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Research Article

Authentic Assessment in learning Natural Sciences Based on Google Classroom

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Abstract

Authentic Assessment is a form of assessment that requires students to display attitudes, use the knowledge and skills gained from learning to perform tasks in real situations. The purpose of this study was to analyze the effectiveness of google classroom-based authentic activities to improve science learning outcomes for class VIIIF students of SMPN 1 Wonosobo in the first semester of the 2019/2020 academic year. This research is a classroom action research conducted for two cycles. The research subjects were students of class VIIIF at SMPN 1 Wonosobo in the 2019/2020 school year. Data were collected using observation sheets and student learning outcomes tests. Furthermore, the data were analyzed using qualitative descriptive. The results of this study indicate that authentic google classroom-based activities can improve student learning outcomes. The average score in the attitude aspect consisting of disciplined, responsible, and confident attitudes reaches 87 (sufficient), 89 (good), and 85 (sufficient) at the end of cycle I and reaches 90 (good), 97 (very good), and 89 (good) at the end of cycle II. The average score on the knowledge aspect increased from 73 to 85 at the end of cycle I and 90 at the end of cycle II. Skill scores increased from 78 to 89 at the end of cycle I and 91 at the end of cycle II.

Keywords

Authentic Activities, Google Classroom, Learning Outcomes

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Introduction

The management of quality education cannot be separated from the management of learning in class which is quite good, from planning to assessment. Assessment aims to measure the effectiveness of a learning process (Bellocchi, King, & Ritchie, 2016; Sabando, Puigdellívol, & Torrado, 2019). An educator can evaluate and analyze the quality of learning that has been done from the results of the assessment. From the results of this analysis used as the basis for further learning programs. Thus, the learning program carried out by a teacher can be carried out systematically and on target. The preamble to the 1945 Constitution states that one of the objectives of the establishment of the Unitary State of the Republic of Indonesia is to educate all components of the nation. This goal was then reaffirmed in the law on the national education system. (Asmuri, Sarwanto, & Masykuri, 2018)Article 2 of Law Number 20 of 2003 concerning the National Education System affirms that national education has the function of developing capabilities and shaping the character and civilization of a nation with dignity in the context of the intellectual life of the nation, aiming at developing the potential of students to become human beings who believe and fear God. Almighty, have noble character, healthy, knowledgeable, competent, creative, independent, and become democratic and responsible citizens. The preamble to the 1945 Constitution states that one of the objectives of the establishment of the Unitary State of the Republic of Indonesia is to educate all components of the nation. This goal was then reaffirmed in the law on the national education system. Article 2 of Law Number 20 of 2003 concerning the National Education System affirms that national education has the function of developing capabilities and shaping the character and civilization of a nation with dignity in the context of the intellectual life of the nation, aiming at developing the potential of students to become human beings who believe and fear God. Almighty, have noble character, healthy, knowledgeable, competent, creative, independent, and become democratic and responsible citizens. As a logical consequence of these regulations, schools are expected to be a driving force for the creation of students in accordance with these regulations. In the practical realm, all of them are contained in the Regulation of the Minister of Education and Culture Number 20 of 2016 concerning Competency Standards for Primary and Secondary Education Graduates. Regulation of the Minister of Education and Culture Number 20 of 2016 reaffirms three aspects of learning which include aspects of attitude, knowledge and skills. These three aspects become an inseparable part. Especially with the current buzz of character education where education is not only centered on cognitive aspects, but also aspects of attitude/character (F. Lin & Chan, 2018). Specifically, for science learning, science learning in schools is made in order to hone the cognitive, affective, and psychomotor abilities of students (Ryu, 2019). Cognitive abilities are honed through a series of activities that train critical reasoning skills. Students are invited to observe the phenomena that occur around them and reconstruct it into meaningful knowledge. Affective abilities are honed by cultivating scientific characters or attitudes. This ability can be trained by giving educational assignments. With this task students will practice discipline, work together, be responsible, confident, honest, and other positive attitudes. Meanwhile, psychomotor skills in science learning are trained through practicum activities or laboratory observations. In practice, these three abilities cannot be separated from one another. These three aspects will lead to the critical thinking skills of students.

Science learning strategies must be linked to several strategies. The first is to build students' confidence and a sense of belonging in science. Second is to have the hope that students will think critically about important scientific concepts and develop the ability to understand technical scientific terms (Janssen et al., 2019; Kao, Chiang, & Sun, 2017; Sucipto, 2017). Third, by using technology to suit the development of 21st century students. Good self-confidence will make students easy to express opinions and not hesitate, able to make decisions quickly, not easily give up, not be awkward in acting, dare to do presentations and answer questions (Marcos, Fernández, González, & Phillips-Silver, 2020). Meanwhile, the ability to think critically will make students not easily satisfied to learn. The estuary of this critical attitude of students is increasing the activeness and involvement of students in classroom learning because learning will only be successful if students are actively involved in learning activities (Yusuf, 2018).

In addition to learning strategies that must be well planned, assessment is also an important part of measuring success and effectiveness in the learning process, as well as to see the achievement of learning objectives (Wijayanti, 2014) .The implementation of the 2013 Curriculum which is

currently being applied in schools requires authentic assessment, which not only assesses aspects of knowledge, but the assessment carried out must be able to integrate a balance between knowledge, attitudes, and skills. Authentic Assessment is a form of assessment that requires students to display attitudes, use the knowledge and skills gained from learning to perform tasks in real situations. Authentic assessment in a scientific-based curriculum is expected to be able to record validly and reliably the competence of students both in terms of knowledge, attitudes and skills. The teacher does not have to wait for the lesson to be completed to be able to make an assessment, or wait for all the material to be delivered and only do the assessment at the end of the semester. Each teacher learning can already pocket the value for each student. Authentic assessment can be done by looking at authentic activities which are a series of learning activities that prioritize hand on activities compared to mind on (Gourlet & Decortis, 2018). Through authentic activities, students are designed to take part in a series of teacher-directed learning activities. Students are really required to be able to act scientifically. Students are not only stuffed with a series of laws or axioms, but are also involved in the process of formulating, making hypotheses and testing them, collecting data, testing hypotheses, and making conclusions. In order to be in line with the development of students living in this millennial era, it is necessary to develop authentic activities based on google classroom.

In this view, all activities that occur in learning activities are documented in virtual classes in google classroom. Through authentic google classroom-based activities, students are trained to download lesson files, read assignments, scan worksheets, complete worksheets and other learning activities in accordance with the task synopsis expected by the teacher. It is hoped that with the implementation of authentic google classroom-based activities, classroom learning activities will be more effective. This increase is expected to make students more disciplined, responsible, and confident. The improvement of these three attitudes is expected to improve their cognitive and psychomotor abilities. The use of technology is also expected to further increase students' motivation in learning, because it is in accordance with their world, as well as increase their independence. The results of research conducted by (Giarti; Sabando et al., 2019), that there are still many teachers who have difficulty implementing authentic assessments in the 2013 curriculum due to several things, including: 1) teachers' understanding of authentic assessment is still lacking; 2) low teacher creativity; 3) student characteristics that are less supportive; 4) lack of authentic assessment training; and 5) insufficient learning hours. According to (Priyanto, 2018) the obstacle in carrying out an authentic assessment of science learning is time management, assessment takes time in planning, implementing, and reporting results both in technical and administrative terms. In addition, the inadequate guidelines on authentic assessment become an obstacle to the feasibility of authentic assessment.

Authentic assessment in the implementation of the 2013 curriculum requires students to perform or work on a task or project, while conventional assessment students are asked to choose a response from those provided on the assessment tool. So that authentic assessments require a lot of time in planning, implementing, and reporting results. Authentic activities carried out in classroom learning activities will result in students feeling comfortable and happy because learning becomes meaningful (Enggarwati, 2015) The meaning of this learning is marked by the existence of a series of activities that do not memorize, experiments that are close to the lives of students, and the existence of a direct relationship with everyday life. On the other hand, the use of google classroom will bring students closer to technology (Sabando et al., 2019). Students will be trained to download assignments, scan worksheets, upload worksheet documents, document activities and other activities that are in direct contact with technology.

Google classroom-based authentic activities, all learning activities can be well documented. In the end, technology-based authentic activities can hone the knowledge (cognitive), attitudes (affective) and skills (psychomotor) skills of students. By honing these three domains, the learning outcomes of students will be able to increase. Google classroom-based assessments will also save energy and reduce paper waste. Students who have independent learning will be more happy with learning using technology. Given the importance of authentic technology-based assessments and some teachers who still experience problems in carrying out authentic assessments, this study aims to (1) analyze and describe the use of authentic activities based on google classroom; (2) To analyze the effect of using authentic activities based on google classroom.

Methods

This research is a classroom action research. This classroom action research was conducted in class VIIIF of SMP Negeri 1 Wonosobo in August - December 2019. The subjects in this classroom action research were students registered in class VIIIF of SMP Negeri 1 Wonosobo in semester 1 of the 2019/2020 school year. Based on the observation of the document, there were 31 students in class VIIIF of SMP Negeri 1 Wonosobo. Sources of data in this classroom action research are data sources that come from students, teacher data sources, and collaborator data sources. Sources of data derived from students include data on student learning outcomes and a questionnaire for the final reflection of learning for each cycle. Sources of data derived from teachers include data on teacher skills in planning learning activities and their application in the classroom. Another data that comes from the teacher is the observation journal of the attitudes of students when the classroom action research is carried out. Sources of data that come from collaborators are recordings / photos of activities during classroom action research and the results of reflections on learning activities. The research data collection technique was carried out through test and non-test techniques. The test technique is used to determine the learning outcomes of students in the knowledge aspect. The non-test technique was used by researchers to observe the implementation of authentic activities in class VIIIF of SMP Negeri 1 Wonosobo. In particular, the techniques used are observation of the implementation of learning, document scrutiny. In addition, to observe learning conditions, documentation technique is also used. The data collection tool is the observation sheet of the teacher's ability to plan learning activities, the observation sheet of the teacher's ability to carry out learning, the journal for assessing students' attitudes, a camera.

The validation of the research data was carried out using the triangulation technique of different sources, namely data from students, collaborators, and research teachers (Asmuri et al., 2018; Close & Scherr, 2015). In addition, to ensure that the data obtained were valid, researchers used different methods. Data analysis was performed using qualitative descriptive methods. For the knowledge aspect data that comes from the results of daily assessments at the end of cycles I and II, the value of each student is sought. Then determined the average value of the class acquisition at the end of cycles I and II. Furthermore, it is determined whether classical completeness has been fulfilled or not. The data derived from the processing of attitude values, the achievement scores obtained by students are then converted into values by dividing them between the achievement score and the maximum possible score and multiplied by 100.The results obtained are then categorized (ranked), very good if the score is 95 -100; good if 88 -94, enough if 81-87, and less if the score is less than 81. Furthermore, the indicators of success in this classroom action research are as follows: (1) the average score on the aspects of attitude consisting of disciplined, responsible, and confident attitudes, each of which achieves the minimum criteria well; and (2) the average score in the knowledge and skills aspect reaches a minimum of 81 which is achieved by at least 75% of students. Cycle I is planned to be implemented for 15 hours of lessons. The basic competencies conveyed to students are analyzing the linkages of plant tissue structures and their functions as well as technology inspired by plant structures. Cycle II is planned to be implemented for 10 hours of lessons. The basic competencies conveyed to students are analyzing the digestive system in humans and understanding disorders related to the digestive system, as well as efforts to maintain the health of the digestive system.

Results and Discussion

Research result

Initial Condition Description

Class VIIIF Junior high school 1 Wonosobo is one of eight classes at the VIII grade level at SMP Negeri 1 Wonosobo. The number of students in class VIIIF was 31 students. Based on the observations made by the teacher, the attitudes of students when attending Natural Science lessons were still not as expected. This condition is especially evident when completing the assignment given by the teacher. At the time of assignment by the teacher, there are still students who do the assignments not at the right time, resulting

in the submission of assignments not on time. In addition, when students are asked to have an opinion, they are still not confident. Students still often hesitate both when doing experimental steps and when expressing opinions. In addition, when they do not understand the subject matter, some of them are reluctant to ask questions that are not yet known to their teachers or other friends.
Furthermore, based on the analysis conducted by the teacher, students need to be strengthened by four characters, namely discipline, responsibility, and self-confidence, and independence (Priyanto, 2018). In these four characters, observations made by the teacher show that the value of the students' attitudes is still in the low category. From a scale of 0-100, the acquisition of students in the aspects of discipline, responsibility and self-confidence only reached 81 (sufficient), 78 (less), and 63 (less) with an average score of 74 (less). Furthermore, in the assessment of the domain of knowledge, from the assessments that were carried out in the first semester, the scores obtained by students in class VIIIF were still not as expected. There are still many students who have not yet reached completeness. With a minimum completeness criterion score of 81, the number of students who completed was less than 32% with an average score of 73. In line with the students 'scores, the students' skill scores were still not encouraging. The average value on the aspects of skills obtained by students is still 78. In the aspect of preparing tools and materials, carrying out practicum, describing observations, interpreting observations, and reporting practicum results, the acquisition of students is only 85, 96, 70, 72, and 69. To overcome various problems of learning outcomes in class VIIIF, it is necessary to conduct classroom action research. This classroom action research aims to improve student learning outcomes in the affective, cognitive, and psychomotor domains.

Description of Cycle I

Planning

To improve student learning outcomes, teachers need to carry out classroom action research. Classroom action research is carried out using authentic activities that are carried out simultaneously with the implementation of google classroom. Furthermore, during learning activities, students carry out learning activities listed on Google to optimize learning activities, the teacher has made worksheets that contain a series of subject matter that must be mastered by students.

Implementation

Cycle I was held for 6 meetings starting from Wednesday, October 9, 2019 to Friday, October 25, 2019. The total time taken in cycle I was 15 lesson hours.

Observation

Observations of the implementation of learning during the first cycle show that students have actively participated in learning activities designed by the teacher. Observations of the first meeting of the plant structure carried out in the Wonosobo square showed that all participants had actively participated in learning activities. Even in cases where students do not recognize the name of the plants planted around the square, students are willing and brave to ask the name of the plant to the officers in the square. The second meeting was held on Friday, October 11, 2019. At this second meeting, the material learned by students was the structure and function of roots. In this activity, students observed the roots of Cucurbita sp and the roots of Zea mays. The activities of students start from listening to and observing the teacher's explanation on how to use microshops and make preparations. This activity was continued by drawing a cross section of the roots. Further observations of the learning carried out by students showed that the ability of students when observing the preparations of Cucurbita sp and Zea mays roots was not optimal. Students still have difficulty using microscopy as a tool in observing root structures. The difficulties faced by students, especially when looking for light, so that the display on the microshop can be clear. Based on the results that were not maximal at the second meeting, at the third meeting, students were still studying the structure and function of roots. The third meeting was held on Wednesday, October 16, 2019.
At the beginning of the learning activity the teacher asked the participants how difficult they were when using the microshop. Armed with the students' answers, then the teacher provides solutions so that observations can be better. The fourth meeting was held on Friday, 18 October 2019. At this fourth meeting students focused on completing the fourth worksheet on the structure of the stem. At this meeting students learn about making cross-sectional preparations of roots, observing roots using

microscopes, drawing stem observations, and distinguishing monocot and dicot stems. The stems observed were Cucurbita sp. and Zea Mays trunks. Based on the observations, students began to use their cell phones to record images. If previously students directly observed using a microshop and then drawn it, at this fourth meeting students took a picture of the root cross section using a cell phone. Furthermore, the resulting photo is drawn manually on a worksheet that has been prepared by the teacher.

The fifth meeting was held on Wednesday, October 23 2019. At this meeting students learned about leaf structure. Like the fourth meeting, at this fifth meeting students used cell phones to draw leaf structures. However, based on the results of observations made, students found it difficult to make leaf cross sections. To fix the difficulties faced by students, at the sixth meeting, the teacher repeated the lesson for leaf structure. Unlike previous meetings where students made their own preparations, at this meeting students observed dry preparations (finished preparations). Furthermore, observations of learning outcomes show that student learning outcomes change. Observations on the ability of students' attitudes show that in cycle I the attitudes of students were 87 (enough). The complete range of values obtained by students on discipline, responsibility, and self-confidence is 87 (enough), 89 (good) and 85 (enough). In the discipline attitude, of the five disciplinary indicators used, two indicators achieve very good, two indicators achieve good, and one indicator is still lacking. In more detail, from indicators of arriving on time, doing assignments on time, collecting assignments on time, returning equipment that has been used, and complying with school rules, the results are 97 (very good), 87 (good), 58 (lacking), 94 (good) and 100 (very good). In the responsible aspect, three indicators achieve very well, and two indicators are lacking. Indicators that achieve very well are accepting the risk of the actions that have been taken, not easily turning on others, and admitting mistakes or shortcomings with the achievement of 100 (very good) results each. While the indicators that are lacking are carrying out the task properly and not carelessly and carrying out the results of joint decisions with the respective achievements of 68 (insufficient) and 74 (insufficient). In the aspect of self-confidence, of the five indicators used in this study, two indicators are good, two indicators are sufficient, and one indicator is lacking. Indicators that achieve a good predicate are carrying out activities without hesitation and not easily giving up on their 90 (good) achievements. Indicators that have achieved sufficient are being able to make decisions quickly and courageously or to answer questions with a respective achievement (sufficient). While the indicator that is lacking is the courage to have an opinion with an achievement of 68 (less).

Furthermore, the observation of the assessment in the cognitive realm (knowledge) shows that the average score obtained by students reached 85. The highest and lowest scores were 100 and 36, respectively. The number of students who completed reached 22 students (71%) . In the aspect of skills, the ability of students reached an average score of 89 (good). Of the five focuses of observation carried out by the teacher, two indicators achieved very well, and three indicators were sufficient. The indicators that achieve the very good predicate are preparing tools and materials, and doing practicum with 100 and 96 achievements respectively. While the other three indicators that get sufficient scores are describing the results of observations, interpreting the results of observations, and reporting the results of the practicum with their respective achievements. 85 (enough), 82 (enough), and 82 (enough). Furthermore, especially at the time of uploading, the teacher motivates students to be able to upload files on time. The teacher advised that the completed worksheets be uploaded as quickly as possible. The teacher also provides guidance to students on how to upload and scan for optimal results. In addition, there has been a constructive dialogue between teachers and students. This dialogue allows students to ask things they don't understand so that learning can be better. At the same time, teachers also motivate students to be able to study material and submit assignments on time. Furthermore, students who were late submitting assignments, they felt guilty and apologized for the delay. Furthermore, students also try their best so that the assignment given by the teacher can be done as well as possible. Some of the students do not even hesitate to repeat completing tasks so that the results can be maximized.

Reflection

Reflection is carried out by the teacher together with the classroom action research collaborators. Reflections carried out include the teacher's ability to make lesson plans, the teacher's ability to carry out learning, and the learning outcomes of students while participating in learning activities. From the results of the reflection discussion carried out together with collaborators, it shows the following results. Reflection on the teacher's ability shows that the teacher has been able to make good lesson plans. This is indicated by the existence of subject identity, conformity between core competencies, basic competencies, competency attainment indicators, and learning objectives. In addition, the learning method is in

accordance with the 2013 curriculum learning, namely using the discovery learning model.
From a review of the media and materials used in learning activities, the teacher has planned learning activities by optimizing the media and materials that are around students. Furthermore, the teacher has also made good planning related to regular learning, remedies, and enrichment. In the end, reflection on the teacher's ability to carry out learning shows that the teacher has been able to plan learning very well. Furthermore, reflection on the teacher's ability to carry out learning activities shows that the teacher has been able to carry out learning activities very well. All components in the lesson plan can be done by the teacher. Activities carried out by the teacher begin with preliminary activities, core activities, and end with closing activities. Furthermore, the teacher has also provided opportunities for students to repeat material that has not been mastered in the form of consultation through google classroom. Reflections carried out on the aspect of learning outcomes show that from the realm of attitudes, the achievement of students is 87 (sufficient). Furthermore, the students' achievements in discipline, responsibility, and self-confidence were 87 (sufficient), 89 (good) and 85 (sufficient), respectively. Thus, this achievement is still not in accordance with the predetermined performance indicators where the attitudes obtained by students are at least in the good category. In the realm of knowledge (cognitive), the average score obtained by students was 85 with completeness reaching 71%. This average score has exceeded the determined performance indicators, namely students get an average score of 81. However, in terms of the completeness achievement figure which has only reached 71%, it is still below the set performance indicator, namely 75%. In the realm of skills, the achievements obtained by students were 89. This average score is above the predetermined performance indicators, which is 81. However, because only 21 students completed (68%), the students' achievements in terms of completeness figures, have not yet reached the expected performance indicators. Further analysis shows that there are several deficiencies in learning activities in this first cycle. First, students are not familiar with questions that require higher order thinking skills. They are just getting used to the questions with levels C1 - C3. Second, discussions conducted by new students are limited to group discussions. Students are not used to having discussions with other students outside the group. Third, some students have difficulty uploading their work due to network difficulties at home. Thus, based on the results of this reflection, researchers and collaborators agreed to continue the research to cycle II. Improvements are primarily directed at optimizing the use of google classrooms to create quizzes. This quiz contains questions that require higher order thinking skills.
This quiz is done by students with the aim other than being a student training material, it can also measure the extent to which students understand the material being studied. Second, the teacher will try to be able to optimize classical discussion. This classical discussion can be carried out through classroom learning activities and discussions through google classroom. Finally, to facilitate assignment collection, the teacher will give students the opportunity to upload their work in the last five minutes of learning activities.

Description of Cycle II

Planning

Based on the achievements obtained by students and the reflections carried out by the teacher and collaborators, the classroom action research was continued in cycle II. Activities carried out by the teacher are planned to still use authentic activities combined with google classroom. What distinguishes cycle I from cycle II is the existence of a quiz. This quiz is given by the teacher to students to do online. Through this quiz, students can measure their own abilities in understanding the learning material that has been delivered by the teacher. The implementation of Cycle II was carried out for four meetings. Thus the need for learning time in cycle II is 10 lesson hours (10 x 40 minutes). Activities in cycle II begin on Wednesday, October 30, 2019 until Friday, November 15, 2019.

Observation

As was done in cycle I, in cycle II, there were also observations of learning activities carried out by the teacher in the classroom. The first meeting was held on Wednesday, October 30, 2019. At this meeting, students identified the food ingredients contained in packaged food ingredients. The teacher asks students to collect food ingredients they usually consume (especially instant noodles) to study the main food ingredients found in these food ingredients. After they get food products in packaging, they conduct a study of these food ingredients. They write down the results on a worksheet and present it to the class. Furthermore, the second meeting was held on Friday November 1, 2019. The worksheets studied by students were Worksheet 2 (Human Digestive System) and Worksheet 3 (Starch Test). After completing

learning activities, the teacher provides opportunities for students to work on quizzes and upload their work on google classroom. The third meeting was held on Wednesday, November 13, 2019. This third meeting discussed Worksheet 4 on Glucose Test.

In this third meeting learning activity, students perform a glucose test. The glucose test is carried out on food ingredients that are often found by students. Even though the teacher has provided several samples of food ingredients, the teacher also provides opportunities for students to test samples that they bring themselves outside of the material that the teacher delivers. After completing learning activities. Like the second meeting, at the end of this third meeting the teacher gave students the opportunity to do quizzes and upload their work on google classroom. The last meeting of cycle II was held on Friday, November 15, 2019. The fourth meeting discussed protein testing and fat testing. After learning activities, the teacher gives students the opportunity to write down their observations in front of the class, upload work results, and work on quizzes given by the teacher. Furthermore, observations of learning outcomes in the affective domain show that overall, the achievement of students in the realm of attitudes reaches 92 (good). The students' achievements in discipline, responsibility, and self-confidence were 90 (good), 97 (very good), and 89 (good), respectively. Furthermore, in the discipline aspect, two indicators show very good, two indicators are good, and one indicator is still lacking. An indicator that shows very well is arriving on time and obeying school rules. While the indicators that show good are doing the task on time and returning the equipment that has been used. The indicators of collecting assignments on time are still lacking. Furthermore, in the aspect of responsibility, four indicators show very well and one indicator is sufficient. A very good indicator is accepting the risk of actions that have been taken, not blaming others, acknowledging mistakes or shortcomings, and implementing joint decisions. The indicators of carrying out the task well and not carelessly are achieved with sufficient predicate. For self-confidence, three indicators are sufficient, one indicator is good, and one indicator is very good. An excellent indicator is to carry out a task without hesitation. Indicators that achieve good are not easy to give up. Meanwhile, sufficient indicators are courageous in having opinion, being able to make decisions quickly, and having the courage to ask questions or answer questions. Observations on learning outcomes in the realm of knowledge show that the average score obtained by students is 90. The number of students who completed was 24 students (77%) with the highest and lowest scores, respectively 100 and 67. In the realm of skills , students achieved an average score of 91. The number of students who obtained scores above the minimum completeness criteria was 27 students (87%).

Reflection

Reflection is carried out by the teacher together with the classroom action research collaborators. Reflections carried out include the teacher's ability to make lesson plans, the teacher's ability to carry out learning, and the learning outcomes of students while participating in learning activities. From the results of the reflection discussion carried out together with collaborators, it shows the following results. Reflection on the teacher's ability shows that the teacher has been able to make good lesson plans. This is marked by the existence of subject identity, conformity between core competencies, basic competencies, competency achievement indicators, and learning objectives. From a review of the media and materials used in learning activities, the teacher has planned learning activities by optimizing the media and materials that are around students. Furthermore, the teacher has also made good planning related to regular learning, remedies, and enrichment. The deficiencies in cycle II have been corrected by including quizzes as a closing activity at the end of the lesson. In the end, reflection on the teacher's ability to carry out learning shows that the teacher has been able to plan learning very well. Furthermore, reflection on the teacher's ability to carry out learning activities shows that the teacher has been able to carry out learning activities very well.

In addition, all the deficiencies found in cycle I have been fixed in cycle II. Improvements made include giving quizzes at the end of lessons, facilitating students to upload their work to google classrooms, and optimizing class discussions. Furthermore, the activities carried out by the teacher begin with preliminary activities, core activities, and end with closing activities. In the realm of attitude, discipline, responsibility, and self-confidence, students scored 90 (good), 97 (very good), and 89 (good) with an average score of 92 (good). The value obtained by students in the domain of attitude is above the predetermined success indicators, namely the value obtained by students in the realm of attitudes at least achieving a good predicate. In the reflection carried out on learning outcomes, the achievements obtained by students in the realm of knowledge reached an average value of 90 which was achieved by 77% of students. Thus, the value obtained by students is above the predetermined success indicator, namely 81 which is achieved by at least 75% of students. In the realm of skills, the value obtained by students was 91. The number of students who reached above the completeness criteria was 27 students (87%). Referring to

the research success indicators, the achievement of students in the realm of skills has been above the predetermined indicators, namely achieving a minimum score of 81 which is achieved by at least 80% of students. In the end, referring to the predetermined success indicators, the achievements obtained by students have exceeded the success indicators. Thus this classroom action research was in accordance with the expectations of the researcher. Thus, classroom action research does not need to be continued in cycle III.

Discussion

Learning Process Learning will be successful if students are actively involved in learning activities that have been designed by the teacher. In this classroom action research, the teacher uses authentic activities to improve the science learning process and outcomes in class VIIIF. In addition, activities designed by teachers in class VIIIF of SMPN 1 Wonosobo also aim to increase the active participation of students in learning activities. The intervention carried out by the teacher in this learning activity consists of three main components. First, the teacher uses a learning approach by placing the role of students as the center of learning activities. The teacher tries in such a way that students are actively involved in every learning activity. Students are stimulated to be able to take part in a series of inquiry activities so that they can find their own learning concepts. Second, the teacher uses the google classroom application to manage the class. Through this application, the teacher uploads the worksheets needed for learning, makes practice questions and quizzes, and carries out dialogues with students. This application is also a means for students to upload the work of students in classroom learning. Third, in order to keep the learning process focused and in accordance with the bill as stated in the performance indicators, the teacher prepares worksheets. This worksheet not only serves to record the observations of students, but is equipped with a guide for students to analyze the results of their observations. Furthermore, through this authentic activity, students are given the opportunity and experience to learn through a series of direct learning activities.

In cycle I, students analyzed the relationship between plant tissue structures and their functions as well as technology inspired by plant structures. This basic competency consists of 7 indicators of competency achievement, namely describing the structure of the root constituent network, describing the structure of the constituent stem network, identifying the structure of the leaf constituent network, explaining the relationship between the structure and function of the network at the root, explaining the relationship between the structure and function of the network in the stem, explaining relationship between structure and function of tissues in leaves, and comparing the structure of the tissues that make up roots, stems, and leaves. In practice, in cycle I students interacted with plant roots, stems, and leaves. They observe the roots, stems, and leaves of plants using a microscope, draw the observed tissue, and discuss the relationship between the structure and function of roots, stems, leaves and flowers.

This learning also provides an opportunity to analyze technology inspired by the structure and function of organs in plants in human life. In cycle II, students analyzed the digestive system in humans and understood disorders related to the digestive system, as well as efforts to maintain the health of the digestive system. This basic competency consists of 6 indicators of competency achievement, namely identifying the types of food ingredients through the foodstuff test, explaining the function of food ingredients, analyzing daily energy needs, mentioning the organs in the human digestive system, explaining the relationship between the structure of the digestive organs and its function, and describes the process of digestion of food in the human body.

In learning activities, students practice to identify the content of foodstuffs, test the content of foodstuffs and other activities that are oriented towards activities that are not far from activities found in everyday life. Based on research, learning activities have become more active. The participation of students during learning activities also increases. Thus learning becomes more conducive. Furthermore, the inquiry given through authentic activities makes students feel that the material or theme being studied is familiar. They often encounter him in real life. Furthermore, referring to Dahar's opinion regarding meaning in learning activities, authentic learning that has been carried out by the teacher has been able to shift learning towards more meaningful learning where students can find their own knowledge (Close & Scherr, 2015; Enggarwati, 2015).

The atmosphere of scientific research built by the teacher both through observing plant structures using microscopes and conducting food tests again reinforces the importance of the inquiry process in learning. Thus the learning carried out by the teacher through this authentic activity again strengthens Priyanto's opinion about the importance of the inquiry process in science learning activities (Priyanto, 2018). In this learning activity, the inquiry that is built is strengthened by the worksheets created by the teacher. The existence of worksheets prepared by the teacher makes the learning steps really according to the needs of teachers and students. Another finding in this classroom action research is that there is a

dialogical learning atmosphere. The teacher has succeeded in getting students to reconstruct the knowledge they have. This dialogical learning atmosphere makes students think. At the same time, they reconstruct knowledge through cognitive dialogue in their respective minds. This dialogue is generated through learning activities that are relaxed, not monotonous, friendly, and dynamic. Improved Student Learning Outcomes In line with the better learning activities, the learning outcomes of students have also increased. This increase occurs in learning outcomes in the domains of attitudes, knowledge and skills. Based on the results of observations made, there was an increase in the realm of students' attitudes. The attitude of students has increased in cycle I and cycle II. If before the classroom action research the students' attitudes were at 74 (lacking), then at the end of cycle I and cycle II the attitudes of the students had improved to be 87 (sufficient) and 92 (good). Further analysis shows that the disciplinary attitude, responsibility, and self-confidence of students increase as shown in Figure 1.

Based on Figure 1 above, the disciplinary attitudes of students rose from 81 to 87 and 90 at the end of cycles I and II. The responsibility attitude of students increased from 78 to 89 at the end of cycle I and 97 at the end of cycle II. Meanwhile, in the attitude of self-confidence, there was an increase from 74 to 87 and 92 at the end of cycle I and cycle II. The increase in the attitudes of students is shown by the increasingly conducive learning environment at school. Students are increasingly able to follow every activity that has been designed by the teacher. In the realm of knowledge, the average score of students has increased.

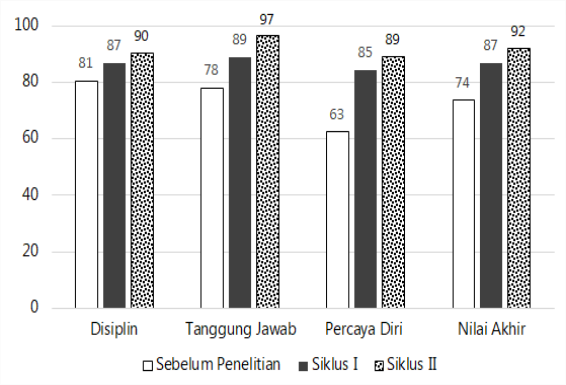

Figure 1. Development of Students' Attitudes

From the preliminary data before the implementation of classroom action research 73, the average value of students' knowledge increased to 85 in cycle I. In cycle II, the average score for students increased again to 90. This increase in average scores was also balanced the increasing number of students' completeness from 32 (before the study was carried out) to 71 (in cycle I) and 77 (in cycle II). If viewed from the development of the highest and lowest scores, the highest and lowest scores also experienced improvement. The highest score before the study was 40, while at the end of cycle I and II it had improved to 100. Meanwhile, the lowest score improved from 40 to 36 at the end of cycle I and 67 at the end of cycle II. In more detail, the development of learning outcomes in the conitive domain can be seen in Figure 2.

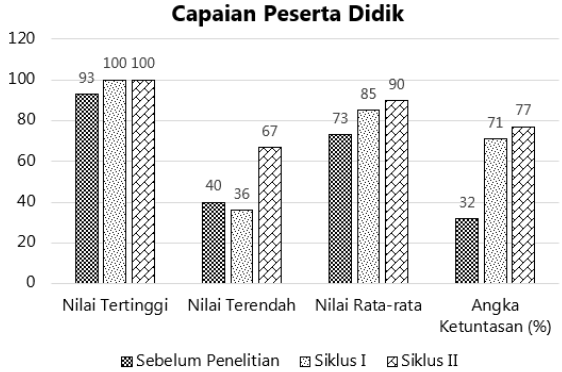

Figure 2. Students' achievements in the realm ot knowledge

Furthermore, the psychomotor scores of students are also getting better. The psychomotor scores of students increased from 78 to 89 (at the end of cycle I) and 91 (at the end of cycle II). More fully, the development of learning outcomes in the psychomotor domain can be seen in Figure 3.

Thus, from the three learning domains studied, learning outcomes in the affective, cognitive, and psychomotor domains increased. The increase in learning outcomes was dominated by two interventions carried out by the teacher. First, the teacher carries out learning activities by promoting authentic activities. Authentic activities carried out by the teacher are in the form of learning activities that give students experiences to go through a series of real activities. These real activities give a deep impression to students. The existence of this authentic activity makes students active in following the learning planned by the teacher. This activity will increase the interaction between teachers, students, and learning resources.

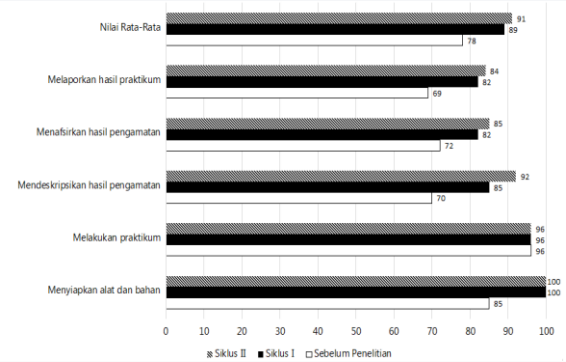

Figure 3. Students' achievements in the realm of skills

This research is in accordance with the opinion of Yusuf and Setyawati who state that learning that ensures positive interaction between teachers and students can make learning successful (Wati, 2019; Wijayanti, 2014). Second, the teacher provides worksheets that encourage students to think critically and solve problems. The worksheets provided by the teacher are not worksheets that rely on students to solve problems, but worksheets that require students to work in groups, record data from observations, analyze observations, and conclude observations, Conclusion of observations obtained through activities this makes learning more meaningful for students.

This research is in line with research conducted by Asmuri, Sarwanto, and Masykuri. Learning that is designed by training students 'critical thinking skills will be able to improve students' learning achievement (Asmuri et al., 2018; Giarti; Janssen et al., 2019; Wati, 2019). Furthermore, the worksheets prepared by the teacher serve as guidelines for students in carrying out learning activities through discovery learning. Related to the application of discovery learning in this learning activity, the results of this study reinforce the research conducted by Kholid Yusuf. The research shows that the discovery learning model can improve the ability of students, especially in solving problems that require higher order thinking skills(Kao et al., 2017; P.-Y. Lin & Schunn, 2016; Loveys & Riggs, 2019; Tashakkori & Teddlie, 2010).Third, the google classroom application that is used during learning allows students to have leeway in working on assignments given by the teacher. When the learning material is delivered through google classroom, students can learn the material that will be discussed before learning is implemented. For students who have a high learning speed, they will complete the subject matter faster. Conversely, for students who are rather slow, they have the opportunity to learn longer. Google classroom as a technology medium in learning trains the independence of students. Apart from being in accordance with the development and characteristics of today's children, the use of technology facilitates the learning process (Janssen et al., 2019)(Jumini; Sutikno, 2019). This technology makes it easy for teachers to make quizzes. This quiz can be done by students on line anytime and anywhere. In addition, students can also repeat doing quizzes if the previously obtained scores are unsatisfactory. Correction is carried out by the system, thereby saving teachers time in making grades. And also reduce paper waste.

Conclusion

Based on the results of research and discussion, it can be concluded as follows. (1) Google classroom-based authentic activities can be used in learning activities in class VIIIF of SMPN 1 Wonosobo in the first semester of the 2019/2020 school year. Learning activities using authentic activities based on google

classroom increase the active participation of students in participating in science learning. (2) There has been an increase in the science learning outcomes of class VIIIF students of SMPN 1 Wonosobo. In the realm of attitude, there has been an increase of 18, from 72 to 92 at the end of cycle II. In the realm of knowledge, there was an increase of 17, from 73 to 90 at the end of cycle II. Meanwhile, in the realm of skills there was an increase of 13, from 78 to 91 at the end of cycle II.Based on the results of this study, several important things can be recommended, among others, (1) Googgle classroom-based authentic activities can be used in science learning activities in schools. (2) Optimizing the use of google classroom requires an online network in schools that can be accessed by students from their respective classes. Therefore, schools can facilitate the provision of facilities and infrastructure to increase the capacity of the network.

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