The Learning Effectiveness in Fashion Design Course Using Discovery Learning

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***Abstract*—This study aims to determine the effectiveness of teaching fashion design with discovery learning approach to increase student creativity. This research is an experimental research used pretest-posttest control group design. The subjects of the study were students of the Department of Family Welfare Education, Specialized in Fashion, Academic Year 2015/2016. The subjects of the research were 25 students of experimental class and 25 students of control class. The research variable was the student ability in fashion design which measuredbypre-test and post-test scores. It also concerns to student creativity which collected by questionnaires. The result of the research shows that the trial of discovery learning in the experimental class indicates that the value of learning outcomes is significantly better than the value of the control class learning outcomes. Also, discovery learning is also effective in improving students' understanding of the concept as well as effective in improving student creativity in the subject of fashion design.**

***IndexTerms*—Effectiveness; Discovery Learning; Fashion Design; and Creativity.**

I. INTRODUCTION

The lecturer is an essential component in implementing a learning strategy. The success of the learning strategy depends on the teacher's ability to understand the method and the learning technique. One of the problems faced in the world of education is the weakness of the learning process. In the learning process, learners are less encouraged to develop thinking skills.The process of learning in the classroom directed the ability of students to memorise information. The students are accustomed to remembering various information without being required to understand information and relate it to everyday life[1].

The condition above also occurs in the subject of fashion design in the Department of Family Welfare Education. Learners have not been able to develop their ability in creative thinking in creating a good fashion design. It was shown from the learning process that they are not well implemented a strategy of thinking. The learning process only takes one way, i.e. the students only accept what is given by the lecturer. Sometimes the teachers conduct group learning, but the activities are only discussing educational issues and not digging deeper into the information [2].

A learning model is needed to solve the problems. It involves the students actively in learning so that the learning process will doing in two way communication. The students are required to be active in the learning process and trained to analyse a problem to make generalisations and find learning concepts to make learning more meaningful [3]. Discovery learning allows theteacher to create an environment and atmosphere of the appropriate academic expectations. It also is a component of educational practice that promotes active learning, process-oriented, directing his own and reflective [4]. This learning enables students to develop their reasoning skills through active learning and self-discovery by students.

Discovery learning is working to improve the cognitive abilities of the students and at the same time also develop psychomotor skills. Thus, it is expected that the outcome of education has a general competence and relevant to the demands of the world of work. The implementation of discovery learning makes the lecturers act as mentors and provide the opportunity for students to learn actively. The teacher should be able to guide and direct the learning activities of students for the purpose. The conditions such as these want to change the teaching, and learning activities are teacher-oriented to student oriented[5].

Budiningsih (2005) states that the discovery learning approach hasadvantages and disadvantages in the learning process.The benefits of discovery learning are: (1) helping students to improve and improve cognitive skills and processes. Discovery is the key to this process; one depends on how it is learned. (2) The knowledge gained through this method is very personal and powerful because it reinforces understanding, memory and transfer. (3) engenders a sense of pleasure in students, because the growing sense of investigating and succeeding. (4) This method allows students to develop quickly and at their own pace. (5) Students change their learning activities by involving their reason and motivation. (6) Students will understand basic concepts and ideas better).(7) Helps and develops memories and transfers in a new process. (8) Encourages students to take the initiative on their own, (9) Provides intrinsic decisions, (10) Situation of learning process becomes more aroused, and (11) Increase the level of respect for students.

Creativity is a word often used to describe someone who often finds something new, whether in the form of thought, ideas or in the form of physical findings. A creative person is a person who never runs out of his mind to find a solution to the various problems it

faces.Setyawan (2010) suggests that creativity can be seen in a variety of dimensions: (1) in the personal side, it refers to the potential of the creative power of each. (2) As a process, that form of thinking individuals trying to find relationships new, get new answers, methods or ways of dealing with a problem. (3) as a motivator of a strong desire to be creative, and (4) the outcome aspect, i.e. everything that is the work of a person from his or her uniqueness in interaction with his environment.

Discovery learning is very suitable for use in teaching the course of design, where the existing materials relating to the development of student creativity in fashion design. Students will feel comfortable learning and then the lecturer seeks to increase the role of student activities to support the implementation of the learning process is exciting and meaningful. Therefore, the authors attempt to examine the extent of the influence of discovery learning approach to learning fashion design on the creativity of students in designing clothing.

II. RESEARCH METHOD

The type of the investigation conducted in experimental research. This study uses a pretest-posttest control group design. Two groups will be randomly selected, then given a pretest to determine the initial state whether there is a difference between the experimental group and the control group. The subjects of the study were the students of Department of Family Welfare Educationof Makassar State University Academic Year 2015/2016. The subjects of the research were 25 students of experimental class and 25 students in the control class.

The data was collected by used test and questionnaire creativity. Instruments used in this study are test instruments and non-test instruments. The test instrument used was multiple choice questions that were used in the pre-test and post-test, while the non-test instrument used was the observation sheet. The instrument is used to measure students' competence in the cognitive and affective domains which covered students' abilities in clothing design. The paper based test used in pre-test at the beginning of the meeting. It was conducted to determine the ability of beginning students. The post-test carried out at the end of learning. It was done to measure the ability of students after going through the learning process. The pre-test and post-test serve in the multiple choice questions which have25 questions. The question of pre-test is designed differently with the post-test, but still have a level of difficulty and the same weight. It was done to reduce the possibility of bias caused by the span of time between the implementation of the pre-test to post-test. After that, the data wereanalysed using SPSS for windows with at-test.

III. RESULTS AND DISCUSSION

1. Student Learning Outcomes (SLO)

The results of the research describedin Table 1.

Table 1. Descriptive Statistics of Pre-test and Post-test Learning Outcomes

		Pre_Con_SLO	Post_Con_SLO	Pre_Ex_SLO	Post_Ex_SLO
N	Valid	25	25	25	25
	Missing	25	25	25	25
Mean		38.8560	78.5140	38.6136	84.3992
Median		38.5700	80.0000	38.5700	85.0000
Mode		38.57	80.00	37.14	85.71
Std. Deviation		2.86000	5.09137	2.56550	5.41769
Range		8.58	18.57	8.58	20.14
Minimum		34.28	67.14	34.28	72.86
Maximum		42.86	85.71	42.86	93.00
Sum		971.40	1962.85	965.34	2109.98

Table 1 shows that the range of scores between the control class pre-tests was at 34.28 - 42.86 while the experiment class pre-test also at 34.28 - 42.86. The mean score of pre-test of control class is 38,86 and the experiment class post-test 38,61 indicates that the mean of student's score has not reached minimum mastery criteria with standard deviation is still big that is 2,86 for control class and 2,57 for experiment class. An average score below 75 scores indicates that there are still respondents who have not met the minimum mastery criteria (KKM).

Furthermore, the range of scores between the control class post-tests was at 67.14 - 85.71 while the pre-test experimental class was at 72.86 - 93.00. The mean value of the control class post-test of 78.51 and the experiment class post-test of 84.40 indicates that the average of the student's value is far enough past the minimum mastery criteria with standard deviations of 5.09 in the control class and 5.42 in the experimental class. An average score above 75 indicates that the class meets the minimum mastery criteria (KKM).

2. Student Creativity

Testing the effectiveness of learning using discovery learning seen from the creativity of students can be seen in Table 2.

Table 2. Descriptive Statistics Testing of Pre-test and Post-test Learning Outcomes on creativity

		Pre_Con_Cre	Post_Con_Cre	Pre_Ex_Cre	Post_Ex_Cre
N	Valid	25	25	25	25
	Missing	25	25	25	25
Mean		73.6400	76.4800	77.2000	85.4400
Median		72.0000	74.0000	78.0000	84.0000
Mode		70.00	72.00	76.00(a)	82.00
Std. Deviation		5.98526	5.72364	4.48144	4.63753
Range		21.00	20.00	17.00	14.00
Minimum		65.00	68.00	65.00	80.00
Maximum		86.00	88.00	82.00	94.00
Sum		1841.00	1912.00	1930.00	2136.00

[a] Multiple modes exist. The smallest value is shown

Table 2 indicates that the range of scores between the pre-test control classes is at a value of 65 to 86 while the pre-test of the experimental class is at 65 to 82. The average pre-test score below 75 indicates that there are still respondents who have not met the minimal criteria mastery (KKM). Nevertheless, the mean value of pre-test control class of 73.64 and pre-test of the experimental class of 77.20 indicates that the student's average score has reached the KKM although the standard deviation obtained is still significant, i.e. 5.98 for the control class and 4.48 for the experimental class.Furthermore, the range of scores between the control class post-tests is at a value of 68 to 88 while the pre-test experimental class is at a value of 80 to 94. The mean value of control class post-test of 76.48 and pre-test of the experimental class of 85.44 indicates that the average of the student's value is quite far past the KKM with standard deviation obtained by 5.72 for the control class and 4.64 for the experimental class.

3. Differences in student learning outcomes

The differences in learning outcomes and student creativity measured before and after being treated in the experimental and control groups are presented in Table 3.

Table 3. T-test of Paired Sample Value of Learning Outcomes and Creativity in Control and Experiment Group

		Paired Differences					T	df.	Sig. (2-tailed)
		Mean	*Std. Deviation*	*Std. Error Mean*	*95% Confidence Interval of the Difference*				
					Upper	*Lower*			
Pair 1	Pre_Con_HB - Post_Con_HB	-39.65800	5.49113	1.09823	-41.92463	-37.39137	-36.111	24	.000
Pair 2	Pre_Eks_HB - Post_Eks_HB	-45.78560	5.89701	1.17940	-48.21977	-43.35143	-38.821	24	.000
Pair 3	Pre_Con_Kre - Post_Con_Kre	-2.84000	1.49108	.29822	-3.45549	-2.22451	-9.523	24	.000
Pair 4	Pre_Eks_Kre - Post_Eks_Kre	-8.24000	4.28447	.85689	-10.00854	-6.47146	-9.616	24	.000

Table 3 above shows that the significance values of all control and experiment class groups have significance values below 0.05. Also, the tvalue obtained is smaller than t tableamounted to 2,064. The result of student learning showed the average of pretest and posttest value in the control group is 39.66, while the experimental group is 45.79, so the value range of both groups is 6.13. Theresult shows that the improvement of student learning outcomes occurs significantly with the provision of discovery learning method, while the range of student creativity values between the control group and the experiment is 5.4.

Table 4. Independent Sample Test Results of Learning Outcomes

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Upper	Lower
Pre_Post_HB	Equal variances assumed	7,845	.007	-38.190	48	.000	-45.78560	1.19889	-48.19612	-43.37508
	Equal variances not assumed			-38.190	34.248	.000	-45.78560	1.19889	-48.22138	-43.34982

Table 4 shows that the experimental class learning outcomes have a significant value of t-test under 0:05 and t value obtained for -38 190 less than the value t table of 2.011. The result shows that there are differences between student learning outcomes before and after giving discovery learning method.

Table 5. Test-t Independent Samples of Creative Values

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Upper	Lower
Pre_Post_Kre	Equal variances assumed	.423	.519	-6.389	48	.000	-8.24000	1.28981	-10.83333	-5.64667
	Equal variances not assumed			-6.389	47.944	.000	-8.24000	1.28981	-10.83341	-5.64659

Table 5 shows that the experimental class learning outcomes have a significant value of t-test under 0:05 and t value obtained for -6389 is smaller than t table of 2.011. The result shows that there are differences between student learning outcomes before and after giving discovery learning method.

Discussion

From the analysis results explained theimplementationof learning Model DL in the course of fashion design could be seen from the aspect of the learning outcomes and creativity of the students. The use of Discovery Learning model has proved to improve students' creativity in the fashion design course. This model provides an opportunity for students to explore related information about the material and process it so that it becomes new knowledge for the students. These processes are also organized into a regular and systematic learning cycle.Student activity is also always monitored and accompanied by lecturers who act as facilitators and motivators, so the centre of learning is no longer focused on teachers, and the material presented is not only limited to verbal material in textbooks only. Learning Discovery Learning also trains students to be creative and innovative.

Lecturers play a crucial role in teaching and learning process. A teacher must have the ability to adapt and change learning methods to the child's developmental level. The style of instruction of a teacher tailored to the characteristics of learners shows the diligence of teachers in helping students achieve mastery learning [8]. Although the teaching style of a teacher differs from one to another, at the learning process all teachers have the same goal, namely transforming science, forming students' attitudes, and making students skilled in the work. Mappalotteng, Hasanah, & Kanan, (2015) argue that teachers who often provide exercises in the context of material understanding will produce better students when compared with teachers who just explain and do not follow up continuously. This is because teaching and learning activities not only lie with the teacher but the students also interfere in the teaching and learning process [10].

In line with the research of van Joolingen, de Jong, Lazonder, Savelsbergh, & Manlove (2005)studied in a laboratory environment that implements discovery learning collaborative learning very precise in providing an approach that integrates collaboration,

modelling, and inquiry. The Co-Lab.s lecture structure maintains the complexity of the learning environment. It also provides specific instructional support, such as process coordinators, qualitative modelling and challenging assignments in providing student engagement tools in the context of authentic inquiry.

Experimental examination of the influence of the support, Interpretative, and Reflective learning scientific discovery learning (SDL) based simulations suggest that the experience of discovery is an important three interrelated perspectives in the SDL. Learning support, whether given in simulation software or presented by lecturers in the classroom, should be directed to the three aspects to invite meaningful, systematic, and reflective learning discovery by computer simulation [12].

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