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Improving Student Learning Outcomes Through the Implementation of the Active Knowledge Sharing Learning Model at SMA Negeri 3 Langsa

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Abstract

One measure of learning success is seen from the level of understanding and the magnitude of learning outcomes both cognitively, affectively and psychomotorically. The aim of this research is to look at the influence and magnitude of the increase in learning outcomes based on the use of the active knowledge sharing model in class XI students at SMAN 3 Langsa discussing the reproductive system. Pre-experimental with one group pretest and posttest was the design for this research. The research population was all students of class XI Science at SMAN 3 Langsa for the 2022–2023 academic year with 246 students, spread across 7 classes. Class XI IPA 7 was selected as a sample using a simple random sampling procedure. The instrument used is 20 multiple choice test questions which are valid and reliable. Based on the results of research using the active knowledge sharing model, it was found that t count was 23.101 > t_{table} 2.039, so the active knowledge sharing model had an effect on improving learning outcomes. A paired t-test with a significance threshold of 5% was used to determine the results of this data analysis. Furthermore, to see the magnitude of the increase in learning outcomes, an n-gain test was carried out with a value of 0.63 with a percentage increase of 63% in the medium category. So it can be concluded that the application of the active knowledge sharing learning model in the discussion of reproductive systems in class.

INTRODUCTION

Education describes efforts to empower people to fulfill what they hope to obtain through learning or certain methods that are known and trusted by society. Education is also a character changing tool where with education, a person can know everything that was not or was previously unknown (Hasbi, 2021). This makes sense, because everyone cares about and wants good education, especially for children who will later play a role as the nation's next generation. Because education is not just a human right, but also a means of realizing human rights beyond the rights of economically and socially marginalized communities (Sirait, 2017).

The speed of progress in science and technology requires changes in teachers' teaching strategy methods, instead of being the only source of knowledge for students, teachers must adapt teaching strategies in the classroom to be able to keep up with rapid advances in science and technology. So, educators should direct students to explore their own information and data and then process and develop it. Therefore, efforts need to be made to increase the level of learning by shifting the role of educators from being an information center to being a moderator, facilitator and companion of students in an effort to encourage the development of knowledge. (Maryanti, 2018).

Based on observations carried out by researchers during the Introduction to Schooling Field 2 (PLP 2) activities at SMA Negeri 3 Langsa, the learning process has gone well. This can be seen in the average percentage of classical learning completion for class one student with another student.

In this case, students only focus on the teacher's explanation in front of the class so that students tend to be individualistic and less active in exchanging information regarding learning. In reality, learning outcomes are influenced by external factors such as peer influence and the relationship between teachers and students.

Therefore, variations in the learning process are needed to keep the learning environment interesting and new and increase the love of learning. The active knowledge sharing learning model is one model that can be applied in this situation. Students can learn more effectively when using this learning model. This learning model requires all students to be able to manifest their points of view and exchange knowledge with their colleagues, so that they can be involved and work together effectively in their groups (Andi, 2021).

This is in line with previous research by Yamin (2018) where it was seen that student learning outcomes were complete with a percentage score of 88.46%. Then Farishna's (2016) research using the PTK technique showed the influence of using the active knowledge sharing learning model in improving learning outcomes in the experimental class. Furthermore, similar research was carried out by Ni'mah (2017) where there was an increase in students' mathematical skills and active learning. The difference between this research and previous research is in the research variables and research design, this research design uses pre-experimental where there is no comparison class, the variables taken are the influence of increasing learning outcomes and the magnitude of the resulting increase. This is certainly different from the results of previous research because the research objects and samples used are not the same. Therefore, the author feels that through the active knowledge sharing learning model, apart from providing new enthusiasm for learning, students can also explore themselves more in terms of active learning, working together in teams, thinking critically and being able to express their opinions. So that in this case learning will run more effectively and efficiently, learning outcomes and student interest in learning will increase, as well as inviting students to be more dominant in learning.

RESEARCH METHODS

The research was conducted in May 2023 at SMAN 3 Langsa which is located on Jln. Cut Nyak Dhien, 27, Langsa City, Aceh, in the even semester of the 2022–2023 academic year. This research is quantitative with pre-experimental methods. The research population was all 7 class XI students of SMA Negeri 3 Langsa for the 2022/2023 academic year. Namely class XI Ipa1 = 36 people, XI Ipa2 = 36 people, XI Ipa3 = 36 people, XI Ipa4 = 35 people, XI Ipa5 = 36 people, So, the total number of students is 246 people.

A simple random sampling technique was used, namely selecting sampling units randomly (Fauzy, 2019). Class XI Science 7 was selected as the sample for this research, consisting of 32 students. In this research, the design used was one group pretest posttest. The following table shows the design of this research: (Rukmaningsih, 2020).

Table 1. Research Design

Group	Pretest	Treatment	Posttest
Experiment	Y_1	X	Y_2

Information:

Y_1 = *pre-test in the experimental class*
X = implementing learning using an active knowledge sharing model
Y_2 = *post-test in the experimental class*

The research procedure begins by giving an initial test (pre-test) to measure students' conceptual understanding skills regarding reproductive system material, then learning is carried out using an active knowledge sharing model, then to see an increase in learning outcomes, a post-test is given at the end of learning.

Data collection uses instruments as measuring tools to obtain information and improve comprehensive, complete, systematic results to make them easier to process (Arikunto, 2021). The instrument used in this research is a multiple choice test with 20 questions which are valid and reliable based on the results of the validity and reliability test of the questions with a validity value of 0.518 > 0.444 (r count > r table), and a reliability value of r11 of 0.892.

The data analysis technique uses a paired sample t-test which has previously been tested for normality with chi square and homogeneity with the Fisher test. To see the magnitude of the increase in learning outcomes, the N-gain test is used.

RESULTS AND DISCUSSION

After carrying out the learning process using the active knowledge sharing learning model in class The following is a series of tests to see whether or not there is an influence of the active knowledge sharing learning model in improving learning outcomes and how big the improvement is.

Data Normality Test

To see whether the two test data that have been tested are normally distributed or not, a data normality test is carried out. The following data is a normality test using the Ms program. Excel uses the Chi-square test.

Table 2. Normality Test Results

	Chi Kuadrat			Conclusion
	x^2 count		x^2 table	
Pretest	7,582	<	11,070	Normal
Posttest	7,330	<	11,070	Normal

Based on the normality test table as seen above, it is clear that the pretest tcount is 7.582 < ttable 11.070, and the posttest tcount is 7.330 < ttable 11.070. This shows that both data are normal. This test is carried out by collecting data values before and after treatment. In hypothesis testing, normality estimation is used to determine whether the resulting data is normal or not (State, 2018). This data normality test is carried out as a prerequisite for analysis for parametric and non-parametric statistical tests which will later be used as a reference for decision making in hypothesis testing (Usmadi, 2020).

Data Homogeneity Test

The homogeneity test aims to determine whether the two items used as research objects have similar variances or not (Ananda, 2018). The homogeneity test was carried out through the MS program. Excel with Fisher's test. The following are the results of testing the homogeneity of pretest and posttest data which are shown in Table 3.

Table 3. Homogeneity Test Results

	Fisher Test			Conclusion
	F_{count}		F_{table}	
Pretest-Postets	1,669	<	1,822	Homogen

Based on the calculation results in the table above, it is found that Fcount = 1.669 and Ftable = 1.822, so it can be seen that Fcount < F_{table}. Therefore, it can be seen that the data comes from tests that have similar (homogeneous) fluctuations. The criteria used are that the data has a homogeneous nature with the assumption that Fisher's test calculation shows calculated F < F_{table}

(Ananda, 2018). The homogeneity of variance test is very necessary before comparing two or more groups, so that the differences that exist are not caused by differences in basic data (inhomogeneity of the groups being compared) (Usmadi, 2020).

Hypothesis Test

Hypothesis testing was carried out with the help of MS.Excel using the paired sample t-test at ($\alpha = 0.05$) and df = N-1. This test is carried out by comparing the initial and final test scores with the provisions that Ho is rejected if tcount > ttable and Ho is accepted if tcount < ttable (Nuryadi, 2017). The following are the results of hypothesis test calculations using paired sample t-test.

Table 4. T Test Results (Hypothesis)

Paired Sample Statistics					
	$\bar{D}$	*SD*	N	t_{count}	t_{table}
Pretest Posttets	31,88	7,80	32	23,101	2,039

Judging from the influence that arises from the research conducted, it tends to be seen that there is an influence of the learning model applied, especially in improving student learning outcomes through the active knowledge sharing model. This is known from hypothesis testing carried out by looking at student scores before and after the research. From hypothesis testing via paired sample t-test at a significance level of 5% and df 32, it was obtained that tcount > ttable (23.101 > 2.039) then Ha was accepted and H0 was rejected. Therefore, it is suspected that the active knowledge sharing model has an influence on improving learning outcomes for students in reproductive system material at SMAN 3 Langsa. The paired sample t-test itself is carried out if the two groups are related to each other (Nuryadi, 2017), therefore the appropriate hypothesis test to carry out in this case is the paired sample t-test. This hypothesis testing is carried out because in every research it is necessary to draw conclusions so that a valid decision can be found whether the previous conjecture is accepted or rejected (Mustofa, 2013).

This influence on learning outcomes is none other than based on the researchers' findings during the teaching and learning process in class XI IPA 7 SMAN 3 Langsa by applying the active knowledge sharing learning model. It can be seen that students are very interested in this learning model because this learning model has just been implemented and has never been done in biology subjects before, so by implementing this active knowledge sharing learning model students are in a new learning environment, as well as a planned environment to gather enthusiasm and students' interest in learning. This is in line with Tyas's (2014) statement that there are two things that need to be considered in the world of education. namely learning that is fun and develops it according to students' interests to increase creativity, independence, and increase learning success. Therefore, The learning environment also plays an important role for students so that they can develop all their physical, mental, intellectual and spiritual potential during their education (Trinova, 2017).

In this active knowledge sharing learning model it can also influence students to become more energetic and empower students to work together in groups. This can be seen by students who can ask questions to other students during the learning cycle and students who can respond to other students' statements. It can also be seen that students work together to answer questions on the LKPD. This shows that the use of the active knowledge sharing learning model can provide encouragement to students in honing their communication and collaboration skills, where according to Saenab (2023) communication and collaboration skills are very important in developing students' interpersonal skills both in learning and in the world of work. In this case, the interaction between teachers and peers allows students to absorb lesson content to the maximum, because the influence of teachers and peers is one of the external factors that influences learning outcomes (Aswat, 2021). Therefore, the active knowledge sharing learning model is considered very suitable to be applied in classes where students tend to be individualistic so that the learning objectives achieved are not only on the cognitive side but also on the affective and psychomotor side. So if the learning objectives can be achieved, of course it will also affect the learning outcomes.

N-Gain Test

In calculating N-Gain, which measures the extent to which student learning outcomes have improved, information on student gains from the pretest and posttest was collected during the research. Table 5 provides data on N-gain values.

Table 5. N-gain Test Results

	Pretest	**Posttest**
Lowest Value	30	55
The highest score	75	95
Mean	48,75	80,78
N-Gain	0,63	
Percentage Increase	63%	
Category	**Moderate**	
Effectiveness	**Effective enough**	

By looking at table 5, it is possible that before practicing the active knowledge sharing model on reproductive system material, the data shows that the lowest value was 30, the highest value was 75 and the average value was 48.75. However, after implementing the active knowledge sharing learning model, student learning outcomes increased, namely the lowest score was 55 and the highest score was 95 with an average score of 80.78. After examining the values before and after the research, the average N-gain value was 0.63. With an increase percentage of 63% it is in the moderate improvement category and in terms of effectiveness it is in the quite effective category. If we look at the increase in learning outcomes before and after learning, it can be seen that there has been an increase, but the grades obtained by students tend to be different from one another. This is based on the fact that students' level of understanding in understanding information is slightly different. There are students who tend to understand more quickly and there are also students who are slow in understanding the lesson. There are differences in the understanding of each student in the learning process according to each individual's capacity. This is in accordance with Budi's theory (2016) which states that learning outcomes are the receipt of information that influences internal and external components, because this functions as a benchmark for the success of the educational process. Through learning outcomes, qualities or deficiencies can be recognized in the learning experience being developed. These two elements, both internal and external variables, can influence learning progress so that learning outcomes are good or less than optimal. This is also related to differences in abilities, personalities and learning styles of the students themselves which have a more or less influence on the learning process. The extent to which students can express their quality in learning, therefore differences in learning outcomes are very natural because the quality of students' understanding is not the same (Turhusna, 2020).

The magnitude of the increase in learning outcomes, there tends to be an increase in learning outcomes for each different student. However, it is dominated in the moderate improvement category. This is because it was found that there were some groups of students who were very active and there were also groups of students who were less active. The groups that were less active were because groups were created randomly without looking at the characteristics of the students. This is in line with Dewi's (2021) statement that there are differences in the quality of student learning in class, thus requiring the formation of homogeneous study groups because students have heterogeneous levels of understanding. Therefore, effective study groups are needed so that all students have the opportunity to excel. However, this does not hinder the learning process because it can be overcome by dividing tasks by other group members so that each group member contributes to their group. As stated by Sari (2017), the active knowledge sharing model is a model that emphasizes teamwork as a form of responsibility for the material and questions given by the teacher in order to see the overall learning outcomes of students both individually and in groups. The comparison between student learning outcomes based on pre and post test is shown in figure 1.

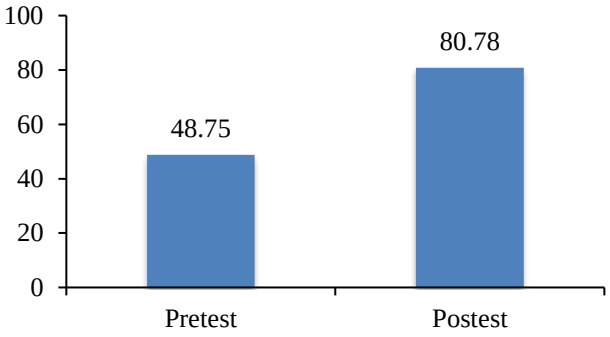

Figure 1. Comparison of Learning Results

Figure 1 shows a comparison of student learning outcomes when treated via the active knowledge sharing model on reproductive system material, showing an increase in the average pretest score of 48.75 and the average posttest score of 80.78. The findings of this research show that the use of appropriate learning strategies and models has a huge influence on learning outcomes. This assertion is related to Birth's (2017) statement which states that if students learn with good and fun methods, then students will definitely be able to understand the learning easily. Students who understand the material well when the material is studied will be able to better understand the teacher's statements during the learning process. A similar thing was conveyed by Fajri (2016) where using an interesting and fun learning model can be an alternative to overcome the boredom felt by students, apart from that it can also increase students' passion and enthusiasm for learning. So it can be said that the application of an appropriate learning model, in this case the active knowledge sharing model in class XI reproductive system material at SMAN 3 Langsa can improve student learning outcomes by increasing by 63%.

CONCLUSION

From this research, it can be concluded that there is an influence of the active knowledge sharing learning model in further improving student learning outcomes in reproductive system material in class Apart from that, the magnitude of the increase in student learning outcomes after implementing the learning model active knowledge sharing in the reproductive system material for class XI SMAN 3 Langsa obtained an average n-gain of 0.63 with a percentage increase in learning outcomes of 63% in the moderate improvement category.

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