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Tutorial Video Development of 3D Women's Fashion Design Using CLO3D for Clothing Production Design Courses

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ABSTRACT
This research is the development of a tutorial video for making 3D women's clothing designs using CLO3D Software which aims to present and describe real women's clothing forms in the Fashion Production Design course. Based on the Semester Learning Design (RPS)in the Fashion Production Design course, it is described that the learning outcome of this course is that students are able to make fashion production designs, especially women's clothing, with several stages of workmanship including design sketches, design blocks, design details, presentation drawings, pattern parts (broken pattern),3D design with conventional actual fabric, material design, price planning and production design development with IT. The learning process so far has been done manually and in IT development it has only been limited to making 2D designs and the process of making 3D designs is done by cutting material samples and pasting them on paper conventionally, with the stages of product design development with IT using CLO3D software making it easier for students to work on stages in Production design. With the Clo3D software, students can make designs in 3D or resemble the original form of clothing, break patterns, and present them in 3D CLO3D software is able to add to students 'knowledge in fashion production design, especially women's clothing in the form of casual clothes, party clothes, work clothes and so on. The advantage of CLO3D compared to other 3D software is that it can produce real 3D designs such as the human body and clothing that resembles the original and has the ability to move or walk like a model on the Catwalk. Based on the problems found in the field, research was conducted on the development of learning media in the form of video tutorials for making 3D women's clothing designs using CLO3D software for fashion production design courses so that students are able to make fashion designs online. This study uses the Research and Development Model 4D (Define, Design, Develop, Disseminate) method. The validation of this video tutorial media product was carried out using the alpha test stage, which involved 2 Media Expert validators and 2 Material content validators. This research involved 30 IKK FPP UNP students who attended Fashion Production Design courses. Data collection was carried out through validation sheets from media experts and content as well as student questionnaires on video tutorial media, the data obtained was then analyzed through descriptive statistics. The results of this study are valid, practical results. This was obtained from the validity test of 2 material experts on Fashion Production Design with a value of 0.90 in the valid category, the validity of media experts related to video tutorial media content made with a value of 0.89 in the valid category, as well as the practicality test from student responses. With a value of 75.58 or it can be said that it is practical to use as a learning medium and can facilitate students in carrying out the learning process, especially in the Fashion Production Design course.

Keywords: *Video Tutorial, 3D Women's Fashion, CLO3D, Clothing Production Design.*

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1. INTRODUCTION

The use of technology (IT) in fashion is getting more and more attention, starting from fashion production planning, making fashion products using digital, to e-Commerce. The dynamic in this 4.0 era is the availability of graduates into the fashion market who are skilled and able to master the competencies of digital fashion talents. Over the past decades, virtual prototyping has had an increasing impact since innovative technologies, such as 3D scanners, virtual and augmented reality, and additive manufacturing, have become available for several contexts [1], [2], [3], [4], [5].

Coupled with the Covid pandemic, it has a major effect on the acceleration of fashion in terms of digital where consumers do not need to come to make clothes and buy clothes to the store directly. With the pandemic, designers and the fashion industry must be able to find a more efficient and effective fashion production strategy. With the pandemic situation and the need to maintain distance, digital methods are increasingly being used so that the fashion business process can continue, including one of them with 3D fashion design [6]. It is currently a moment in history when technology is increasingly in demand by education [7]. Universities that produce fashion design graduates need to equip their students in digital fashion knowledge in courses, especially courses in the field of fashion production practice. In the Department of Family Welfare Education in the field of Fashion Management, there is a fashion production design course which has a learnig Outcome of this course is that students are able to make fashion production designs, especially women's clothing with several forms of workmanship stages including sketch design, design blocks, design details, drawing presentations, pattern parts (pattern breaking), 3D design with conventional actual fabrics, material design, price design and production design development with IT.

CLO3D can fulfill the designing needs that fashion designers may have, such as fashion design, pattern making, customization and modification, fabric selection, display, and production [8]. CLO3D has the advantage of approaching the shape of clothing in real or real, CLO3D is useful during this pandemic because it can produce fashion designs that are almost close to the original by making direct breaking of fashion patterns digitally in the software so that it is more effective and efficient. The appearance of the CLO3D design is also the same as other 3D software, which is in the form of 360 degrees, but unlike other 3D software, the advantages of CLO3D are that the avatars or models in the software are more numerous and diverse and another advantage is that the avatars or models can move and walk like on a catwalk, making it easier for designers to present clothes. With the advantages that CLO3D software has from other 3D software, it is necessary for this competency to be possessed by students in the field of fashion design, especially in fashion production design courses. This is in line with the expected competencies of graduates from the Department of Family Welfare Science in the field of fashion expertise who are able to master science and technology, especially in the field of digital fashion.

The making of this learning video aims to make it easier for students to learn material related to the use of CLO3D in the process of making fashion designs. Video tutorials can help improve understanding and retention of material compared to text or oral instructions [9], [10]. Video tutorials can provide clearer instructions and more interesting visuals compared to text [11], [12]. Video tutorials can be used to support independent learning [13], [14]. Students who want to learn something at their own pace can watch video tutorials anytime and anywhere. Therefore, this research is expected to be a solution for students who want to learn CLO3D independently.

2. METHOD

The type of research and development applied in this study is Research and Development (R&D) from Sugiyono [15]. The model employed is 4D (Define, Design, Development and Disseminate).

a. "Define" Step It covers problem identification/concept analysis.

b. "Design" Step Media/video selection and design.

c. "Develop" Step This step aims to obtain empirical data as a basis for improvement. The development step consists of expert assessment and development testing.

d. "Disseminate" Step This step covers product dissemination activities that have been tested and developed to be widely used by others

Figure 1 is the 4D model chart in this study

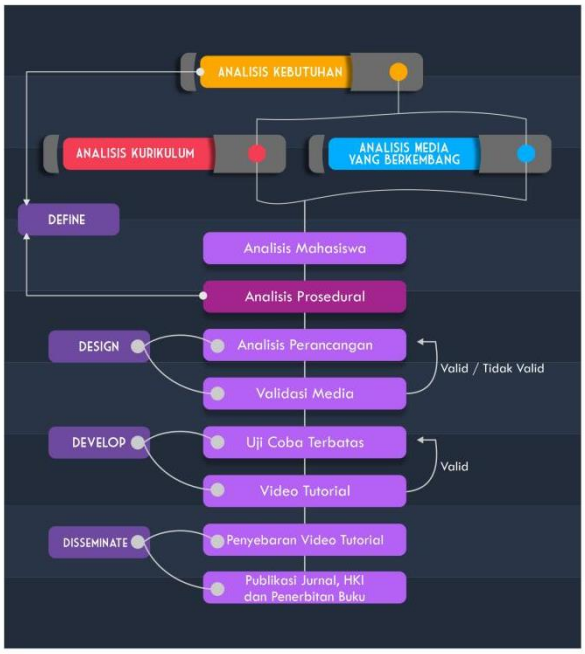

Figure 1 Model 4D

3. RESULT AND DISCUSSION

3.1. Result

This research began in May 2022 by conducting initial research analysis in the form of curriculum analysis and student analysis and procedural analysis. Based on the results of the analysis found, the researchers and the team made an initial research plan in the form of a story board of the video tutorial content material to be created. The content of the story board has been made then recording is done with OBS Studio. The content of this video tutorial material includes,

a. Tool introduction Software CLO3D

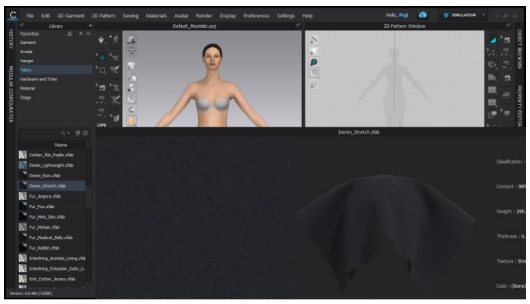

Figure 2 Tools CLO3D

b. Pattern making for women's fashion with CLO3D software.

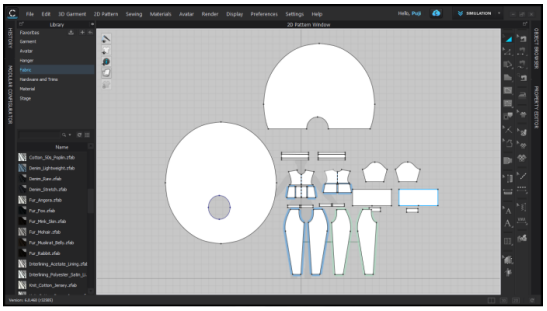

Figure 3 Pattern making

c. Pattern sewing (segment sewing) in software CLO3D.

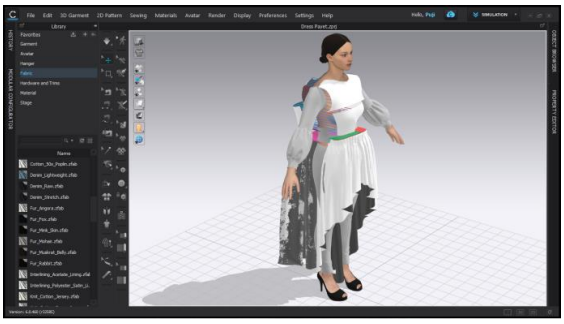

Figure 4 Pattern sewing

d. d. Simulate process to unify the pattern.

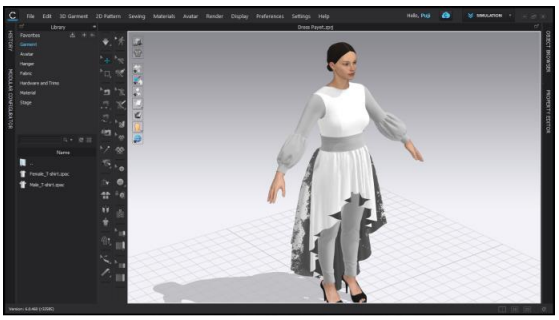

Figure 5 Simulate Pola

e. e. Giving motifs on the fabric in software CLO3D.

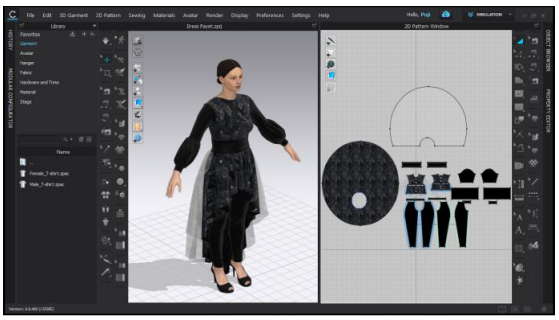

Figure 6 Giving motifs

f. Giving motion to see the fabric fall on the 3D design 3D design storage in CLO3D software.

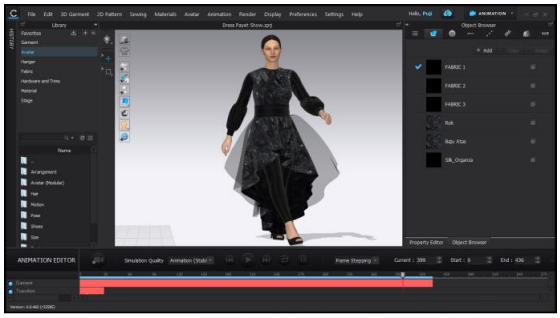

Figure 7 Giving motion

g. Giving Stage

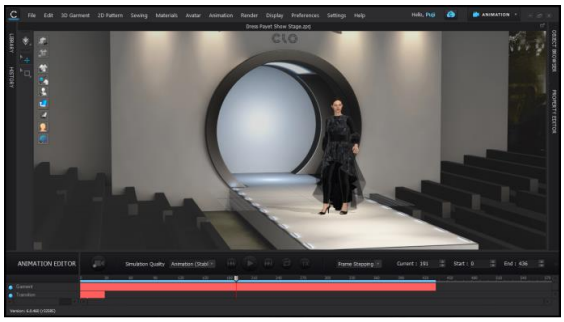

Figure 8 Simulate

h. Render Process

Figure 9 Rendering Result

3.2. Discussion

Material Expert and Media Expert Validity Results and Student Response Video Tutorial Practicality Test Results.

Table 1. Result of Material Expert Validity

No	Validation Aspect	Average	Category
1	Content Quality	0,90	Valid
2	Quality of Learning		
3	Interaction Quality		
4	Display Quality		

Table 2. Result of Media Expert Validity

No	Validation Aspect	Average	Category
1	Dictactic Terms	0,89	Valid
2	Construction Terms		
3	Technical Requirements		

Table 3. Practicality Test Result Video Tutorial Student Responses

No	Validation Aspect	Average	Category
1	Ease of Using Media	77,58	Practical
2	Time Effectiveness		
3	Media Use		

4. CONCLUSION

Based on the results of the research on Video Media Development of 3D Design Making Using CLO3D Software for Visualization of Fashion Shapes in Fashion Production Design Courses, it can be concluded that:

1. Media development in this study is in the form of a video tutorial for making 3D Fashion Production Design designs using CLO3D Software. The research design used is R&D with 4-D process stages. However, this research is only limited to Develop or development and is expected for further research at the Disseminate stage.
2. Media Development Research in this study in the form of video tutorials for making 3D Fashion Production Design designs using CLO3D Software has valid, and practical results. This is obtained from the Validity test of 2 material experts on Fashion Production Design with a value of 0.92 with a valid category, the validity of media experts related to the media content of the tutorial videos made with a value of 0.91 with a valid category, and the Practicality test from student responses with a value of 73.58 or can be said to be practical to be used as learning media and can facilitate students in implementing the learning process.

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