

Application of the Student Facilitator and Explaining Learning Model to Improve Student Learning Outcomes in Basic Competencies Applying Concepts and Rules Types of Lines in Technical Drawings at SMK Negeri 1 Lotu for the 2022/2023 Academic Year

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Abstract

The problem in this study is that the Student Facilitator and Explaining learning model has not been optimally applied to the Basic Competence of Applying Concepts and Rules of Types of Lines in Technical Drawings and student learning outcomes are only limited to achieving KKM, namely 70. Research objectives: (1) To describe the learning process by using apply the Student Facilitator and Explaining learning model to the Basic Competency of Applying Concepts and Rules of Types of Lines in Technical Drawings at SMK Negeri 1 Lotu for the 2022/2023 Academic Year, and (2) To find out student learning outcomes in the Basic Competency of Applying Type Concepts and Rules -Types of Lines in Technical Drawings at SMK Negeri 1 Lotu for the 2022/2023 Academic Year. This type of research is Classroom Action Research (CAR). This research was conducted at SMK Negeri 1 Lotu with research subjects of class X DPIB, totaling 22 people. The instruments in this study were observation sheets of the learning process (teacher respondents), student activity observation sheets, photo documentation, and student practical activity tests. Research results: (1) In cycle I (First) the average percentage of observations in the learning process (teacher respondents) is 62.50%, the average percentage of observations of student activity is 53.13%, the average learning outcomes is 65.07 with a percentage of student completeness of 45% and this result has not reached the target that has been set, namely 70. (2) While in cycle II (two) the average percentage of observations in the learning process (teacher respondents) is 85.71%, the average – the average percentage of observations of student activity is 82.10%, the average calculated student learning outcomes is 82.99 which is categorized as good with a complete percentage of student learning outcomes of 100% and has reached the set target of 70. From the research findings above it can be concluded that by applying the Student Facilitator and Explaining learning model to the subject of Technical Drawing Basic Competency Applying Concepts and Rules of Types of Lines in Technical Drawings and can improve student learning outcomes at SMK Negeri 1 Lotu.

Keywords: Student Facilitator and Explaining Learning, Learning Outcomes



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INTRODUCTION

In principle, education is one of the needs that must be met in the process of life and is also a form of embodiment of dynamic human culture and conditions for development. Therefore changes or developments in education are things that should be in line with changes in the culture of life. Changes in the sense of improving education at all levels need to continue to be made as part of the interests of the future and the demands of modern society. Education is an aspect of national development goals in creating good human resources so that special handling and experience are carried out from various elements such as society, schools and of course the government. The development of a nation can be influenced by the quality of education of the nation itself, because good education can certainly produce quality

resources. The education in question is not non-formal but formal in nature, covering teaching and learning processes that involve teachers and students. The success of student learning achievement is influenced by the good quality of education. Because good quality education will increase student achievement in learning activities.

When the learning process takes place in the classroom, there is a reciprocal relationship between the teacher and various students, and this results in the teacher's limited time in controlling the influence of his behavior on student learning motivation. Sofan Amri (2013: 241): "Education is a conscious effort to prepare students through guidance, teaching, and/or training activities for their role in the future." One of the characteristics of modern society is that it always wants to make changes for the better (Improvement Oriented). for more effective learning. Umar Tirtaraharja (2012: 34): "Education as a process of personal formation, education is defined as a systematic and systemic activity aimed at forming the personality of students."

However, in reality there are still educators who no longer apply learning strategies that can be in accordance with the material obtained, so that students fail to achieve a mastery effect. So that the procedural knowledge obtained can run interactively, inspire, delight, and can motivate students to actively participate in learning, strong coaching ideas are given. the use of strong teaching ideas accompanied by the use of models, techniques and teaching methods that may be appropriate to the learning structure will actually achieve competency and improve student learning outcomes.

Improving the quality of education with educators, students, substances, learning strategies, facilities and the environment. Each part collectively affiliates with each other to reap the goals. One indication of quality improvement is an increase in student activity so that learning outcomes can be higher, because learning outcomes are the main target in development and education. The increase that occurs is inseparable from the mental development of students, the mental development of students at school includes the ability to work in abstraction towards conceptual.

Suyono & Hariyanto (2014: 9) states that "Learning is an activity or a process to acquire knowledge, improve skills, improve behavior, attitudes, and strengthen personality." Learning outcomes can be utilized by the teacher to be used as a measure or standard in achieving a mastery goal as indicated by the test score given by the teacher after completing the material. The success of learning objectives is largely determined by the fulfillment of teaching mastery in the classroom, the success of the teaching system in the study room is motivated by various factors, one of which is the teacher's interaction with students in acquiring knowledge. Teachers have a very important position in coaching and teaching students as a subject that is the goal of education.

In achieving these goals it is necessary to interact with the learning environment that is regulated by the teacher through the learning process. As stated in the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System (2003: 7), namely: Educating the nation's life, aiming at developing national education functions to develop capabilities and shape dignified national character and civilization in the context of the potential of students to become human beings who have noble faith, are healthy, knowledgeable, capable, creative, independent and become citizens and fear God Almighty, have a democratic and responsible character.

In situations that can change, are uncertain and competitive, learning activities based on vocational competencies need to be planned, programmed and implemented in accordance with competency standards and basic competencies that apply to Vocational High Schools. The learning process will run smoothly if the stages in the learning process can be carried out

correctly, correctly, and smoothly. Learning elements include learning objectives to be achieved, subject matter, teachers, students, learning facilities and infrastructure, learning resources and learning models used and learning evaluation.

Based on the results of observations made by researchers at SMK Negeri 1 Lotu as a school that is planned to be a research location through interviews with teachers and students where several problems were found related to activities and student learning outcomes, especially students of class X (ten) Design Modeling and Building Information (DPIB) at SMK Negeri 1 Lotu namely the learning process is more dominated by the teacher, so students are less active, students tend to be bored, not enthusiastic about following the subject matter delivered by the teacher, some students do not understand the learning material provided, Minimum Completeness Criteria (KKM) in the subject of Drawing Techniques with Basic Competency Applying Concepts and Rules of Types of Lines is 70, but the average student learning outcomes before remedial have not been able to meet the applicable KKM. This means that student learning outcomes are still low. Therefore it is necessary to have an evaluation so that student learning outcomes can increase.

From the explanation above, it can be concluded that the delivery of learning by the teacher to students still has many weaknesses, the learning process is more monotonous or teacher-centered, so it is boring and less interesting. In the learning process these students tend to be passive and unable to explore the material presented. Based on interviews with students, it was found that the teacher's explanation of the subject matter of technical drawing was difficult to understand. Students are sometimes reluctant to ask the teacher about material they do not understand. To overcome this problem, one of the ways given by researchers is to improve the learning process by applying the Student Facilitator and Explaining learning model. According to Aris Shoimin (2017: 183) that the Student Facilitator and Explaining learning model is a type of cooperative learning that emphasizes a special structure designed to influence student interaction patterns with the goal of increasing mastery of the material.

The research objectives in carrying out this research are: To describe the learning process in basic competencies Understanding the Concepts and Rules of Types of Lines in Technical Drawings by applying the Student Facilitator and Explaining learning model at SMK N 1 Lotu in the 2022/2023 academic year. To find out the increase in student learning outcomes in basic competencies Understanding Concepts and Rules of Types of Lines in Engineering Drawings.

RESEARCH METHODS

This type of research is Classroom Action Research. According to Djajadi Muhammad (2019: 1) "Classroom action research is a form of self-reflective research conducted by participants in social (including educational) situations to improve their own practice. The objects of action in this study are: The application of the Student Facilitator and Explaining learning model has not been optimally applied and student learning outcomes in technical drawing subjects have not optimally met the minimum completeness criteria (KKM).

This research was carried out in 2 (two cycles). Where each cycle consists of 4 stages, namely as follows: Planning (Planning), Preparing Learning Device Plans (RPP), Preparing teaching materials or materials, Observation sheets for teachers and observations for students, Interview guide sheets, Student Worksheets, Preparing tests practical activities, documentation/photos. Action (Action), Based on the research plan, the researcher takes action, namely carrying out the learning process by applying the Student Facilitator and Explaining learning model to the basic competencies of Applying Concepts and rules for types

of lines in technical drawings. Observation (Observation), Subject teachers as observers pay attention to the appropriateness of the learning steps through the Student Facilitator and Explaining learning model carried out by researchers during the learning process by filling in the observation sheet (attached). Reflection Based on the results of interview observations as well as the process and results of implementing the action in accordance with the power obtained from the students, a reflection is carried out to see the weaknesses and successes in the implementation of each cycle.

This research was carried out in 2 (two cycles). The first cycle uses the Student Facilitator and Explaining learning model. The second cycle was carried out based on the results of the first cycle reflection. The implementation of the first cycle and the second cycle will be described as follows: Cycle I (First), The process of the first cycle consists of 2 meetings then added 1 meeting for the learning outcomes test. Each meeting is implemented by applying the Student Facilitator and Explaining model where the learning steps are listed in the lesson plan (attached). During the cycle I process, the subject teacher as an observer fills in the observation sheet according to the learning steps of the Student Facilitator and Explaining learning model while the researcher acts as a teacher. At the last meeting of cycle I, a learning achievement test was carried out. From these tests obtained data about learning outcomes. If the target has been completed, the action research activity is complete, but if it is still not achieved, then weaknesses and deficiencies are stated in accordance with the implementation of learning with the Student Facilitator and Explaining learning model. Weaknesses in cycle I will be refined in cycle II. Cycle II (Second), By evaluating the results of the implementation of cycle I, if it turns out that the optimal results have not been achieved as previously expected, then it will be continued in the next cycle without ignoring the steps in the previous cycle.

The location for the implementation of this research was carried out at SMK Negeri 1 Lotu which is located on Jalan Hilidundra Village, Lotu District, North Nias Regency. In accordance with the composition of the researcher's plan, this action research was carried out in the odd semester of the 2022/2023 school year. In accordance with the research implementation plan, to be precise from September to October 2022. For the implementation of this research, the schedule was adjusted to the schedule set by the school so that learning activities could run as scheduled and learning materials could also be achieved. The implementation of the action was carried out for approximately one month consisting of 2 cycles, namely cycle 1 and cycle II. In the first cycle, 2 meetings were held, and in the first cycle, 1 meeting was held to give a learning achievement test. Likewise, in the second cycle, 2 meetings were held, and in the second cycle, 1 study result test was held. The time allocation for each meeting is 2 x 45 minutes (cycle 1) and 2 x 45 minutes (cycle 2).

The subjects of this study were students of SMK Negeri 1 Lotu Class X Design Modeling and Building Information (DPIB) in the odd semester of the 2022/2023 academic year. To reduce differences in meaning, research variables were created as follows: Student Facilitator and Explaining learning model is a learning model that emphasizes student activity in conveying and demonstrating, providing new ideas or ideas into the teaching material provided Teacher. Learning outcomes are results obtained by students after carrying out learning activities and learning as evidence of success obtained by using a learning achievement test expressed in numbers.

The instruments used by researchers in this study were: Observation Sheets, namely structured guidelines by observing teachers and students, Documentation, which is a list of documents used in research and Practice Tests, which are test kits given to students to determine student learning outcomes.

RESEARCH RESULTS AND DISCUSSION

Implementation This research was carried out at SMK N 1 Lotu which is located on Jalan Hilidundra Village, Lotu District, North Nias Regency. The research subjects were students of class X (DPIB) Semester I (one) odd, 2022/2023 academic year, where there were 22 students. The research was carried out after going through communication with the school principal and also the technical drawing teacher where the research could be carried out at the school. In its implementation, the subject teacher acts as an observer who guides the researcher in carrying out observations during the course of the research. The research process was carried out according to the technical drawing subject schedule. The process stages start from: planning, action, observation, and reflection. The Observation Sheet is designated as a research instrument, so it is first validated by Senior Teachers/Lecturers. Based on the instructions from the validator (appendix 8a, 8b, 8c) it turns out that the test instrument is suitable for use as a research instrument

Main Issues

As previously described, based on the limitations of the problems in this study, among others: The application of the Student Facilitator and Explaining model is still not optimal. Student learning outcomes in engineering drawing subjects do not meet KKM standards. To overcome this, one of the efforts made is to improve the learning process by applying the Student Facilitator and Explaining learning model optimally. The problem is then formulated based on the problem formulation as follows: "Is the application of the Student Facilitator and Explaining learning model able to improve student learning outcomes in the basic competencies of Understanding Concepts and the rules for types of lines in technical drawings at SMK Negeri 1 Lotu?"

General Answers to the Main Research Problems

The implementation of this learning uses the Student Facilitator and Explaining learning model. The Student Facilitator and Explaining learning model is a type of Cooperative learning, where this type of learning model is able to increase experience and increase learning motivation which affects student activity and learning outcomes. Using this type of learning model can encourage students to master several skills including speaking, listening, ability, and understanding of the material, so that learning is achieved with better and maximum results. To find out the improvement of the learning process and the improvement of student learning outcomes, the researchers carried out research by applying the Student Facilitator and Explaining learning model optimally, where during the learning process, observers carried out observations to find out how the learning process was taking place. After the learning activities are completed, tests are given to students to find out student learning outcomes.

The test results are processed so that it can be seen that the increase in student learning outcomes by applying the Student Facilitator and Explaining learning model optimally. After scrutiny and improvement based on the results of reflection by the researcher in the second cycle it turns out that the percentage of student learning outcomes can be increased by optimally applying the Student Facilitator and Explaining learning model so that the general answer to the main problem is: By optimally implementing Student Facilitator and Explaining type learning, then can improve student learning outcomes. There are changes and improvements in student learning outcomes with the application of the Student Facilitator and Explaining learning model.

Comparison of Findings and Theories

During the implementation of this research, the findings were obtained, namely: that the Student Facilitator and Explaining learning process will increase student activity and student learning outcomes can increase, so that the learning process is more useful and students' abilities are faster in understanding the subject matter. In discussing the basic theory that forms the basis of the implementation of this research is the student facilitator and explaining learning model. The Student Facilitator and Explaining learning model is a type of Cooperative learning, where this type of learning model is able to increase experience and increase learning motivation which affects student activity and learning outcomes. Using this type of learning model can encourage students to master several skills including speaking, listening, ability, and understanding of the material, so that learning will be achieved with better and maximum results.

Based on the tests given to students, it turns out that the percentage of student learning outcomes in cycle 1 still has not reached the target set because: They have never experienced a learning process like this before so these students need to adjust themselves to take part in learning. The learning process carried out by researchers still has many weaknesses in the implementation of learning activities and is still included in the sufficient category with an average score obtained from observations of the learning process of teacher respondents. After scrutiny and improvement based on the results of reflection by the researcher in the second cycle it turns out that the percentage of student learning outcomes can be increased by optimally applying the Student Facilitator and Explaining learning model so that the general answer to the main problem is: By optimally implementing Student Facilitator and Explaining type learning, then can improve student learning outcomes. There are changes and improvements in student learning outcomes with the application of the Student Facilitator and Explaining learning model. Based on the description above, the researcher compared the findings with the theory. Namely the implementation of the Student Facilitator and Explaining learning process can improve student learning outcomes if it is applied optimally and scrutiny and improvement is carried out in carrying out the learning process in each meeting and reflected on to find out weaknesses in the learning process.

Implications of Research Results

In the world of education, the implications of this research are through the application of Learning Models. Student Facilitator and Explaining which is a type of Cooperative learning, where this type of learning model is able to increase experience and increase learning motivation which affects student activity and learning outcomes. Using this type of learning model can encourage students to master several skills including speaking, listening, ability and understanding of the material. The Student Facilitator and Explaining Learning Model is a way of learning that requires students to explain and demonstrate material and abilities to their peers to influence student interaction patterns, thus making students more active.

Limitations of the Results of the Analysis and Interpretation of the Findings

The limitations of the findings of this study are not absolute, this is due to a number of limitations. For this reason, it is necessary to disclose the limitations of this study, especially in the aspect of analysis and interpretation of the research findings. Based on this, the following will reveal the limitations of the research so that readers have the same views as the researcher. Some of the limitations encountered are: The learning process using the Student Facilitator and Explaining learning model in this study still has various weaknesses. Learning through the Student Facilitator and Explaining learning model aims to increase student activity in the learning process optimally, the possibility of its application is still not optimal

and weaknesses need to be corrected, especially regarding student activity during the learning process. The subject of this study was limited to class X students majoring in Modeling and Building Information Design (DPIB) at SMK Negeri 1 Lotu Nias Utara. The object is to increase the average learning outcomes in Technical Drawing Subjects with the basic competence of applying the concepts and rules of line types to technical drawings. The research was carried out in the odd semester of the 2022/2023 school year. Manpower, time and supporting reference books are limited when conducting research.

CONCLUSION

Based on the results of the research that has been carried out regarding the Application of the Student Facilitator and Explaining Learning Model to Improve Student Learning Outcomes in Basic Competency Applying the Concept of Rules of Types of Lines in Technical Drawings at SMK Negeri 1 Lotu in the Academic Year 2022/2023 it can be concluded as follows: Results of process observations learning in cycle I reached an average of 62.50% while in cycle II it increased to an average of 85.71%. The results of observations of students' activeness in the learning process in the first cycle reached an average of 53.13%, while in the second cycle it increased to an average of 82.10%. The average student learning outcomes in the first cycle was 65.07 and, while in the second cycle the average student learning outcomes reached 82.99 in the good category. The percentage of completeness of student learning outcomes in cycle I was 45% and the percentage of completeness of student learning outcomes in cycle II was 100%, having reached the target set, namely 70%. From the research findings above, it can be concluded that by applying the Student Facilitator and Explaining Learning Model to Improve Student Learning Outcomes in Basic Competency Applying the Concept of Rules for Types of Lines in Technical Drawings at SMK Negeri 1 Lotu in the 2022/2023 Academic Year, it can improve student learning outcomes.

Based on the research findings, discussion and conclusions in this study, some suggestions from researchers are as follows: The results of this study are expected to be materials for improving the learning process through the application of the Student Facilitator and Explaining learning model. In the learning process the teacher should be able to improve and optimize the use of the Student Facilitator and Explaining learning model according to the material. It is hoped that the teacher can always improve any weaknesses that are found in the learning process. The results of this study should be used as comparison material in further research.

BIBLIOGRAPHY

- Amri Sofan. 2013. Pengembangan & Model Pembelajaran Dalam Kurikulum 2013. Jakarta : PT. Prestasi Pustakaraya.
- Arikunto Suharsimi. 2013. Prosedur Penelitian Suatu Pendekatan Praktik. Jakarta :Rineka Cipta
- BSE Tim 2013. Gambar Teknik. Penerbit : Buku Sekolah Elektronik (BSE)
- Dimiyati, dkk. 2021. Belajar Dan Pembelajaran. Jakarta : Rineka Cipta
- Djajadi Muhammad. 2019. Penelitian Tindakan Kelas. Yogyakarta. Penerbit: ARTI BUMI INTARAN (ANGGOTA IKAPI).
- Dwi Aprilia. 2018. Gambar Teknik, Bidang Keahlian Teknologi dan Rekayasa C2 (Dasar Program Keahlian Teknik Konstruksi dan Properti SMK/MAK). Surakarta: CV. Mediatama.
- Harefa Darmawan, 2021, Penggunaan Model Pembelajaran Student Facilitator and Explaining Terhadap Hasil Belajar Fisika. p-ISSN: 1410-4695, Vol.14,

- Hartoyo Sri.2018 Pedoman Perencanaan Teknik Terinci Sistem Pengolahan Air Limbah Domestik Terpusat (SPALD-T), BUKU F Panduan Penyusunan Gambar Teknik. Jakarta
- Haryanto 2020.. Evaluasi Pembelajaran (Konsep dan manajemen). Yogyakarta. Penerbit. UNY Press
- Heni Veroneka, 2017. Penerapan Metode Student Facilitator and Explaining Berbantuan Media Peta Timbul Terhadap Kemampuan Berpikir Kritis Siswa Pada Materi Sel. ISSN 2540-802X Vol. 2 No.2 Hal 20-26
- Huda Miftahul 2015. Penelitian Tindakan Kelas : Teori dan Praktik. Yogyakarta: PUSTAKA PELAJAR
- Huda Miftahul. 2013. Model-Model Pengajaran Dan Pembelajaran. Malang : Pustaka Pelajar
- Istarani. 2011. 58 Model Pembelajaran Inovatif. Medan : Media Persada
- Karwono,dkk. 2017. Belajar Dan Pembelajaran Serta Pemanfaatan Sumber Belajar. Depok : PT. RajaGrafindo Persada.
- Kunandar. 2013. Penilaian Autentik (Penilaian Hasil Belajar Peserta Didik Berdasarkan Kurikulum 2013). Jakarta : PT. RajaGrafindo Persada
- Kurniasih Imas, dkk. 2016. Ragam Pengembangan Model Pembelajaran Untuk Peningkatan Profesionalitas Guru. Yogyakarta : Kata Pena
- Mulyanto. 2013. Buku Teks Bahan Ajar Siswa. Gambar Teknik, Kelas X Semester I. Jakarta : Direktorat Pembinaan Sekolah Menengah Kejuruan. Kementrian Pendidikan dan Kebudayaan Republik Indonesia
- Shoimin Aris. 2014. 68 Model Pembelajaran Inovatif dalam kurikulum 2013. Yogyakarta: Ar-Ruzz Media.
- Slameto. 2013. Belajar Dan Faktor-Faktor Yang Mempengaruhi. Jakarta : Rineka Cipta
- Subair Ahmad, dkk 2021, Penerapan Model Pembelajaran Student Facilitator and Explaining (SFAE) Dalam Meningkatkan Hasil Belajar Siswa Kelas V UPTD SDN 145 Barru. ISBN: 978-623-387-014-6
- Sunarti, dkk. 2014. Penilaian Dalam Kurikulum 2013. Yogyakarta : C.V Andi Offset (Penerbit Andi)
- Suyono, dkk. 2011. Belajar Dan Pembelajaran. Bandung : PT. Remaja Rosdakarya.
- Universitas Nias. (2022). Pedoman Penulisan Karya Tulis Ilmiah. Gunungsitoli : Universitas Nias.