The Influence of Learning Methods*Drill And Practice* On the Material of Computer Number Systems on the Learning Outcomes of Class X Students of State Vocational School 6 Kupang

Theresia Avila Dangut[1], Maria M. B. Sogen[2], Diana Y. A. Fallo[3]
(Program Studi Pendidikan Informatika, Fakultas Keguruan dan Ilmu Pendidikan, Universitas Citra Bangsa)
Email: aviladangut@gmail.com

Abstract

This study aims to determine whether there is an effect of the drill and practice method on the computer number system material on the learning outcomes of class X students of SMK Negeri 6 Kupang in the 2024/2025 academic year. This type of research is an experiment with a quasi-experimental design, the population in this study were all students of class X of the Software and Game Program (PPLG) of SMK Negeri 6 Kupang, while the sample used was class X PPLG 1 students as a control class totaling 28 people and class X PPLG 2 students as an experimental class totaling 32 people. The results of the study obtained from the analysis showed that the average value of learning outcomes for the computer number system material taught using the drill and practice method was 68.44 and the value of students taught using conventional learning methods had an average value of 53.57. In testing the hypothesis using the t-test, namely the independent samples test with a t-count value of 0.000 <0.05. So the proposed hypothesis is accepted, there is a significant influence of the drill and practice learning method on the computer number system material on the learning outcomes of class X students of SMK Negeri 6 Kupang in the 2024/2025 academic year.

Keywords: *learning outcomes, learning methods, drill and practice learning methods.*

INTRODUCTION

Education is all experiences (learning) in various environments that last throughout life and have a positive influence on individual development. Education only takes place for those who are students at a school or college students (Aminah 2020). Efforts to improve the quality of education, especially in improving student learning outcomes, one of which must be developed is in the learning method. The success or failure of something in achieving learning objectives in education is influenced by the way an educator applies material to students is by improving learning methods. The learning method chosen should be able to provide good results and be able to increase student activity. Students will be more interested in learning if the teacher is able to explore the knowledge that students already have, then connect it with new knowledge. Moreover, if the teacher is able to connect it with the real situation of students, then students will always be more interested in learning and will not feel bored in participating in teaching and learning activities[1].

In this modern era, the world of education has experienced development. This is indicated by the many new media and learning methods that have been created to support the success of the teaching and learning process in the classroom. Currently, teachers as educators who play a role in the learning process only need to choose what learning method is appropriate to use to convey the material to be delivered [2].

Based on the results of the researcher's observations related to the learning process is still monotonous or the method used is still one-way, namely centered on the teacher. This is shown based on the results of observations that have been carried out by researchers at SMK Negeri 6 Kupang. Most students feel bored, fed up and lack enthusiasm when following the learning process in class, because there is no innovation in the learning process, this is what causes students' lack of interest in following the learning process. The use of inappropriate learning methods results in low student learning outcomes. Of course, it will accumulate in student learning outcomes that are less active (one-way) so that it causes boredom in students, automatically students will not concentrate on the material presented by the teacher, and result in students' inability to answer questions during the evaluation of learning outcomes carried out by the teacher. The low student learning outcomes are evidenced by the average daily test scores of class X PPLG 1 student which are still not optimal. Of the 30 students, only 4 (12.5%)

students completed with a completeness criteria score of 70 and 28 (87.5%) have not completed. This shows the low learning outcomes of students in informatics subjects on computer number system material. The low achievement is caused by several factors, namely, first, one-way learning, which is centered on the teacher.

This can be seen from the learning dominated by the teacher so that students are not involved. Second, the learning method is less creative and the variation in the teacher's learning only uses conventional methods, namely teacher-centered learning methods, namely the teacher explains and students listen so that students do not have other learning activities other than sitting to listen to the teacher explain the material. Related to this, a teacher as an educator must be good at choosing interesting or varied learning methods so that students do not get bored and tired of implementing the teaching and learning process. The method still used by teachers is the conventional method, namely the learning method carried out by the teacher explaining and students listening. If this learning method is still used, the development of thinking and knowledge will not develop because students are less active and creative. Teachers have a very important role in determining the quality and quantity of teaching carried out. This role of the teacher greatly influences the development of learning and student learning outcomes, a teacher must be careful in choosing media or learning tools, as well as learning methods that will be put forward during the teaching and learning process. Therefore, in learning computer number system material, an educator no longer prioritizes absorption through achieving information, but rather prioritizes the development of student abilities so that they can apply the knowledge they have acquired. Student activities need to be improved through tasks and exercises that can foster creativity and critical thinking. Both individual tasks and small group tasks so that they can understand it with their own language style.

The drill and practice method allows students to repeatedly learn material that has not been understood. According to Daryanto (2012:21), namely: the drill and practice method is a method of learning exercises and practices that are used repeatedly to acquire skills and dexterity from the material that has been learned. So that students play an active role in the learning process not only centered on the teacher, by doing repeated exercises and practices, students understand what has been learned so that learning outcomes are more optimal. By training students intensively, it is expected to hone students' intellectual abilities. So it can be concluded that the drill and practice method is one method where the teacher provides material repeatedly so that it can hone students' intellectual abilities in mastering an academic competency that has been learned. In addition, according to Nugroho (2014:98) the drill and practice method makes learning activities easier, so that students are more enthusiastic and increase students' interest in learning.

Based on the problems above, the researcher is interested in knowing more about the Influence of the Drill and Practice Learning Method on Computer Number System Material on the Learning Outcomes of Class X Students of SMK Negeri 6 Kupang.

METHOD

The approach in this research is quantitative research with an experimental type. According to Sugiyono (2018:14), quantitative research is a research method that is based on positivism philosophy to research a particular population or sample, and sampling is done randomly with data collection using instruments, and data analysis is statistical. The quantitative research paradigm is considered a causal relationship between research variables (Sugiyono, 2018).

The experimental research design used is:*quasi experimental design*. *Quasi experimental design is* a study that uses a control group and an experimental group, but in this study the control group cannot function fully to control external variables that affect the implementation of the experiment. Quasi experimental design is used because in reality it is difficult to obtain a control group used for research. The experiment was conducted by conducting an initial test (pre-test) before the treatment was given and a final test (post-test) after the treatment was given to both groups of subjects with the following design:

Table 1. Design*Pre-test* And*Post-test control group design*

	Pre-test	Treatment	Post-test
Experiment	X1	O1	Y1
Control	X2	O2	Y2

Information:
AND : Experimental Group
K : Control Group
O1 : *Pretest* against the experimental group
O2 : *Pretest* against the control group
X1 : Treatment using learning methods drill *and practice*
X2 : Treatment using conventional methods.
O1 : *Post test* to the experimental group
O2 : *Post test* against the control group
The population taken in this study were students of class X PPLG with a total of 60 students and the sample used in the study were students of class X PPLG 1 with a total of 28 students and students of class X PPLG 2 with a total of 32 students at SMK Negeri 6 Kupang. The experimental class in this study was class X PPLG 2 and the control class was class X PPLG 1. The technique applied in this study was a test. The test was used to measure student learning outcomes. The test was carried out before learning and after the learning method was applied.*Drill and Practice*. The research instrument is used to measure the value of the variables studied; the instrument used in this study is the student learning outcome test instrument. The test given to students is in the form of multiple-choice questions with a total of 20 questions and a trial of the questions is used for data collection. Data collection is carried out using validity tests, homogeneity tests, normality tests and t-tests using SPSS 25.

RESULTS AND DISCUSSION

This study aims to determine the effect of using the Drill and Practice Learning Method on the Computer Number System material on the Learning Outcomes of Class X Students of SMK Negeri 6 Kupang. This study was conducted at SMK Negeri 6 Kupang involving two classes, namely class X PPLG 1 as the control class and class X PPLG 2 as the experimental class. The control group used the lecture or conventional method and the experimental group used the drill and practice learning method. After being given different treatments in the experimental class and the control class, both classes were given a pre-test to determine the students' initial abilities. The average value for the experimental class was 37.66 and for the control class was 28.21. Based on the same and homogeneous variance. The results of the study were obtained through several analyzes that could show the value of student learning outcomes from the two methods.

After the initial abilities of both classes were known, then students were given learning with different methods on the computer number system material. Students in the experimental class were taught with the Drill and Practice Learning Method and students in the control class were taught with the Conventional Method. After being given different treatments in the experimental class and the control class, at the end of the meeting after the material was finished being taught, students were given a post-test to find out the students' learning outcomes. It is known, from the results of the descriptive analysis that the average value of the pre-test and post-test in the experimental class is different. There is a significant difference between the pre-test and post-test of the experimental class. Where the average value obtained in the initial test = 37.76 with a minimum value of 10 and a maximum of 85. While the final result value after being treated using the drill and practice learning method increased to an average value = 68.44 with a minimum value of 45 and a maximum of 95. Therefore, the drill and practice learning method has an effect on student learning outcomes in the computer number system material. After the descriptive analysis was carried out, a validity test was then carried out on the test questions that would be carried out in the pre-test and post-test to determine the level of validity of the questions to be used.

Based on the results of the normality test with the help of SPSS 26, the data obtained shows that the learning outcomes of the experimental class tested by Shapiro-Wilk (sig.: 0.193 > 0.05) show a significance level greater than 0.05. The learning outcomes of students in the control class tested by Shapiro-Wilk (0.056 > 0.05) also show numbers with a greater

significance level. Thus, the learning outcome data for both the control and experimental classes are all normally distributed because they have a sig. value > 0.05. In addition, this study uses a t-test hypothesis test with the help of SPSS 26 with the provision of sig. (2-tailed) < 0.05.

In the hypothesis test using the t-test conducted with SPSS version 26 using the independent samples test, the sig. value (2-tailed) is 0.000 <α value is 0.05 so that the proposed hypothesis is accepted. Based on the results of the hypothesis test, there is a significant influence of the drill and practice learning method on the computer number system material on the learning outcomes of class X students of SMK Negeri 6 Kupang, this means that H0 is rejected and Ha is accepted.

This drill and practice learning method is a learning method where students do exercises repeatedly in order to have higher dexterity and skills. This method also provides an opportunity for students to be actively involved during the learning process. In this drill and practice learning method, students must also be responsible for the material and assignments given, students must find solutions to solve problems given by the teacher. With the drill and practice learning method, it turns out that it can stimulate students to be more active, creative and innovative in learning, both from groups of students who have low, medium and high levels of ability.

Based on the results of the research conducted by the researcher, it can be explained that the teaching and learning process of informatics subjects on computer number system material in class X PPLG 2 using the drill and practice learning method can affect student learning outcomes, stimulate students to study hard and play an active role in the learning process. For example, in experimental class learning, before distributing the learning materials to be given, the teacher introduces the material to be discussed that day, the teacher explains the learning objectives, learning achievements and provides trigger questions related to the material.

Aims to stimulate student responses to be more prepared to receive the material to be discussed next. After that the teacher explains the material to be discussed and provides exercises to determine how far students understand the material that has been given. By using this drill and practice learning method, it is expected that students will be more active, creative, innovative, responsible and work together.

The results of this study strengthen previous research, namely Ayu Lestari (2019), in her study entitled "The Effect of Drill and Practice Methods on Learning Outcomes of Class X Students of SMA Negeri 14 Gowa" There is a significant difference between the physics learning outcomes of students taught using the drill and practice learning method and the learning outcomes of students taught conventionally. Thus, the drill and practice learning method have a better influence on achieving student learning outcomes.

The results of this study also support the research of Uyia [3] in their research entitled "Implementation of the Drill and Practice Method to Improve Student Creativity at SDIT ENTER, Semarang City" Based on Classroom Action Research (PTK) conducted in class V at SDIT Enter, Serang City, it can be concluded that through the application of ISSN Online: 2597-3622 Vol 2 No 01 Year 2021 Page 73 - 82.81 the Drill and Practice learning method (exercise and practice) in the Arts and Crafts (SBdP) subject on the material of regional creative dance movement floor patterns can improve students' creativity. This is in accordance with the researcher's observations that have been carried out on students starting from pre-cycle-cycle I and Cycle II so that there is an increase in each cycle. The average value in the pre-cycle was 57, clearly this value is still far from the completion of the KKM value of 70. In the first cycle, there was a slight increase with the average value of students being 74. Likewise, in the second cycle, there was a significant increase with the results of the average value of students being 80. Thus, the KKM value of the Arts and Crafts (SBdP) subject of 70 has been achieved. Thus, the application of the Drill and Practice learning method (exercise and practice) in the Arts and Crafts (SBdP) subject on the material of regional creative dance movement floor patterns can improve the creativity of students in class V SDIT Enter Kota Serang.

CONCLUSION

Student learning outcomes are taught without using the Method of *Drill and Practice on* the Computer Number System Material on the Learning Outcomes of Class X Students of SMK Negeri 6 Kupang, namely with the initial test score obtained the pre-test score with an average score (mean) = 28.21 with a standard deviation = 15.765 and variance = 248.545. While for the post-test score obtained with an average score (mean) = 53.57 with a standard deviation = 12.462 and variance = 155.291.

The learning outcomes of students taught using the Drill and Practice Method on Computer Number System Material on the Learning Outcomes of Class X Students of SMK Negeri 6 Kupang, namely with the initial test score obtained the pre-test score, namely the average score (mean) = 37.66 with a standard deviation = 23.725 and variance = 562.878. While for the post-test score obtained with an average score (mean) = 68.44 with a standard deviation = 14.224 and variance = 202.319. The conclusion is that the application of the drill and practice method on the computer number system material in class X of SMK Negeri 6 Kupang has shown a significant increase in student learning outcomes. This can be seen from the comparison of the average pre-test score which was only 37.66 to 68.44 in the post-test, accompanied by a decrease in variance and standard deviation, which shows the consistency of increasing student scores after the application of the method.

In conclusion, there is a significant influence of the use of the drill and practice method on the computer number system material on the learning outcomes of class X students of SMK Negeri 6 Kupang. This is proven through the independent samples t-test, which shows a significance value (sig. 2-tailed) of 0.000 <0.05. Thus, the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted, confirming the effectiveness of the method in improving student learning outcomes.

SUGGESTION

To facilitate the achievement of basic competencies, teachers are expected to use and select models, approaches, strategies and learning methods that are relevant to the discussion of the subject matter.

For researchers who are interested in further developing this research, it is expected to pay attention to the limitations of this research, so that further research can improve the results of this research. Suggestions describe things that will be done related to further ideas from the research. Obstacles or problems that can affect the results of the research are also presented in this section.

ACKNOWLEDGEMENT

Thank you to my supervisor who helped me complete my final assignment.

BIBLIOGRAPHY

[1] A. (2019). Lestari, “Pengaruh Metode Drill and Practice Terhadap Hasil Belajar Fisika Peserta Didik Kelas Xi Sma Negeri 14 Gowa.,” *Digilibadmin.Unismuh.Ac.Id. https://digilibadmin.unismuh.ac.id/upload/7290-Full_Text.pdf*, 2019.

[2] Y. D. (2019). Hasibuan, “Pengaruh Model Pembelajaran Drill and Practice Terhadap Hasil Belajar Akuntansi Siswa Kelas X SMK Budisatrya Medan TA 2019/2020.,” 2019.

[3] R. (2021). Nursehah, U., & Rahmadini, “Penerapan Metode Drill and Practice Untuk Meningkatkan Kreativitas Siswa Di Sdit Enter Kota Serang.,” *J. Pendidikan, 2(01), 73–82.*, 2021.

[4] E. R. (2022). Prayogo, “Model Pembelajaran Drill And Practice untuk Meningkatkan Kualitas Pembelajaran Bahasa Inggris Materi Expression Of Congratulations pada Siswa Kelas IX B Di SMP Negeri 2 Bangsalsari Jember.,” *J. Simki Pedagog. 5(1), 45–55. https//doi.org/10.29407/jsp.v5i1.112*, 2022.

[5] M. (2013). Rusiati, “Penerapan Metode Pembelajaran Aktif Drill and Paractice Pada Mata Pelajaran PAI Dan Budi Pekerti Dalam Meningkatkan Hasil Belajar Peserta Didik.,” *Semin. Nas. Pendidik. Profesi Guru Pendidik. Agama Islam. 1(1), 47.*, 2013.

[6] S. (2019)., “Pengaruh Metode

Pembelajaran Drill Terhadap Kemampuan Menulis Ayat Al-Qur'an Dalam Mata Pelajaran Al-Qur'an Dan Hadits Siswa Kelas Iii Mi Plus Ja'Al Haq Kota Bengkulu.," *J. Chem. Inf. Model. 53(9), 1689–1699.*, 2019.

[7] M. T. (2018). Utary, "Pengaruh penggunaan metode drill terhadap hasil belajar siswa pada mata pelajaran bahasa indonesia di kelas iv min sei agul kec. medan denai.," *Pengaruh Pengguna. Metod. Drill Terhadap Has. Belajar Siswa Pada Mata Pelajaran Bhs. Indones. Di Kelas Iv, 29–30.*, 2018.