



Upskilling Fashion Design Vocational High School Teachers through training on Making CAD-Based Digital Fashion Patterns with Richpeace

Widowati Widowati*, Roudlotus Sholikhah, Sita Nurmasitah, Sudiyono Sudiyono

Faculty of Engineering, Universitas Negeri Semarang, Semarang, Indonesia

*Corresponding author. Email: widowati@mail.unnes.ac.id

ABSTRACT

The use of CAD applications in modern society today has permeated almost every industry including the fashion design industry. In today's Digital Era and in accordance with the demands of 21st century skills so as not to be left behind with a global work system that utilizes ICT technology widely in every aspect of life so that many fashion educational institutions integrate the use of CAD in the teaching curriculum. Job opportunities in the fashion sector are widely open from the creative industry sector, retail industry and even garment industry are spread throughout the world. Business communication in the fashion industry is now unlimited in space and time so that communication in digital format is an irresistible need, therefore being master of CAD technology as a part of the ICT development today is a must. Therefore, fashion schools, including Fashion Design vocational school are very important to implement the CAD learning. Fashion Design vocational school teachers still need material in making CAD fashion patterns, especially with Richpeace Software. Based on the needs analysis questionnaire that has been done, it is discovered that 98% of fashion design vocational school teachers are still need CAD materials for digital patterns. This condition was responded by UNNES, in this case from the Department of Family Welfare Education and also Fashion Education Study Program, to cooperate and become partners as in implementing community service program by providing a training for making CAD-based fashion patterns with Richpeace Software. The purpose of this study is to provide integrated competency improvement with assistance that is problem solving, comprehensive, meaningful, complete, and sustainable. The methods implemented in this community service are: (1) provision of theoretical material how to make CAD-based fashion patterns with Richpeace Software delivered by lecture method, (2) practical material how to make CAD-based fashion patterns with Richpeace Software given by demonstration methods, exercises and project-based learning, (3) monitoring and evaluation. Analysis of the final test (post-test), obtained the lowest score = 56 and the highest score = 92; with mean = 86.34. The average results of the data analysis are in the class interval of 85 to 100, which is the excellent category. In the post-test that scored in the poor category there were only 6 participants, the mid category was 35 participants, the good category had 92 participants, and the excellent category had 117 participants.

Keywords: Upskilling, Fashion patterns, CAD, Richpeace.

1. INTRODUCTION

The use of CAD applications in modern society today has permeated almost every industry including the fashion design industry. In today's Digital Era and in accordance with the demands of 21st century skills so as not to be left behind with a global work system that utilizes ICT technology widely in every aspect of life so that many fashion educational institutions integrate the use of CAD in the teaching curriculum. Clothing designers are now working by using computers to make a sketch, illustration and design presentations. CAD

allows designers to view the clothing designs virtually both in 2D and 3D on a virtual model and in various colors, motifs, and draperi materials on the model's figure [1,2].

CAD (Computer Aided Design) is a software and hardware computer technology for making designs and documentation process [3-5]. The advancement of science and technology encourages the birth of CAD, especially in an era where computers are more popular and easier to operate, which make humans gradually realize that they have a dominant relationship with

computers [6,7]. CAD technology has been used by community and industrial sectors such as designing house construction, bridges, industrial machinery, and fashion products [8,9]. CAD helps engineers, architects, designers and design professionals who work in the design field activities [10,11].

The role of CAD replaces the manual preparation of outdated 2-dimensional (2D) and 3-dimensional (3D) design models, which are time-consuming and more prone to errors. In practice the use of CAD can use more than one software simultaneously, because CAD is developed multifunctionally both from the type of work, commands in the software to the produced output. Each CAD software has advantages and disadvantages so that using it together is a way to complement each other [12,13].

Nowadays computers for fashion have developed by growing rapidly. Fashion design can be done using CAD. CAD technology for the fashion industry can be used from determining the type and motif of materials, sizes, making patterns to product presentation so that computer is an important component of the fashion industry [14]. Although CAD is not fully able to replace manual design, the demands for the use of CAD in this digital era are getting higher. Design software continues to be developed to help people who are involved in the world of fashion so they are able to display their work faster, more attractive and more realistic to their customers.

The use of CAD in the 21st century has penetrated almost all industries as well as the fashion industry [15]. Job opportunities in the fashion sector are widely open from the creative industry sector, retail industry and even garment industry are required being master of CAD technology. Although CAD has not been able to replace manual design completely, the demands for using CAD in the digital age are getting higher. Therefore, in order not to be left behind with the global system in this digital era, the use of CAD is included in the learning curriculum both at the high school and university levels, including the Fashion Education study program in Semarang State University, with a course called Computer Pattern Making.

Job opportunities in the fashion sector are widely open from the creative industry sector, retail industry and even garment industry are spread throughout the world. Business communication in the fashion industry is now unlimited in space and time so that communication in the fashion industry is now unlimited in space and time so that communication in digital format is an irresistible need, therefore being master of CAD technology as a part of the ICT development today is a must. Therefore, fashion schools, including vocational schools in the field of Fashion Design, are very important to implement the CAD learning.

CAD technology is combined with CAM (Computer Aided Manufacturing) where this CAD / CAM software has been integrated in the production flow from start to finish. In the field of fashion was born a variety of software from several companies of France, Germany, India, America, Japan, Israel and China that launched and developed CAD / CAM technology for fashion productions [16,17]. This software has been widely marketed in Indonesia [3].

Fashion Teachers still really need material on making CAD fashion patterns, especially with Richpeace Software. Based on the survey that has been conducted, it is discovered that fashion design vocational high school teachers regularly hold MGMP by reviewing various materials, one of which is the CAD material program whom vocational high school teachers are followed. This CAD material is becoming a trend in fashion design vocational high school because it is a new subject that must be mastered by teachers of fashion design vocational high school teachers. In the previous year, the team had held CAD training with great enthusiasm, almost 700 participants who registered from all over Indonesia. However, due to team limitations, only 250 were taken to attend CAD training Batch 2. The teachers of fashion design vocational high school are still in great need and enthusiast to hold training in Batch 2.

This condition was responded by UNNES, in this case from the Department of Family Welfare Education and also Fashion Education Study Program, to cooperate and become partners as event organizer in implementing community service program by providing a training for making CAD-based fashion patterns with Richpeace Software. The hope of this community service team is that community service program continuously runs in an integrated manner with assistance which is problem solving, comprehensive, meaningful, complete, and sustainable.

2. METHOD

The core problem answered through this activity is planning a CAD-based fashion pattern making training with Richpeace Software at Al Asror Vocational High School. The methods implemented in this community service are: (1) provision of theoretical material how to make CAD-based fashion patterns with Richpeace Software delivered by lecture and discussion method, (2) practical material how to make CAD-based fashion patterns with Richpeace Software given by demonstration methods, exercises and project-based learning, (3) monitoring and evaluation.

In detail, the purpose, materials and results of each stage can be seen in the following table.

Table 1. Stages of activity implementation.

No.	Stages	Purpose	Material	Method
1.	theoretical material on CAD-based fashion pattern making training with <i>Richpeace Software</i>	People understand the material and purpose of CAD-based fashion pattern making training with <i>Richpeace Software</i>	<ol style="list-style-type: none"> 1. Introduction to basic CAD concepts 2. How to install <i>Richpeace Software</i> 3. Introduction to the <i>Richpeace Software</i> tool bar 4. Practice to make a basic <i>Richpeace Software</i> fashion pattern 5. Practice breaking fashion patterns with <i>Richpeace</i> 6. Seam practice on <i>Richpeace Software</i> 7. Practice grading fashion patterns with <i>Richpeace Software</i> 8. Practice fashion pattern markers with <i>Richpeace Software</i> 	Discussion lectures
2.	Practical training materials for making CAD-based fashion patterns with <i>Richpeace Software</i>	Practice CAD-based fashion pattern making training with <i>Richpeace Software</i>	CAD-based fashion pattern making techniques with <i>Richpeace Software</i>	Demonstration Practices Project-based learning
3.	Monitoring and evaluation	<ul style="list-style-type: none"> - Know the results of community service activities - Evaluate the results of activities 	Planning and achievement of activities	Observation Interview

Service activities during this pandemic will be done with Covid-19 protocols so that they will be implemented virtually. The material can be delivered online through online zoom meetings and video tutorials. Furthermore, participants can take part in digital fashion pattern making training with *Richpeace Software* in their respective places.

The next activities that will be carried out are data collection, data analysis, and formulation of solutions taken from various library sources and empirical experience. After analyse the situation and prepare the training materials, the next activities will continue and be followed by evaluation and data processing, as well as report preparation.

The method used in this activity is participatory collaboration between the two parties, where partners are also involved in the implementation of activities. The stages of activity in detail can be presented as follows:

a. Problem Identification

The problem identification stage is needed to find out the needs of partners related to the problem that will be solved. Then with the participation of partners, an easy solution design process is carried out but provides many benefits. Related to the problems that have been raised

before, the solution offered by the service team is the development of CAD-based fashion patterns with *Richpeace Software* at Al Asror Vocational High School.

b. Tools and Materials Preparation

This activity includes the preparation of tool and materials that will be used in service activities so that they are able to know clearly the type of products they will produce later. At this stage, the service and partners gather to formulate the form of activities that will be held during the service activities.

c. Community Service Implementation Program

This activity includes training by providing training materials for making CAD-based fashion patterns with *Richpeace Software*.

d. Product Evaluation

This stage is to determine the level of results quality of making CAD-based fashion patterns with *Richpeace Software* in service activities, as well as evaluating the results of that product trials.

e. Program Evaluation and Feedback

This activity is needed for the overall implementation of the service program. The advantages and disadvantages of CAD-based fashion pattern making

techniques with Richpeace Software will be evaluated. To obtain accurate evaluation data, program evaluation and feedback are also conducted through interviews and observations.

With existed information, guidance and training, are bring hopes that vocational high school teachers can implement the practice of making CAD-based fashion patterns with Richpeace Software.

To determine the success rate of this community service activity, an evaluation is important to the results of the practice of making digital fashion patterns by vocational high school teachers.

The design of the evaluation that will be done in this community service activity are in Table 2.

Table 2. Evaluation Design.

No	Evaluated Aspects	Indicators
1	Knowledge and function of CAD-based fashion patterns with Richpeace Software	<i>Pre test</i> <i>Post test</i>
2	Training on making CAD based fashion templates with Richpeace Software	Create CAD-based fashion templates with Richpeace Software
3	Training on making CAD based broken fashion pattern with Richpeace Software	Create CAD-based broken fashion patterns with Richpeace Software
4	Training on grading CAD-based fashion patterns with Richpeace Software	Create CAD-based fashion pattern grading with Richpeace Software
5	Training on making CAD-based fashion pattern markers with Richpeace Software	Create CAD-based fashion pattern markers with Richpeace Software

In the implementation of this activity, participants are required to be active, in the training on making CAD-based fashion patterns with Richpeace Software. Monitoring will also be done by the service team to determine the program's sustainability and evaluate the results of the program that had been running. To find out the success of this community service activity, 3 forms of activities will be done, namely: training on making CAD-based fashion patterns with Richpeace Software, training on grading CAD-based fashion patterns with Richpeace Software, and training on making CAD-based fashion pattern markers with Richpeace Software. Evaluation is carried out during the activity, at the end of the implementation and after the implementation of the program.

3. RESULT AND DISCUSSION

The CAD pattern making training program with Richpeace software for teachers in fashion design vocational high school can be carried out very smoothly according to the prepared plan. The participants

participated in activities actively and earnestly in accordance with the steps conveyed by the trainer / instructor. During the training, the instructor distributes pre-test questions to look for the participants' initial abilities, and post-test to find out the participants' final abilities.

Analysis of the first test (pre-test), obtained the lowest score = 40 and the highest score = 72; with mean = 46.64. The average results of the data analysis was in the interval class 0 to 49, and was included in the poor category.

The complete frequency distribution can be seen in the following table.

Table 3. Pre-test Score Frequency.

Value	Score Interval	Frequency	Percentage (%)	Category
1	0-49	97	38.8	Poor
2	50-59	88	35.2	Low
3	60-69	53	21.2	Mid
4	70-84	12	4.8	Good
5	85-100	0	0	Excellent
Sum		250	100	-

Based on table 3, It showed that in the pre-test which received a poor category score are 97 participants, a low category are 88 participants, a mid category are 53 participants, a good category are only 12 participants, and nobody received an excellent category.

Analysis of the final test (post-test), obtained the lowest score = 56 and the highest score = 96; with mean = 87.04. The average results of the data analysis are in the class interval of 85 to 100, which is the excellent category. The complete frequency distribution can be seen in the following table.

Table 4. Post-test Score Frequency.

Value	Score Interval	Frequency	Percentage (%)	Category
1	0-49	0	0	Poor
2	50-59	4	1.6	Low
3	60-69	29	11.6	Mid
4	70-84	92	36.8	Good
5	85-100	125	50	Excellent
Sum		25	100	-

Based on table 4, it can be seen that in the post-test which received a poor category score are only 4 participants, a mid-category are 29 participants, a good category are 92 participants, and an excellent category are 125 participants.

4. CONCLUSION

The upskilling activity of fashion design vocational high school teachers is through a training program in making CAD based digital fashion patterns with national richpeace batch II software can be done very well with the enthusiasm of participants up to 250 teachers of fashion design vocational school. The methods used in

this training are lectures, demonstrations and exercises / practices with an individual approach. Based on these methods and approaches, teachers can create CAD patterns with Richpeace software very well.

The implementation of upskilling for fashion design vocational school teachers through CAD-based digital fashion pattern making training with national richpeace batch II software was implemented accordance to the plan, and the planned material can be delivered all well.

Analysis of the final test (post-test), obtained the lowest score = 56 and the highest score = 92; with mean = 86.34. The average results of the data analysis are in the class interval of 85 to 100, which is the excellent category. In the post-test that scored in the poor category there were only 6 participants, the mid category was 35 participants, the good category had 92 participants, and the excellent category had 117 participants.

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