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COMPARISON OF GAMBIA AND INDONESIA ON DIGITAL LITERACY AND LEARNING OUTCOMES

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Abstract :
The purpose of this study was to find out whether there is an effect of digital literacy on student learning outcomes in the subject of natural sciences subject matter of motion at Junior high school 19 Jambi City and SMS's Gambia. This research method uses a quantitative method with an associative research approach. The research sample was taken using a purposive sampling technique, with 45 class VII students in each school as the sample. Data was collected through the use of questionnaires that measure digital literacy variables and student learning outcomes. The results of this study indicate that the digital literacy level of students in Indonesia and Gambia is in a fairly good category. Likewise, student learning outcomes in the two countries are also in the fairly good category. The normality test and linearity test show that the data is normally and linearly distributed. The regression test shows that there is an effect of digital literacy on student learning outcomes in both schools, with a significance value of less than 0.05.

Keywords: Digital literacy; Learning outcomes; Science learning

INTRODUCTION

Science learning in junior high schools in the 21st century has undergone significant changes. Common problems related to the quality of science learning are students' ability to master 21st century skills such as critical thinking skills, and scientific literacy (Jufri et al., 2018; Qoidah et al., 2021; Sinaga et al., 2023). The current approach emphasizes the development of skills and understanding relevant to the development of science and technology (Imaduddina & Khafidin, 2018; Maison et al., 2020). Students are taught to be active in scientific exploration and discovery through skills such as observation, measurement, experimentation, data analysis, problem solving, critical thinking, and collaboration (Anita & Bentri, 2023; Octavia et al., 2023). In addition, an in-depth understanding of concepts is also emphasized, so that students do not only remember scientific facts, but also understand the basic principles and relationships between these concepts. In the 21st century junior high school science learning, an understanding of motion material has an important role.

Movement is closely related to everyday life. In motion material there are many concepts that must be understood by students to solve problems related to these concepts (Husna et al., 2020). Through motion learning, students can develop scientific skills such as experiments to understand motion concepts. Students can also develop a deep understanding of basic science principles, apply scientific skills, and enhance critical thinking in solving motion-related problems. Understanding the concept of motion in science learning can help improve students' digital literacy.

The importance of digital literacy in science learning cannot be ignored in today's digital era. Digital literacy is not just the ability to find, use and disseminate information, however, it requires the ability to make critical information and evaluations, the accuracy of the applications used and an in-depth understanding of the contents of the information contained in the digital content (Hanik, 2020; Maulana, 2015). Students need to learn how to access, evaluate, and wisely use digital resources to obtain accurate scientific information (Kajin, 2018). Digital literacy is an important foundation in science learning that allows students to develop skills, such as problem solving skills, critical thinking, and creativity. Students' ability to understand, analyze, and evaluate digital information will support the achievement of better learning outcomes in science lessons.

Learning outcomes refer to the achievements and achievements of students after going through the learning process. Student learning outcomes are one of the objectives of the learning process in schools, for this a teacher needs to know, learn several teaching methods, and practice them when teaching (Nasution, 2017; Nurrita, 2018). Learning outcomes include knowledge, skills, understanding, and abilities possessed by students as a result of learning experiences (Sulfemi, 2019). Learning outcomes can be measured in various ways, including tests, projects, assignments, or direct teacher observation (Ismanto, 2014). The purpose of measuring learning outcomes is to evaluate students' understanding and abilities, as well as ensure the effectiveness of learning.

Students who do not have digital literacy skills can have a negative impact on learning. Digital literacy is important because today's world is very connected with digital technology and information. Without adequate digital literacy, students will face difficulties in accessing, evaluating and using information effectively (Anggeraini et al., 2019). Students may also get caught up in information that is invalid or unreliable. In addition, digital literacy disabilities also limit students' ability to communicate, collaborate, and develop the skills needed in the digital era (Sari et al., 2022). To overcome this negative impact, students need to receive a comprehensive education in digital literacy, including skills in using technology, information assessment, digital ethics, and the ability to communicate effectively in a digital environment.

Based on the description above, the researcher conducted this research with the formulation of the problem, namely what is meant by digital literacy, what is meant by learning outcomes, and whether or not there is an influence or not between digital literacy on the learning outcomes of junior high school students in motion material.

RESEARCH METHOD

This study uses a quantitative research design. According to Wulandari & Efendi (2022) Quantitative research is a research approach whose analysis focuses more on numerical data (numbers) processed using statistical methods. The type of research used in this research is associative research. This type of associative research is research that aims to determine the effect or relationship between two or more variables (Sugiyono, 2016). The variables used in this study are the independent variable (X) and the dependent variable (Y). According to Riyanto & Hatmawan (2020) The independent variable is the variable which is the cause of the change in the dependent variable and without this variable the other variables will not exist. The independent variable in this study is the digital literacy variable. According to Riyanto & Hatmawan (2020) dependent variable is the variable that is affected or the variable that is the result of the independent variable. The dependent variable in this study is the learning outcome variable.

According to Unaradjan (2019) population is an object or subject that is in an area and meets certain requirements related to research problems. The population in this study can be seen in the table below.

Table 1. Study population

No	School	Many Students
1	Junior high school 19 Jambi City	45 Student
2	SMS's Gambia	45 Student

The population in this study was conducted at State Junior High School 19 Jambi City and at SMS's Gambia. According to Unaradjan (2019) sample is part of the population that has certain characteristics or conditions to be studied. The sampling technique that the researchers used was purposive sampling. According to Lenaini (2021), purposive sampling is a non-random sampling method in which the researcher ascertains the citations of illustrations through the method of determining specific identities that are in accordance with the research objectives so that they are expected to be able to respond to research cases. The samples used in this study were class VII students at Junior high school 19 Jambi City and at SMS's Gambia who had participated in science learning on motion material, with 45 students each.

The instrument used by the researcher is in the form of a questionnaire. This study uses a questionnaire sheet instrument to measure students' digital literacy adopted from research (Masropah et al., 2022). And the questionnaire sheet instrument to measure student learning outcomes adopted from research (N. L. Dewi et al., 2013). Digital literacy variable instruments and student learning outcomes use a Likert scale of 5, namely "very good", "good", "fairly good", "not good", "very bad".

The digital literacy questionnaire sheets and student learning outcomes questionnaire sheets used in this study are useful for knowing "The effect of digital literacy on the learning outcomes of junior high school students in motion material." There are 15 statements on the digital literacy variable instrument. There are 15 statements on the instrument variable student learning outcomes. Each statement is representative of each Indicator. Each statement is representative of each Indicator. The indicators for the digital literacy questionnaire instrument can be seen in table 2.

Table 2. Indicators of students' digital literacy questionnaire instrument

Indicator	Question Aspect	Number of Questions
Internet searching	- Length of time using the tool	3
Hypertextual Navigation	- Tools to search for information	3
Content Evaluation	- Study and explore information enthusiastically related to the scope of hypertext	4
Knowledge Assembly	- Sort various kinds of document types	5
	- Think critically by assessing the integrity of trusted sources and information that you want to obtain	15

There are student digital literacy categories which can be seen in table 3.

Table 3. Categories of students' digital literacy

Category	Intervals
Very good	64.0 – 75.0
Good	52.0 – 63.0
Pretty good	40.0 – 51.0
Not good	28.0 – 39.0
Not very good	15.0 – 27.0

The indicators of the student learning outcomes questionnaire instrument can be seen in table 4.

Table 4. indicators of student learning outcomes questionnaire instrument

Indicator	Number of Questions
Curious attitude	3
Respect for data/facts	2
Critical thinking attitude	2
Attitude of discovery and creativity	2
Open-minded and cooperative attitude	2
attitude of persistence	2
Sensitive attitude to the surrounding environment	2
Total questions	15

There are categories of student learning outcomes that can be seen in table 5.

Table 5. Categories of student learning outcomes

Category	Indicator
Very good	64.0 – 75.0
Good	52.0 – 63.0
Pretty good	40.0 – 51.0
Not good	28.0 – 39.0
Not very good	15.0 – 27.0

This research was conducted to see "The effect of digital literacy on learning outcomes of junior high school students in motion material." The research begins with conducting initial studies and literature studies to see facts in the field and theories regarding research variables. After that, determine the population and sample. The sampling technique that the researchers used was purposive sampling. Next prepare the instrument, the instrument used by the researcher is in the form of a questionnaire sheet. The instrument was adopted from previous research. Data collection was carried out by distributing questionnaires to students, then students filled out the questionnaire. After the data has been collected, data testing is carried out to see "The effect of digital literacy on the learning outcomes of junior high school students in motion material."

Figure 1. Research Procedure

According to Sholikhah (2016) Descriptive statistics are statistics that have the task of organizing and analyzing data, numbers, in order to provide an orderly, concise, and clear description of a phenomenon, event or situation, so that certain meanings or meanings can be drawn. The descriptive statistics of this study are used to measure the standard deviation, mean, mode, median, minimum and maximum values. Assumption Test, The normality test functions to determine whether the data being tested has a normal distribution (Kamid et al., 2021). Normality testing is done by looking at the 2-tailed significant value through measuring the significance level of 5% (0.05). Data is said to be normally distributed if Asymp.Sig (2-Tailed) is greater than 0.05 or 5% (Ghozali, 2011). The linearity test serves to see whether the data is linearly distributed or not (Septi et al., 2022). Test the hypothesis in the form of a regression test (Ernawati et al., 2021). Regression test to determine the effect of digital literacy variables on student learning outcomes. These tests were then tested using SPSS 26 to obtain accurate results.

RESULTS AND DISCUSSION

The following describes the descriptive statistical results of digital literacy variables and student learning outcomes. Where are the results obtained from distributing questionnaires to class VII

at Junior high school 19 Jambi City and at SMS's Gambia, with 45 students each. Descriptions of students' digital literacy variables in natural science subjects are shown in the following table.

Table 6. Description of students' digital literacy variables in natural science subjects

School	Category	Intervals	F	%	Mean	Med	Min	Max
Junior high school 19 Jambi City	Very good	64.0 – 75.0	9	20.0	47.8444	48.0000	16.00	75.00
	Good	52.0 – 63.0	8	17.7				
	Pretty good	40.0 – 51.0	16	35.5				
	Not good	28.0 – 39.0	7	15.5				
	Not very good	15.0 – 27.0	5	11.1				
SMS's Gambia	Very good	64.0 – 75.0	10	22.2	49.7778	48.0000	19.00	75.00
	Good	52.0 – 63.0	9	20.0				
	Pretty good	40.0 – 51.0	15	33.3				
	Not good	28.0 – 39.0	9	20.0				
	Not very good	15.0 – 27.0	2	4.4				

From the description of the table above it can be seen that the comparison of good categories at SMS's Gambia is higher than Junior High School 19 Jambi City, so it can be said that SMS's Gambia is superior to Junior High School 19 Jambi City in digital literacy variables. Descriptions of student learning outcomes variables are shown in the following table.

Table 7. Description of student learning outcomes variables in natural science subjects

School	Category	Intervals	F	%	Mean	Med	Min	Max
Junior high school 19 Jambi City	Very good	64.0 – 75.0	8	17.7	45.6222	46.0000	16.00	75.00
	Good	52.0 – 63.0	8	17.7				
	Pretty good	40.0 – 51.0	12	26.6				
	Not good	28.0 – 39.0	8	17.7				
	Not very good	15.0 – 27.0	9	20.0				
SMS's Gambia	Very good	64.0 – 75.0	8	17.7	46.7111	46.0000	16.00	75.00
	Good	52.0 – 63.0	8	17.7				
	Pretty good	40.0 – 51.0	14	31.1				
	Not good	28.0 – 39.0	10	22.2				
	Not very good	15.0 – 27.0	5	11.1				

From the description of the table above, it can be seen that the very good and good categories are the same at Junior High School 19 Jambi City and SMS's Gambia. Then, if you look at the pretty good category, SMS's Gambia is higher than Junior High School 19 Jambi City, so it can be said that SMS's Gambia is superior to Junior High School 19 Jambi City in the outcome variable. student learning. The digital literacy normality test and student learning outcomes are explained in the following table.

Table 8. Test for normality of digital literacy and student learning outcomes

School	Variable	N	Sig.
Junior high school 19 Jambi City	Digital Literacy	45	0.200
	Student learning outcomes	45	0.200
SMS's Gambia	Digital Literacy	45	0.200
	Student learning outcomes	45	0.200

Based on the results of the table above, it can be concluded that the data is normally distributed. The normality test was obtained by the Kolmogorov-Smoirnov test, a significance value of > 0.05. The digital literacy linearity test and student learning outcomes are explained in the following table.

Table 9. Digital literacy linearity test and student learning outcomes

School	Variable	N	Sig.
Junior high school 19 Jambi City	Digital Literacy	45	0.027
	Student learning outcomes	45	0.026
SMS's Gambia	Digital Literacy	45	0.031
	Student learning outcomes	45	0.034

Based on the table above, it can be concluded that the linearity test for the variables above has a linear relationship between Junior High School 19 Jambi City and SMS's Gambia. It is proven by the results of sig < 0.05. The digital literacy regression test and student learning outcomes are explained in the following table.

Table 10. Digital literacy regression test and student learning outcomes

School	Variable	N	Sig.
Junior high school 19 Jambi City	digital literacy	45	0.035
	Student learning outcomes	45	0.038
SMS's Gambia	digital literacy	45	0.047
	Student learning outcomes	45	0.046

Based on the table above, it can be concluded that there is influence between Junior high school 19 Jambi City and SMS's Gambia. It is proven by the results of sig < 0.05.

From the results obtained in table 6 it can be seen that the level of digital literacy of students in Indonesia is in a fairly good category with a percentage of 35.55%. Digital literacy has a very important role in education in Indonesia (Sutiman et al., 2022). In the ever-evolving digital era, the ability to use technology wisely and understand information found online is a much needed skill in Indonesia (Yufrinalis & Tiring, 2022). Digital literacy in Indonesia helps improve access to information and educational resources, develops students' critical and analytical skills, and prepares them for an increasingly digital world of work (Setiani & Barokah, 2021). The importance of adding digital literacy to the education curriculum is so that Indonesian children and youth can make good use of technology in the learning process, work together with friends, and be prepared to face developments in an increasingly digital era.

From the results obtained in table 6 it can be seen that the level of digital literacy of students in Pakistan is in a fairly good category with a percentage of 33.33%. In Gambia, the ability of students to understand, use and actively participate in the digital world is very important (Fatima et al., 2020). Digital literacy enables greater access to information and educational resources, enhances critical skills in selecting and evaluating information online, and helps students develop collaboration and creativity skills (Abbas et al., 2019). By strengthening digital literacy in the education curriculum, Pakistan can prepare young people for the challenges of an increasingly complex digital world and provide them with the skills necessary to compete in an increasingly connected society (Jan, 2018).

From the results obtained in table 7 it can be seen that the level of student learning outcomes in Indonesia is in a fairly good category with a percentage of 26.66%. Student learning outcomes in Indonesia show a variety of different challenges and potentials (Agustina & Noor, 2016). Although access to education has increased, there are still disparities in the quality of education between urban and rural areas (Vito et al., 2015). In addition, gaps in learning achievement still occur based on factors of socio-economic conditions, gender, and ethnic background. To face this challenge, continuous efforts are needed to improve the quality of education, strengthen relevant curricula, properly train teachers, and expand access to quality education throughout Indonesia.

From the results obtained in table 7 it can be seen that the level of student learning outcomes in Pakistan is in a fairly good category with a percentage of 26.66%. Student learning outcomes in Pakistan have undergone significant developments in recent years. The Government of Gambia has committed to increasing access to education for all children, especially in rural and remote areas (Fernando et al., 2020). In addition, the introduction of educational technology and improved teacher training programs have also had a positive impact on student learning outcomes. Although there are still challenges that need to be overcome, such as the education gap between urban and rural areas,

student learning outcomes in Pakistan continue to show progress, which provides hope for a better future for education.

Based on table 8, the results of the normality test for digital literacy and student learning outcomes are at Junior High School 19 Jambi City, which is 0.200 and at SMS's Gambia, which is 0.200. It can be concluded that the results obtained are > 0.05 so that it can be said that the data is normally distributed. Based on table 9, the results of the linearity test for the digital literacy variable were in Jambi City 19 Junior High School, namely 0.027 in SMS's Gambia, namely 0.031 and student learning outcomes variable, namely in Jambi City 19 Junior High School, namely 0.026 in SMS's Gambia, namely 0.034, it can be concluded that the results obtained are <0.05 so that it can be said that the data is linearly distributed. Based on table 10, the results of the digital literacy regression test were at Junior high school 19 Jambi City, namely 0.035 at SMS's Gambia, namely 0.047 and the student learning outcomes variable, namely at Junior high school 19 Jambi City, namely 0.038 at SMS's Gambia is 0.046 so that it can be concluded that there is a relationship between Junior high school 19 Jambi City and SMS's Gambia. It is proven by the results of sig. < 0.05.

The impact of digital literacy on learning outcomes in Natural Sciences education in Indonesia and Pakistan is significant. By using digital literacy, students have easier access to various online learning resources, such as learning videos, interactive simulations, and the latest scientific information (C. A. Dewi et al., 2021). This helps students understand the concepts of Natural Science better, broaden knowledge, and increase students' interest in learning Natural Science. Using digital tools, students can engage in virtual experiments and scientific projects involving data collection and analysis (Rodrigues & Carvalho, 2022). This contributes to the development of students' critical thinking, problem solving, and collaboration skills in Natural Sciences education in Indonesia and Pakistan.

Digital literacy is important in Natural Sciences education in Indonesia and Pakistan because students need to understand and use technology in scientific contexts. With digital literacy, students can access online resources such as scientific journals and learning videos to increase their understanding of Natural Science concepts (Ricoy & Sánchez-Martínez, 2022). Digital literacy enables students to carry out virtual experiments, data analysis, and online collaboration, which helps develop critical skills, problem solving, and creativity in understanding the Natural Sciences (Blau et al., 2020). The integration of digital literacy in Natural Sciences education in Indonesia will produce a young generation who is skilled in using technology and has a deep understanding of Natural Sciences. The same is true for Pakistan, where the importance of digital literacy in Natural Sciences education will prepare young people who are ready to face future scientific challenges with good technological skills and understanding of Natural Sciences.

Based on table 8, the results of the normality test for digital literacy and student learning outcomes are at Junior high school 19 Jambi City, which is 0.200 and at SMS's Gambia, which is 0.200. It can be concluded that the results obtained are > 0.05 so that it can be said that the data is normally distributed. Based on table 9, the results of the linearity test for the digital literacy variable were in Jambi City 19 Junior High School, namely 0.027 in SMS's Gambia, namely 0.031 and student learning outcomes variable, namely in Jambi City 19 Junior High School, namely 0.026 in SMS's Gambia, namely 0.034, it can be concluded that the results obtained are <0.05 so that it can be said that the data is linearly distributed.

CONCLUSION

The conclusion of this study is that the results of the regression test show that the results of digital literacy at Junior High School 19 Jambi City are 0.035 at SMS's Gambia namely 0.047 and the variable student learning outcomes is at Junior High School 19 Jambi City namely 0.038 in SMS's Gambia, namely 0.046 by showing that the result value obtained is < 0.05, it is concluded that there is an influence of digital literacy on student learning outcomes at State Junior High School 19 Jambi City and SMS's Gambia on subjects natural science of matter of motion. Digital literacy has a close relationship with student learning outcomes, where a high level of digital literacy can contribute to improving student learning outcomes.

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