



Analysis of Student Learning Results on Work and Energy Materials

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Abstract: This research aims to determine student learning outcomes in work and energy subjects at the Jambi City Madrasah Aliyah Laboratory for the 2022/2023 academic year. The type of research that researchers have carried out is descriptive qualitative. The population in this study were students of class X MIPA 1 and class X MIPA 2 at the Madrasah Aliyah Laboratory, Jambi City. The sample in this research was class X MIPA 1, totaling 20 students, using a purposive sampling technique. In collecting data, researchers used essay questions adjusted to the material work and energy indicators. The research results show that students' learning outcomes in work and energy materials are or are categorized in the Sufficient category.

INTRODUCTION

School is a place where we study and where there are teachers and students. The purpose of having a school is to form students who have morals, are civilized and have a good future. Because there is a school, we can educate and teach children from not knowing to knowing. Because it is not enough for only parents to teach. Schools are also places that we really need and are very helpful for parents who are not highly educated to teach their children (Hendri *et al.*, 2020). Education is very important in everyday life, especially among children or the elderly, especially for children who are just growing and developing, education also shapes children's ethics and the mindset of children who don't know to know (Affandi, *et al.*, 2020).

Physics is also known as a very difficult subject because you have to memorize formulas and some people don't know that physics is fun because in physics we can learn a lot of natural sciences such as physical work and energy (Experiments in physics) are always related to the physical universe, namely science that studies everything that exists in nature that occurs in it (Rachmad Rizaldi, 2020). Learning outcomes are the learning abilities achieved by students while studying or changes in the mindset of children from not understanding to understanding research conducted using a descriptive qualitative method because researchers want to know student learning outcomes transparently by using essay questions. The research subjects were all students of class X MIPA 1 Madrasah

Aliyah Laboratory, Jambi city. Researchers can conclude the ability of student learning outcomes in the matter of work and energy.(Fauhah & Rosy, 2020)

An effort to be directed to move an object using a certain force. Work can be expressed as the result of the scalar multiplication between force and displacement. Work divided by 2 is positive work and negative work. Positive Effort in the Direction of the Displacement of objects. Negative work is in the opposite direction or opposite to the displacement of the object. Meanwhile, the ability of an object to do work is called energy. Energy is eternal and cannot be destroyed, it's just that it can change form from one energy to another. In physics, work is the amount of energy or force exerted to move or move an object or object. What is meant by moving here means the place or location that changes after the work is carried out. In physics, what is meant by energy associated with work is the ability to do work. Work and energy are closely related because work is a change in energy that occurs in an object or object, including changes in kinetic energy and potential energy. So that energy is a component that is closely related to work.

The difference between work and work energy is formulated by multiplying the force acting on an object and the object's displacement. Meanwhile, energy is the ability to do work. Energy is eternal, meaning it cannot be destroyed but can change form from one energy to another. To find out the progress to which the results have been achieved by a person in learning, an evaluation must be carried out. To determine the progress achieved, there must be criteria (benchmarks) that refer to predetermined goals so that it can be seen how much influence the teaching and learning strategy has on student learning success.

learning outcomes are changes in student behavior that occur after participating in learning. These changes include cognitive aspects (memorization, understanding, application, analysis, synthesis, and evaluation), affective (acceptance, participation, assessment, organization, and characterization) and psychomotor (perception, readiness, guided movement, habitual movement, complex movement and creativity). The results are expressed in the form of numbers or values. From the definition above, it can be concluded that learning outcomes are learning achievements achieved by students in the process of teaching and learning activities by bringing about a change and the formation of one's behavior. To state that a learning process can be said to be successful, each teacher has their own views in line with their philosophy. However, to equalize perceptions, we should be guided by the current curriculum that has been perfected, including that a teaching and learning process regarding a learning material is declared successful if the specific learning objectives can be achieved.

When learning begins students must be more active, be able to overcome problems when working on the questions that have been given where learning uses a problem-based learning model where students are required to be more active in solving problems so that they are able to work on questions on work and energy material where many students are capable enough to understand the material of work and energy that has been given so that when working on questions students can solve questions that have been given by the teacher because so that the teacher knows how much knowledge students have during the learning that the teacher has given so far(Arviansyah et al., 2016). Based on the results of essay test questions for class X MIPA 1 students, which totaled 20 students, it was possible

to get sufficient results because they were not active in the teaching and learning process between teachers and students, so there was a lack of students asking questions while studying, especially on work and energy material because there were still many students who did not understand because they are shy or lazy to ask the purpose of holding the test is to find out student learning outcomes as long as the teacher teaches and explains (Danilo Gomes de Arruda, 2021)

Developing student skills while studying is one of the teacher's tasks where the importance of the teacher in the teaching and learning process takes place because if the teacher's learning system is boring, students also just participate in learning without active students and it is difficult to develop student skills because there is no encouragement from the teacher so that students are also not confident in their abilities because there is no motivation from the teacher and enthusiasm when the teacher teaches (Pertiwi, 2019). The reason students are not active is because the teacher when teaching doesn't really pay attention to students who don't understand, he just carries out his duties by teaching or giving material and just explaining briefly then giving him assignments or giving students the opportunity to ask questions about what students don't understand and he has to know students do you understand the method that he uses is too fast or too slow so that students find it difficult or easy to understand the material provided by the teacher during the teaching and learning process (Harefa, 2015).

The effort to deal with students' difficulties in understanding the material provided by the teacher is that the teacher must replace learning methods and models that must be better understood by students so that students can also more easily understand what the teacher teaches and the teacher explains that students must also ask if what is the teacher explained that he did not understand or did not understand so that the students' difficulties were no longer and students also had to be more active in the teaching and learning process (Firda et al., 2012). This research is entitled Analysis of Student Learning Results on work and energy Materials. The researcher took this title because he wanted to see how many students managed to get the highest score and how many students got the lowest score on work and energy material in understanding the concept of learning physics, especially work and energy material. (Wulandari & Febriana, 2020)

METHOD

The population in this sample research were Madrasah Aliyah Laboratory students in Jambi city, purposive sampling was carried out consisting of 2 classes of X MIPA classes, 2 classes of XII MIPA classes, then purposive sampling then obtained class X MIPA which totaled 2 classes then obtained classes X MIPA 1 as a research sample. Collecting data using test techniques, this technique is used to determine the ability of student learning outcomes. Data collection uses 5 item essay questions. While the data analysis used is to analyze all student answers by sorting out which answers from the highest score to the lowest score, from the results of the 5 essay questions on work and energy that have been given.

RESULT AND DISCUSSION

As for the research from the analysis of students' learning outcomes ability, it can be categorized as 2 students who got A grades, 5 students who got B grades, 13 students who got C grades, while those who got D & E scores.

Tabel 1 Work and Energy Presentation Di Madrasah Aliyah Laboratorium

No	Total students	Learning Value	Category	Percentage
1	2 Student	90	A	10%
2	5 Student	80	B	25%
3	13 Student	60-70	C	65%

Ability Student learning outcomes for work and energy material in physics lessons are as shown in table 1. In table 1 above, only 10% of students who get category A, students who get category B 25%, students who get category C 65% while no students get the D & E category. So from the table above, the learning outcomes on work and energy materials at the Jambi City Laboratory Aliyah Madrasah are categorized as Enough (C). A mental process in dealing with learning materials is learning experienced by students according to Dimiyati and Mudjiono (2006). The teacher plays an important role in observing student activities. In assessing students in the learning process, attitude assessment is very important to achieve optimal learning success.

Teachers can observe the mental processes experienced by students during the science learning process. Parents are also a factor that influences student learning outcomes. Students or learners do not have the same background and social life. Some are sociable but some are quiet. There are those who come from wealthy families but many also come from underprivileged families. The attention given by parents and families to children's learning processes will more or less affect children's learning outcomes, both directly and indirectly. Friends and the environment are also factors that can influence student learning outcomes. Good friends can affect good learning outcomes in students. Likewise with the environment around students, a good environment will make good students too.

Learning outcomes are statements that describe the knowledge or skills students should have acquired by the end of a particular assignment, class, course, or program, and help students understand why those knowledge and skills will be useful to them. Learning outcomes focus on context and the potential application of knowledge and skills that help students relate learning in various contexts, and help guide assessment and evaluation. Good learning outcomes emphasize the application and integration of knowledge. Rather than focusing on content coverage, learning outcomes articulate how students will be able to use the material, both in the classroom context and the wider context.

Student Learning Outcomes are statements that determine what will be known, can be done or can be shown by students when they have completed or participated in learning. Student learning outcomes determine actions by students that must be observable, measurable and demonstrable. Researchers to find out the ability of learning outcomes on work and energy materials used a 5-item essay test with the percentage of achievement of

student learning outcomes on work and energy material with the category of students who got scores from 86-100 categorized as Very Good (A), Shiva who got the percentage of achievement results learning scores 76-85 are categorized as Good (B) Students whose percentage of learning outcomes achieves scores 60-75 is categorized as Enough (C), Students whose percentage of learning outcomes achieves scores 55-59 is categorized as Less (D), Students whose percentage achieves learning outcomes learning to get a value of approximately 54 is categorized as Not Good (E).

The student who gets a very good grade (A) is because the student masters what the teacher has taught, he focuses when the teacher explains the lesson and pays attention to what the teacher explains, students who get high marks are students who are active when the teaching and learning process is ongoing, he is active. in the discussion he asked what he had not. understand in every material that is given by the teacher, he is also active in answering the teacher's questions and he keeps trying how he should get good grades, and students who get high marks also have to stay in class so that they are not left behind in explanations/material from the teacher, students who get a high score good at time management meaning he can share the time when he studies he stays focused and when he plays he plays.

Students who get good grades (B) because students are active in the teaching and learning process, ask if there is material that they don't understand, during discussions they actively ask and answer questions, yes, even though they are still before they can set the time but they can still understand what the teacher is saying teach and he can still do what the teacher told him to do.

Shiva who gets a value of Enough (C) because students only hear what the teacher explains students are embarrassed to ask if he doesn't understand the material the teacher explains he is not active during the discussion he is lazy to ask he answers just me, the student pays attention to the teacher's explanation but he not only understand how much he wants to learn, the student also likes to play in class when the teacher explains he is talking and if he is not too focused when the teaching and learning process is running.

Based on the results of the research on the analysis of learning outcomes on the subject of work and energy, students who got an A score were only 2 students who got a B score, 5 people and students who got a C score, 13 people. Here we see that only a few students got the highest score and students who getting sufficient marks for more than half of the students, there are only a few students who get high marks because in the teaching and learning process there is no life between teacher and students. From the results of research on student learning outcomes on work and energy material for class X MIPA 1 at Madrasah Aliyah Laboratory, Jambi city, it is still categorized as sufficient, this happens because in the teaching and learning process there are not enough students who actively ask questions if they do not understand/understand the explanations that the teacher teaches, students only rely on explanations and record what the teacher writes on the blackboard.

One of the reasons students are not active in the teaching and learning process is the learning method used, usually the teacher uses the lecture method, it makes students bored and so students are lazy to learn, because the teacher's lecture method only explains theory

without being given examples/experiments by the teacher because this makes students difficult to understand the material and make students lazy to ask if students do not understand. There are also teachers who enter only giving assignments without any explanation of what students can do about the questions if there is no explanation from the teacher there are also teachers who only explain / tell stories without seeing how the students are bored or not during the teaching and learning process. The way to overcome it so that students can be active in the teaching and learning process that runs effectively and efficiently is that as teachers we have to see how the students are when we teach, we have to use methods that make students active which are like the question and answer method after the teacher explains, and group discussions about what the teacher has explained or asking what the student got as long as the teacher explained.

The process of teaching and learning will run well if the teacher and students can work together in achieving goals where the teacher must be able to make the students do not understand to understand and vice versa students must be able to help the teacher succeed in educating students to be able to understand what the teacher explains if students do not understand students can ask. The teacher must be able to jump in and embrace the child so that the child is more active by the way the teacher can make the class come alive where the teacher plays an important role in the class, the teacher can make students more confident (Ramadhani & Nurita, 2022; Zakwandi et al., 2022) and more active in the teaching and learning process maybe the teacher can do a quiz after the lesson is over or ask students after explaining the material. Because today's students also study using cellphones, many students are less active when studying, one of which is because of cellphones so that what is explained by the teacher students don't listen or even listen to students who don't pay attention when the teacher teaches so that students find it difficult to understand one concept with another concept because when the teacher explains the students play cellphones. According to the Student Learning Outcomes Researcher, the material for work and energy is said to be sufficient because there are 2 possibilities. First, the teacher does not explain the material briefly and clearly so that students can understand. The second is students who are not too interested in the science learning process at school.

Based on the results of the percentage analysis of students' learning outcomes in the subject matter of work and energy, the assessment of learning outcomes reached 65% in the sufficient category, which indicated that students still needed guidance in material work and energy in the physics learning process at Madrasah Aliyah, Jambi City Laboratory. What factors into student learning problems are caused by two factors, namely internal and external factors. The internal factors are the student's personality or those that come from within an individual, while the external factors are not the student's personality or those that come from outside of an individual (Maya et al., 2023; Sofna et al., 2023). Another factor that causes student learning outcomes is the attitude of the students themselves (Hulu & Telaumbanua, 2022).

In the learning process also greatly affects student learning outcomes. therefore teachers are strongly advised to use experiments to improve student learning outcomes. If student learning outcomes using experiments are higher then it is possible to attract

students to learn more in the learning process which can improve student learning outcomes that teachers and students want to achieve. Effective student learning outcomes are those with high learning motivation in which students are expected to obtain good learning outcomes. For teachers in teaching the act of teaching ends with the process of evaluating learning outcomes (Nasrah, 2020). To improve student learning outcomes teachers before carrying out the learning process must prepare a strategy in learning. For learning strategies that have fun or are fun and don't make learning boring, such as preparing lesson plans, being able to masterpowerpoint and presenting interesting learning videos in order to increase student learning outcomes (Sumilat et al., 2022).

One that also supports to increase student learning outcomes is the process of teaching in class. A teaching process that is more creative and innovative in carrying out learning is really needed in the delivery of material or media in the learning process in the classroom. And also the cleverness of the teacher in dealing with the atmosphere and conditions of teaching and learning in class so that they can support in increasing student learning outcomes (Danilo Gomes de Arruda, 2021). Based on the opinion of the researchers above, students are able to choose personally either by choosing friends who are diligent in studying so that they are able to increase students' knowledge in learning to produce the learning outcomes that these students want. The process of teaching and learning activities by bringing about a change and the formation of one's behavior is very important in influencing student learning outcomes from internal and environmental factors.

Changes in student behavior that occur after participating in learning changes are cognitive aspects, namely understanding, ability to memorize, apply, analyze, and evaluate. After that, the physiological aspect is also very much needed to obtain good student learning outcomes. Body fitness and five senses need to be maintained by eating and drinking nutritious vitamins, for the growth of the student's brain so he can think well. Rest and exercise on the body is also very necessary so that the condition of the body is not susceptible to disease. Of course, there are many cases of children whose achievements have fallen because they are not physically fit. To influence student learning outcomes the psychological aspect is also really needed because intelligence, attitudes, talents, interests, motivation and personality can add to the learning outcomes that these students want to achieve. This psychological factor is also a strong factor of learning outcomes, intelligence can be developed for knowledge, but attitudes, interests, motivation and personality are strongly influenced by the psychological factors of the students themselves. Therefore, students must strive to continue to get a supply of motivation from the surrounding environment (Misbah et al., 2022; Nehru et al., 2022), strengthen their determination and strengthen their attitude for a brighter future.

At Madrasah Aliyah Laboratory learning outcomes that have been studied in the material of work and energy are categorized as sufficient because of factors from within and from outside the student so that student learning outcomes are not successful. Therefore students and teachers are able to interact with each other in order to achieve results learning desired by students and teachers.

CONCLUSION

Based on the results of the analysis and discussion that the researcher found during the research and that the researcher has presented in this article, it can be concluded that student learning outcomes in terms of test questions using five questions on work and energy material, it was found that the learning outcomes of students who got an A score were 10%, 25% got a B grade, while 65% of students got a C grade in the Fair (C) category. This research also indicates that students will have good grades if they can actively participate in the learning process to improve learning outcomes and gain new knowledge through experiences they discover themselves. For future research, it is hoped that other researchers will create an instrument that is truly validated so that the data seen can also be more accurate and more effective.

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