactive multimedia based on Adobe Flash CS6.

The research steps are 1) Potential and Problem, 2) Data Collection, 3) Media Design, after the data and information obtained, then the design of the media product that will be developed. In designing media products, the steps to be taken are to draw out the media program outline and create a flowchart (scenario) of the Patternmaking lesson. The development of media product in this research uses tutorial model, where the subject matter is given in several stages and at each stage, students will be given evaluation or exercise. This tutorial model aims to hone students' ability in pattern making. In the chart above, Adobe Flash CS6 media product will begin with the appearance of the opening screen which contains about product title, product maker name, and others. Then there is the start button that will display the main menu that contains the choice of profiles, hints, competencies, materials, and video. 4) Media Testing, 6) Small Group Trial, 7) Media Revision, 8) Trial of Medium Group, 9) Media revision, 10) Large Group Trial, 11) Media Production. After revision of large group trial stage, then the media product can be produced and can be used as a medium of learning on the subject of pattern making.

The instrument used is a questionnaire to measure the effectiveness of the interactive multimedia based on Adobe Flash CS6 on pattern making. Questionnaires will be given to

media experts and material experts and given to students of class XI Fashion Design to know the effectiveness of instructional media developed on the subject of pattern making. The questionnaires used employ Likert scale measurement method. This research prioritizes the effectiveness of interactive multimedia Pattern Making. The data obtained are analyzed using the descriptive qualitative method, then the percentage of each sub-variable is calculated.

## III. RESULT AND DISCUSSION

The process of implementing Interactive Multimedia development based on Adobe Flash CS6 on Pattern Making subject is done gradually. The initial process in research and development is to perform a needs analysis and data collection. Activities are carried out to obtain data about the teaching and learning process, the characteristics and needs of student learning, the problems that exist in the learning and media development needed during the learning and teaching process. The next step is developing the initial product (learning media pattern making). The developed media program as a whole discusses how to change the fashion pattern according to the design. Target user of this instructional media product is the students of class XI Fashion Design SMK Negeri 3 Tebing Tinggi.

Learning media products using Adobe Flash CS6 can be operated on computers with minimum specifications without the need to install the program. Learning media production process using Adobe Flash CS6 program and other supporting programs that help in the making of background, back sound, effects sound, text animation or image animation. The use of Adobe Flash CS6 on the learning media of pattern making aims to create interactive and interesting learning conditions, learning motivation, student learning interest, and to improve learning outcomes in pattern-making learning. Expected, with the use of this media students are able to change the pattern of clothing according to the design.

Based on the results of media expert validation, the aspect of the quality of the society, the effectiveness of the program is the clarity and accuracy of the vote with a score of 100%, the media program is not boring with a score of 80%, the accuracy evaluation score of 80%, the originality of media programs with 80% score, creative display of media programs with 80% score, innovative presentation of materials with a score of 100%, overall creativity of media programs with a score of 100%, overall media program run systematically with a score of 100%. Overall average score on aspects of technical quality, program effectiveness is 90%.

An assessment conducted by media experts cover aspects of program display, efficiency aspects, and aspects of technical quality, the effectiveness of the program on the development of interactive multimedia-based Adobe Flash CS6 on the subject of pattern making consists of three sub-material that is changing the pattern of shirts, blouses, and skirts according to design. From each sub-subject, there are several topics: (1) tools and materials used to create patterns, (2) shirts, blouses and skirts, (3) sizes used to create patterns, (4) how to change shirts, blouses, and skirts patterns according to the design, (5) the task of changing the pattern with various designs.

The material experts assess the development of interactive multimedia based on Adobe Flash CS6 on the subject of pattern making based on three aspects: the program display aspect with the average percentage of 90%, the efficiency aspect with the average percentage of 80%, and the aspect of technical quality, the effectiveness of the program with the percentage of 90%. Material experts judge that the development of interactive multimedia based on Adobe Flash CS6 on the subject of pattern making based on two aspects namely education aspect with average percentage of 94% and material accuracy aspect with 85% percentage.

Based on the assessment of material experts, the development of interactive multimedia based on Adobe Flash CS6 on the pattern-making subjects as a whole is considered very good and feasible to be used in the learning process, but there are some suggestions and feedback to improve the feasibility of learning media products. The analysis of suggestions and inputs proposed by the expert learning materials as follows: 1) the lines of the pattern is less clearly visible on the video. 2) The video making pattern is good but the narration on the video is too fast, students should be given the opportunity to follow the narration. Then a pause button to the video should be added. 3) Before the pattern-making video is displayed, the design analysis is first described.

The assessment results of the interactive multimedia development based on Adobe Flash CS6 on the pattern making subject indicate that the developed product is still in the criteria of "satisfactory" so that the development is continued on the group trial is in revision II. The analysis of the trial group data was a continuation of a small group trial that had previously been performed. The result of data analysis at medium group trial conducted on 15 students in each aspect showed: attractiveness aspect with a percentage of 76%, aspect difficulty level with a percentage of 70.67%, aspect display with 74.66% percentage and benefit aspect with 76.66% percentage.

Overall in the criteria 'agree' received 74.49% of the total response. The average evaluation result of the experimental responses of the group and the students of class XI is based on four aspects, namely the attractiveness aspect with the percentage of 92.67%, the difficulty level aspect with the percentage of 87.5%, the aspect of the display with the percentage of 91% and the benefit aspect with the percentage of 91%.

As most of the students responded 'strongly agree' to the Adobe Flash CS6-based interactive multimedia on the pattern-making subject, no revision is needed. This can be seen from a small group, moderate group and large group trials, the student responses have increased. The results of data analysis of the effectiveness test are conducted to find out the product feasibility as a medium of learning. Effectiveness test was conducted on the students of class XI fashion design and 3 teachers of pattern making subjects. Analysis of the effectiveness test data of students and teachers are summarized below. Interactive multimedia product developed is a supplement of pattern-making teaching materials with the competence to change the pattern according to the design for students of class XI Fashion Design. The development of

learning media is done in several stages using a development model that Borg and Gall discovered. The stages undertaken in this development research include: identifying potentials and problems, data collection, media design, media validation, small group testing, media revision, medium group trials, media revisions, large group trials, and production media.

In the identification of potentials and problems stage, the researcher performs needs analysis to the subject teachers and the students of class XI Fashion Design by giving a questionnaire of needs and making observations to the subject teachers to know the implementation of pattern-making learning, the curriculum used in the school, the use of learning media on pattern making lessons, and determine the material on the media to be developed. In the development of this interactive multimedia, the material described is changing shirts, blouses, and skirts patterns according to the design. The overall competence is the competence that must be achieved in one semester.

The next development stage of designing and producing the initial product in the form of interactive multimedia with the pattern-making material. Before the media is produced, the preproduction stage needs to be done, which includes outlining the media program and flowchart. In the development of interactive multimedia, the outline of media programs serves to determine the titles, objectives and subject matter that will be poured in the media product learning. One of the psychological principles in media making is the content organization (Arsyad, 2013). So in the development of interactive multimedia will be organized and organized in several sequences as outlined in the flowchart, the sequence of presentation of learning materials starting from core competencies, basic competencies, indicators, goals, tools and materials making patterns, material from each sub-competence of materials shirts, skirts, and blouses, pattern-making, evaluation and summary.

After the pre-production stage, followed by interactive multimedia production stage. This interactive multimedia production process using Adobe Flash CS6 and supported by Windows Movie Maker software on making a video. Using Adobe Flash CS6 software makes the media look more interesting and interactive. Videos produced using Windows Movie Maker software are supported by back sound and effect sound so that the video attract attention and students' interest to learn. Files generated from the development of interactive multimedia are made in a .exe format so that it can be used on any computer or laptop with different specifications. The initial product development results are then validated by media experts and material experts, each consisting of two experts. In its implementation, media validation and material validation look at the interactive multimedia that has been developed, then the validator provides an assessment, commentary and improvement suggestions related to the aspects contained in the expert media validation sheet and the media expert's validation sheet. In some cases, the researcher directly scans and discusses with the validator about things that relate to aspects that still require improvement so that the resulting product is really worthy of use for learning activities. In the result of validation sheet that was evaluated by two media experts, media expert gave an average rating of 86.67% with very good criteria, which means the media is suitable for



use because the media displays good image, animation, sound and video. The quiz attracts students' attention so as to create interactive learning. Then the material expert gives an average rating of 89.5% with very good criteria, which means the interactive multimedia is feasible to be used in the learning process because the material in interactive multimedia is in accordance with the curriculum, syllabus, Learning Implementation Plan, Core Competence, Basic Competence, indicators and learning objectives.

Interactive multimedia products are revised in accordance with the advice of experts and after being declared eligible, then trials of small, medium and large groups to interactive multimedia products. From small group experiments conducted on 5 students, it is found that the students simply agree with the interactive multimedia-based Adobe Flash CS6 used in learning. In the intermediate group trials conducted, it was stated that the students agree for the interactive multimedia products to be used in the learning. And in the large group trials conducted, it is stated that students strongly agree that the multimedia products are used in learning. U aspect attractiveness with a percentage of 92.67%, aspect of difficulty level with 87.5% percentage, aspect display with 91% percentage and benefit aspect with 91% percentage. From the result of the development of interactive multimedia based on Adobe Flash CS6 on pattern making the subject, in general, the students strongly agree with the use of the media, so no revision is needed. This can be seen from small group testing, moderate group trials and large group trials, in which the student responses increased.

Analysis on the effectiveness test is conducted to find out the product is feasible to be used as a medium of learning. Effectiveness test was conducted on the students and teachers of pattern making subjects. Analysis of the effectiveness test data of students and teachers are summarized below. Interactive multimedia product developed is a supplement of pattern-making teaching materials with the competence to change the pattern according to the design for students. The development of learning media is done in several stages using a development model that Borg and Gall discovered. The stages undertaken in this development research include: identifying potentials and problems, data collection, media design, media validation, small group testing, media revision, medium group trials, media revisions, large group trials, and production media.

Based on the results of data analysis conducted, it is found that the interactive multimedia based on Adobe Flash CS6 on the subject of making the pattern falls into the good category, which means it is feasible to be used as a medium of learning. Feasibility in question is whether the interactive multimedia products have met the characteristics of interactive multimedia. One of the characteristics of interactive multimedia is self-instructional or independent learning (Susilana and Riyana, 2009). In fulfilling the self-instructional character, Adobe Flash CS6 interactive multimedia products meet the following indicators:

1. There is a destination menu in interactive multimedia to clarify the purpose of the given learning materials,

2. Presentation of learning materials that are made gradually into the units of activities, thus facilitating students to learn thoroughly,
3. Presentation of pattern-making learning materials is packaged in video with narration to support the clarity of exposure of learning materials,
4. There is a quiz and evaluation menu that contains the problems and tasks of pattern-making exercises to see the response and measure the mastery of students learning materials,
5. The pattern-making materials provided are related to the student environment, where the sub-material provided is the shirt pattern, blouse and skirt pattern.
6. Interactive multimedia is made by using a communicative and simple language,
7. In interactive multimedia, there is a summary menu of learning materials,
8. There is an interactive quiz in an interactive multimedia product that allows students to perform self-assessment,
9. Evaluation in Adobe Flash CS6-based interactive multimedia on pattern-making subjects is designed gradually in order to establish the level of student mastery and to determine the next learning activity,
10. In Adobe Flash CS6-based interactive multimedia there is a reference menu to support the pattern-making learning materials.

#### IV. CONCLUSION

Based on the results of the research, the following conclusions are made: 1) This research uses Borg and Gall development model, which is developing interactive multimedia based on Adobe Flash CS6, on the topic of pattern making with the competence to change the pattern according to the design. From the results of the validation by two media experts, overall a score of 86.67 is obtained, which falls into good criteria. While the validation results by two material experts, the overall obtained score is 89.5%, which is a very good criterion. 2) Based on the results of questionnaire responses, interactive multimedia making patterns get responses (90.54%) in the criteria strongly agree that the interactive multimedia attracts attention, adds interest in learning, motivates students and looks interesting so that the media declared effectively used as media learning on pattern-making learning for class XI Dress Making.

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