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Improving the Ability to Understand the Concept of Sociology Through the Application of Discovery Learning Model Assisted by Augmented Reality Media in Class X.E1 at SMA Negeri 1 IV Nagari Bayang Utara

Indah Purnama Sari[1], Eka Asih Febriani[2]
[1]Postgraduate School, Padang State University, Padang, Indonesia, Indahpurnama002@gmail.com
[2]Postgraduate School, Padang State University, Padang, Indonesia, ekaasih@gmail.com

Corresponding Author: Indahpurnama002@gmail.com[1]

Abstract: At SMAN 1 IV Nagari Bayang Utara, many students have not understood the concepts of sociology, so that learning objectives are not achieved optimally. This is due to the low mastery of concepts, lack of student activeness, limited variations in learning media, and the lack of an effective learning model to strengthen student understanding. This study aims to describe the improvement of students' concept understanding ability through the application of discovery learning model assisted by augmented reality in sociology learning. This research is a Classroom Action Research (PTK) with the aim of improving the learning process and increasing the understanding of sociology concepts in the material of Social Values and Norms. This research was conducted in 2 cycles with each cycle consisting of 3 meetings. The research subjects were students of class X. E 1 SMAN 1 IV Nagari Bayang Utara which amounted to 26 people. The results showed that there was an increase in understanding of concepts in the material of social values and norms as seen from the level of completeness of Achievement of Learning Objectives (KKTP) from pre-action (pretest) of 8.69% with an average of 66.86 then in cycle I rose to 50% with an average of 75.96 and rose to 76% with an average of 80 in cycle II.

Keyword: Sociology Concepts, Discovery Learning Model, Augmented Reality Media, Class X High School Students, Interactive Learning

INTRODUCTION

Sociology is important to learn so that students are able to interact easily in society. As stated by the Education Standards, Curriculum and Assessment Agency (BSKAP) No. 32 of 2024 (Anindito Aditomo, 2024), The subject of sociology is designed to help students: (1) adjust to socio-cultural changes; (2) become aware of their identity when interacting with their environment; (3) become aware and responsible as citizens for social problems, conflicts, or problems; and (4) be able to work together in groups for problem solving. It is expected that sociology teaches students the ability to think critically, analytically, and work together as a process of forming individual and social awareness in a heterogeneous society where in the

current 4.0 revolution education the ability to think critically, creatively, and solve problems is very important.

At SMAN 1 IV Nagari Bayang Utara, many students have not understood the concepts of sociology so that the objectives of sociology learning have not been achieved optimally. The results of the researcher's observation showed that soft skills such as critical attitude, creativity, communication skills and cooperation were still lacking. At SMAN 1 IV Nagari North Bayang, students tend to be passive and inactive. The level of mastery of sociology concepts of students is still low. The media that is often used by teachers in teaching is visual media such as textbooks, power point (PPT) and has not been varied. Teachers have not applied a suitable model to be able to strengthen students' concept understanding in sociology. To master this ability, students must understand the concept of sociology so that they can interact in society. Students do not have to learn sociology like learning formulas. Instead, sociology requires students to study concepts in depth because the subject is social phenomena.

According to (Ranti Sulistia, 2012; Rebecca B. Orr et al., 2022) the main goal of the learning process is for students to understand the main concepts of a topic without memorizing isolated elements. (Eggen, P & Kauchak, D, 2012) said that the evaluation of students' understanding ability can be done by asking students to: (1) explain concepts; (2) find characteristics of concepts; (3) relate between concepts; and (4) find conceptual examples that have not been known before. Thus, students who have good conceptual understanding will understand the design or abstract ideas or concepts being studied (Radiusman, 2020; Safitri et al., 2021)

Based on teaching experience at SMAN 1 IV Nagari Bayang Utara from 2022 until now, often encounter the following problems in every sociology learning activity, especially in class X.E1, among others: (1) when the teacher gives assignments with questions, students are not sure of their answers, including during tests. (2) students are unable to provide examples of concepts when asked by the teacher (3) when asked to study in groups and work on tasks that focus on one or two people who are considered smart, students cannot complete them. (4) when asked to identify the characteristics of a concept, students cannot complete it.

The problem above is related to the low ability of students in learning concepts, seen from their learning outcomes. Students will get good learning results if they have good interest, motivation, and confidence (Rabbianty et al., 2023; Silalahi et al., 2024). The results of the odd mid-semester exam (PTS) for class X Phase E at SMAN 1 IV Nagari North Bayang are still many that have not met the requirements to achieve the specified lesson objectives. It can be seen in the following table.

Table 1. Sociology Learning Outcomes Odd Midterm Assessment Class X.E SMAN 1 IV Nagari Bayang Utara TP 2024/2025

No	Class	Score 0-60 (Unable)	Score 61-70 (Fair)	Score 71-80 (Good)	Score 81-100 (Very Good)
1	X. E 1	22	6	1	0
2	X.E 2	27	0	1	0

Source: Primary data from sociology teacher

Of the two classes, none received excellent category scores (81-100), as shown in table 1.1. For class X.E, the Criteria for Achievement of Learning Objectives (KKTP) for sociology is 80. This means that more than half of the students need improvement in results. Judging from the odd midterm assessment questions (PTS), questions related to concept understanding are located in questions number 1-15. Students on average answered correctly on questions number 1 and 2, but on questions number 8-15, most students answered incorrectly because they could not distinguish concepts in the characteristics of sociology.

Some reasons why students do not understand sociology concepts well are as follows: students tend to focus on examples given by the teacher when working on sociology problems;

and students have not understood sociology concepts in depth. When learning takes place, students are not focused or serious; they talk to their friends when the subject matter is being explained by the teacher and often ask permission to leave the class. As a result, students will not understand sociology concepts well.

Responding to the above requires teacher efforts to increase students' self-concept understanding including providing motivation before class starts and asking triggering questions that are somewhat difficult to encourage students' critical thinking creativity. To deepen students' concept understanding, teachers can also make students' emotions controllable by creating a comfortable atmosphere so that they can follow the learning process well. A comfortable atmosphere and controlled emotions will increase students' concentration in learning and result in mastery of concepts. Another method that can be used in improving the quality of learning is through curriculum development and improvement, which includes the selection of learning models and media that encourage students' concept understanding. A learning model is a form of learning that has a name, characteristics, syntax, organization and culture such as discovery learning, projectbased learning, problem-based learning, and inquiry learning (Ernst et al., 2017; Gholam, 2019; Zulqarnain, 2022).

According to (Laura Greenstein, 2012; Murad & Hussin, n.d.) Teaching in the age of industrial revolution 4.0 is considered to develop three important 21st century competencies, namely the ability to think, act, and live in the world (Bayumi, 2022). Thinking skills including problem solving, innovation, and critical thinking (Firman et al., 2019). This era will drive the rapid transformation of education towards education 4.0, which requires fundamental changes in the learning process. The world of education will change rapidly due to advances in technology and science. According to (Firman et al., 2019) one of the features of the education 4.0 process is the use of information and communication technology (ICT) infrastructure and virtual learning tools to provide students with the flexibility to find high-quality learning resources (Bayumi, 2021). Therefore, technology can be utilized by teachers as a way to conduct the teaching process in the classroom. The involvement of technology in education can be seen from the use of technology-based learning media. According to (Sukiman, 2012) Learning media is a tool that can be used to convey teacher messages to students so that it can increase students' thoughts, feelings, attention, and interests and encourage them to effectively achieve learning goals. The objectives of using learning media are as follows: Increase student engagement; improve concept understanding; improve memory; and encourage group work (Hasanah Lubis et al., 2023; Maysarah, 2023)

Nowadays, many digital technology-based learning media have developed. Learning is assisted effectively and efficiently with digital technology-based media so that every learner will learn many things (Hasanah Lubis et al., 2023; Pujiati & Komarudin, 2024). Salah satu media pembelajaran berbasis teknologi digital adalah augmented reality atau AR. Augmented reality atau AR adalah teknologi yang memungkinkan penggabungan objek virtual dalam lingkungan nyata dan memproyeksikan objek virtual ke dalam kenyataan (S. Sujatha & K. Vinayakan, 2023). The use of AR learning media can help students learn concepts and theories. Research (Malinka Ivanova & Georgi Ivanov, 2011) found that it can encourage students to think ideally and add descriptions or images and impressions (Pramita Rosma Aryani, 2019).

Research (Aghalari et al., 2022) entitled Development of LKPD Using Discovery Learning to Improve Students' Concept Understanding of Sociology Class X Subjects at SMAN 1 Suliki, found that the discovery learning model can improve students' understanding of sociology concepts. Vivi Fajar Setyaningrum's research also found that the use of discovery learning can improve students' concept understanding and cooperation. However, these two studies did not try to improve concept understanding by integrating digital-based technology.

After considering the problems that exist in class X. E 1 before, this research will integrate a discovery learning model better known as discovery learning with the help of augmented reality (AR) media. According to Bruner (Nursalim, 2019) *Discovery learning, also known as*

"learning to discover", is a learning concept that emphasizes the importance of the individual learning process to select, retain and transform knowledge. To achieve this goal, students are asked to conduct experiments and conduct their own experiments to find the nature that is relevant to students.

This research has advantages because the discovery learning model, according to Bruner (Zulqarnain, 2022) will enable an innovative and effective learning process that encourages students to think critically. Students gain a better understanding of basic concepts. In addition, students can eliminate their skepticism or doubt. Then the display in AR media is very interesting because by using a web camera, we can connect 3D or 2D objects to the real world. Thus, students learn concepts more easily, so their understanding of the concepts will increase. To achieve the desired goals, sociology subjects must be studied carefully and evaluated regularly. To ensure that students' knowledge, skills, and psychomotor aspects develop simultaneously, augmented reality (AR)-assisted discovery learning can augment students' understanding of concepts as well as provide better interpretation.

METHOD

This type of research falls into the category of classroom action research. Classroom action research (PTK) according to (Meesuk et al., 2020; Wina Sanjaya, 2010) Classroom action research is an effort that teachers can make to increase and improve the quality of their roles and responsibilities in managing the learning process. Classroom action research focuses on efforts that are planned by teachers, implemented, and evaluated to determine whether these efforts are successful in solving learning problems faced by teachers (Mhd. Rasid Ritonga, 2023). This research uses participant classroom action research, which means that researchers are directly and fully involved in the assessment process from beginning to end including reporting (Zinjay et al., 2022).

The research was conducted at SMA Negeri 1 IV Nagari North Bayang in the 2024/2025 academic year. This high school is located on Pasar Baru-Asam Kumbang Road in North Bayang District, about 25 km from the capital city of Pesisir Selatan in West Sumatra Province. This research was conducted in the second semester (even) of the 2024/2025 academic year, from January 15, 2025 to February 14, 2025. This study involved students from the X.E1 phase class at SMA Negeri 1 IV Nagari Bayang Utara, totaling 26 students, consisting of 14 female students and 12 male students. This is based on observations during teaching in the X.E1 phase class of sociology subjects at SMA Negeri 1 IV Nagari Bayang Utara, that the ability of students' sociology concepts is low and underdeveloped.

The design of this class action research, Kurt Lewin model (PTK) describes action research as a spiral process that has four stages: planning, implementation, observation, and reflection (Muallimin, 2014). The class action research cycle model is depicted as the following chart (Arikunto, 2009) :

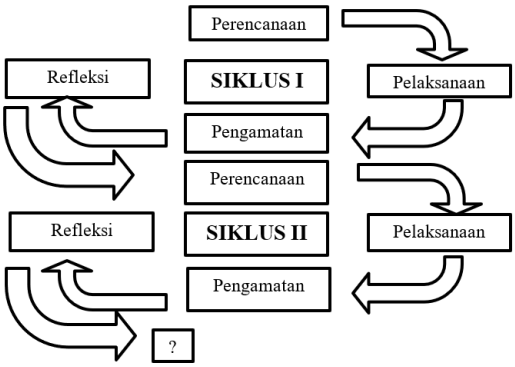

Figure 1. Classroom action research cycle model

The research instrument used in this study is the sociology concept understanding test conducted at the end of each meeting and aims to find out how well students understand the topics studied. Data analysis and interpretation is an important step in PTK because the data collected will not be meaningful without being processed and interpreted. The results of this analysis will be used as reflection material in the next cycle. Analysis of students' Concept Understanding Test is measured in accordance with the Criteria for Achievement of Learning Objectives (KKTP) set at SMAN 1 IV Nagari Bayang Utara is 80. So a student is said to have reached the Criteria for Achievement of Learning Objectives (KTTP) if he has scored ≥80. In this study, it is expected that the number of students who have reached KKTP is ≥75%.

RESULTS AND DISCUSSION

Pre-action activities in this study were carried out by collecting data on the problem of understanding the concept of sociology ability of class X students. E 1 SMAN 1 IV Nagari North Bayang. Implementation of pre-action learning by using lecture and question and answer methods and not using learning media. At the end of the lesson the teacher conducts a pretest by giving 7 description questions in accordance with the indicators of concept understanding criteria. From the results of the pretest carried out from 23 students who carried out the pretest exam, only 2 people reached the KKTP value set. While the number of incomplete is 21 students plus 3 people who are absent. So that the percentage of completeness obtained is 8.69%. This is certainly still far from what was previously determined. In this study, it is expected that the number of students who have reached KKTP is ≥75%.

Figure 2. Documentation of pretest implementation

Figure 2 pretest of concept understanding ability on the material of understanding social values, characteristics of social values, and sources of social values.

Table 2. Pre-Test Results of Sociology Concept Understanding Ability Class X. E 1 SMAN 1 IV Nagari Bayang Utara

No	Concept Understanding Indicator	Meeting	
		N = 23	
		Total score	%
1	re-explain material related to the concept	63	68
2	explain examples of concepts that students understand	71	77
3	compare between different concepts in the material of social values and norms	64	69,6
4	able to present ideas to interpret facts	57	61,7
5	connect the relationship between concepts in the material	62	67
6	able to classify an object	56	61
7	able to solve problems related to concepts	57	62

Cycle 1 Research Results

The planning stage in cycle 1 begins with preparing learning tools based on the independent curriculum. The action at meeting 1 was carried out through several learning

activities, which consisted of initial activities, core activities, and closing activities. In meeting 2, students were divided into 5 groups heterogeneously where the groups and their members were still the same as in the first meeting.


Figure 3. The form of activities for implementing the discovery learning model assisted by augmented reality media in class X. E 1 SMAN 1 IV Nagari Bayang Utara for the first meeting in cycle 1.

The post-test was conducted to see how the students' concept understanding ability improved after the action was taken using the application of the discovery learning model and augmented reality media assistance on social values material. The sociology teacher observed the development of students' understanding, starting from the pre-action (pre-test), the 1st and 2nd meeting tests to the post-test at the 3rd meeting of cycle 1. The results of the ability test at the 1st meeting of the classification material of social values according to Prof. Dr. Notonegoro can be seen in table 3 below:

Table 3. Results of Concept Understanding Ability of Sociology Class X. E 1 SMAN 1 IV Nagari Bayang Utara 1st meeting cycle 1

No	Concept Understanding Indicator	Meeting	
		N = 19	
		Total score	%
1	explain the material related to the concept	70	92,1
2	explain examples of concepts that students understand	67	88,2
3	compare between different concepts in the material of social values and norms	66	86,8
4	able to present ideas to interpret facts	61	80,3
5	connect the relationship between concepts in the material	14	18,4
6	able to classify an object	50	65,7
7	able to solve problems related to the concept	19	25

The results of the ability test at the 2nd meeting on the classification of social values based on their characteristics can be seen in table 4 below:

Table 4. Results of Sociology Concept Understanding Ability Class X. E 1 SMAN 1 IV Nagari Bayang Utara 2nd meeting cycle 1

No	Concept Understanding Indicator	Meeting	
		N = 24	
		Total score	%
1	re-explain material related to the concept	86	89,5
2	explain examples of concepts that students understand	86	89,5
3	compare between different concepts in the material of social values and norms	70	72,9
4	able to present ideas to interpret facts	68	70,8
5	connect the relationship between concepts in the material	54	56,3
6	able to classify an object	83	86,4
7	able to solve problems related to concepts	63	65,6

The results of the 3rd meeting concept understanding ability test can be seen in table 5 below.

Table 5. Post-test Results of Sociology Concept Understanding Ability Class X. E 1 SMAN 1 IV Nagari Bayang Utara 3rd meeting of cycle 1

No	Concept Understanding Indicator	Meeting	
		N = 26	
		Total score	%
1	re-explain material related to the concept	95	91,3
2	explain examples of concepts that students understand	84	81
3	compare between different concepts in the material of social values and norms	74	71
4	able to present ideas to interpret facts	76	73
5	connect the relationship between concepts in the material	65	63
6	able to classify an object	85	81,7
7	able to solve problems related to concepts	75	72,1

Observations regarding the test of the ability to understand the concept of sociology of class X students. E 1 SMAN 1 IV Nagari Bayang Utara can be seen from the results of the pre-test before the action and post-test after being implemented in cycle 1 (concept understanding test data attached).

Table 6. Comparison of Cycle 1 Pre-test and Post-test Learning Outcomes

No	Action	Completed	Not Completed	Average	Persentase	Description
1	Before action (Pre-test)	2	21	66,8	8,69	3 students absent
2	Cycle 1 (Post-test)	13	13	75,69	50	All students present

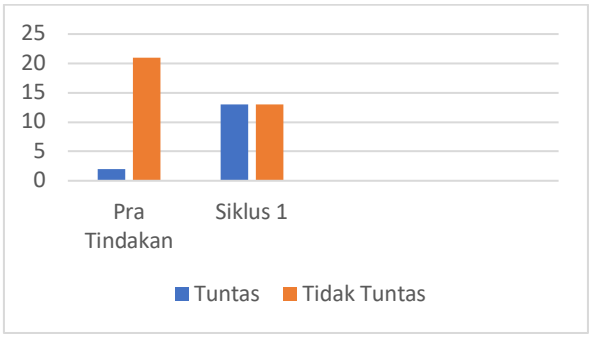

Figure 4. Comparison of Pre-test and Post-test Concept Understanding Ability Test Cycle 1

Based on the table and graph above, it can be informed that the ability to understand the sociology concept of class X.E 1 SMAN 1 IV Nagari Bayang Utara students during the learning process using the discovery learning model assisted by augmented reality media has increased, this can be seen that the average obtained before the action and after the action given. The average value before the action was 66.8 with a percentage of completeness of 8.69% while the average value after the action was 75.69 with a percentage of completeness of 50%. So that information can be taken that the ability to understand the concept of sociology of students in class X.E 1 SMAN 1 IV Nagari Bayang Utara increased by 41.3%. However, judging from the percentage of completeness it still has not reached 75% of the number of students. So this research will be continued in cycle II.

Based on the actions taken in cycle I for 3 meetings, it can be concluded that:

1. From 3 meetings during the learning process of class X.E 1 students of SMAN 1 IV Nagari Bayang Utara there are still not many students who are not active by using the discovery learning model assisted by augmented reality media.
2. There are still students who are not serious and are indifferent during sociology learning using the discovery learning model assisted by augmented reality media
3. When students are not active and not serious so that during learning in cycle 1 the ability to understand the concept of sociology of class X students. E 1 SMAN 1 IV Nagari Bayang Utara has not reached the completeness of 75% of the number of students after taking action using the discovery learning model assisted by augmented reality media.

Cycle II Research Results

At meeting 1, the researcher has divided the students' study groups consisting of 5 groups with 5-6 members (names attached). This group was divided heterogeneously and this group was different from the group in cycle I. In meeting 2, learners were divided into 5 groups heterogeneously where the groups and their members were still the same as in cycle 1. In meeting 2, students were divided into 5 groups heterogeneously where the groups and their members were still the same as in the first meeting. At the 3rd meeting, activities in the form of post-test cycle II were carried out. The post-test was conducted to see how the students' concept understanding ability improved after the action using the application of the discovery learning model and augmented reality media assistance on social norms material.

Figure 5. Meeting in cycle 2

The sociology teacher observed the development of students' understanding, starting from the pre-action (pre-test), the 1st and 2nd meeting tests to the post-test at the 3rd meeting in cycle II. The results of the ability test at the 1st meeting of the material classification of social norms based on the binding force of sanctions can be seen in table 7 below:

Table 7. Results of Sociology Concept Understanding Ability Class X. E 1 SMAN 1 IV Nagari Bayang Utara 1st meeting of cycle II

No	Concept Understanding Indicator	Meeting	
		N = 24	
		Total score	%
1	re-explain material related to the concept	96	100
2	explain examples of concepts that students understand	63	65,6
3	compare between different concepts in the material of social values and norms	80	83
4	able to present ideas to interpret facts	62	64,5
5	connect the relationship between concepts in the material	57	59,4
6	able to classify an object	57	59,4
7	able to solve problems related to concepts	69	71,9

The results of the ability test at the 2nd meeting on the classification of social values based on their characteristics can be seen in table 8 below:

Table 8. Results of Sociology Concept Understanding Ability Class X. E 1 SMAN 1 IV Nagari Bayang Utara 2nd meeting of cycle II

No	Concept Understanding Indicator	Meeting	
		N = 26	
		Total score	%
1	re-explain material related to the concept	93	89,4
2	explain examples of concepts that students understand	76	73,1
3	compare between different concepts in the material of social values and norms	76	73,1
4	able to present ideas to interpret facts	85	82
5	connect the relationship between concepts in the material	73	70,2
6	able to classify an object	95	91,3
7	able to solve problems related to concepts	83	79,8

The results of the 3rd meeting concept understanding ability test can be seen in table 9 below.

Table 9. Post-test Results of Sociology Concept Understanding Ability Class X. E 1 SMAN 1 IV Nagari Bayang Utara 3rd meeting of cycle II

No	Concept Understanding Indicator	Meeting	
		N = 25	
		Total score	%
1	re-explaining material related to the concept	85	83
2	explaining examples of concepts understood by students	80	80
3	comparing different concepts in the material on social values and norms	85	85
4	being able to present ideas in the form of factual interpretations	74	74
5	connecting the relationships between concepts in the material	93	93
6	being able to classify an object	71	71
7	being able to solve problems related to the concept	79	79

Observations regarding the test of the ability to understand sociological concepts of class X. E 1 students of SMAN 1 IV Nagari Bayang Utara can be seen from the results of the pre-test before the action was carried out and the post-test after it was carried out in cycle II (data on the concept understanding test is attached).

Table 10. Comparison of Learning Outcomes of Pre-test, Post-test Cycle I and Post-test Cycle II

No	Action	Completed	Not Completed	Average	Persentase	Description
1	Before action (Pre-test)	2	21	66,8	8,69%	3 students absent
2	Cycle I (Post-test)	13	13	75,69	50%	All students present
3	Cycle II (Post-test)	19	6	81	76%	1 student absent

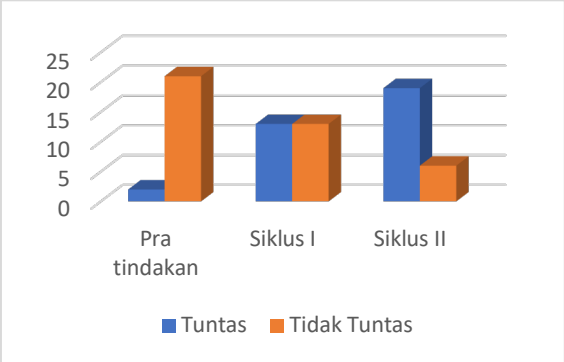

Figure 6. Comparison Chart of Sociological Concept Understanding Ability Test Pre-Action, Cycle I and Cycle II

Based on table 6 and the graph above, it can be informed that the ability to understand the concept of sociology of class X.E 1 students of SMAN 1 IV Nagari Bayang Utara during the learning process using the discovery learning model assisted by augmented reality media has increased, this can be seen from the average obtained before the action and after the action was given from cycle I and cycle II. The average value before the action was 66.8 with a percentage of completion of 8.69% while the average value after the action was 75.69 with a percentage of completion of 50% in cycle I and the average value for cycle II was 81 with a percentage of completion of 76%. So it can be taken information that the ability to understand the concept of sociology of class X.E 1 students of SMAN 1 IV Nagari Bayang Utara increased by 26% and has reached the targeted or expected percentage of completion, namely ≥75%.

Discussion

Augmented reality (AR) media is a technology that combines the virtual world with the real world and is used in learning media to provide clear, real, interesting, interactive, and educational information. AR is an interactive learning media on Android and iOS-based smartphones. Based on the results of data analysis from the concept understanding ability test of students after the application of the discovery learning model assisted by augmented reality media in class X.E 1 SMAN 1 IV Nagari Bayang Utara on the material "social values and norms" for the concept understanding indicator at each meeting from cycle I to cycle II has improved. The development of the concept understanding indicator can be described as follows.

1. Re-explain the material related to the concept

The first indicator to see the ability to understand the concept is that students are able to re-explain the material or re-summarize the material that has been learned on the material on social values and norms, such as explaining the meaning of the concept of values, norms, concepts in the classification of social values and social norms. The following is a graph of the development of the ability to understand the concept on the first indicator.

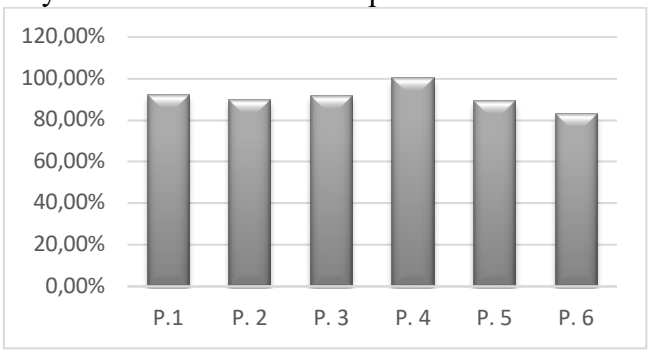

Figure 7. Concept Understanding Ability Development Chart Indicator Re-explains Concept

Based on the graph above, it can be concluded that the indicator of re-explaining the concept has reached a level of completion above 75% of all meetings from cycle I and cycle II. Although in the graph we can see an increase and decrease in the percentage figures. For the 1st meeting, the level of completion reached 92.1%, then there was a decrease in the 2nd meeting to 89.5%, at the 3rd meeting it rose again to 91.3%, the 4th meeting had reached 100%, decreased again at the 5th meeting to 89% and at the 6th meeting the percentage of completion was obtained at 85%.

2. Explaining examples of the concept

The next indicator is that students are asked to explain or provide examples related to the concepts they have learned. This indicator is very important, because if students already

understand the concept, they will easily find or provide examples other than the examples given by the teacher. The following is a graph of the development of conceptual understanding abilities in the second indicator.

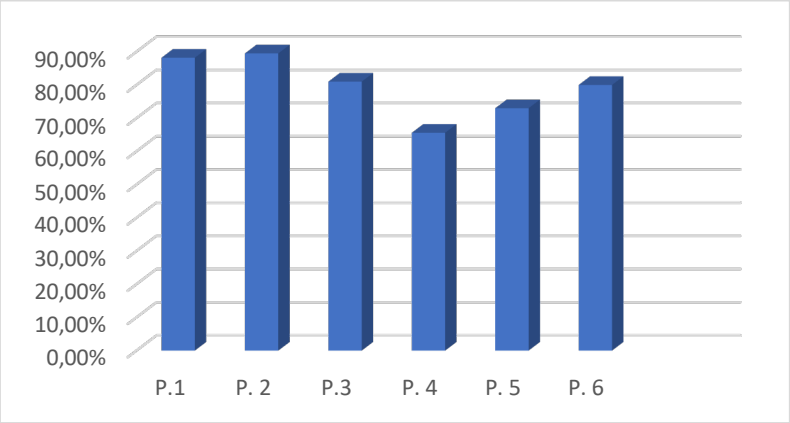

Figure 8. Conceptual Understanding Ability Development Chart Indicator Re-explains the concept

The graph above explains the development of conceptual understanding ability in the indicator of re-explaining examples of social values and norms. We can take information for cycle 1 which is at meeting 1 (92.1%), meeting 2 (89.5) and meeting 3 (81%) has achieved completion above 75%, meaning 75 percent of the number of students have been able to provide or explain examples of the concept of social values and norms. Then in cycle II there was a decrease that was seen at the 4th meeting to 65.6%. For the 5th meeting, it increased again to 73% and experienced completion of 80% when the post-test was carried out at the 3rd meeting.

3. Comparing different concepts in the material on social values and norms

The third indicator is that students are able to compare different concepts in the material of values and social norms. This means that when given questions, students are able to analyze different concepts. The following is a graph of the development of conceptual understanding abilities in the third indicator.

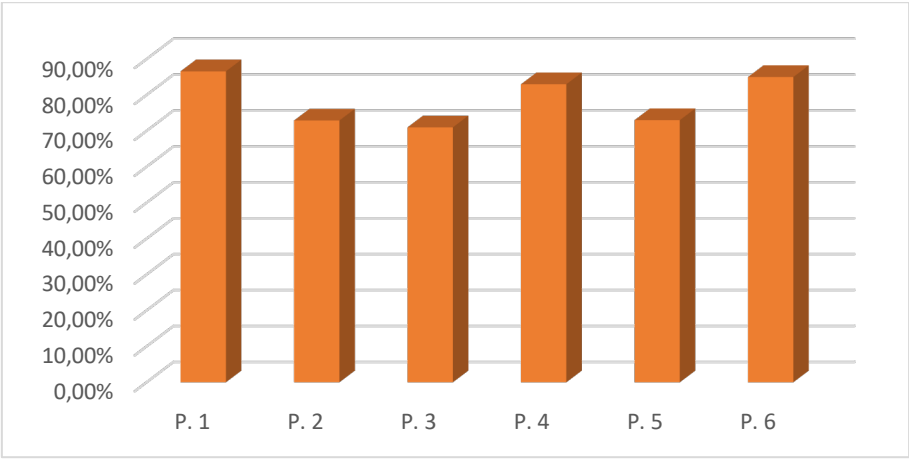

Figure 9. Concept Understanding Ability Development Chart Indicator Comparing Between Concepts

Based on the graph 4.12 above, it can be seen the development of conceptual understanding ability for the indicator of comparing between concepts. Seen from cycle I at the 1st meeting, it has reached a level of completion of 86.8%. However, at the 2nd meeting there was a significant decrease, namely to 72.9%. When the post-test was carried out at the 3rd meeting, the percentage of completion decreased again to 71%. The researcher tried to make improvements for cycle II. The improvements made by the researcher were enough to increase the students' conceptual understanding ability, this can be seen at the 4th meeting increasing to

83%. However, the decrease occurred again at the 5th meeting, namely to 73%. For the 6th meeting, a post-test was held for cycle II, the results of which were that the percentage of completion increased to 85%. So for this third indicator, it can be said to be complete because it has exceeded the target that was made.

4. Able to present concepts in the form of factual interpretations

The next indicator when someone can be said to have mastered or understood the concept is being able to present the concept in the form of factual interpretation. Students are able to explain the concept through facts that exist in the environment around the students. The following is a graph of the development of the ability to understand the concept in the fourth indicator.

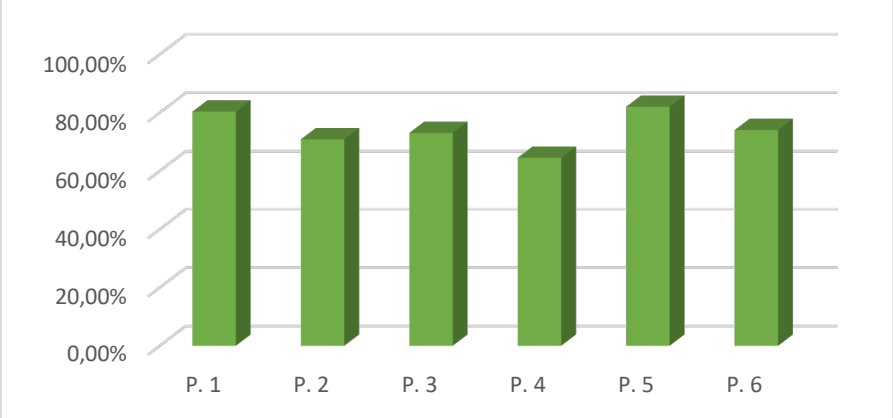

Figure 10. Conceptual Understanding Ability Development Chart Indicators present concepts in the form of factual interpretations.

Based on the graphic image above, this indicator has not experienced the expected completion. For the results of the post-test cycle I at the 3rd meeting, the results achieved for the level of completion reached 73%, and for the results of the post-test cycle II which can be seen at the 6th meeting, the percentage of completion obtained was 74%. This means that students in class X.E 1 SMAN I IV Nagari Bayang Utara have not been able to present concepts into interpretations of facts in the material on social values and norms.

5. Connecting the relationships between existing concepts in the material

Connecting or relating different concepts is an indicator in seeing the concept mastery of students. Students who have understood a concept and other concepts in a material will easily explain the relationship between these concepts. The following is the development of the sociological concept of class X.E 1 students of SMAN I IV Nagari Bayang Utara for the indicator of connecting the relationship between concepts in the material on social values and norms.

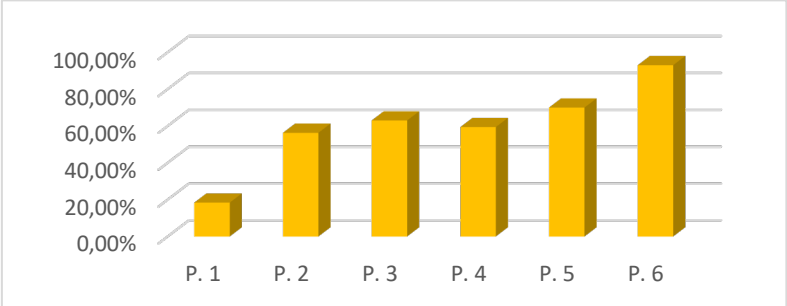

Figure 11. Conceptual Understanding Ability Development Chart Indicator Connecting the relationship between concepts

Based on the figure 4.14 above, it can be concluded that students of Class X.E 1 SMAN I IV Nagari Bayang Utara have been able to explain the relationship between concepts in the material on social values and norms. Where the post-test results for cycle I in the 3rd meeting only reached 63% but experienced an increase in completeness after improvements were made in cycle II on the post-test results which can be seen in the 6th meeting, the completeness results reached 93%.

6. Able to classify a concept

The next indicator to measure students' conceptual understanding ability is being able to classify an object, meaning that students can identify the characteristics of an object or concept from the material of social values and norms. The following is a graph of the development of conceptual understanding ability in the sixth indicator.

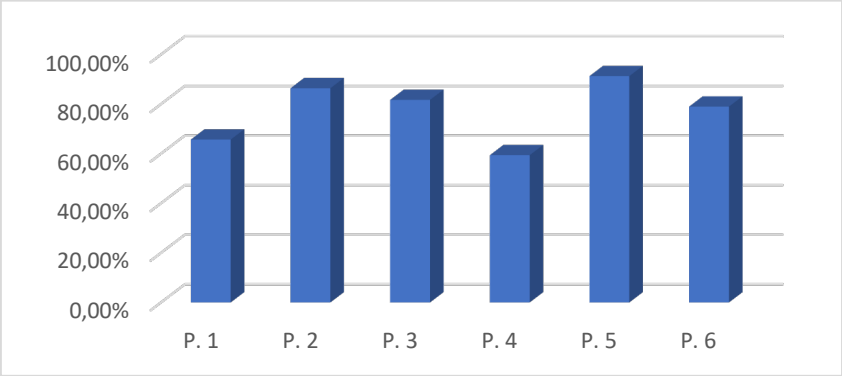

Figure 12. Concept Understanding Ability Development Chart Indicators group concepts

Based on the graphic image above, it can be concluded that for the indicator of grouping concepts at the 1st meeting of cycle I, the level of completion of class X.E 1 students of SMAN I IV Nagari Bayang Utara only reached 65.7%. Then at the 2nd meeting it increased to 82.4%. However, at the 3rd meeting, the post-test results were 81.7%. For the results of cycle I, it can be said that the percentage of completion is in accordance with expectations, which is ≥75% of the number of students. However, there was a decrease again for cycle II, namely at the 4th meeting the percentage of completion only reached 59.4%. For the 5th meeting it increased to 91.3%. However, in the results of the post-test of cycle II at the 6th meeting, the completion results decreased again to 71%, which has not reached the level of completion ≥75%.

7. Able to solve problems related to concepts

Students can be said to understand the concept if they are able to solve problems related to the concept. This can be proven by being given competency test questions related to problem solving for the material on values and social norms. The following is a development graph for the seventh indicator.

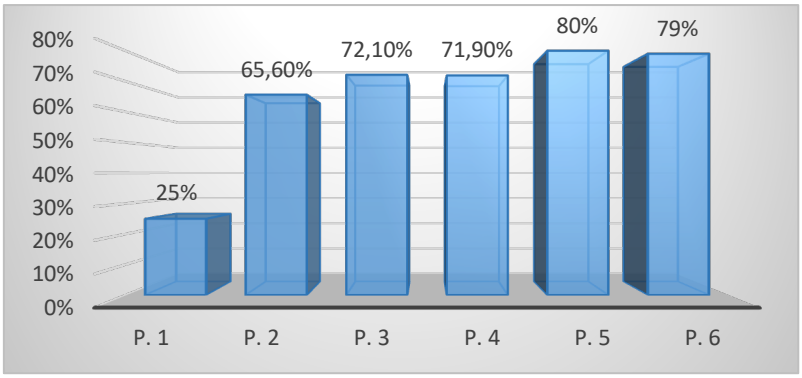

Figure 13. Conceptual Understanding Ability Development Chart Indicator Solving problems related to concepts

Judging from the graph above, the post-test results in cycle I (3rd meeting) have not reached ≥75% completion, only 72.10%. However, after improvements were made for cycle II, the percentage of completion increased to 79% in the post-test results conducted at the 6th meeting. So it can be concluded that students in class X.E I SMAN 1 IV Nagari Bayang Utara have been able to solve problems related to concepts in the material on social values and norms.

Based on the seven graphs that have been described above for the seven indicators of conceptual understanding ability in the material on social values and norms carried out in two cycles, each cycle consisting of three meetings, that each indicator has increased and some have not been completed. The indicators that have increased after the application of the discovery learning model assisted by augmented reality media are indicators of re-explaining material related to the concept; explaining examples of concepts; comparing different concepts; connecting the relationship between concepts in the material; and being able to solve problems related to the concept. Meanwhile, the indicators that have not reached the completion level of ≥75% after the implementation of the discovery learning model assisted by augmented reality media are in the indicator of presenting concepts in the form of fact interpretations and the indicator of grouping a concept. Judging from the conceptual understanding ability of class X.E I students of SMAN I IV Nagari Bayang Utara for the material on social values and norms as a whole from the results obtained from the pre-action, post-test results of cycle I and post-test II, there has been a fairly good increase after the implementation of the discovery learning model assisted by augmented reality media. The results of the sociological concept understanding ability test for the material on social values and norms in the pre-action phase or pre-test only reached 8.69% or only 2 students out of 23 students who attended achieved completion. In the pre-action activity to cycle I, the conceptual understanding ability test of class X.E I students of SMAN I IV Nagari Bayang Utara experienced a fairly significant increase. The increase can be seen from the number of students who obtained a score above the KKTP set, which is 80, totaling 13 out of 26 students. If seen from the percentage of completion, it reached 50% or increased by 41.31%.

Although there was a significant increase from pre-action to cycle I, the percentage of completion from the number of students was not as expected, which was ≥75% only 50%. There were several field notes that the researcher obtained during the implementation of cycle I, namely the level of attendance of students who attended each meeting had not reached 100% so that students were not optimal in the learning process, especially in the use of augmented reality media. Then students are still not interested in using this media because in addition to being foreign to students, this media is also not equipped with text or explanations because this material is not in the source book provided by the school, so students have quite a lot of difficulty. In group work, there are still students who are not serious and only imitate their group members. So better action is needed in cycle II.

Cycle II is an improvement from cycle I. After several meetings in cycle II, the results showed improvements or increases in the conceptual understanding ability of class X. E 1 students of SMAN I IV Nagari Bayang Utara from pre-action, cycle I and cycle II. If in the pre-

action the number of students who completed was only 2 people (8.69%) with an average of 66.86, then it increased in cycle I, namely the number of students who completed was 13 people (50%) with an average of 75.96, after that in cycle II there was an increase, namely there were 19 (76%) students who completed with an average of 81. So based on discussions and input from colleagues, the researcher who is also a sociology teacher in class X.E 1 concluded that the research could be continued until cycle II only. Thus, it can be concluded that the discovery learning model assisted by augmented reality media can be used as one of the alternative models and media that can be applied at SMAN I IV Nagari Bayang Utara as an effort to improve and enhance the conceptual understanding ability of class X.E 1 students of SMAN I IV Nagari Bayang Utara, especially in sociology subjects. Through the application of the discovery learning model assisted by augmented reality media, it can help students in constructing or building, finding, and searching for their own knowledge, facts or concepts so that learning becomes more meaningful. This knowledge is not something that must be remembered but must construct or compile this knowledge into real experiences. This is in accordance with the view of constructivism theory.

CONCLUSION

Based on the results of the research and data analysis conducted by the researcher, this study can be said to have succeeded in improving the understanding of sociological concepts possessed by students. This can be seen through the results of the percentage of conceptual understanding ability tests where there was an increase from pre-action, the first cycle to the second cycle. If in the pre-action the number of students who completed was only 2 people (8.69%) with an average of 66.86, then it increased in cycle I, namely the number of students who completed was 13 people (50%) with an average of 75.96, after that in cycle II there was an increase, namely there were 19 (76%) students who completed with an average of 81. Then when viewed from the level of completion per indicator, the concept understanding also increased. In cycle II, the percentage of completion for the indicator re-explaining the concept was 85%, the indicator explaining examples of the concept was 80%, the indicator comparing different concepts was 85%, being able to present concepts in the form of fact interpretation was 74%, connecting the relationship between concepts in the material was 93%, classifying a concept was 71%, then the last indicator was able to solve problems related to the concept was 79%. So it can be concluded that the discovery learning learning model assisted by augmented reality media can improve the conceptual understanding ability of class X.E 1 students of SMAN 1 IV Nagari Bayang Utara in the sociology subject of the material "social values and norms".

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