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LEARNING PHYSICS OF MOTION AND FORCE USING THE OUTDOOR ACTIVITIES: AN EFFORT TO INCREASE STUDENTS' INTEREST AND ACHIEVEMENT AT SECONDARY SCHOOL

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ABSTRACT

This study aims to determine the increase in students' interest and achievement of science in the 8th graders of SMP Negeri 1 Watampone, Bone Regency Indonesia, when using outdoor activities. This study applied Classroom Action Research (CAR), which consists of two learning cycles following the procedural phase such as planning, implementation, observation phase, and reflection. The sample was taken using a purposive sampling technique class. The data collected included data about the students' science achievement before the implementation of the action, data about the students' interest in learning science, data about the students' science achievement in the cycle I and cycle II, and data on the observations/notes of the teacher in each research cycle. Data were obtained through a questionnaire asking about students' interest in learning science, students' achievement result test before the implementation of the action, students' achievement test in cycle I and cycle II, and student learning observation sheet. Data then analyzed using quantitative and qualitative descriptive analysis techniques. The results showed that there was an increase in students' achievement, both in cycle I and in cycle II. Students' mastery level in science materials was in the high category and their readiness, sincerity, and activeness in participating in the learning process were increased. Recommendation and direction for further research are included in the study.

Keywords: outdoor activities; science learning interest; students' science achievement

INTRODUCTION

The purpose of development in the field of education is to improve the quality of human life in its entirety and comprehensively. Besides that education also aims to assist Indonesian people who have faith and are devoted to God Almighty to realize that they are qualified, and independent so that they can be more independent and more responsible to maximize their contribution to national development.

Various efforts have been made to improve the quality of education. One of which is through the change from the Education Unit Level Curriculum (KTSP) to the 2013 National Curriculum (K13). The current K13 has experienced some fundamental developments and improvements since it was rolled out in 2013. The curriculum improvement is based on the policy foundation of the Minister of Education and Culture outlined in the Minister of Education and Culture Regulation No. 160 of 2014 concerning the Implementation of the 2006 Curriculum and the 2013 Curriculum. Based on the results of monito-

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ring and evaluation as well as public input, there are several components regarding the existence of inaccurate understanding by the community caused by the presentation format and nomenclature in K13. They are: (1) Basic Competence (KD) in Core Competencies 1 (KI-1) and KD in KI-2 which highlight characteristics of the subjects was considered less logical; (2) the scope and order of KD in the syllabus and textbook are inconsistent; (3) the curriculum document does not include the need for more technological literate students; (4) the evaluation format is considered too complicated and needs to be simplified; (5) the curriculum needs to reaffirm that scientific learning is not the only approach available to use in the classroom; (6) the textbook used should strengthen the technical improvement for friendlier use (Kemdikbud, 2016; Sahriani et al., 2019; Sutjipto, 2016).

In general, the improvement in K13 aims to give synergy between ideas, designs, documents, and their implementation. More importantly, the improvement of K13 aims to harmonize SKL, KI-KD, learning, assessment, and textbooks. These improvements in 2017 are adjusted to Presidential Regulation Number 87 of 2017 concerning Strengthening of Character Education (PPK). PPK is an educational movement under the school responsibility of the education unit that focuses on strengthening or building students' character through the harmonization of heart, taste, thought, and physical activities. This is conducted by involving and maximizing cooperation among schools, families, and communities (Article 1 Section [1]). PPK emphasizes five main values of characters that are religion, nationalism, independence, and integrity of cooperation (Kemdikbud, 2016). It is claimed that strengthening the five character values will encourage and assist students to master 21st century skills needed in pursuing life. Those skills are critical thinking and problem-solving, collaboration, creativity, and communication (Hidayah et al., 2017; Warjito, 2018; Redhana, 2019).

Understanding K13 for science teachers aims to: (1). develop professional competencies and teacher pedagogical competencies in learning science; (2). develop teacher skills in preparing learning tools; and (3). improve students' ability and skills in science learning practices in the classroom (Sari, 2013; Hapwiyah et al., 2015; Era, 2016).

However, reality shows that the application of K13 in science teaching in the classroom is unable to gain the desired goals (Anwar, 2014; Bidiani et al., 2017; Makaborang, 2019). The results of the descriptive analysis conducted by the authors regarding the students' completeness of science learning in class VIII-G of SMP Negeri 1 Watampone, indicated low category on the first quiz. The average score of student mastery was 76.09 from an ideal score that might be achieved by 100 with a standard deviation of 10.90. There were around 17 students (53.13%) in the incomplete category and there were 15 (46.88%) students in the complete category. The strategies and methods applied by the teacher in learning is one of the factor causing the low average quiz scores of grade VIII-G students. The teacher appears to enjoy a teacher-centered interaction which leads to students' low motivation and interest in learning science. This contradicts the claim that learning with interest will be better than learning without interest (Lee et al., 2011; Rusmiati, 2017; Wibowo et al., 2018).

Therefore, based on the problems that have been stated above and from various analyzes that the authors have conducted, namely by analyzing the attendance list of students, analyzing the list of student values, analyzing the tasks given to students as well as the subject matter used, analyzing feedback given by the teacher to the work of students, as well as reflecting on the teaching behavior of the teacher, several problems are urgent to be addressed. The low science achievement of students in SMP Negeri 1 Watampone indicates that science learning is less attractive. Thus, it is assumed that the reason for students' low interest and achievement at each science teaching and learning process is because students do not understand the science learning concepts. The phenomenon then leads students to be less motivated to complete assignments at home. Students' reading interest in science books is also low. Moreover, students are lazy to ask questions and indicate minimum participation in the learning process is taking place.

Based on the various problems above, there is one main problem that needs attention, which is related to students' interest in science lessons. Most students are less interested in learning science because teachers still use conventional methods so that the material taught tends to be verbal or just memorize (Purwanti, 2012; Kadir, 2016; Prihatini, 2017; Oktalia et al., 2018). Meanwhile, student-centered learning is most influential in utilizing specific interventions. Some interventions to consider include: designing a stimulating curriculum, maximizing interactions with students, using different instructions, preparing relevant materials, which are depth and breadth of the material, offers responses culture, and de-

veloping structured learning that allows teachers to facilitate information and empower students (Paolini, 2015). The author realizes that one of the weaknesses of the conventional method, when applied purely, is that it does not actively involve students in the learning process, resulting in the material being less attractive (Nasution, 2012). Ideally, all classroom learning should be motivating, encouraging, and interesting. The problem arises then is the challenge for a science teacher to manage a variety of learning methods and strategies by only having a science demo in the class instead of conducting laboratory experiments. However, it is worth considering that teachers need to find solutions or other alternatives in managing student learning processes using natural events around them, without having to bring them into the laboratory room (Yaman, 2016). Other than that be useful for increasing the literacy of students' environments (Adisendjaja et al., 2019; Wilujeng et al., 2019).

One effort that is expected to increase the interest and students' achievement of science is to implement an outdoor activities learning method or an outdoor classroom method by allotting assignments to students (Ayotte-Beaudet et al., 2017; Mackenzie et al., 2018). Through outdoor activities, the environment outside the classroom can be used as a learning resource (Aisah, 2015). The role of the teacher here is as a motivator, meaning that the teacher functions as a guide to assist students to learn actively, creatively, innovatively, effectively and intimately with the environment (Djajadi, 2019; Lantz, 2010; Mart, 2013). In addition, outdoor activities have the potential to increase motivation, communication, and participation among students (Fägerstam, 2014). Another perception is that shared experiences in an outdoor environment can be a valuable starting point for next indoor learning and that outdoor teaching can be expanded and strengthen indoor teaching. Spalie et al. (2011) also assert that outdoor activities can link education with real-life students and can connect one subject with another subject they have received. In students' outdoor activities not only learn something, even teachers learn from students and parents also learn from teachers and students. Students not only learn in class but they learn anywhere and from anyone. They not only learn from books but also learn from the natures around them. However, one challenge to consider when designing outdoor activities is the time needed to adjust to a new learning environment (Fägerstam, 2014).

The outdoor activities on science teaching methods are meant to foster creativity, initiative, independence, cooperation or mutual assistance in increasing interest and students' achievement of science (Eick, 2012; Ting & Siew, 2014). Therefore, the outdoor activities are expected to increase student interest and students' achievement. The choice of the environment outside the classroom as a learning resource should be adjusted to the subject matter. In this case, the design of outdoor learning prepared for the 8th graders is adjusted to teach material that describes the motion and force and simple machine. Through the outdoor activities, the form of the assignment is also composed to assess students' abilities and performance in a limited time yet still excite them.

Finally, based on the description above, researchers are interested in investigating how motion and force learning and simple machine used outdoor activities? Which is an effort of increasing interest and achievement of the 8th graders in SMP Negeri 1 Watampone-Bone Regency, in the academic year 2018/2019?

METHODS

This study used Classroom Action Research (CAR). The action given is the implementation of the teaching and learning process by applying and developing outdoor activities learning methods. The study was conducted in the Sports Field and around the grounds of SMP Negeri 1 Watampone.

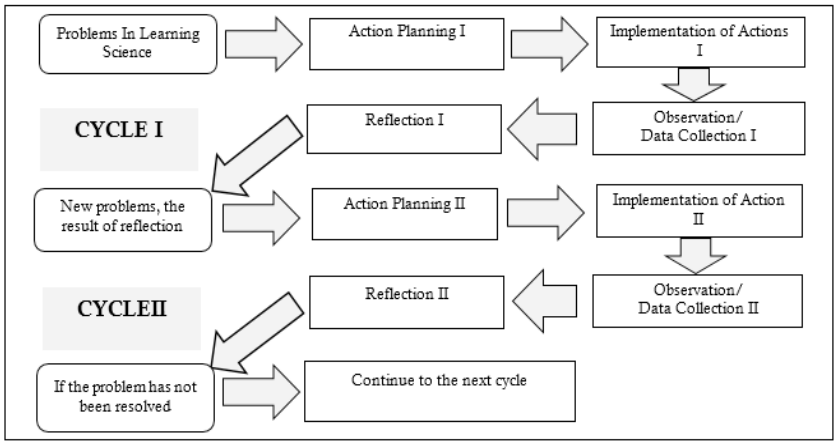

Figure 1. CAR Design for Outdoor Activities

The subject of the study was VIII-G students which consist of 32 students, 11 males and 21 females. Basic data to be collected and analyzed are (1) student factors: namely by looking at students' interest and achievement in learning outside the classroom; (2) learning process factors, namely by seeing whether the learning process takes place are meaningfully, actively, innovatively, creatively, and fun with the application of learning with outdoor activities.

The CAR design of Kemmis and McTaggart was adopted as shown in Figure 1 above. This CAR procedure consists of two cycles. Each cycle is carried out by the changes to be achieved as designed in the factors being investigated. The instruments used in this study were (1) questionnaire about students' interest in learning science; (2) observation sheet to record or see the seriousness and activeness of students outside the classroom when the outdoor activities were applied; and (3) a set of quiz tested both in Cycles I and II.

The data collection techniques in this study were as follows: (1) data about students' interest in learning science taken using a questionnaire of students' interest in learning science; (2) data about students' science achievement were taken using a science learning achievement test at the end of each cycle; and (3) data on the activeness and seriousness of students participating in the outdoor activities in teaching and learning processes were taken using 32 subject observation sheets. The collected data were then analyzed using quantitative and qualitative analysis. Descriptive analysis techniques were used in quantitative analysis, namely the average score and percentage. As for qualitative analysis, the technique used was a category of student mastery level that refers to the Minimum Learning Mastery (KBM) score of 80, that is the level of mastery of students 90%-100% categorized very good, 80%-89% categorized good, 70%-79% categorized as moderate, 60%-69% categorized as low, 0%-59% categorized as very low. Then Microsoft Office Excel and the Statistical Package for Social Science (SPSS) were used to process data. The success indicator of this research is achieved when more than 80% of students get score above the KBM. Also, whether there is an increase in learning science' interest during the implementation of Cycle I to Cycle II, particularly the discussion of the science of motion and style materials, and also simple aircraft using outdoor activities.

RESULTS AND DISCUSSION

Preliminary Observations

To determine the state of interest in learning science, the data were collected through a questionnaire. Data were analyzed quantitatively and the results can be seen in the following Table 1.

Table 1. Average Scores of Students' Interest in Learning Science

No	Student Questions	Percentage of Student Responses (%)				
		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1	I am very happy to study science because I have the basic abilities/talents in the field.	3,13	34,38	59,38	3,13	-
2	I am not happy to study science because the material is too complicated.	18,75	62,50	15,63	3,13	-
3	I am happy to study science because it is one of the lessons that are very supportive compare to other subjects, especially those related to Science and Technology.	9,38	50,00	21,88	18,75	-
4	I always try to take science lessons because I am interested in learning them.	9,38	9,38	31,25	37,50	12,50
5	I enjoy studying science because it can help me know and understand the intricacies of nature, natural phenomena, as well as phenomena that occur in the universe.	28,13	37,50	28,13	6,25	-

6	I am not happy to study science because there are too many mathematical calculations.	3,13	25,00	21,88	46,88	3,13
7	I always try to read books about science.	12,50	34,38	34,38	18,75	-
8	I rarely make science assignments because of inadequacy in study facilities at home.	-	6,25	15,63	65,63	12,50
9	The lack of basic knowledge that I obtained from elementary school made me less interested in studying science.	9,38	6,25	34,38	40,63	9,38
10	I do not have books about science because they are less useful to me than other books.	3,13	9,38	9,38	62,50	15,63
11	The tools and materials and learning equipment provided by the school are very limited and make me a bit uninterested in studying science.	3,13	18,75	12,50	46,88	18,75
12	I enjoy studying science because the costs are relatively low.	12,50	34,38	37,50	12,50	3,13
13	I am not happy to study science because in general the learning is conducted in class with conventional methods.	3,13	12,50	31,25	46,88	6,25
14	I am not happy to study science because the methods applied are not satisfactory to me.	3,13	6,25	34,38	43,75	12,50
15	I am not happy to study science because there are too many assignments given, while I do not fully understand the materials.	6,25	9,38	21,88	50,00	12,50
16	The unavailability of the Sciences Laboratory room with adequate facilities makes me less interested in studying sciences.	3,13	18,75	21,88	43,75	12,50
17	The method applied by the teacher makes me interested in studying science.	25,00	62,50	6,25	6,25	-
18	When using teaching aids or media in learning, it can arouse my interest in learning science.	18,75	50,00	25,00	6,25	-
19	The way my teacher presents material makes me happy to study Science.	40,63	46,88	6,25	6,25	-
20	I always try to get as much guidance from the teacher as possible.	28,13	50,00	15,63	6,25	-

Indicator of science subject matter. Based on the results of the analysis conducted, it can be concluded that the students' interest in learning science-based on indicators of subject matter, is largely determined by the basic abilities or talents of students towards science, where there were 11 students (34.38%) agreed to the statement. Regarding the content of natural science material that is considered complicated, there were 20 students (62.50%) agreed to this. Then the claim that science lessons as lessons that can support other lessons were agreed by 16 students (50.00%). Also, the motivation of students to study science, voted by 12 students (37.50%) who were not interested because of this factor. Science lessons can help us to know and understand the ins and outs, symptoms, and phenomena that occur in nature, where there were 12 students (37.50%) agreed. On the other hand, the science lesson is too much of a mathematical calculation, which were chosen by 15 students (46.88%) not interested because of this factor. There is a desire to try to read science books, where there were 11 students (34.38%) agreed. On the other hand, inadequate home learning facilities, where there were 21 students (65.63%) that not interested in comple-

ting assignments because of this factor. Furthermore, the lack of basic knowledge obtained from elementary schools (SD) was only voiced by 2 students (6.25%). Students do not have a book about science because it is considered less useful, where there were 3 students (9.38%) agreed on this. Also, the tools and materials prepare by the school are very limited, where there were 6 students (18.75%) agreed. In the process of learning science using a relatively small cost, where there were 11 students (34.38%) agreed.

Learning method indicators. Based on the results of the analysis conducted, it can be concluded that students' interest in learning science-based indicators is carried out in the classroom with conventional methods, agreed by 4 students (12.50%). The learning method applied by teachers was generally unsatisfactory, according to 2 students (6.25%). Three students (9.38%) agreed to the statement that there are too many assignments that are given to them and make them less interested in studying science. Meanwhile, the Science Laboratory with inadequate facilities agreed by 6 students (18.75%) who are not interested because of the unavailability of laboratory space with adequate facilities. There were 20 students (62.50%) agreed that the teaching method applied by the teacher is fun. While the use of teaching aids or media in learning can arouse the interest of students, there were 16 students (50.00%) agreed.

Teacher teaching style indicator. Based on the results of the analysis conducted, it can be concluded that students' interest in learning science-based on indicators of teacher teaching style, is largely determined by the way the teacher presents learning material, where there were 15 students (46.88%) agreed. Regarding the guidance given by the teacher, 16 students (50.00%) stated that they try to get as much guidance as possible.

Meanwhile, the results of the descriptive analysis of the quiz before the implementation of the outdoor activities were 76.09 of the ideal score that might be achieved is 100 with a standard deviation of 10.90 which was below the KBM score that is 80. The students' mastery scores above then were grouped into the five scale category, then the frequency distribution of scores was obtained as shown in Table 2 below.

Table 2. Frequency Distribution and Percentage of the Quiz Scores before the Outdoor Activities.

No.	Score	Category	Frequency	Percentage (%)
1.	0 - 59	Very low	3	9,38
2.	60 – 69	Low	7	21,88
3.	70 – 79	Moderate	7	21,88
4.	80 – 89	High	11	34,38
5.	90 – 100	Very high	4	12,50

After using the categorization, it can be seen that from 32 students of class VIII-G who were the subjects of the study, that three people (9.38%) were categorized to have very low mastery levels, seven people (21.88%) were categorized to have low mastery levels, seven people (21.88%) were in the moderate level of mastery, 11 people (34.38%) were in a high level of mastery, and four people (12.50%) were in a very high level of mastery.

Furthermore, the descriptive analysis result of the science learning completeness for students in SMP Negeri 1 Watampone on the quiz before the implementation of outdoor activities can be concluded to be in the medium category (average 76.09) based on the frequency distribution table above (Table 2). Meanwhile, there were 17 students (53.12%) who were in the incomplete category and there were 15 students (46.88%) in the completeness category. Overall, the percentage of completeness for daily tests before the implementation of outdoor learning was 46.88%.

Research Implementation Process

Descriptive Analysis of Final Test Results in the First Cycle

In this cycle, the results of learning tests were carried out in the form of daily tests. The descriptive analysis of students' acquisition scores after applying the outdoor activities during Cycle I showed that the average score of students mastery in Cycle I was 81.25 of the ideal score that might be achieved that is 100 with a standard deviation of 8.2. The students' mastery scores above then were grouped into a five scale category (see Table 3), the frequency distribution of scores obtained from 32 students of class VIII-G who were the research subjects turned out that there were three people (9.38%) categorized in the level of low mastery, six people (18.75%) were categorized in the medium level, 15 people (46.88%) were in a high level of mastery, and eight people (25.00%) were in a very high level

of mastery. Based on the average score of the students mastery after categorized, it is known that the level mastery of VIII-G students in SMP Negeri 1 Watampone after applying the outdoor activities for Cycle I was equal to 81.25 or in high mastery level category.

Furthermore, based on the descriptive analysis result of the science learning completeness in the first cycle for students in SMP Negeri 1 Watampone, students' achievement test was in the high category.

There were nine students (28.13%) who were in the incomplete category and there were 23 students (71.88%) in the completeness category. The success indicator of this research is achieved when more than 80% of students get score above the KBM, while the results obtained had not reached the desired target of 71.88%, so that this research continues to the next cycle, with the hope that the results obtained can meet desired standards or the suggested performance indicators.

Descriptive Analysis of Final Test Results in the Second Cycle

In this cycle, the results of learning tests were carried out in the form of daily tests. The descriptive analysis of students' acquisition scores after applying the outdoor activities showed that the average score of students' mastery in Cycle II was 85.70 of the ideal score that might be achieved that is 100 with a standard deviation of 7.11. Then the students' mastery scores above were grouped into a five-scale category (see Table 3), the frequency distribution of scores obtained from 32 students of class VIII-G who were the research subjects turned out that there were no students who were at low and very low mastery levels, four people (12.50%) were in a moderate level of mastery, 17 people (53.13%) were in a high level of mastery, and 11 people (34.38%) were in a very high level of authority.

Furthermore, based on the average score of students' mastery after being categorized, it was known that the level mastery of VIII-G students after applying the outdoor activities for Cycle II was 85.70 that belonged to the high mastery levels. While the students' mastery of learning science in SMP Negeri 1 Watampone on the implementation of the outdoor activities in cycle II was in the high category. There were four students (12.50%) who were in the incomplete category and there were 28 students (87.50%) in the completeness category. Because the success indicator of this research is achieved when more than 80% of students get score above the KBM, it turned out the results obtained had reached the desired target of 87.50%, so there is no need to continue this study to the next cycle because the results obtained are already meet desired standards or performance indicators.

Moreover, the following Table 3 shows an increase in students' science achievement after the outdoor activities were applied in Cycle I and Cycle II.

Table 3. Frequency Distribution and Percentage of Students' Science Achievement Scores after Applying the Outdoor Activities in Cycle I and Cycle II

No.	Score	Category	Frequency		Percentage (%)	
			Cycle I	Cycle II	Cycle I	Cycle II
1.	0 – 59	Very low	-	-	-	-
2.	60 - 69	Low	3	-	9,38	-
3.	70 - 79	Moderate	6	4	18,75	12,50
4.	80 - 89	High	15	17	46,88	53,13
5.	90 - 100	Very high	8	11	25,00	34,38

Based on the descriptive analysis above, it was argued that the students' achievement of science both in Cycle I and Cycle II, were at a high level of mastery. After investigating, it was found that: (1) the reason for students having low category was due to their lack of basic skills, inconvenience in asking friends, the inadequacy of home learning facilities, lack of attention, and minimum participation in the teaching and learning process. Students who are in the very high category are supported by high learning enthusiasm in attending lessons attentively. Based on the students' average score after applying the outdoor activities from Cycle I and Cycle II, it appeared that the students' mastery level had increased. This increase was seen in Cycle I where the average score of the students' mastery level had increased by 81.25 or in the high category. Besides, in Cycle II the average score of the students' mastery level had also increased by 85.70 or in the high category. Meanwhile, the percentage of students doing remedial activities was also

decreasing (Figure 2). This showed that there was an increase in students' achievement of VIII-G students in SMP Negeri 1 Watampone through outdoor activities by 5.19%.

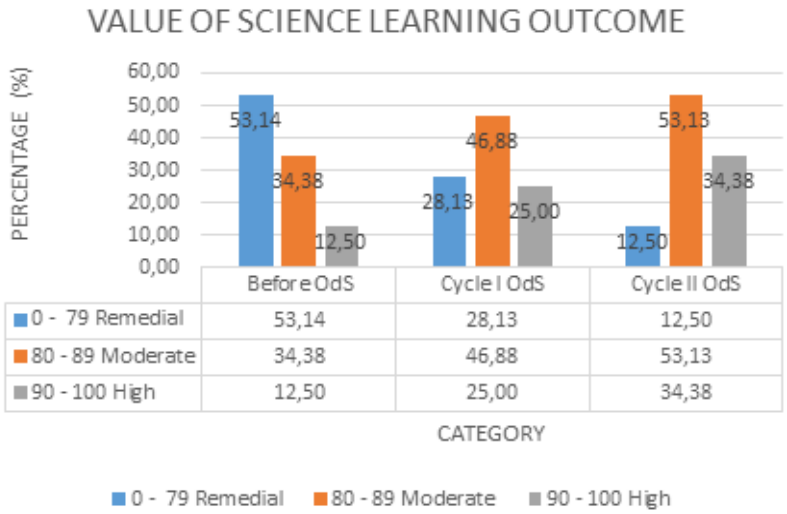

Figure 2. Graph of Student Overall Value Acquisition

Changes in Students' Readiness, Sincerity, and Activeness

Besides the increase in science learning out-comes during research in the Cycle I and Cycle II, several changes were recorded during the teaching and learning process. These changes were sourced from qualitative data obtained from the observations sheet at each meeting that was recorded in each cycle and the teacher's notes to determine changes in readiness, sincerity, and activeness of students during the teaching and learning process taking place in class. These changes include the students' presence at each meeting was increasing even though there were one or two people who were sick or permit. The students' seriousness in carrying outdoor activities were increasing, this was indicated by the students' increasing number of who carried out activities and did student worksheets (LKPD) correctly. Besides, the students' enthusiasm in learning science from Cycle I to Cycle II showed a significant improvement, this was indicated by the students' increasing number of who paid attention to teacher explanations, took notes, and were active when group discussions took place. The number of students who asked questions, responses, and comments also showed an increase. This was indicated by the students' increasing number of who asked questions about the subject matter or work procedures that were not understood by the time the outdoor activities took place. Furthermore, the students' confidence also increased as more groups were seen carrying outdoor activities well. This means that students can interact or socialize with their friends even if only in one class. Also, students' confidence in giving correct answers, including helping their friends when discussions in class take place also increases. In general, the results achieved both in terms of readiness, sincerity, and activeness of the students participating in the outdoor learning process are increasing.

Outdoor activities are one of the methods in the teaching and learning process of science where the teacher invites students to learn outside the classroom to see events directly in the field to familiarize students with their environment and not solely fixated on the learning implementation in the classroom or experiments in the Laboratory. Through outdoor activities, the environment outside the classroom can be used as a learning resource. The teacher's role is as a motivator, meaning the teacher as a guide so that students learn actively, creatively and familiar with the environment. The outdoor activities become a means of stimulating creativity, initiative, independence, collaboration, or cooperation in increasing students' interest in learning science. Hence, it is expected that the outdoor activities in the science learning process can increase the students' interest and achievement.

The choice of the environment outside the classroom as a learning resource should be adjusted to the subject matter. In this case, the material chosen was the 8th graders' science teaching material. In the first cycle, the material was about motion and force, while in the second cycle the

material was about the simple machine. The form of assignments given is adjusted to the students' ability at the frequency limits that keep them excited so it does not cause boredom. The outdoor activities also function to provide entertainment and recreation to students. This is because this method can be used to develop students' skills to observe, count, measure, classify, search for space and time relationships, plan research, and make a model.

At the beginning of the first cycle, students were still confused, did not understand how to participate in outdoor activities. Students were still confused in the process of tools and materials procurement at outdoor activities LKPD which were all available outside the classroom. The tools used are quite simple, almost all of them are outside the classroom. Researchers felt busy because they had to control the activities of students outside the classroom with a total of 32 students. From 32 students in one class, it was divided into eight groups with four students in one group. Based on this large number of students, teachers must immediately find strategies to overcome this. Also, the available time is very limited so the use of time is felt to be very short. As a result, students rush to complete their assignments outside the classroom. To overcome this, teachers with the students' approval, take time in the afternoon to continue outdoor activities with expectations, results, and indicators of success that are expected to be achieved with maximum results.

At the end of the first cycle, it was seen that there was a change marked by the presence of students who better understood how to actively participate in outdoor activities so that students felt more excited and had started to be interested in learning sciences. This is proven by the active participation of students in completing reports on the results of outdoor activities, as well as given home assignments, especially the completion of practice questions related to regular straight motion material. Another activity that was reviewed was the number of students who asked before the implementation of outdoor activities in cycle I. This is done because students are still confused about doing outdoor activities so most of them are afraid to make mistakes. Likewise, their activities in doing their assignments or homework were reviewed, in the first cycle, they had been said to be very active. At the end of the cycle, a daily test was given with results that already showed encouraging numbers because they were in the high category. However, these results had not yet reached the expected success indicator where the percentage of completeness learning cycle I only reached 71.88%.

Furthermore, in cycle II the students have actively conducted outdoor activities. This can be seen from the students' seriousness in completing the activities that were done in the outdoor activities LKPD that had been provided. The cooperation of students in their groups has been carried out with their sincerity to complete the report on the second cycle results of outdoor activities. At the end of the second cycle, many positive changes have been obtained, namely, students are accustomed to doing activities by work procedures that exist in the outdoor activities LKPD, make their conclusions, as well as the interaction between students with one another in the class when the class discussion is carried out. Although sometimes there is a misperception about answers or conclusions made based on the results of activities between one group and another. To anticipate this misunderstanding, the researcher allows students to open the literature so that the purpose of what is being debated is obtained. This is where the interaction between students is seen.

The results of the quizzes have shown an encouraging number because they are in the high category. This result had reached the expected success indicator where the percentage of mastery learning cycle II reached 87.51%. Finally, the results prove that the outdoor activities in the teaching and learning process can increase students' interest and achievement of science in the VIII-G class of SMP Negeri 1 Watampone. This result is supported by some research that also found that the outdoor activities can increase student interest and students' achievement (Adisendjaja et al., 2019; Aisah, 2015; Eick, 2012; Fägerstam, 2014; Kadir, 2016; Mackenzie et al., 2018; Ngabekti et al., 2017; Spalie et al., 2011; Ting & Siew, 2014; Wahyuni et al., 2017).

CONCLUSION

Based on the results of data analysis and discussion, it shows that the outdoor activities in the science teaching and learning process can increase the students' interest and achievement of VIII-G class in SMP Negeri 1 Watampone. This statement is proven by the achievement of more than 80% of students who scored above the KBM, where the percentage of completeness in the first cycle was 71.88% increased to 87.51% in the second cycle. Also, the increase of the students' interest and achievement of science in the VIII-G class of SMP Negeri 1 Watampone after applying the outdoor activities is proven by the following indications. First, the average value of science's material mastery in the first cycle, and

the second cycle were in the high category. The first cycle was 81.25 and in the second cycle was 85.70. Second, the implementation of the outdoor activities in the teaching and learning process can rise the students' seriousness, activeness, and confidence to further improve their science achievement. Third, the implementation of learning through the outdoor activities run according to the learning implementation plan and the student worksheet both in the first cycle and second cycle.

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