Implementation of Research-Based Learning Using Video Media to Increase Creativity in Machine Embroidery Learning

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Abstract. Creativity is needed in the era of the industrial revolution 4.0 which is integrated with learning through knowledge, skills and attitudes as well as mastery of information technology and computers. The purpose of this study was to describe the effect of the application of Research-Based Learning on increasing student creativity in Embroidery learning. This study uses a quasi-experimental method by comparing the results of the experimental class treatment with the control class. The design used in this study is a non-equivalent control group design. The sample of this study were students of the Padang State University Fashion Design Study Program who were enrolled in the Embroidery course. The results show that the application of Research-Based Learning using video media can increase student creativity.

Keywords: Research-Based Learning · Creativity · Machine Embroidery

1 Introduction

The learning process in the 21st century is required to be able to prepare and produce excellent graduates who enable students to take advantage of their learning experiences to contribute to life (Ananiadou and Claro 2009; Hursen 2018; and Jalinus, Nabawi). Furthermore, Ananiadou and Claro (2009), Hussin (2018) emphasized that the benchmark for superior graduates is having character qualities that are manifested in problem solving skills, critical thinking, creativity, communication, collaboration and digital literacy. This goal is the responsibility of educators to become learning facilitators and create an active, conducive and effective learning environment.

Changes in the view of learning in the 21st century are more developed in the implementation of student-centered learning. The focus of learning achievements in the 21st century is on the formation of critical thinking and problem solving skills (critical thinking and problem solving), communication (communication), collaborating in group performance (collaborative), creative and innovative (creativity and innovation) and digital literacy skills (digital literacy skills) (Care and Kim 2018; and Wrahatnolo and Munoto 2018).

Creativity is an important aspect that needs to be developed in the world of education. Research results from Florida et al. (2015) who published The Global Creativity

Index show that creativity in Indonesia is quite low compared to other countries in the world. Indonesia is in the 81st position out of 139 countries in the world. Likewise with the publication of The Global Innovation Index in 2020, Indonesia is in the 85th position out of 131 countries. (Androschuk 2021). Based on several opinions and studies related to 21st century skills, it can be concluded that 21st century learning must teach 4 competencies, namely: communication, collaboration, critical thinking, and creativity. However, this study only examines creativity in learning.

Student creativity in Machine Embroidery learning in the Fashion Design Study Program tends to be low, which can be seen from the ability to produce designs of motifs, colors, embroidery techniques and types of products that are less creative and innovative. Research-based learning can be used as a solution in developing student creativity in learning.

Poonpan and Suwanmankha (2005) suggested that research-based learning consists of four teaching methods; 1) teaching using research methods, 2) teaching with teacher participation in research projects, 3) teaching by studying research results and research procedures where students can learn about document synthesis because synthesis is an important skill in research procedures. 4) Teaching by using research reviews as lesson content. This opinion underlies the development of a model where the integration of research and involving students in research into the field becomes the foundation of model development.

There are many benefits of research-based learning, including being able to provide opportunities for the development of learning methods or strategies, the existence of learning reforms that synergize learning with research results/research results, the emergence of active participation/involvement of students in the research process, the use of research instruments in learning, and the existence of efforts. Inclusive research development. (Salimi et al. 2017), (Dafik et al. 2019). Another advantage is that students have the opportunity to construct their own knowledge through the research process carried out because students are involved starting from collecting information, compiling research hypotheses, collecting and analyzing the data collected, and drawing research conclusions. Wardoyo (2013) Widayati et al. (2010). In addition, video media has several advantages including being able to be played repeatedly and can be used as a tutorial for independent learning.

With the application of the Research Based Learning Model with video media, it is expected to increase student creativity in Machine Embroidery learning. The purpose of this study was to describe the differences in student learning outcomes and creativity in Machine Embroidery learning by applying the research-based learning model with video media.

2 Methods

This research approach is a quasi-experimental which compares the consequences of the experimental magnificence remedy with the manipulate elegance. This studies uses Non-equivalent manipulate organization layout. in this layout, the experimental organization and the control institution had been now not decided on randomly. The research pattern become students of the fashion layout have a look at software, faculty of Tourism and

Hospitality, Padang state college who took the gadget Embroidery route in the unusual semester of 2022/2023. Samples have been taken from 2 training, 1 experimental class regarding 22 students and 1 control magnificence involving 22 college students. The experimental elegance become dealt with the studies-primarily based getting to know (RBL) studying model, even as the control group turned into not given remedy or used the Direct studying version.

3   Result and Discuss

Research-Based mastering (PBL) that's applied in gadget Embroidery learning to boom creativity is a gaining knowledge of technique that makes use of studies as the focus of getting to know to broaden creativity with video media.

The stages of studies-based totally mastering in system Embroidery mastering use the studies-based totally getting to know (Weni 2020) model, namely (Fig. 1):

In syntax 1, the lecturer asks general questions related to learning topics. In syntax 2 lecturers present the results of existing research related to learning materials and students are assigned to analyze research journals related to the learning topics discussed. In syntax 3 students are grouped (3–4 people) to do research by exploring ideas according to the agreed theme. In syntax 4 students do the design by pouring ideas on design paper. The result of the design which is still in the form of a sketch is then continued to the next stage. In syntax 5 students improvised colors, materials, techniques, and product types so that several choices of improvised and experimental results were obtained. The results of improvisation and experimentation will be realized into real products. In syntax 6, the results of improvisation and experimentation will be realized into a creative product.

Student learning outcomes data obtained after doing two tests, namely pre-test and post-test. Initial ability test (pre-test) is a take a look at given to college students within the experimental class and manipulate elegance earlier than being given treatment. This test is used to decide the initial ability of students in each institution whether it's miles really worth evaluating or not. The very last capacity check (put up-check) is a take a look at given to college students in both the experimental magnificence and the manipulate class after being given treatment. This facts targets to decide the effects of the final potential of college students' creativity inside the experimental class and the control elegance afterwards.
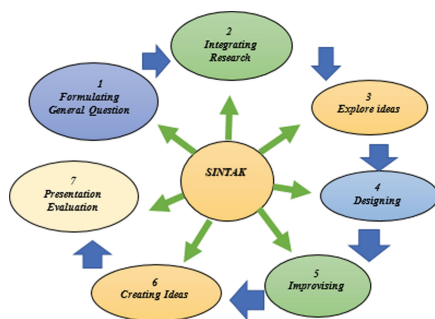

Fig. 1. Sintak of Research Based Learning model (RBL)

Table 1. The results of student creativity in the Machine Embroidery course

Indikator	Persentase			
	Kelas kontrol	Kategori	Kelas eksperimen	Kategori
Kebaruan				
a. Original	60,55	Cukup kreatif	84,00	Kreatif
b. Suprising	61,90	Cukup kreatif	79,00	Kreatif
c. Germinal	55,80	Cukup kreatif	84,06	Kreatif
Rata-rata persentase	59,41	**Cukup kreatif**	**82,35**	**Kreatif**

Table 2. Learning outcomes in the Machine Embroidery course

No	Kelas	Rata-rata nilai aspek psikomotor					f	Mean
		Tugas 1	Tugas 2	Tugas 3	Tugas 4	Tugas 5		
1	Eksperimen	84,94	82,41	81,53	81,71	80,47	22	82,21
2	Kontrol	79,29	77,12	75,76	77,65	76,47	22	77,26

Based on Table 1. it can be seen that the creativity of students in terms of the original aspect obtained an average of 60.55% in the control class in the quite creative category and 84.00% in the experimental class with the creative category. This means that students who study with the RBL model with video media are more able to produce embroidery products that have more authenticity value compared to students who study with conventional learning models.

In the surprising aspect, the control class averages 61.90% with the category quite creative and 79.00% in the experimental class with the creative category. This means that students who study with the RBL model with video media are more able to produce embroidery products that have more novelty value compared to students who study with conventional learning models. Dilihat dari aspek germinal diperoleh rata-rata pada kelas kontrol 55,80% dengan kategori cukup kreatif dan 82,35% pada kelas eksperimen dengan kategori kreatif. Artinya mahasiswa yang belajar dengan model RBL dengan media video lebih mampu menghasilkan produk bordir yang lebih memiliki nilai germinal dibandingkan dengan mahasiswa yang belajar dengan model pembelajaran konvensional.

The data shows that there are differences in the learning creativity of students who are taught using the Research Based Learning model with video media compared to students who are taught using conventional learning models. This shows that there is an effect of applying the Research Based Learning model in increasing students' learning creativity.

Judging from the learning outcomes from the psychomotor aspect, it can be seen that the student learning outcomes are as follows:

From Table 2, it can be seen that student learning outcomes in terms of psychomotor skills/competencies of students in the experimental class obtained an average of 82.21 in the experimental class and 77.26 in the control class. This shows that the experimental class learning outcomes are higher than the control class learning outcomes.

4   Conclusion

Based on the results of the research and discussion above, it can be concluded that: (1) the application of a research-based learning model (RBL) in Machine Embroidery learning using video media in the Fashion Design Study Program, Faculty of Tourism and Hospitality, Padang State University can significantly increase student creativity. (2) The application of the research-based learning (RBL) model in Machine Embroidery learning at the Faculty of Tourism and Hospitality, Padang State University can improve student learning outcomes.

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