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THE EFFECT OF MEMORIZATION LEARNING MODEL ON LEARNING OUTCOMES OF INTRODUCTION TO PATTERNS SUBJECT IN VOCATIONAL HIGH SCHOOL

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ABSTRACT

The purpose of this research is to determine the effect of memorization learning model on students' learning outcomes in Introduction to Patterns subject in Sekolah Menengah Kejuruan Negeri 3 Pematangsiantar (SMKN 3 Pematangsiantar/State Vocational Highschool 3 Pematangsiantar) as the population. The research instrument was a test to determine learning outcomes which is then analyzed using t-test. The test scores showed that the students in Introduction to Patterns subject taught using memorization learning model achieved an average score of 72.03 whereas those taught using conventional model as the control class scored an average of 57.03. The scores of students taught using both conventional and memorization learning models shows normal distributions and homogenous variance. The result shows that there is a significant effect of memorization learning model on students learning outcomes ($t -4.761 < t_{table} 1.67$). As such, memorization learning model can be used as an alternative learning model in school.

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Introduction.

Education is one of the most important needs of human. Without it, human is not able to develop and will regress. It is needed to develop students' potential so that they can solve the problems in their lives. It is a continuous process for human, starting from when we are born until the day we die, through formal and nonformal education. Learning process is an education process where learners develop their

knowledge and cognitive and psychomotor abilities through interaction with learning sources and activities which are planned in a syllabus and learning plans. Students learn through activities by observing, questioning, gathering information, associating or analyzing, and communicating the result of analysis. The result of this learning process, knowledge and skills, is known as instructional effect.

Vocational high school students are potential human resource which possess the skills and knowledge of the chosen department and are able to directly apply their skills in the work force. Vocational high school, as part of secondary education level in Indonesia, has the following missions:

- 1) To prepare students to enter the workforce.
- 2) To prepare students to compete and develop themselves in choosing their career.
- 3) To prepare future professional workforce.

To prepare graduates to become productive, adaptive, and creative citizen.

Graduates of vocational high school in Indonesia unfortunately are commonly seen as not ready for the work force. This weakness of human resource is largely caused by their lack of mastery of competences and sub competences outlined in the syllabus.

Introduction to Patterns is a subject in Textiles Department in vocational high schools. The learning outcomes of the subject is for students to know basic patterns in clothing's, including the patterns of main body, skirts, sleeves, construction, and how to alter pattern designs. It is thought that the low learning outcomes are caused by conventional teacher centered model. This causes the students to be more passive, only copying the patterns drawn by the teacher on the blackboard.

Teachers' role in classroom management is essential to create a supportive learning environment because, in principle, teachers have two tasks, which are to teach and to manage the class. Classroom management is essential to create and maintain a good learning condition so that learning process can proceed effectively and efficiently to achieve the planned learning outcomes. Students in Indonesia tend to be silent even when they don't understand the lesson, so it is important for the teacher to have ability to invite the students to ask. Joyce&Weil (2008) states that learning model is a plan or pattern used as a guide to plan and design the learning activities and to determine suitable learning instruments.

Furthermore, Joyce&Weil (2008) proposes that a learning model has the following characteristics:

- 1) Syntax
- 2) Social system
- 3) Reaction principle
- 4) Supporting systems
- 5) Instructional effect

Memorizing is an active effort to put information to memory. Some people can memorize information fast but can not maintain it in the long term. This is because they don't exercise their memorization capability. Memorization learning model is thought to be able to improve the learning outcomes in introduction to patterns subject because it is supported by several supporting systems including pictures, real life objects, films and other audiovisual materials, to especially enrich sensoric knowledge and associations to make it easier for students to learn.

Conventional learning model in Indonesia usually uses lecture method, tend to center around the materials provided in text book and rarely associate the materials with real life problems in daily life. Syahrul (2016) explains that conventional learning model are identified with the teacher focusing more on concepts, not competence, and the students passively listening to information during learning process. Students tend to only listen to the teacher's lecture, without giving their own opinions and arguments about the materials in the text book. According to Kholik (2016), the strengths of conventional learning models are:

- 1) Speed of information sharing
- 2) Able to arouse curiosity
- 3) Effective for students' whose learning type is by listening
- 4) Ease of use

while its weaknesses are:

- 1) Hard to maintain students' interest in the lesson.
- 2) Tend to only focus on finishing classroom tasks.
- 3) Students not knowing the application of information in real life situation.
- 4) Low absorption rate caused by focus on rote memorization.

On this matter, Ampera [5] states that a learning model which is suitable for a particular material can increase the learning outcomes. Ampera [6] also explains that a teacher should be able to utilize a suitable learning strategy for the students' skills needs. Conventional learning should still be used under the assumption that the information can be transferred as a whole from the teacher to students.

Memorization Learning model focuses on how to process the information available in memory and to apply the concept to produce simple products related to human needs. The most important factor that affects learning is what the learner has already known. To use this learning model is to know how brain works. By knowing how brain works, memorizing become easier and students' passion to memorize things increase. The materials to be memorized are to be used in long term memory, not short term. To achieve this, the act of successfully producing gives good feelings and help ingrain the concept to memory.

Wijaya (2012) states that there are three things that are the foundation of a type of memorization called magic memory: 1) Imagination, the ability to process something as an image or visual representation within the brain, 2) Association, the ability to associate one thing with another with color to strengthen the association, 3) Location, the ability to recall an object which has image and association, and its condition in a specific location so that it is easy to recall. Memory for learning and daily life needs are supported by two basic things, memorizing and recalling. Memorizing is an active effort to put information into the brain, whereas recalling is an active effort to extract information from the brain.

The Memorization Learning model is shown in the following figure:

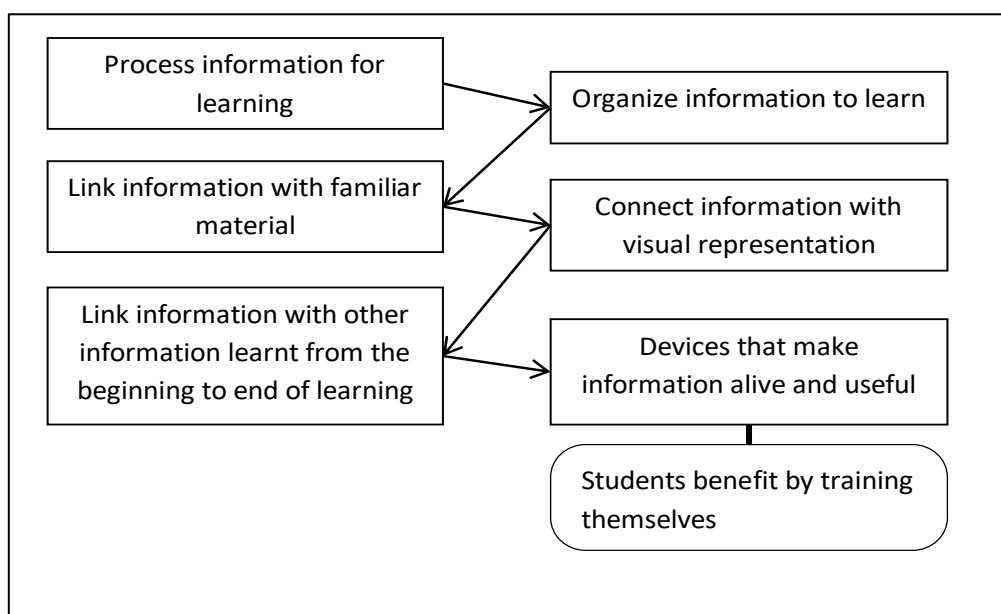


Fig. 1. Memorization Learning model steps

The steps in Fig. 1 are based on the principle of attention and techniques for enhancing recall. This model is designed to increase students' capability to memorize and recall. It teaches sensibilities of intellectual strength, increases awareness in mastering unknown materials, and improves thinking skills and environmental awareness. Another product of this model is the increase of visualization ability and production based on a more convergent learning and oriented to more information.

Methods.

This research is quasi-experimental research with a population of 96 students. Samples are randomly taken using simple random sampling. Two classes were given different treatment, one using the memorization learning model as the experimental group and one using the conventional learning model as the control group. Before treatment, students were taught by their normal teacher. During treatment, the control group continued to be taught by the normal teacher and the experimental group was taught by the researchers. A test was administered after the treatment to determine the students' learning outcomes after treatment.

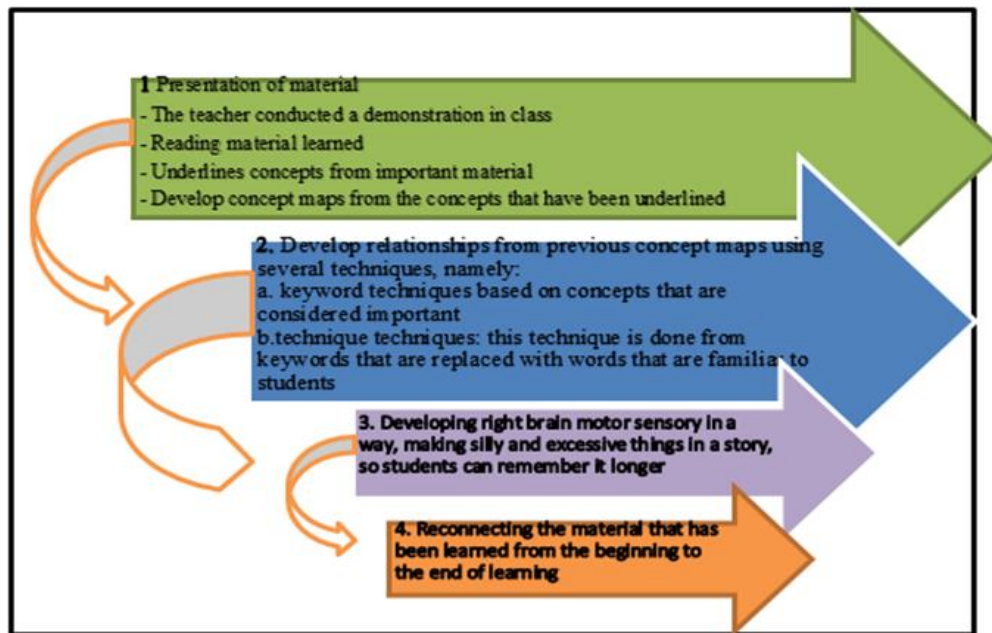


Fig. 2. Memorization Learning model treatment

The research instrument, the post test, has been tested for validity and reliability using point biserial correlation. To determine whether the effect of Memorization Learning model is significant, the test results are tested using t-test with 5% significance. The null hypothesis is rejected if the t value is bigger than t_{table} , which means the alternative hypothesis “There is a significant effect of memorization learning model on students’ learning outcome in Introduction to Patterns subject” is accepted.

Results.

After the treatment, post-test is administered to both experimental and control group in SMK Negeri 3 Pematangsiantar. The result of the test shows that the average score for control group with conventional learning is 57.03 out of 100 with a standard deviation of 14.16, the highest score is 85 and the lowest is 35. The frequency distribution of learning outcome of the control group can be seen in Table. 1 below:

Table 1. Frequency distribution of learning outcome in Introduction to Patterns subject using conventional learning model

Score class	Frequency	(%)	Category
90-100	0	0.0	Very good
80-89	3	9.4	Good
70-79	6	18.8	Adequate
<70	23	71.9	Lacking
Total	32	100%	

Learning outcome data in experimental group shows the average score of 72.03 with standard deviation of 10.82, the highest score is 90 and the lowest is 50. The frequency distribution of the learning outcome of the experimental group can be seen in Table 2 below:

Table 2. Frequency distribution of learning outcome in Introduction to Patterns subject using Memorization Learning model

Class	Score interval	Frequency	Percentage
1	35 – 43	5	15.6
2	44 – 52	8	25.0
3	53 – 61	9	28.1
4	62 – 70	5	15.6
5	71 – 79	2	6.3
6	80 – 88	3	9.4
	Total	32	100

The following tables show learning outcome of both groups categorized using the learning outcome categorization used in Indonesian secondary schools.

Table 3. Learning outcome in Introduction to Patterns subject using conventional learning model

Class	Score interval	Frequency	Percentage
1	50 – 56	3	9.4
2	57 – 63	4	12.5
3	64 – 70	6	18.8
4	71 – 77	10	31.3
5	78 – 84	5	15.6
6	85 – 91	4	12.5
	Total	32	100

Table 4. Learning outcome in Introduction to Patterns subject using Memorize Learning model

Score class	Frequency	(%)	Category
90-100	3	3.4	Very good
80-89	6	18.8	Good
70-79	13	40.6	Adequate
<70	10	31.3	Lacking
Total	32	100%	

It can be seen from the tables that less students are in the Lacking category in the experimental group compared to the control group. 3 students out of 32 in the experimental group also achieved Very good category whereas none in the control group managed to do that. Overall, there is an increase of students in the passing category (Adequate and above) in the experimental group.

The treatment lasted for 3 meetings and in each meeting, the average score of the day's score in exercises and such are collected. The following table shows the average score of both experimental and control groups meeting average score.

Table 5. Average score in meetings 1, 2, 3 of students in experimental and control group

Meeting	Average score	
	Experimental group	Control group
Meeting 1	90.25	71.90
Meeting 2	91.50	79.00
Meeting 3	91.75	82.00

While both groups showed increase in average score for every meeting, experimental group showed higher average score overall.

The learning outcome post test score for experimental and control group are tested using t-test. The result is summarized in the table below:

Table 6. t test result

Data	Group	Average score	S.D.	t	t _{table} (df=64)	Verdict
Learning outcome of Introduction to Patterns subject	Control	57.03	14.16	-4.761	1.67	Ha accepted
	Experimental	72.03	10.82			

As can be seen on the table, the average score of learning outcome in Introduction to Patterns in the control group is 57.03 with standard deviation of 14.16, whereas the experimental group with Memorization Learning model has the average of 72.03 with standard deviation of 10.82. The t-test returns t value of -4.761 which is less than the t_{table} with df=64 at 5% confidence which is 1.67. As such, the null hypothesis is rejected and alternative hypothesis is accepted. In other words, there is a significant effect of Memorization Learning model on learning outcome of Introduction to Patterns subject. Furthermore, the learning outcome using Memorization Learning model is higher than conventional learning model.

Discussions.

The Memorization Learning model is able to guide the learners to actively participate in learning process. During the treatment, students in experimental group discussed between themselves and not focused solely to listen to the teacher’s explanation. Interaction between friends is also improved in the experimental group due the nature of discussion enabling two-way communication. The students also had fun when learning, based on an interview with some of the students. This is especially seen in meeting 3 which increased students’ activity in group activity and discussions. Students were motivated to express their imagination in drawing their own clothing patterns. In the first meeting, students’ sensory imagination was still inadequate but in the second, their imagination increased in a significant manner. Students in experimental group also said that the group activity of making their own patterns made it fun because they can compete and compare their pattern designs with other students and group.

In the control group, students tend to be more passive. Interest in classroom activity only peaked when the teacher showed some pattern designs in a slide. Only listening and taking note of the teacher’s explanation seemed to not help much in understanding the lesson. This passiveness also made the lesson boring and the students lose interest to the learning activity.

This result is in line with the following experts’ theories. According to Sarifuddin (1997), Memorization Learning model is a model aimed to develop students’ ability in absorbing and integrate information to memory so that it is easy to recall when needed. Furthermore, Sabie Khamees (2016) explains that Memorization Learning model can increase students’ motivation to memorize for those with lower cognitive ability. This is important for teachers to know; to focus on the importance of understanding the concept, without ignoring memorization skill.

Klemm (2007) states that current mainstream education theories consist of creativity, insight, inquiry learning, comprehension, and self-expression. However, the focus on these aspects is biased and shows lack of appreciation to the importance of memory in learning. Students can not apply what they understand if they can't memorize it. Additionally, a good memorization ability can improve cognitive ability and enables new understanding to be developed quickly.

Conditt, Gandolfo, and Mussa Ivaldi (1997) stated that individual cognition, while not the only factor in learning, is a central determining feature of learning. However, we must work to further develop the present partial theory of conceptual change to fill in the missing cognitive core of the present shell.

Memorization Learning model is also useful to balance the usage of both hemispheres of the brain in processing information. The left hemisphere focuses on the logical, sequential, and tend to process information one by one, whereas the right hemisphere is more random, holistic, and creative in absorbing and saving information. Students tend to feel it is hard to memorize because in conventional learning model students tend to only use their left hemisphere to do it. By activating their right hemisphere along with the left in memorization, the students ability to memorize things by connecting things creatively increases and memorization becomes fun.

Through using Memorization Learning model in Introduction to Patterns subject, it is hoped that students become more creative in increasing their memory capacity and for the students to see the lesson material as something fun. When the students think that learning is fun, it is hoped that the learning outcome also increase from the motivation.

Conclusions.

It can be concluded from the data analysis that there is a positive significant effect of Memorization Learning model on learning outcome in Introduction to Patterns subject in SMK Negeri 3 Pematangsiantar. Students became more creative due to the importance placed in imagination in the memorization process. This learning model should serve well as an alternative to the conventional learning model, especially in subjects that deals with visual imagery and creativity.

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