

ANALYSIS OF THE ACHIEVEMENT OF DOUBLE LOOP PROBLEM SOLVING (DLPS) LEARNING MODEL ON MULTIPLE SELECTION PROBLEMS REVIEWED FROM MATHEMATICAL CONNECTION ABILITY OF VOCATIONAL SCHOOL

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Abstract

This article presents research related to learning achievement using the double loop problem solving (DLPS) learning model and experimental research methods with a pre experimental design: one-shot case study design using purposive sampling, of class X vocational students in the academic year 2019/2020 on math problems with multiple choice questions. the purpose of this research is to describe the achievement of students' mathematical connection abilities using the double loop problem solving learning model (DLPS), obtain a number of student problems in the process of connecting the form of mathematical problem questions with multiple choice questions. Based on the analysis of the data obtained the results of research at the intended school shows that the percentage of students who have good mathematical connection abilities of students is less than 65%. Thus in the form of multiple choice questions, the double loop problem solving learning model is not achieved in the mathematics learning process

Keywords: Mathematical connection skills, double loop problem solving learning model

Abstrak

Artikel ini menyajikan penelitian terkait ketercapaian pembelajaran menggunakan model pembelajaran double loop problem solving (DLPS) dan metode penelitian eksperimen dengan desain *pre experimental : one-shot case study design menggunakan purposive sampling*, terhadap siswa SMK kelas X tahun ajaran 2019/2020 pada soal matematika dengan bentuk soal pilihan ganda. tujuan dari pada penelitian ini diantaranya untuk menjabarkan tentang ketercapaian kemampuan koneksi matematis siswa menggunakan model pembelajaran double loop problem solving (DLPS), memperoleh sejumlah persoalan siswa dalam proses mengkoneksikan bentuk soal permasalahan matematik dengan bentuk soal pilihan ganda. Berdasarkan analisis data diperoleh hasil penelitian pada sekolah yang di tuju menunjukkan bahwa persentase siswa yang memiliki kemampuan koneksi matematis siswa yang baik adalah kurang dari 65%. Dengan demikian pada bentuk soal pilihan ganda, model pembelajaran double loop problem solving tidak tercapai dalam proses pembelajaran matematika

Kata kunci Kemampuan koneksi matematis, model pembelajaran double loop problem solving

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INTRODUCTION

The ability of mathematical connections is very important to be mastered by every student, except for vocational students, because in every problem there is a direction in our goal to be demanded to understand the problem so that the solution and solution of the problem can be immediately solved properly in terms of our connection direction in seeing the problem correctly on the object and in the direction of the goal that must be understood and understood by all elements of the student layer.

Suherman (2008) states the ability of mathematical connections is the ability to associate mathematical concepts / rules with one another, with other fields of study, or with applications in the real world

One form of questions that illustrates the ability of students' mathematical connections is a multiple choice problem. Where multiple choice questions become one of the problems of interesting problems to discuss where do students really answer as much as possible or the students themselves suspect or guess the answers without any arrangement of solutions that is useful to answer correctly with the steps that are made by him .

The results of a preliminary study of the first semester X class students of SMK Al-Ibrohimiyah Cianjur in the 2019-2020 school year stated that the percentage of test results which showed 45% had fulfilled the KKM on the list of teacher scores for each class amounting to ± 34 people, the value of the first semester tests were average The average only meets the KMK standard of 62 and the main problem which is the reason students only meet the criteria above is a question in the form of multiple choice where students find it difficult to understand the problems of various materials and difficult to connect the solution stage with a solution and a beautiful area.

So from this problem that proves that the ability of students' mathematical connections in solving mathematical problem problems tend not to be detailed with multiple choice. Based on the research results at Al-ibrohimiyah Vocational School, it was also explained related to the low level of students completing in a complete way on multiple choice questions is the inability of students to explain in full due to lack of understanding related to the formula intended to solve.

Based on the problems in the case above, the researcher offers a solution through the double loop problem solving learning model (DLPS). The double loop problem solving learning model (DLPS) is a learning model that focuses on solving complex and unstructured problems to be used as an effective problem solving tool. Double loop problem solving approach accommodates the different levels of causes of a problem, including the mechanism for how a problem occurs. The advantage of the double loop problem solving learning model itself is that it can create a classroom atmosphere that respects (respects) scientific values and is motivated to get accustomed to conducting simple research that is beneficial for improvement in the learning process and increasing the ability of the teacher itself and through the double learning model This loop problem solving (DLPS) is expected to enable students' mathematical connection skills in multiple choice questions to develop and achieve the expected and achieved criteria

METHOD

This research uses a quantitative descriptive approach as an experimental method. The research design used for research presented in this research is pre-experimental design with one-shot case study type. In this design the experimental model can be read as follows: there is a group given treatment / treatment, and then the results are observed (treatment is as an independent variable, and the results are as the dependent variable) (Sugiyono, 2011: 112)

Treatment (treatment) in this study is a double loop problem solving learning model (DLPS) as an independent variable in research. Meanwhile the results observed in this study were students' mathematical connection ability on multiple choice questions which were the dependent variable in the study. The research paradigm is described as follows:

X O

Information :

X = Double loop problem solving learning model

O = Mathematical connection skills

(Sugiyono, 2011: 112)

RESULTS AND DISCUSSION

1. Description of mathematical connection ability

Based on the results of data analysis mathematical connection ability obtained from the test instrument in the form of a set of Daily test questions in the form of multiple choice questions on statistical material using the z test for one sample, the value of Zhitung < Ztable based on the results of the analysis of connection ability test results obtained by 5 students who get grades of more than or equal to 65 of 36 students. Thus the percentage of students who have good connection skills is 6.32%, which means H0 is accepted, then the proportion of students who have good communication skills is less than 65%.

Based on the analysis of the achievement data of students 'mathematical connection ability indicators, it is known that the average achievement of students' mathematical connection ability indicators in looking for the relationship of various representations of concepts and procedures with the double loop problem solving learning model (DLPS) on multiple choice questions based on the trigonometric material above is 35, 50% The best connection indicator achieved by students is applying mathematics in other fields of study or everyday life, which is 37.50%. This indicator has the biggest percentage compared to other indicators of the mathematical connection ability indicator

Based on the results of analysis and hypothesis testing of students 'mathematical connection ability, it is known that the double loop problem solving learning model (DLPS) does not show a significant achievement of students' mathematical connection ability in the form of multiple choice questions because the percentage of students who have good mathematical connection ability is no more of 65%.

So it can be said that the mathematical connection process of students on multiple choice questions by using the double loop problem solving learning model really shows a significant level of achievement when viewed from the percentage per indicator of the above research results, where in general students can be said to lack mastering the concept of understanding of the material the. Reading with an understanding of written mathematical problems that are primarily in the form of multiple choice questions based on trigonometric material which is used as a source of research above. But it can be said based on the results of the study also that students are actually more familiar with the usual learning process. If accompanied by an explanation that makes students understand the concept of the intended material. Mainly with examples of work on multiple choice questions presented in a clear and targeted manner by the teacher concerned so as to be able to foster the process of students' imaginary connections. And not necessarily with a particular model as in the research above that uses the concept of a double loop problem solving learning model (DLPS)

Because based on the results of discussions and respondents also with one of the students who caused the double loop problem solving learning model did not show significant achievement when applied to the example of multiple choice questions through the connection process namely the inability of students to try to explain the results produced in various ways in the problem you mean (see figure 1).

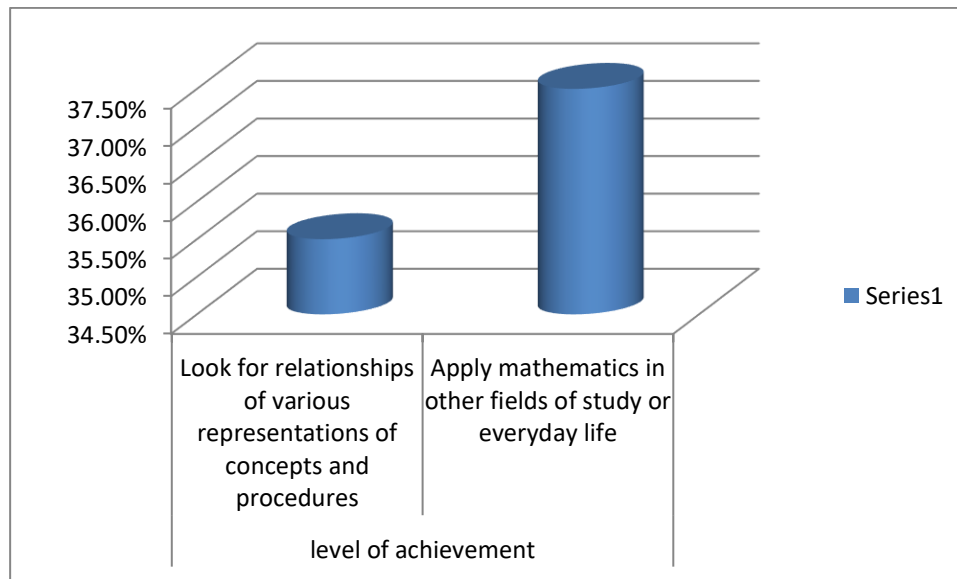


Figure 1. Level of achievement

2. Problems that cause insignificant levels of achievement

Based on the results of these research studies show that the double loop problem solving learning model (DLPS) has no significant achievement to improve students' connection skills in the main multiple choice questions. In the implementation of learning, students look nervous and less relaxed in answering questions. The teacher has the authority to refer material to students, namely trigonometry material. Students also do not understand material that has been previously studied, such as square roots and SPLDV. This can be seen from the inability of students to answer teacher questions about the square root and the completion stage of SPLDV. These constraints also occur when working on textbooks, so that classroom conditions are not conducive because students are busy asking questions and discussing with students from other groups.

Some students also did not seem to help a group of friends work on textbooks, students were busy with themselves and only relied on someone who was considered capable of solving problems. Another obstacle arises when answering multiple choice is only seen from the choice of answers without any way of resolution

As a result, students who have low ability cannot understand the material that has been discussed so that it is difficult to follow the material that will be discussed at the next meeting. This happens because the problem presented with the double loop problem solving learning model (DLPS) is a problem that requires the ability to think high enough to solve problems, creativity and good connections so that generally those who can follow this learning model well are students who are smart and able to understand the material well

CONCLUSION

Based on the research, it was concluded that the double loop problem solving learning model (DLPS) on multiple choice questions did not have a significant achievement in terms of the connection ability of class X students of Al-ibrohimiyah Vocational School in 2019/2020. Because the percentage of students who have good mathematical connection skills is 6.32%, the proportion of students who have good connection skills is less than 65%.

Based on the analysis of achievement data for students 'connection ability indicators, it is known that the average achievement indicators for students' mathematical connection abilities who are looking for the relationship of various representations of concepts and procedures with the double loop problem solving learning model (DLPS) in story problems based on the above statistical material are 35,50% The best communication indicator achieved by students is

applying mathematics in the field of study or daily life, which is 37.50%.

Based on the above problems based on the results of the interview also with one of the students who caused this double loop problem solving there was no significant achievement to be applied to the example of multiple choice questions through a mathematical connection process. Is the tension or reluctance of students to try forward and the process of extracting answers by the teacher concerned even though the teacher concerned has been so friendly in guiding students forward. Also by marking students' lack of understanding of the subject matter of the story in question.

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