

The Effectiveness of Workshop-Based Computer Learning of Photoshop Graphic Design by Using the Cooperative Learning Approaches of Jigsaw and Group Investigation

Wardani, Theodora Indriati^{1*} Wijonarko²

¹*Universitas PGRI Semarang, The Departement of Technology Information Education, Semarang, Indonesia*

²*Universitas PGRI Semarang, The Departement of Technology Information Education, Semarang, Indonesia*

**Corresponding author. Email: twindriati891@gmail.com, wijok5d@gmail.com*

ABSTRACT

For research on the effectiveness of photoshop graphic design computer learning is used a workshop learning model. The learning model chosen was the Jigsaw cooperative learning model and the Group Investigation type. The difference between the two models is that in the type of Jigsaw grouping there are grouping activities of students in two stages, while in the type of Investigation the grouping group is only one stage. The problem studied is which learning model is more effective between the two types. To find answers to the answers to the problem, an experimental study was carried out comparing the two types of learning at FPMIPATI Semarang PGRI University, the Department of Information Technology Education S1 Program, the 6th semester of the 2017-2018 academic year. Two classes were used for the study, each of which had 15 students in a class with one learning done with a Jigsaw type workshop, while the second one was done with a Group Investigation type workshop. From the results of the work of the students of the two classes, the score data is expressed by numbers. The data was calculated statistically by t test to determine the effectiveness of the two types of workshops. The results of this study indicate that computer graphic design learning with Jigsaw cooperative model workshops is more effective than Group Investigation types.

Keywords: *the effectiveness of computer graphic design learning, workshops, cooperative type Jigsaw model, cooperative type of group investigation*

1. INTRODUCTION

Computer learning during this was carried out in the form of a workshop. In this workshop the lecturer did not lecture. The task is to facilitate students with work guidelines with work guidelines. With these work guidelines, students work on assignments with computer practice. The lecturer guides them. In workshop learning there are known Jigsaw type workshops and Group Investigation type workshops. Both of them include cooperative learning. In both of these cooperative models it is important for students to work together in small groups to discuss teaching material, which in Photoshop computer graphic design learning is in the form of work procedures applying the principles of technology to produce something in the form of images namely greeting card covers. Both models of cooperative learning are chosen as computer learning because they are more suitable for students. In addition to the two models there are STAD (Students teams Achievement Divisions) and TGT (Team Game Tournament). Both models are usually used for learning form second-grade students to eleventh grade (Slavin:2009). The STAD model is implemented using individual questions (quizzes), while the TGT (team game Tournament) model uses learning games. So, the two models are not suitable for learning to produce

texts using computer practice. A distinctive feature of the cooperative model workshop is that students work together in small groups to discuss learning material. In a cooperative investigation type Group Investigation workshop, the formation of discussion groups is only done in one stage. The groups discussed computer practice teaching materials to produce greeting card covers as a whole. In contrast, in a Jigsaw type workshop the formation of discussion groups was carried out in two stages. In the first stage there was a discussion about the whole learning material. In the second stage the topics in the discussion were discussed in more depth in groups formed in the second stage. This groups is called the expert group because it only addresses specific topics. The groups discussed computer practice teaching materials to produce greeting card covers as a whole. From the comparison of the two types of cooperative learning above, it appears that learning Jigsaw type of understanding of student material is more mature in deepening the material. So it can be assumed that the achievement of student learning outcomes in Jigsaw type workshops in higher than the group learning achievement in Group Investigation type workshops. To obtain certainty, both of cooperative learning need to be examined with quasi experimental class, while the Group

Investigation type is applied in the control class. In this research, we will be able to determine the type of learning that is more effective between the two. The problem that arises from the description above is how more effective is the problem of the effectiveness of computer learning methods, namely between Photoshop computer graphic design learning with Jigsaw type cooperative workshop and Group Investigation types. The objective to be achieved in this study is to determine the effectiveness of cooperative workshop types in learning Photoshop computer graphic design, between Jigsaw type and Group Investigation type. The result of this study can be utilized by the organizers of computer courses or school managers who organize computer lessons.

2. METHOD

This type of research is quasi experimental research, which was carried out at the University of PGRI Semarang in the 2017-2018 academic year 6th semester S1 Department of Information Technology Education from the 6th semester students, class A was taken as an experimental group, a class that would be taught with a Jigsaw cooperative workshop and class B as a comparison group (control group), a class that would be taught by a workshop cooperative type Group Investigation. After learning is complete the group will produce a ranking. The work will be assessed by a score of numbers. This number score is quantitative data in research. This data will be used to determine the effectiveness of the two types of learning. Workshop material that will be taught to the two groups of students in this experimental research teaching material for Human and Computer Interaction courses that study Photoshop graphic design in the form of making greeting card covers using Photoshop software with the correct procedure. Then the average score of achievement results in producing greeting card covers of the two workshop groups was compared using the T test to determine the effectiveness of Photoshop learning computer design. The independent variables in this study were Photoshop computer graphic design learning with Jigsaw (X_1) cooperative workshops, and Photoshop graphic design computer learning with Group Investigation (X_2) cooperative workshop. Instead the dependent variable was the achievement of the results of making greeting card covers for students who were taught with a Jigsaw cooperative type workshop (Y_1), and the achievements of making greeting card covers on a student's computer that were taught with a group Investigation (Y_2) cooperative workshop. The targets of this research are S1 students majoring in Information technology Education. Faculty of Mathematics and Natural Sciences, PGRI University Semarang. Undergraduate Information Technology Education Undergraduate Students there are only 2 class in the 6th semester. Each class has an average of 25 students. So, in total there are 50 students. The determination of this class sample is carried out on the basis of the same ability, determined by the daily value of computer practice courses in Human Computer Interaction (average value of 70). Of the 2 classes only 25 students were taken (the class taught by the researcher), and they met the sample requirements. Their number $2 \times 15 = 30$ people (Sugiarto at al 2000:78-79). Subsequently, two classes were established, namely as an experimental group for class 6A, a class taught by a Jigsaw cooperative workshop and class 6B as a class taught by a Cooperative Investigation group as a control

group. The obtain data on the results of computerized Photoshop graphic design learning in the form of grades, a test technique is used, which is to do the task of producing greeting card covers with computers in this study greeting card covers in the form of documents in the form of images. The final score is obtained by adding up the numbers for each answer using a Likert scale called summated ratings or summed ratings (Nasution 2000:61). Which assesses the work of making greeting card covers are lecturer/researchers and evaluation results are expressed with quantitative scores. The instrument used in this study is a good instrument, meaning that the instrument is through planning and testing. Planning and testing are intended to make the instrument valid. In accordance with its objectives, namely for students to produce documents in the form of greeting card covers that meet certain criteria with the procedure of making documents. Validity includes internal and external validity. This research instrument fulfills internal validity, it is evident that there is a match between the parts of the instrument and all instrument that support the overall function of the instrument. Test items manuscript as an instruments consists of ten items. All of them are done using a computer that as a whole makes up the ten problems each. External validity is obtained through trial and error tests on students in the class rather than the control and experimental groups. With the product moment formula, the validity of test item, items can be calculated. Because this research instrument is in the form of a drawing task, to find out the reliability of the analysis instrument alignment of the results of the assignment for each trial. And it is known that ten items about the results are valid and reliable. Technical analysis of data using the chi-square normality test and homogeneity/variance similarity test F test was used. To test the hypothesis one-way analysis of variance (ANOVA) was used. Then the T test was used to find more effective types of cooperative workshops for computer learning Photoshop graphic design, between Jigsaw type and Group Investigation type. Besides that, to find the magnitude of the significant difference in learning achievement results in greeting card covers in the form of a document in the form of a picture between students being taught with a Jigsaw type and Group Investigation type workshop.

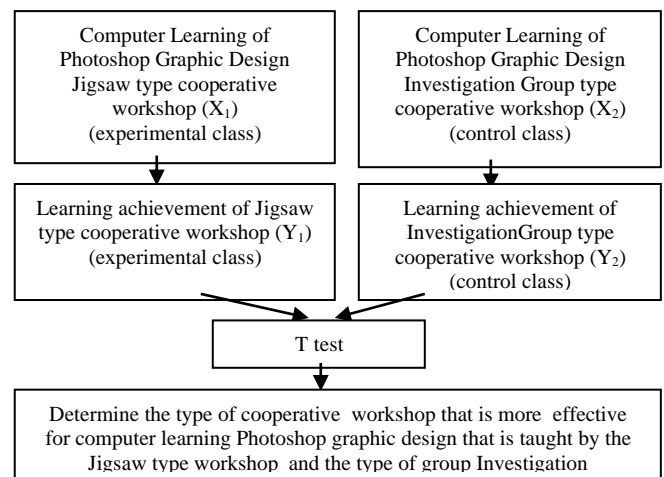


Figure 1. Research Design

3. RESULT AND DISCUSSION

Data normality test results by using the Kolmogorov-Smirnov SPSS program for these two variables, the value of $0,590 > 0,05$ was obtained for the Jigsaw model group. So, based on data normality testing criteria, the Jigsaw model group is normally distributed. Then the normality test results are $0,554 > 0,05$ for the Investigation Group. So, based on the data normality testing criteria, the Cooperative Model Group Investigation Model group is normally distributed. Furthermore, the homogeneity test results for the two groups namely, the experimental group (Jigsaw type) and the control group (the Investigation type group) showed that the significance value obtained was $0,174 > 0,05$. So, based on data normality testing criteria, the Jigsaw model group and Group Investigation were homogenous. For the one-way ANOVA results obtained by the two groups conducted on the results of learning achievement in producing greeting card covers in the form documents in the form of images. Obtained $F_{count} = 62,007$ and $F_{table} = 4,04$. Because it is known that $F_{count} > F_{table}$, thus H_0 is rejected. This means that there are significant differences from the results of learning achievement in producing images. Thus, the two groups of the Jigsaw Group and Group Investigation models are not identical (the average learning achievement score in producing the manuscript is not identical or not the same). Finally, the T test results obtained a ratio of $t = 7,060$ and $t_{table} = 2,1448$, and obtained a significance value of $0,000 < 0,05$. Thus there are differences in the significance of experimental class learning outcomes (Jigsaw type) and control classes (Group Investigation type). Because it is known $t_{count} > t_{table}$ and based on the significance value of the average learning achievement of the experimental class and the control class, namely the average results of the experimental class 93 (class 6A) and the achievement results of the control class 82,33 (class B). Thus computer learning with a Jigsaw type workshop (class 6A) results in a higher grade average than the cooperative group type Investigation model (class B). After calculated by ANOVA test and T test, it turns out that the difference is significant. Then the experimental group (the Jigsaw type cooperative model) is significantly better than the control group (the Group Investigation type cooperative model). Thus hypothesis is proven that learning with Jigsaw cooperative workshops is more effective than computer learning with Group Investigation cooperative workshops. For discussion based on the results of one-way analysis of variance, it is known that there are significant differences in learning outcomes in producing greeting card covers between classes taught by Jigsaw type cooperative workshops and Group Investigation types. This difference occurs because in learning Photoshop computer graphic design that is taught with a Jigsaw cooperative model is done grouping twice and at stage one in the home group and the second stage in the expert teams (expert teams). In the original group, each group first discussed the steps of making greeting card covers and in the expert group the steps were further explored, before producing greeting card covers. In learning the type of Group Investigation, grouping is done in only one stage. At this stage all groups have the same task, namely discussing the

stages of making greeting card covers thoroughly and thoroughly, as well as making the final formulation of steps for making greeting card covers reported in class. Thus, the achievement of student learning outcomes taught by the two different cooperative models is also significantly different. Based on results of the T test, it is known that the average value of learning outcomes in computer learning taught with Jigsaw type workshops is better than the average value of learning outcomes taught with the Group Investigation type cooperative model and the difference is significant. This is reasonable because in a computer learning workshop taught by a Jigsaw cooperative model workshop the treatment of group discussion is carried out in two stages namely the home discussion stage and continued with the discussion team in expert teams. In contrast, in Photoshop computer graphic design learning taught by Cooperative Model workshops, the formation of a one-time discussion group, so that the understanding of teaching materials by students in Jigsaw groups is better and deeper than Jigsaw class students higher than the average value, Class Investigation students. On the basis of the value of learning outcomes, it can be said that computer learning taught by Jigsaw cooperative model workshops is more effective (better) than computer learning taught by Group Investigation cooperative model workshops. So, computer learning in the experimental class is more effective than computer learning in the control group. This caused by differences. The caused factors that influence the achievement of different learning achievement scores in producing greeting card covers for each student in a graphic design computer learning class taught by Jigsaw type cooperative workshops and Group Investigation types, are as follows: (1) Different cognitive abilities as reasoning abilities possessed by students. Students who have high cognitive abilities may more successful in their learning when compared to students. Students with high cognitive abilities, including students who are less intelligent so that learning outcomes are also low. Smart students will be more capable and easier to process computer teaching materials, so the learning outcomes are better than students who are less clever. (2) High and low interests and talents. Students interests and talents vary in the computer field. High interest and talent allows high learning achievement. Conversely, low interest causes learning outcomes in students computer learning workshops to be suboptimal. (3) Not optimal condition of students when working on assignments. Physiological factors students, such as fatigue and health, are very influential in doing assignments. Likewise, in a psychic state, students are disturb while doing their assignments, the resulted obtained by students are not as expected. So, there are differences in the achievement of computer learning outcomes, both in groups of students in the experimental class and the control class, it is natural and given a different treatment, student achievement in the experimental class and the control class are also different. Then the difference in learning achievement can be used as data to determine that Photoshop computer graphic design learning with a Jigsaw cooperative model workshop is more effective than a Group Investigation type. Average value of computer learning in two groups

Table 1. Average Value Of Computer Learning In Photoshop Design Graphic

Computer learning of cooperativ emodel workshops	Average Value of Computer Learning In Photoshop Design Graphic		
	Jigsaw type (class 6A)	Experimental class	93
Investigation Group type (class 6B)	Control class	82,33	

4. CONCLUSIONS

Conclusions based on exposure and discussion of the results of the study concluded that computer learning taught by the Jigsaw cooperative model workshop was more effective than the group Investigation type. This is because in Photoshop computer graphic design learning taught by Jigsaw cooperative model workshops, group formation is carried out twice, namely stage one is home groups and group two is expert teams, whereas computer learning graphic design Photoshop is taught with models Cooperative type Group Investigation is carried out forming a group in only one stage. And judging from the average value of learning outcomes, between computer learning taught by Jigsaw cooperative model workshops, it turns out that is more effective than computer learning taught by Group Investigation cooperative model workshops.

Suggestions to the advce in study this as follows: (a) On the basis of conclusion I, it is recommended that optimal computer learning outcomes, let graphic design computer learning be taught with a Jigsaw cooperative model workshop, (b) If the reason for the low achievement can be determine, special guidance can be done done to students both in groups and individually

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