

The Implementation of Problem-Based Learning to Enhance Students' Discussion Skills in Geography Subject Through Differentiated Learning

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Abstract

The independent curriculum has a significant impact on the development of the learning process. Independent curriculum learning prioritizes and prioritizes the needs of students, besides that students are guided to be able to understand the material presented with actual problems that exist in everyday life. The Problem Based Learning learning model is an alternative used by teachers in the learning process. Implementation of Problem Based Learning (PBL) will foster students' ability to discuss with colleagues. Fulfilling the learning needs of students is the main goal of the Independent Curriculum, through differentiated learning can realize the various needs of students in the learning process. This research is a class action research (CAR). This research was conducted for 2 cycles consisting of planning, implementing, observing, and reflecting. The research subjects were students of class X-6 SMA Kemala Bhayangkari 1 Surabaya. This study found that there was an increase in students' discussion skills in cycle 1 and cycle 2. A significant percentage increase in grades was obtained. This increase in value can prove that the application of the problem-based learning model through differentiation learning is able to improve students' discussion skills.

Keywords: problem based learning, discussion skills, differentiation

INDRODUCTION

Education becomes the most influential aspect of the progress of the nation. The development of education in a better direction will bring changes to both nation and individual (Fadia Nurul Fitri, 2021). Education helps the soul both physically and mentally towards better things (Anggelia et al., 2022)

Education in Indonesia is always influenced by time progress. The development era will have a positive impact on the learning or teaching system (Puspitasari, 2019). Student centered teaching method will create good comprehension. Good and relevant teaching concepts today have been regulated in the independent learning concept which has been programmed in an independent curriculum, arranged continuously with independence and commitment (Marisa, 2021).

Student centered teaching Merdeka Curriculum's goal (Novelita & Darmansyah, 2022). Merdeka Curriculum creates active and student centered-learning (Achmad et al., 2022). Centered on students and creating enjoyable learning experiences is a program that must be implemented in the current learning process (Suwardana, 2018). The independent curriculum provides space for students to actively engage in the learning process, allowing them to find their own answers from the knowledge they have learned as a manifestation of student-centered learning (Marta et al., 2020).

Student-centered learning can be achieved when teachers can implement a teaching model that guides students to fully engage in the learning process, creating a comfortable learning environment in the classroom (Anggelia et al., 2022). The teaching model that aligns with the Merdeka Curriculum is Problem-Based Learning (PBL). Problem-Based Learning (PBL) is a teaching method that presents real-world problems and focuses on students becoming independent learners who can collaborate within a group (Sumarmi, 2012). Presenting real-life problems within the Problem-Based Learning (PBL) model can stimulate students to engage in discussions with their peers and draw conclusions from what they discover (Jacub et al., 2020).

The ability to engage in discussions is a form of systematic exchange of ideas that occurs within small or large groups to reach a collective decision on an issue (Mandasari et al., 2012). The ability to discuss enables students to have an opportunity to exchange ideas and thoughts (Lie, 2010). Presenting real-world problems is expected to train students in discussing what needs to be formulated and providing solutions to each problem. A learning process that is in line with using

good teaching models and methods will result in systematic thinking in students' problem-solving (Tambak et al., 2020). The subject of geography only provides theory explanations that are difficult for students to understand (Pranata et al., 2021). Linking geography education by presenting real-world problems can provide relevant learning experiences for students (Perwitasari et al., 2018).

Hung and Kolmos in Wardoyo (2013) explained the characteristics of problem-based learning as follows: 1) problem focused, which focuses on the issues of the geosphere phenomena, 2) It is student-centered, where students discuss with their peers to seek understanding, impact, and solutions to geosphere phenomena, 3) self-directed learning, managing the classroom independently to reach a decision, 4) self-reflective, where the teacher provides reflection based on discussion outcomes, 5) tutor as facilitators, where the teacher acts as a guide in problem-solving related to geosphere phenomena.

The concepts proposed by Hung and Kolmos reinforce the idea that in geography education, it is essential to present issues related to geosphere phenomena to strengthen students' contextual experiences (Sumarmi et al., 2020). Contextual experiences help minimize misconceptions about subject matter concepts, enabling students to manage their individual abilities according to their experiences and learning styles (Musafiri, 2016) (Andini, 2016). Learning in line with individual abilities is commonly referred to as differentiated learning. Differentiated learning involves aligning the interests, learning preferences, and readiness of students (Marlina, 2019). Differentiated learning follows the natural inclinations instilled by Ki Hadjar Dewantara, emphasizing that education harnesses the inherent potential of a child to achieve the highest levels of happiness and well-being (Herwina, 2021).

Through differentiated learning, a teacher can facilitate learning for students to access their abilities through various approaches related to content, process, and products (Tomlinson, 2001). Content differentiation can stimulate students' thinking development and expand their ideas by presenting learning materials that align with their needs based on readiness. Process differentiation emphasizes the path students will follow by designing the learning scheme. Product differentiation refers to diverse outcomes or performances in various visual, textual, or audiovisual forms (Iskandar, 2021).

Based on the above explanations, it is essential to enhance students' discussion abilities in the learning process by implementing the Problem-Based Learning model and through differentiated learning to meet students' learning needs. The subjects of this study are the students of class X.6 of SMA Kemala Bhayangkari 1 Surabaya for the academic year 2022/2023, totaling 35 students consisting of 16 males and 19 females.

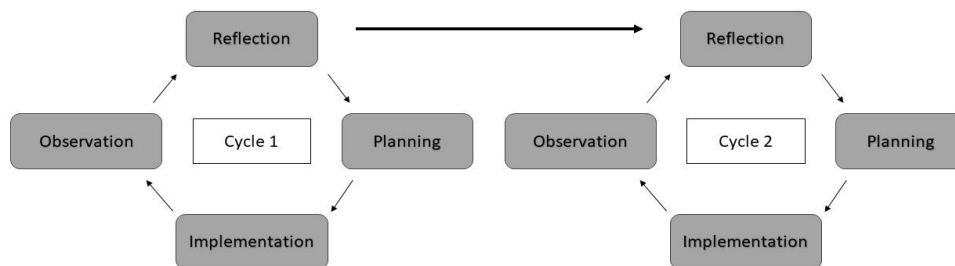
METHOD

The subjects of this study are the students of class X.6 of SMA Kemala Bhayangkari 1 Surabaya for the academic year 2022/2023, totaling 35 students consisting of 16 males and 19 females. This research was conducted in the second semester, spanning two months from February 20, 2023, to April 10, 2023.

Implementation Steps

This research is a Classroom Action Research (CAR). Classroom action research is a research activity conducted to obtain practical benefits involving teachers and school principals at the same time, carried out collaboratively and passively (Mulyasa, 2009). This research was conducted over 2 cycles. The implementation of the learning cycle begins with a pre-cycle. The pre-cycle is conducted before the research by providing diagnostic assessments to students.

This Classroom Action Research uses a cycle design that includes planning, implementation, observation, and reflection (Arikunto, 2019). The cycle flowchart model used is based on the Kemmis and Taggart model (Trianto, 2011). The flowcharts for cycle 1 and cycle 2 are shown in Image 1.



Source: Kemmis and Taggart in Trianto (2011)

Image 1. The Flow of Classroom Action Research (CAR) Kemmis and Taggart Model

Data Collection Method

Data collection is carried out through observation and direct observation, as well as using diagnostic assessment and formative assessment. Diagnostic assessment is an evaluation used to determine the strengths and weaknesses of learners, with the aim of formulating the learning design to be used in the future (Arifin et al., 2019). Formative assessment is an assessment conducted during the learning process by providing direct feedback to provide reinforcement (Basuki & Hariyanto, 2016).

Data Analysis

Data analysis techniques encompass two aspects, namely quantitative and qualitative. Quantitative data is based on diagnostic and formative assessment results, while qualitative data is based on direct observations and observations made during the learning process with students. Assessment indicators related to students' discussion skills are presented in Table 1.

Table 1. The indicators of discussion skill

No.	Indicators
1.	Pronunciation
2.	Languange Structure
3.	Active Engagement
4.	Relevance to the topic

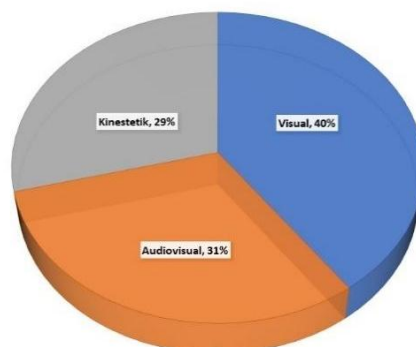
Source: Mandasari, (2012)

RESULT AND DISCUSSION

This research was conducted in 2 cycles. Before conducting Cycle I and Cycle II, the researcher first carried out a pre-cycle by observing and conducting diagnostic assessments to determine the students' learning styles and intelligence in order to identify problems and solutions for the subsequent learning process.

Pre-cycle

Based on the results of the diagnostic assessment related to learning styles, it was found that there are three learning styles present in class X.6 of SMA Kemala Bhayangkari 1 Surabaya. Those are visual, audiovisual, and kinesthetic. The summary of the results can be seen in the following diagram.



Source: Researcher, 2023

Image 2. Learning Style Percentage Graph

Through the diagram above, the results of the students' learning styles are explained. Out of a total of 100% with 35 students, it is known that the visual learning style has a higher percentage with a value of 40% (14 students), kinesthetic is 29% (10 students), and audiovisual is 31% (11 students). The results above indicate that the visual learning style has a higher value compared to the others. This is in line with Kurniawati (2012), who found that the visual learning style tends to have a higher percentage in every class.

The diagnostic assessment results related to learning styles show heterogeneous data. Teachers should be able to incorporate all elements of learning styles when in the classroom to facilitate students in understanding the material (Syam et al., 2023).

The results of the students' discussion skills in the pre-cycle stage obtained an overall average of only 76. This score indicates that the discussion skills of the students in class X.6 are still quite inadequate. The scores for discussion skills are presented in Table 2.

Table 2. Average Pre-Cycle Discussion Skill Scores

No.	Indicator	Pre-Cycle
1.	Pronunciation	75,11
2.	Language Structure	76,4
3.	Active Engagement	76,2
4.	Relevance to the topic	76,51

Source: Researcher, (2023)

Based on the data in Table 2 in the pre-cycle stage, it can be seen that speaking skills, especially in pronunciation, both in groups and in the classroom, received the lowest average score. Overall, the average scores still need improvement. The researcher conducted a classroom action research by implementing differentiated learning to meet the needs of students' learning styles and using the problem-based learning (PBL) model, which presents real-life problems. It is hoped that these actions can enhance the students' discussion skills, both in groups and in the classroom.

The first stage in cycle 1 is planning. Planning is done by taking into account the results obtained from the pre-cycle stage related to diagnostic assessment results and is focused on improving students' discussion abilities. Achieving the learning needs of students appropriately can be realized through the design of teaching modules, media, and teaching materials.

The implementation stage in cycle 1 is carried out using the problem-based learning (PBL) model. The learning process is conducted according to the syntax of the model used. The learning process in the core activities presented in the teaching module is shown in table 3.

Table 3. Main Activity in the pre-cycle 1

No.	Main Activity
1	Problem Orientation : <ul style="list-style-type: none"> ● Showing a video related to geosphere weather phenomena
2	Organizing for learning <ul style="list-style-type: none"> ● Make groups for discussion
3	Guiding individual and group investigations <ul style="list-style-type: none"> ● Developing and presenting the resut
4	Analysis and evaluate <ul style="list-style-type: none"> ● Providing opportunities for students to ask questions and discuss together.

Source: Researcher, (2023)

The learning process in cycle 1 is conducted through differentiated instruction. The differentiation that applied is content differentiation. The provision of teaching materials and learning media serves as a reference for content differentiation. The presentation of images in the learning process will facilitate understanding for students with a visual learning style, while the presentation of instructional videos will facilitate students with an audiovisual learning style. Additionally, engaging in discussion activities will provide ease of understanding for students with a kinesthetic learning style. This approach will provide comprehensive understanding for all students (Iskandar, 2021). The first cycle in this learning process focuses on the topic of weather.

The observation phase in cycle 1 involves direct observation during the learning process. Observations are made when students are engaged in group discussions. This ensures that the learning process runs smoothly because it can quickly facilitate students to provide feedback on what they feel they have not fully understood.

The reflection phase provides results related to the students' discussion abilities in cycle 1. The reflection stage serves as an evaluation of the learning process conducted in cycle 1. The results of students' discussion abilities show improvement from the pre-cycle to cycle 1. The recapitulation of scores for students' discussion abilities, in accordance with the indicators, is presented in Table 4.

Table 4. Increasing the value in pre-cycle to cycle 1

Indicator	Pre Cycle	Cycle	Note.
Pronunciation	75,11	78,45	Increase 3,34 %
Language structure	76,4	78,52	Increase 2,12 %
Active engagement	76,2	78,21	Increase 2,01 %
Relevance to the topic	76,51	78,67	Increase 2,16 %

Source: Researcher, (2023)

Based on Table 4, it is known that in the pre-cycle stage and then in cycle 1, the participants' ability to discuss showed an overall improvement. The highest increase in scores was observed in the pronunciation indicator. This demonstrates that by presenting teaching materials and learning media that align with the students' needs, as an implementation of differentiated learning, it can stimulate students to communicate effectively both within their groups and in the classroom. The application of the Problem-Based Learning (PBL) model is also effective in enhancing students' discussion skills in the cycle 1 stage.

Cycle II

The stages in cycle 2 are carried out almost the same as in cycle 1. Cycle 2 includes climate-related materials. The initial stage in planning is done by developing teaching modules according to the syntax of the Problem-Based Learning (PBL) model. Determining teaching materials and learning media to be used. The teaching module in cycle 2 is prepared in the same way as in cycle 1. The only difference is in the presentation of videos related to geosphere phenomena. Cycle 1 presents problems related to weather phenomena in Indonesia, while cycle 2 presents videos about global climate phenomena.

The implementation stage in cycle 2 also follows the same process. Problem videos are presented, and images are shown to stimulate students to actively ask questions and respond. The core activities of the learning process in cycle 2 are presented in Table 5.

Table 5. Main activity in cycle 1

No.	Main Activity
1	Problem Orientation : ● Showing a video related to geosphere weather phenomena
2	Organizing for learning ● Make groups for discussion
3	Guiding individual and group discussion ● Developing and presenting the result
4	Analysis and evaluate ● Providing opportunities to students to ask questions and discuss together.

Source: Researcher, (2023)

The implementation of the learning is carried out through differentiated content learning, focusing on the learning styles of the students. Presenting images and videos related to the material will facilitate the students in understanding the subject matter. The display of problem-solving videos can be seen in Image 2.



Source: Researcher, (2023)

Image 2. Showing the video

The observation stage in cycle 2 is conducted by guiding the students in problem-solving through group discussions. Facilitating students to engage in discussions with their peers and, when necessary, the researcher should provide guidance during each discussion activity. Observations are made on the students to monitor them and ensure they remain conducive to group work. Look at Image 3.



Source: Researcher, (2023)

Image 3. Observing group discussion

The reflection stage in cycle 2 gets the results in the scores for the students' discussion skills based on the indicators. The scores for students' discussion skills increased from the pre-cycle stage to cycle 1. The summary of scores for students' discussion skills is presented in Table 6.

Table 6. Increasing the value in pre-cycle to cycle 1 up to cycle 2

Indicator	Pre Cycle	Cyc I	Cyc II	Note.
Pronunciation	75,11	78,45	78,94	Increase 3,83 %
Language Structure	76,4	78,52	79,44	Increase 3,04 %
Active Engagement	76,2	78,21	79,03	Increase 2,83 %
Relevance to the topic	76,51	78,67	79,88	Increase 3,37 %

Source: Researcher, (2023)

Based on Table 6 presented above, the learning process conducted in cycle 2 experienced a very significant increase in all indicators. The highest percentage is found in the pronunciation and student engagement indicators, which increased from pre-cycle to cycle 2 by 3.83%. Other indicators also saw relatively high increases. The language structure indicator in the pre-cycle obtained a score of 76.4, then increased to 78.52 in cycle 1, and in cycle 2, it scored 79.44, showing an increase of 3.83%. The topic-related indicator also experienced a 3.37% increase, with a pre-cycle score of 76.51, cycle 1 score of 78.67, and cycle 2 score of 79.88.

The increase in scores in the pre-cycle, cycle 1, and cycle 2 demonstrates that the

implementation of the Problem-Based Learning (PBL) model through differentiated learning is capable of enhancing students' discussion skills (Latifah, 2023).

CONCLUSION

The description of the results of data analysis and discussion can be summarized as follows: the implementation of the Problem-Based Learning (PBL) model through differentiated learning is capable of improving students' discussion skills.

The improvement in students' discussion skills is proved by an increase in scores in both cycle 1 and cycle 2. The results show an overall increase in scores, with the highest scores observed in the pronunciation and student engagement indicators, with a percentage increase of 3.83%. The language structure indicator also increased by 3.04%, and the topic-related indicator increased by 3.37%.

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