



## Student Digital Literacy in Singkawang School Through 5M Activities for Independent Learning

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**Abstract.** The aim of this research is to reveal the digital literacy skills of Singkawang City Junior High School students through 5M activities to support independent learning. The research method uses a quantitative approach. Researchers directly collect this study's source of data from the original subject, namely junior high school (SMP) students. This research was conducted in a junior high school in Singkawang City. The population of this study was as straight as junior high school students from grades VII-VIII from the age of 12 to 15 years, totaling 125. The sampling technique is probability sampling, namely area (cluster) sampling. The data collection technique used in this study was a test question. The instrument used to measure the variable of students' digital literacy ability was previously tested for validity and reliability. Data analysis technique to test research questions with ANOVA test with sig.0.05. The study results showed that the significant value data for each school was greater than 0.05, which means that the data is normally distributed. The five variants of the five schools that represent the population are the same (homogeneous). Digital literacy skills using 5M activities positively impact the learning process to support independent learning. There is a difference in the average digital literacy ability of junior high school students in Singkawang City after being given planting using 5M activities. But the results obtained by each school are different, but the results are still in the very good category.

**Keywords:** Digital Literacy; 5M activity; Independent Learning.

## INTRODUCTION

The Digital era is when all humans can communicate with each other so close even though they are far from each other. We can quickly find out specific information even in real-time. The Digital era is a period or Era where almost all fields in the order of life have been assisted by digital technology. The Digital era is when humans are technology literate and

everything is connected. Living in the Digital era, everything is fast, easy and instant. The internet seems to be an immediate need. Humans spend much time in front of smartphones or computers rather than outdoor activities (Rahmatullah, 2022). They can easily search for information on search engines without reading a book (Hashim, 2018). Books are one of the sources of student learning at school. In the Digital era, books are not the only

source of student learning or the primary source of student learning (Chen, 2022). For this reason, students' digital competence is needed, especially in the digital literacy aspect to support the learning process.

In the context of education, digital competence can be interpreted as the use of technology in a convincing, appropriate, and safe way to achieve learning and educational goals. Referring to Digcom 2.0, European Commission (Lopez, 2020; Martin, 2017; Balula, 2016; Kluzer, 2015), one of the digital competencies is information and data literacy. These competencies include the ability to search, select, sort, select, evaluate, and manage data and information. The following competency is communication. These competencies include skills to interact and share information through digital technology. Other competencies include understanding and skills in managing digital identities and respect for the ethics of the digital world (Jaldemark, 2021; Montes, 2021).

According to Gilster (2007) digital literacy is the ability to understand and use information obtained from various sources. Meanwhile, according to Deakin University Graduate Learning Outcomes (GLO), digital literacy is an effort to utilize technology to find, use, and disseminate information in the digital world (Mills, 2014). Meanwhile, Common Sense Media argues that digital literacy includes three abilities in the form of competence in using technology, interpreting and understanding digital content and assessing its credibility, and researching and communicating with the right tools (Havasi, 2009; Cambria, 2009).

From several definitions according to the experts above, it can be concluded that digital literacy is the ability to use information and communication technology (ICT) to communicate content/information with cognitive and technical skills. Digital literacy is more likely related to technical skills and focuses on cognitive and socio-emotional aspects of the digital world and environment.

Digital literacy is very much in line with digital competencies that have been revealed in the previous section. The intersection of the two is narrowed to the activities of searching, selecting, processing, analyzing, using, and sharing information, which in this research is termed 5M Activities. This 5M activity can be said as a sequence in interacting with

data/information. This 5M activity will be beneficial for students looking for information on the internet as a learning resource. This 5M activity contains checking and rechecking or balancing activities that lead to healthy, safe and comfortable internet use (Boersma, 2022; Halm, 2022).

Those who have digital competence are referred to as digital literate. The Digital era has had a significant impact on the world of education because it is undeniable and inevitable for school students not to use smartphones. In their daily life, they are directly connected to the internet which connects them to the outside world which is not limited by space and time. So it is natural for the world of education to transform to the digitalization of education or more specifically to the digitalization of schools, especially the transformation of student-centered learning processes, which liberate students (free learning), and digital learning (students have digital literacy skills) (Holmes, 2022; Manupriya, 2022; Kalolo, 2019). This study will reveal the digital literacy skills of Singkawang City Junior High School students through 5M activities to support independent learning.

## METHOD

This study uses a quantitative approach, Researchers directly collect this study's source of data from the original subject, namely junior high school (SMP) students. This research was conducted in a junior high school in Singkawang City. The population of this study was as straight as junior high school students from grades VII-VIII from the age of 12 to 15 years, totaling 125. The sample in this study amounted to 5 schools representing areas in the Singkawang City area. This study uses a probability sampling technique, namely area (cluster) sampling. Area Sampling is a technique Sampling is used when researchers are faced with a situation where the research population is spread over various regions. Because the city of Singkawang consists of five sub-districts, namely Central Singkawang, East Singkawang, West Singkawang, South Singkawang, and North Singkawang. The data collection technique used in this study was a test question. The questions used are in the form of multiple-choice questions according to the digital literacy indicators to be measured. The instrument used to measure the variable of students' digital literacy ability was previously tested for validity

and reliability. The data analysis technique to test the research questions was using the SPSS version 22 application with the Anova test with sig.0.05.

## RESULTS AND DISCUSSION

### Results

The normality test shows that there is no deviation from the data to be tested using the Anova test. To find out if the data is normally distributed, the significant value of Kolmogorov-Smirnov  $> 0.05$  is said to be a normal data distribution.

**Table 1.** Normality

Schools	Kolmogorov-Smirnov <sup>a</sup>		
	Statistic	df	Sig.
SMP 8	.226	23	.200
SMP 20	.223	26	.200
SMP 1	.233	21	.400
SMP 7	.192	30	.600
SMP Torsina III Plus	.260	25	.057

Based on table 1 normality test using Kolmogorov-Smirnov sig value  $> 0.05$ , which is 0.200 for SMP 8, while for SMP 20 the sig value is  $0.200 > 0.05$ , for the sig value for SMP 1 is  $0.400 > 0.05$ , for the sig value of SMP 7 is  $0.60 > 0.05$  and the last is for SMP Torsina III Plus the sig value is  $0.057 > 0.05$ . if seen from the table that the significant value of each school is greater than 0.05, which means the data is normally distributed. So it is feasible to continue for the Anova test.

The homogeneity test was carried out to meet the requirements for the validity of the Anova assumption to be carried out in the research to be carried out to find out the differences in students' digital literacy abilities. Is the assumption that the five schools in the sample meet the same or homogeneous variance is accepted. The hypothesis is made to find out the similarity of the five variants, with decision making if sig  $> 0.05$  then H 0 is accepted, if sig  $< 0.05$  then H 0 is rejected.

H 0 : all five population variances are the same

H 1 : the five population variances are not the same.

**Table 2.** Homogeneity

Test of Homogeneity of Variances			
Levene Statistic	df1	df2	Sig.
1.881	4	120	.118

Based on the results obtained from the homogeneity of variances test, the significant value from the table appears to be 0.118. because the value  $0.118 > 0.005$  indicates that the sig value is greater than 0.005, it can be concluded that hypothesis H 0 is accepted. This means that the five variants of the five schools that represent the population are the same (homogeneous).

**ANOVA Output.** After the five variances proved homogeneous. Then the ANOVA test can be done to find out whether the five samples have the same or different averages . The hypothesis is proposed to find out the average difference in students' digital literacy skills after being given reinforcement with 5M activities.

H0 : there is no difference in the average results of students' digital literacy skills after being given reinforcement with 5M activities.

H1 : there is a difference in the average results of students' digital literacy skills after being given 5M activity reinforcement.

The criteria for determining the rejection of H0 or H1 is if it is significant  $> 0.05$  then H0 is accepted, otherwise if it is significant  $< 0.05$  then H0 is rejected.

**Table 3.** ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	459.279	4	114.82	5.886	.000
Within Groups	2340.849	120	19.507		
Total	2800.128	124			

While the probability value from the table is  $0.00 < 0.05$ , thus the null hypothesis is rejected, meaning that it can be concluded that there are differences in the results of students' digital literacy skills after being given reinforcement with 5 M activities from a sample of schools that represent the population in Singkawang City.

**Table 4. Descriptives**

	N	Mean	95% Confidence Interval for Mean		Min	Max
			Lower Bound	Upper Bound		
SMP 8	23	95.1304	93.1135	97.1474	88	100
SMP 20	26	94.4615	92.8090	96.1140	84	100
SMP 1	21	91.0476	89.4288	92.6664	84	96
SMP 7	30	93.0667	90.9568	95.1765	76	100
SMP Torsina III Plus	25	96.9600	95.5885	98.3315	88	100
Total	125	94.1760	93.3347	95.0173	76	100

Based on the output of SPSS Version 22, the average difference in digital literacy abilities of junior high school students in Singkawang City from the five schools that were given reinforcement with 5M activities. The average digital literacy ability of SMP 8 students is 95.13, the average digital literacy ability of SMP 20 students is 94.46, the average digital literacy ability of SMP 1 students is 91.04, for SMP 7 the average ability is 93.06, while the average for SMP Torsina III Plus is 96.96.

For the average ability, the highest is the students at Torsina III Plus Middle School,

which is 96.96. for the average ability of the entire school representing students in Singkawang City with the number of students involved as many as 125 students, namely 94.17.

The Tukey HSD test is a test that is carried out to see that the five averages are significantly different from the five different schools. The comparison of the average value of students' digital literacy skills is seen from the significance.

**Table 5. Tukey HSD Test**

Multiple Comparisons							
	(I) Sekolah	(J) Sekolah	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	SMP 8	SMP 20	.66890	1.26428	.984	-2.8328	4.1706
		SMP 1	4.08282*	1.33306	.022	.3907	7.7750
		SMP 7	2.06377	1.22408	.446	-1.3266	5.4541
		SMP Torsina III Plus	-1.82957	1.27609	.607	-5.3640	1.7048
	SMP 20	SMP 8	-.66890	1.26428	.984	-4.1706	2.8328
		SMP 1	3.41392	1.29583	.071	-.1751	7.0030
		SMP 7	1.39487	1.18343	.764	-1.8829	4.6726
		SMP TORSINA III PLUS	-2.49846	1.23716	.263	-5.9250	.9281
	SMP 1	SMP 8	-4.08282*	1.33306	.022	-7.7750	-.3907
		SMP 20	-3.41392	1.29583	.071	-7.0030	.1751
		SMP 7	-2.01905	1.25664	.496	-5.4996	1.4615
		SMP TORSINA III PLUS	-5.91238*	1.30736	.000	-9.5334	-2.2914
	SMP 7	SMP 8	-2.06377	1.22408	.446	-5.4541	1.3266
		SMP 20	-1.39487	1.18343	.764	-4.6726	1.8829
		SMP 1	2.01905	1.25664	.496	-1.4615	5.4996
		SMP TORSINA III PLUS	-3.89333*	1.19604	.013	-7.2060	-.5807
	SMP TORSINA III PLUS	SMP 8	1.82957	1.27609	.607	-1.7048	5.3640
		SMP 20	2.49846	1.23716	.263	-.9281	5.9250
		SMP 1	5.91238*	1.30736	.000	2.2914	9.5334
		SMP 7	3.89333*	1.19604	.013	.5807	7.2060

\*. The mean difference is significant at the 0.05 level.

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## Discussion

Based on the results of the analysis of the research data, the requirements for the ANOVA test are that it is assumed that the data for each group is normally distributed and the variance between groups must be homogeneous. For the normality test, normal data were obtained with a sig value  $> 0.05$ , which means that the research data are normal. Meanwhile, for the homogeneity test the data to see that the population comes from the same variant with a sig value  $> 0.05$  which means that the five schools, namely SMP Negeri 8, SMP Negeri 20, SMP Negeri 1, SMP Negeri 7 and SMP Torsina III Plus which represent the population have similarities.

The average digital literacy ability of students based on descriptive results shows very good results. The average score for each school is 91.04 to 96.96 with a total average ability of 94.17. student's ability when Search in Internet ( Internet searchig ), Guide directions hypertext ( hypertextual navigation ), Evaluate content information ( Content Evaluation ), Compilation knowledge ( Knowledge Assembly ) when given the 5M reinforcement, it shows basic literacy skills and good ICT skills. according to Bawden, it is composed of four components, namely basic literacy skills (reading and writing), background knowledge of information (intellectual level), skills in the field of ICT, and attitudes and perspectives on information ( Irhandayaningsih, 2020). Digital literacy skills make a person able to transform activities through the use of digital technology devices ( Mardina, R. 2017).

The Anova test was carried out to see that there were differences in the digital literacy abilities of the five schools that were treated with the 5M Activity which was adapted from Gilster (1997):M1: searching and selecting information, M2: processing information, M3: analyzing information, M4: using information, M5: sharing information. After being given reinforcement to students, it turns out that the difference is seen from the significance value of the Anova test, which is  $0.00 < 0.05$ . These differences indicate that the scores obtained by students in each school have different averages but these averages show good results. According to Khasanah, U., & Herina, H. (2019) Digital literacy is a skill in higher-order thinking, as a supporter in developing academic, personal and professional success, entering the era of the

industrial revolution 4.0. 5M activities that are applied during the research process in the classroom have a good impact when applied in learning. In line with Dinata's opinion, KB (2021 ) Digital literacy skills have an important role in learning, including online learning. Azmi ( 2006), the skill of finding information in the database is considered as one of the important skills that must be possessed by students because it plays an important role in determining the success of education.

The Tukey test was conducted to determine the significant difference in the digital literacy abilities of students in each school. Based on the tests conducted, SMP Negeri 1 showed a difference in the average ability obtained after being given a digital literacy ability test. The lowest score is 91 while the highest score is 96, in contrast to other schools with the highest score being 100. However, there is no significant difference in ability, however, this difference does not indicate that literacy skills are low. Indicators of digital literacy abilities that have been given reinforcement so that they can support the student learning process so that it has an impact on student learning outcomes. According to Olii, S., & Yusuf, R. (2022). Digital literacy is the ability to understand and utilize digital devices to find information in them to collaborate and communicate for the learning process. The results of research by Rahmadhani, MA (2020) that digital literacy has a contribution in improving social studies learning outcomes. According to Ningsih, IW, Widodo, A., & Asrin, A. (2021) Digital literacy itself has three main competencies that must be mastered during the process of using it in learning. One of the competencies that is almost the same as the goal of a learning process includes skills, concepts, and behavioral approaches.

Efforts to inculcate digital literacy through 5M activities can be said to support independent learning. Hasyim, R., & Kamisi, M. (2021) Digital-based learning can support independent learning programs. According to Saleh, M. (2020) independent learning is a learning process experienced by students and educators to achieve independence. Digital literacy has a good impact on independent learning. The essence of independent learning is to increase the potential of teachers and students to make innovation so that the quality of learning becomes independent. Independence can foster a positive attitude in students in

responding to learning by planting and increasing digital literacy abilities. One of the components in the learning and academic environment is digital literacy (Hakim, LL, Saputra, YP, & Nur, S, 2022). Digital literacy enable students to improve cognitively by increasing thinking power of viewing digital content ( Soenandi, Angin, & Anu, 2021).

The digital literacy abilities of students support independent learning with a learning process that requires an internet network and electronic media is needed as a tool for learning in the classroom so as to improve the quality of learning. According to Hasyim, R., & Kamisi, M. (2021 ) Digital-based learning is a learning process that uses electronic media, namely by developing it into internet and intranet networks as learning aids in order to improve the quality of learning. The results of the study by Kuncoro et al (2022) showed that there was a significant increase in understanding digital literacy, which was 21.3%. The results of the questionnaire after the activity showed that most of the teachers had understood and implemented digital literacy during learning.

## CONCLUSIONS AND SUGGESTIONS

Based on the discussion of the research results, it can be concluded that: Digital literacy skills using 5M activities have a good impact on the learning process to support independent learning. There is a difference in the average digital literacy ability of junior high school students in Singkawang City after being given planting using 5M activities with a sig value of  $0.00 < 0.05$ . but the difference in the results obtained by each school is different but the results are still in the very good category.

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