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Teacher Digital Skill After Covid 19 In Public Senior High School

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ABSTRACT: The purpose of this study was to determine

the description of digital skills owned by teachers and compare them based on school type. This research uses mixed method with The Explanatory Sequential Design type. This research uses purposive sampling technique. The sample of this research is a teacher at one of the schools selected based on the type of school, namely SMA, SMK and MAN. Kruskal-Wallish test and Mann Whittney test were used to determine the differences in digital skills owned by teachers. The results showed that the digital skills possessed by teachers based on the type of school, it is known that there are differences in digital skills possessed. The digital skills possessed by teachers are included in the high and very high categories and when compared in each school it is known that there is no difference between the digital skills of SMK and SMA, SMK and MAN teachers. Then in the qualitative analysis in the digital skill indicator section, the teacher has done very well in an effort to carry out his job as a teacher, but the aspects of Digital Content Creation and safety need to be improved. The real implication of this research is the ability for teachers to apply digital skills such as knowledge and attitudes in a confident, critical and responsible manner within the specified context as required.

Keywords: Digital Skills, Teacher, Senior High School



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INTRODUCTION

The world revolution took place quite quickly after Covid-19, the Covid-19 pandemic has accelerated the process of digitalization or digital transformation in various fields. This process occurs when all activities are forced to be carried out from home to avoid the Covid-19 virus outbreak with the help of digital technology. This form of digital transformation is carried out not only from various activities such as working and shopping but also Learning is also carried out at home by utilizing digital platforms both at universities and at all school levels. The use of digital technology is seen as the best solution so that you can continue to carry out learning from home(Pinto & Leite, 2020). This is certainly an opportunity for entrepreneurs to take advantage of this situation in developing digital-based businesses(Avrivanti, 2021).

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Digital-based businesses can be done not only by people who have long-standing businesses but also young entrepreneurs who are just starting a business as long as they have digital skills. These digital capabilities must also combine creative abilities in combining the business that will be carried out with the digital capabilities that are owned. However, the digital transformation carried out is not easy because it experiences various obstacles in terms of costs, networks and so on and in implementing digital transformation there are three fundamental challenges that must be overcome, namely culture and mindset, human resource competence and infrastructure (Akbari & Pratomo, 2022).

Pademi Covid – 19 has caused inequality in digital usage(Ince, 2022). There are various forms of inability to use technology, namely the lack of costs in buying equipment (Ayuningtyas, 2015), the absence of a network connection(Lestari, 2015), lack of motivation in utilizing technology (Mukaromah, 2020), and low digital skills(Dijk & Hacker, 2003). In the field of education, the pandemic has a very significant impact on learning, especially in the aspect of digital skills. Digital skills are a key aspect in the implementation of learning (Sailer et al., 2021). To achieve this, digital skills teachers are key in offering effective digital education at all levels(Meinawati, 2022). However, many are unsettled by the current state of affairs due to a lack of knowledge and experience on how to plan, develop and deliver teaching through digital means, including identifying the most appropriate platforms and tools (Kwaah et al., 2022). The digital skills category framework can be seen in the following picture:

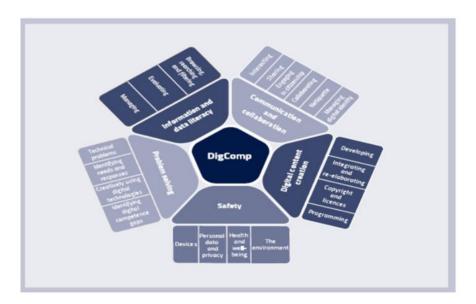


Figure 1. Digital Skill Category

Educators can be said to be successful if they can make changes by adopting technology in learning so that the existence of technology or digital programs can overcome various problems (König et al., 2020). However, in its implementation there are several obstacles, namely the fear of the results or use of digital to students, next is the issue of student data privacy and the last is the competence possessed to be able to adopt digital-based learning in the classroom (Yurinova et al., 2022).

The use of digital technology in recent years by teachers shows an increasing frequency, this can be seen in the increase in participation in formal education and training that is followed in

improving teacher digital skills in learning. this is very important because it prepares students to face the world of work after completing school. as we know the current challenge is that technological change has led to the need for the labor market to be able to use digital skills (Shakina et al., 2020) in all its activities for that there is a need for a review of the relevance of the curriculum in order to deal with the lack of digital skills and increase training in the field of digital skills (Artacho et al., 2020).

To be able to equip students with digital skills, it is necessary for an educator to have the digital skills and competencies needed to produce quality graduates. Educators can be said to be successful if they can make changes by adopting technology in learning so that technology or digital programs can overcome various problems (König et al., 2020). However, in its implementation there are several obstacles, namely fear of the results or use of digital for students. The next problem is related to student data privacy and the final one is the competencies possessed to be able to adopt digital-based learning in the classroom. Even though we have also seen that there are many activities in the form of workshops in developing professional teachers in digital-based learning, there are several obstacles such as funding, time constraints and a lack of consistent induction opportunities.

Digital skills for professionals are a set of advanced, highly specialized, digital skills for those working in the technology field, for example programmers and cyber security experts who are expected to not only use but also develop and innovate existing information and communications technologies and create new solutions (Alessandro, 2018). In implementing learning, teachers are required to have a set of technological skills in preparing students before entering the world of work. Teacher Digital Skills are the digital skills required to use and interact with technology to fulfill specific tasks, and to design, create, and maintaining and solutions in learning. Category of digital use by an educator through effective teaching and learning approaches supported by digital tools and resources including Technological Knowledge, Pedagogical Knowledge and Content Knowledge. The knowledge framework for teacher professional development with the integration of digital tools and resources can be seen in the following image:

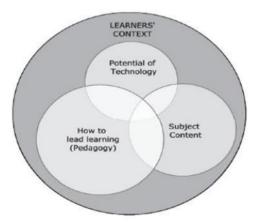


Figure 2. Knowledge framework for teacher professional development with integration of digital tools and resources

Research conducted so far is to determine the ability of digital skills in students at the elementary school level(Nafisa & Ardiansyah, 2017). Junior High School (Sari, 2019) Senior High School (Rosyadi et al., 2022). Teachers' digital skills during the pandemic (Perifanou et al., 2021). However, no measurement of teachers' digital skills has been carried out after the pandemic and based on the type of school, namely SMA, SMK and MA. Digital skills themselves are divided into 5 categories, namely Information and Data Literacy, Communication and Collaboration, Digital Content Creation, Security, and Problem (Buckley & Pears, 2021; Iordache et al., 2017; Rakstu, 2021). For this reason, it is necessary to measure the extent of digital skills possessed by post-Covid 19 teachers based on the type of school in an effort to implement learning effectively and what is the overall picture of the digital skills possessed by teachers in implementing learning.

METHOD

Research Design

This study uses a mixed method research design. The strategy in using a mixed method design is to use The Explanatory Sequential Design (Creswell & Creswell, 2018). The use of a mixture determination schedule (mixed method) is based on the threshold of conditions seen in different parts. Apart from that, it is about expanding perceptions that are more disconnected depending on a particular situation, expanding fantasies randomly, comparing, validating, letting go of the mirror about a context, and exploring the paths or twists and turns of life together (Axinn & Pearce, 2006). Mixed methods focus on the threshold of agglomeration and discussion of input by recording a grid of quantitative input and qualitative input in a single study (single study or series study). The explanatory sequential strategy is to start research using quantitative methods as the first method design used and then complement or strengthen the results of the research using qualitative methods. The design form of The Explanatory Sequential Design is as follows.

Oualitative

Data
Collection
Data Analysis

Ouantitative

Oualitative

Interpretation of data analysis

Outa Analysis

Figure 3 The Explanatory Sequential Design

Resource: (Creswell & Creswell, 2018).

Stage 1: At this stage, data collection is carried out using surveys and then the results are analyzed to plan or build the second stage.

Stage 2: At this stage, information is obtained to strengthen the data obtained in stage 1, which is qualitative by asking questions with interviews that it can help explain the data in more detail.

Aspects that are usually considered in the course of analysis Mixed method according to Martono (2015) includes: a) Timing, the time part of the information agglomeration method (Martono, 2015). Which data will be taken first, whether past qualitative information or quantitative information. But explorers also have the opportunity to produce information simultaneously, regardless of the needs of the explorer and the elf in the field; b) Weighting, weighting is carried out in both levels of analysis. Which analysis method will be given greater weight. This weighting too based on analytical needs; c) Mixing, the process of mixing qualitative and quantitative information. This combination is carried out using the method of information agglomeration, information debate, and definition of information; d) Theory Formation (Theorizing), this process is carried out categorically and implicitly. Implicit delivery is carried out in the introduction, understanding of the information, or in the conclusion. Meanwhile, teaching propaganda is categorical in a specific way so that further deviations are understood by the reader.

Population and Sample

The research population which includes all research subjects, namely all senior high school teachers, both SMA, SMK, MAN in Jambi City, totaling 46 schools. In determining the sample in this study using purposive sampling technique (Turner, 2019). The school is one of the schools selected based on the type of school, namely one school with the type of SMA Negeri Jambi City, one school with the type of MA Negeri Jambi City, and one school with the type of SMK Negeri Jambi City. The basic selection of the sample is to compare schools with different types and based on the accreditation of each school so that when the comparison is expected to get the appropriate data. The number of teacher details at the school is as follows:

Table 1. Research Sample

School Name	Number of Teachers
SMA Negeri Kota Jambi	46
MA Negeri Kota Jambi	34
SMK Negeri Kota Jambi	116

Resources: Jambi City Education Department, 2023

Research instruments

In this study using 2 instruments to determine the digital skills possessed by teachers, the first instrument used is a questionnaire, the questionnaire instrument is used to determine the digital skills of teachers and compare these digital skills by adopting from DigCompEdu (Alessandro, 2018). The second instrument used is the interview. Interviews are used to explain in more detail based on the results of the analysis based on data acquisition.

Prerequisite Test Analysis

1. Normality Test

The normality test is used to determine whether the data population is normally distributed or not. If the data is not normally distributed, the method used is nonparametric statistics. The basis for decision making is; 1) if the Sig. (significance) or probability value <0.05, then the data is not normally distributed, 2) if the Sig value. (significance) or probability value > 0.05, then the data is normally distributed.

Table 2. Normality Test

School	Kolmogo	rov-Smir	nov ^a	Shapiro-W	ïlk	
Type	Statistic	df	Sig.	Statistic	df	Sig.
SMA	,116	7	,200*	,985	7	,979
SMK	,192	20	,051	,885	20	,021
MAN	,189	7	,2 00*	,936	7	,603

Resource: Output SPSS versi 26.0

Based on Table 2 shows that, the probability value (Sig.) with the Kolmogorov-Smirnov table for Digital Skill SMA is 0.200> 0.05, which means the data is normally distributed. At Digital Skill SMK the probability value (Sig.) obtained is 0.051> 0.05, which means the data is normally distributed. While at Digital Skill MAN the probability value (Sig.) obtained is 0.200> 0.05, which means the data is normally distributed. The overall result of the normality test is that the data is normally distributed.

2. Homogeneity Test

The homogeneity test is used to determine whether the variants of several populations are the same or not. The basis for decision making is; 1) if the Sig. (significance) or probability value <0.05, then it is said that the variants of two or more groups of population data are not the same, 2) if the Sig value. (significance) or probability value> 0.05, then it is said that the variants of two or more groups of data populations are the same.

Table 3. Homogeneity Test

		Levene Statistic	df1	df2	Sig.
Digital_Skills	Based on Mean	2,256	2	35	,120
_	Based on Median	2,225	2	35	,123
	Based on Median and with adjusted df	2,225	2	28	,127
	Based on trimmed mean	2,220	2	35	,124

Resource: Output SPSS versi 26.0

Based on Table 3 shows that, the probability value (Sig.) based on mean is obtained 0.270> 0.05, which means the data has the same variance (homogeneous). The conclusion that can be drawn from the normality and homogeneity tests is that the data is normally distributed and has the same variance (homogeneous).

Data Analysis Techniques

In this research using mixed methods, there are two types of data analysis carried out, namely quantitative and qualitative data analysis.

1. Quantitative Data Analysis

Quantitative data analysis is intended to analyze the data that has been collected then so that it can be analyzed objectively in accordance with the research hypothesis that has been made. Data analysis is used using statistical techniques to determine differences between each variable or differences in the variables studied to test the research hypothesis. To analyze the data, Anova analysis was used (Fisher, 1990). However, if the data obtained is not normal and the number of samples is too small, the Kruskal-Wallish Test nonparametric statistical analysis will be used (Kruskal & Wallis, 2012).

2. Qualitative Data Analysis

After analyzing the data quantitatively, the next step is to analyze qualitatively. The qualitative data is obtained based on interviews conducted in depth. Then to be presented, data reduction is carried out and conclusions are drawn(Given, 2008).

RESULT AND DISCUSSION

Result Research Quantitative

The data in this study were taken from the Digital Skill teacher questionnaire data distributed to 3 schools, namely at SMA, MAN, and SMK. However, after being distributed, only 9 teacher filled out the questionnaire at SMA, 7 teacher at MAN and 22 teacher at SMK. The digital skill dimensions used are 1) Information and data literacy 2) Online communication and collaboration 3) Digital content creation 4) Safety 5) Problem solving. The description of the data based on the research results is as follows:

Table 4. Description Data

	Indicator	School Type	Min	Max	Range	Mean	Std
	Information and data literacy	SMA	7	9	2	8	0.6
		MAN	7	10	3	9	0.9
		SMK	8	10	2	9	1.0
	Online Communication and collaboration	SMA	8	9	1	8	0.5
Digital		MAN	7	10	3	8	0.8
Skill		SMK	8	10	2	9	0.9
Teacher	Digital Content Creation	SMA	7	8	1	7	0.4
		MAN	5	10	5	8	1.0
		SMK	5	10	5	8	1.7
	Safety	SMA	8	9	1	8	0.4

	MAN SMK	3 8	10 10	7 2	8 9	1,4 0.9
Problem Solving	SMA	7	8	1	8	0.3
_	MAN	7	10	3	8	1.0
	SMK	8	10	2	9	0.8

Resource: Output SPSS versi 26.0

It can be seen in table 4 that the Digital Skills owned by teachers are included in the good category, these Digital skills include Information and data literacy which is owned on average in SMA is 8, in MAN is 9, and in SMK is 9. Online communication and collaboration owned on average in SMA is 8, in MAN is 8, and in SMK is 9, Digital content creation owned on average in SMA is 7, in MAN is 8, and in SMK is 8, Safety owned on average in SMA is 8, in MAN is 8, and in SMK is 9, Problem solving owned on average in SMA is 8, and in SMK is 9.

Table 5. Digital Skill Categories

	Indicator	School Type	Category	%
	Information and data literacy	SMA	High	60%
		MAN	Very High	64%
		SMK	Very High	71%
	Online Communication and collaboration	SMA	Very High	100%
Digital		MAN	Very High	100%
Skill		SMK	Very High	100%
Teacher	Digital Content Creation	SMA	High	55%
reaction		MAN	High	50%
		SMK	Very high	71%
	Safety	SMA	High	100%
		MAN	High	64%
		SMK	Very High	57%
	Problem Solving	SMA	High	89%
		MAN	High	50%
		SMK	High	72%

Resource: Output SPSS versi 26.0

It can be seen in table 5 that the digital skills possessed by teachers are in the high and very high categories. Information and data literacy in SMA has a high category with a percentage of 60%, in MAN has a very high category with a percentage of 64%, in SMK has a very high category with a percentage of 71%, Online communication and collaboration in SMA has a very high category with a percentage of 100%, in MAN has a very high category with a percentage of 100%, in SMK has a very high category with a percentage of 100%, Digital content creation in SMA has a high category with a percentage of 55%, Safety in SMA has a high category with a percentage of 100%, in MAN has a high category with a percentage of 64%, in SMK has a very high category with a percentage of 57%, Problem solving in SMA has a high category with a percentage of 89%, in MAN has a high category with a percentage of 50%, in SMK has a high category with a percentage of 72%.

Digital skills possessed by teachers in the aspects of communication and collaboration have a very high category value with a percentage of 100%, this means that teachers have used digital

technology to share all information and collaborate to work together in achieving learning goals. However, what needs to be underlined is that in the aspect of Digital Content Creation, although it has high and very high category aspects, there is a minimum value in the low category, namely at a score of 5 at MAN and SMK, meaning that there are some teachers who have not been able to utilize technology in order to support learning. and in terms of Safety there is a low minimum score, namely at a score of 3 at MAN, meaning that there are some teachers in utilizing technology who have not paid attention to Safety in using technology.

1. Comparison of Digital Skills by school type

The data in this study were taken from the Digital Skill teacher questionnaire data distributed to 3 schools, namely at SMA, MAN, and SMK. However, after being distributed, only 9 people filled out the questionnaire at SMA, 7 people at MAN and 22 people at SMK. The digital skill dimensions used are 1) Information and data literacy 2) Online communication and collaboration 3) Digital content creation 4) Safety 5) Problem solving. Based on the normality and homogeneity test, the data is normally distributed and has the same variance (homogeneous). Due to the small amount of data or less than 30 samples, the hypothesis test uses the Kruskal-Wallis nonparametric test. The results of the Kruskal-Wallis test are as follows:

Table 6. Kruskal Wallis Test Results

	School	N	Mean Rank p
Digital_Skills	SMK	7	23,71 ,042
_	SMA	9	11,50
	MAN	22	21,43
	Total	38	

Resource: Output SPSS versi 26.0

Based on table 6 above, it is known that the average score value of Digital skills possessed by teachers in SMK schools is higher than the Digital skills possessed by teachers in MAN schools and the average Digital skills possessed by teachers in MAN schools are higher than the average ranking of high schools and based on the results of the Kruskal-Wallis test, the Asymp. Sig. is 0.042. Where the significance value is <0.05 significance level, then there is a significant difference in digital skills based on the type of school, namely SMK, SMA and MAN schools.

2. Comparison of Digital Skills of Vocational and High School Teachers

Based on the Kruskal-Wallis test, it is known that there are differences based on school type. However, to determine where the difference comes from the Mann Whittney test is used. Based on the Mann Whittney test in table 7, it is known that there is no difference in the digital skills possessed by teachers at SMK and SMA schools, namely with an Asymp. Sig. (2-tailed) or PValue of 0.090. The value of Asymp. Sig. (2-tailed) is more than 0.05. If the p value is more than the critical limit of 0.05, there is no significant difference between the digital skills of vocational and high school teachers.

Table 7. Mann Whittney test between vocational and high school

School IN Mean Rank Sum of Ranks p		School	N	Mean Rank		p
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Digital_Skills	SMK	7	10,79	75,5 0	,090	
	SMA	9	6,72	60,50		
	Total	16				

Resource: Output SPSS versi 26.0

3. Comparison of Digital Skills of Vocational and Technical School Teachers

Based on the Kruskal-Wallis test, it is known that there are differences based on school type. However, to determine where the difference comes from the Mann Whittney test is used. Based on the Mann Whittney test in table 8, it is known that there is no difference in digital skills possessed by teachers at SMK and MAN schools, namely with an Asymp. Sig. (2-tailed) or PValue of 0.490. The value of Asymp. Sig. (2- tailed) is more than 0.05. If the p value is more than the critical limit of 0.05, there is no significant difference between the digital skills of SMK and MAN teachers.

Table 8. Mann Whittney test of SMK and MAN

	School	N	Mean Rank	Sum of Ranks	P
Digital_Skills	SMK	7	16,93	118,50	,490
	MAN	22	14,39	316,50	
	Total	29			

Resource: Output SPSS versi 26.0

4. Comparison of Digital Skills of High School and MAN Teachers

Based on the Kruskal-Wallis test, it is known that there are differences based on school type. However, to determine where the difference comes from the Mann Whittney test is used. Based on the Mann Whittney test in table 9, it is known that there are differences in digital skills possessed by teachers in SMA and MAN schools, namely with the value of Asymp. Sig. (2-tailed) or PValue of 0.015. The value of Asymp. Sig. (2-tailed) is not more than 0.05. If the p value is not more than the critical limit of 0.05, there is a significant difference between the digital skills of SMA and MAN teachers.

Table 9 Mann Whittney test for SMA and MAN

	School	N	Mean Rank	Sum of Ranks	p
Digital_Skills	SMA	9	9,78	88,00	,015
	MAN	22	18,55	408,00	
	Total	31			

Resource: Output SPSS versi 26.0

Result Researce Qualitative

At this stage, interviews were conducted with 3 teachers from each school to represent the respondents, namely one teacher from SMA, one teacher from SMK and one teacher from MAN. The results of the study were analyzed by researchers using qualitative descriptive techniques, which means that researchers will describe, describe, and interpret all the data collected so as to obtain a general and comprehensive picture. Based on the results of research conducted on SMA, SMK and MAN teachers regarding Digital skills, the following data were obtained.

1) Information and data literacy

To find out the teacher's views on how to obtain data/information on the internet and the media used and how to filter the data so that the information obtained is verified, the interviewer asked the following questions "How do you/mother obtain data/information on the internet? What media are used? Then how do you filter the data so that you are sure that the information obtained is verified?"

Based on the results of interviews with the three research subjects, it can be seen that in the information acquisition and trustworthiness of the information obtained, the teachers in each school have been able to filter the information obtained properly. This is in line with the results of interviews conducted with SMK teachers who said:

"Open Google via smartphone. The existing data is adjusted to the teaching sub2, and retrieves the desired data and then develops it"

Then added again by the teacher at SMA who said:

"Search from various sources and when searching for data it must be on a clear web"

From this information, it is known that teachers have been able to filter information by comparing various web information obtained to test its veracity. In addition, teachers have also been able to think critically to assess the information obtained. This is in accordance with what the MAN teacher said, he said:

"Obtaining data on the internet is now very easy and practical, usually I will open a search engine such as Google or Chrome, enter the keywords I want to search for and then click search, the info we need will be seen on the monitor. To filter myself, I usually cross-check data from other references as material for consideration, besides that I also check the validity of the data etc., other than that I also use critical thinking to assess whether this information is valid or not."

2) Online communication and Collaboration

To find out the teachers' views on the use of technology in communication and teamwork, the interviewer asked the following questions "Do you use technology in teamwork? What forms of technology utilization to support teamwork?"

Based on the results of interviews with the three research subjects, it can be seen that the Online communication and Collaboration section has used technology to communicate with the team in completing tasks and collaborating through social media and existing media sharing. This is in line with the results of interviews conducted with SMK teachers who said:

"Every exam activity we use G-form, every time we teach we also use social media to support marketing materials such as Facebook, Instagram and Tik Tok".

Then added again by the teacher at SMA who said:

"Yes, for example by using applications in managing assessments"

It is known from SMK and SMA teachers that teachers use social media as a support in delivering material and use applications in terms of student assessment. In addition, MAN teachers use social

media applications to communicate with fellow teachers and students in an effort to achieve learning goals and have used applications to collaborate in completing assignments. This is in accordance with what the MAN teacher said, he said:

"Yes, using the WA application as a practical means of communication that can be done anywhere and anytime so as to facilitate communication while the signal is adequate. In addition, for work, we use google docs sharing, canva sharing applications and store data with the team on google drive, which in fact can be accessed by all teams."

3) Digital content creation

To find out teachers' views on creating or developing technology-based content and products for learning. The interviewer asked the following question "Have you ever created or developed technology-based content or products What form does the content or product take?"

Based on the results of interviews with the three research subjects, it can be seen that the Digital content creation section has made digital content in the form of learning videos that are used when teaching. The use of learning videos is expected to support the achievement of learning objectives. This is in line with the results of interviews conducted with SMK teachers who said:

"I once made a learning video that I shared to YouTube and the merdeka Belajar application"

The same thing was said by a high school teacher, namely:

"Once, the content created was like a learning video"

This is also corroborated by the MAN teacher as said as follows:

"Once, made a digital video".

4) Safety

To find out teachers' views on efforts to use technology to stay safe in terms of healthy use, personal data, device security and socially. The interviewer asked the following question "What do you do in an effort to use technology to keep it safe in terms of healthy use, personal data, device security and socially?"

Based on the results of interviews with the three research subjects, it can be seen that in the Safety section, teachers can already use technology safely by controlling the time of using technology and using safety devices from theft of personal data, virus attacks and other things in the use of technology socially. This is in line with the results of interviews conducted with SMK teachers who said:

"I use password security and 2-step verification".

This was reinforced by the SMA teacher as said as follows:

"Using technology moderately, getting enough rest, and using safety apps"

It is known from SMK and SMA teachers that teachers using technology have paid attention to safety from a physical and spiritual perspective. In addition, MAN teachers using technology have

also used device security by using antivirus, on social accounts using 2-factor authentication, and setting permissions for updates etc. This is in accordance with what the MAN teacher said, he said:

"Work is inseparable from digital technology, usually on my laptop I install antivirus, secure personal data by activating two-factor authentication to provide double security on google accounts, use original applications, set application permissions when there are updates etc."

5) Problem solving

To find out teachers' views on the use of technology in solving problems in their work. The interviewer asked the following question "What is the form of using technology in an effort to solve a problem in the work you do?"

Based on the results of interviews with the three research subjects, it can be seen that in the Problem solving section, teachers have been able to utilize technology to support solving work problems by using web and online technology searches. This is in line with the results of interviews conducted with SMK teachers who said:

"In teaching, students use smartphones because they learn to market products online, in examinations they also use G-form, and the final assessment is currently using E-raport".

This was reinforced by the SMA teacher as said as follows:

"Web, learning applications and so on"

The same thing was said by a high school teacher, namely:

"When I get stuck on an idea, I look for references such as using Google and other online search technologies"

From this information, it is known that teachers are able to use technology to complete their work well.

Discussion

The digital skills possessed by teachers are included in the good category. These digital skills include Information and data literacy, which the average in SMA is 8, in MAN is 9, and in SMK is 9. Online communication and collaboration is possessed by the average in SMA is 8, at MAN is 8, and at SMK is 9, Digital content creation on average at SMA is 7, at MAN is 8, and at SMK is 8, Safety owned on average at SMA is 8, at MAN is 8, and at SMK it is 9, the average problem solving skill at SMA is 8, at MAN it is 8, and in vocational schools it is 9.

The digital skills possessed by teachers are included in the high and very high categories. Information and data literacy in SMA has a high category with a percentage of 60%, in MAN it has a very high category with a percentage of 71%, Online communication and collaboration in SMA has a very high category with a percentage of 100%, at MAN it has a very high category with a percentage of 100%, at SMK it has a very high category with percentage 100%, Digital content creation in SMA has a high category with a percentage of 55%, in MAN it has a high category with a percentage of 50%, in SMK it has a very high category with a percentage of 71%, Safety in SMA has a category high with a percentage of 100%, in MAN it has a high category with a percentage of 64%, in SMK it has a very high category with a percentage of 57%, problem solving in SMA has a high percentage

with a percentage of 89%, in MAN it has a high category with percentage of 50%, vocational school has a high category with a percentage of 72%.

The digital skills possessed by teachers in the aspect of communication and collaboration have a very high category score with a percentage of 100%, this means that teachers have used digital technology to share all information and collaborate to work together to achieve learning goals. However, what needs to be underlined is that in the Digital Content Creation aspect, even though it has aspects in the high and very high categories, there is a minimum score in the low category, namely at a score of 5 in MAN and SMK, meaning that there are some teachers who have not been able to utilize technology to support learning. and In terms of safety, there is a low minimum score, namely a score of 3 on MAN, meaning that there are some teachers who have not yet utilized technology Pay attention to safety when using technology.

CONCLUSION

Based on quantitative data analysis, it was obtained 1) Comparison of Digital Skills based on school type shows that the average score of Digital Skills possessed by teachers at Vocational Schools is higher than the Digital Skills possessed by teachers at MAN Schools and the average Digital Skills possessed by teachers at MAN schools rank higher than the average high school ranking; 2) Comparison of the digital skills of vocational and high school teachers shows that there is no difference in the digital skills possessed by teachers in vocational and high school schools, namely the Asymp value. Sig. (2-tailed) or PValue of 0.090; 3) Comparison of the digital skills of vocational school and MAN teachers shows that there is no difference in the digital skills possessed by teachers at vocational school and MAN schools, namely the Asymp value. Sig. (2-tailed) or PValue of 0.490; and 4) Comparison of digital skills of SMA AND MAN teachers. It is known that there are digital differences the skills possessed by teachers at SMA and MAN schools are with Asymp scores. Sig. (2tailed) or PValue of 0.015. Then in the qualitative analysis in the digital skills indicator section, namely 1) Information and data literacy 2) Online communication and collaboration 3) Digital content creation 4) Safety 5) Problem solving has been done by teachers very well in an effort to carry out their work as teachers, but the aspects of Digital Content Creation and safety need to be improved.

The real implication of this research is the ability for teachers to apply digital skills such as knowledge and attitudes in a confident, critical and responsible manner within the specified context as required. As for further research, this study has not measured digital literacy based on the field of science in teachers, if referring to the field of science, of course there is a separate level of difficulty in digital utilization or digital skills in each teacher's field of science, for that in future research it is necessary to measure the ability of digital skills in teachers based on the field of science.

REFERENCE

Akbari, T. T., & Pratomo, R. R. (2022). Higher education digital transformation implementation in Indonesia during the COVID-19 pandemic". *Jurnal Kajian Komunikasi*, 10(1), 52. https://doi.org/10.24198/jkk.v10i1.38052

- Alessandro, B. (2018). Digital Skills and Competence, and Digital and Online Learning. *European Training Foundation*, 72. https://www.etf.europa.eu/sites/default/files/201810/DSCAnd
- Artacho, E. G., Martínez, T. S., Ortega Martín, J. L., Marín Marín, J. A., & García, G. G. (2020). Teacher training in lifelong learning-the importance of digital competence in the encouragement of teaching innovation". *Sustainability (Switzerland, 12*(7). https://doi.org/10.3390/su12072852
- Avriyanti, S. (2021). Strategi Bertahan Bisnis Di Tengah Pandemi Covid-19 Dengan Memanfaatkan Bisnis Digital (Studi Pada Ukm Yang Terdaftar Pada Dinas Koperasi, Usaha Kecil Dan Menengah Kabupaten Tabalong)". *Jurnal Pemikiran Dan Penelitian Administrasi Publik Dan Administrasi Bisnis*, 5(1), 60–73. https://doi.org/10.35722/pubbis.v5i1.380
- Axinn, W. G., & Pearce, D. L. (2006). *Mixed Method Data Collection Strategies*". Cambridge University Press.
- Ayuningtyas, A. E. (2015). Analisis penggunaan teknologi informasi dan komunikasi (TIK) dalam mendukung proses belajar mengajar SMP Negeri di Salatiga.
- Buckley, J., & Pears, A. (2021). A Rapid Review and Qualitative Synthesis of Interpretations of Digital Competence in Higher Education Research".
- Creswell, J. W., & Creswell, J. D. (2018). Mixed Methods Procedures".
- Dijk, J. V., & Hacker, K. (2003). The Digital Divide as a Complex and Dynamic Phenomenon. *Inf. Soc*, *19*(4), 315–326. https://doi.org/10.1080/01972240309487
- Fisher, R. A. (1990). The Design of Experiments. *The Statistician*, *39*(1), 91. https://doi.org/10.2307/2348207.
- Given, L. M. (2008). The Sage Encyclopedia of Qualitative Research Methods". SAGE Publications, Inc.
- Ince, E. Y. (2022). Inequality of Opportunity in Distance Education during the Pandemic Process (Vol. 21, Issue 1, pp. 68–79).
- Iordache, C., Mariën, I., & Baelden, D. (2017). Developing digital skills and competences: A quick-scan analysis of 13 digital literacy models. *Ital. J. Sociol. Educ*, *9*(1), 6–30. https://doi.org/10.14658/pupj-ijse-2017-1-2.
- König, J., Jäger-Biela, D. J., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany. *Eur. J. Teach. Educ*, 43(4), 608–622. https://doi.org/10.1080/02619768.2020.1809650.
- Kruskal, W. H., & Wallis, W. A. (2012). Journal of the American Use of Ranks in One-Criterion Variance Analysis (pp. 37–41). https://doi.org/10.1080/01621459.1952.10483441.
- Kwaah, C. Y., Adu-Yeboah, C., Amuah, E., Essilfie, G., & Somuah, B. A. (2022). Exploring preservice teachers' digital skills, stress, and coping strategies during online lessons amid covid-19 pandemic in Ghana. *Cogent Educ*, 9(1). https://doi.org/10.1080/2331186X.2022.2107292.

- Lestari, S. (2015). Faktor-Faktor Yang Mempengaruhi Pemanfaatan Tik Oleh Guru. *J. Kwangsan*, 3(2), 121. https://doi.org/10.31800/jurnalkwangsan.v3i2.29.
- Martono, N. (2015). Metode Penelitian Sosial". PT Rajagrafindo Persada. 2015.
- Meinawati, E. (2022). Tantangan Kompetensi Digital Bagi Pengajar Di Era Pandemic Covid- 19 Terhadap Kualitas Pendidikan Abad-21. *Pros. Semin. Nas, November*, 1–6. https://jurnal.univpgri-
- Mukaromah, E. (2020). Pemanfaatan Teknologi Informasi dan Komunikasi dalam Meningkatkan Gairah Belajar Siswa. *Indones. J. Educ. Manag. Adm. Rev*, 4(1), 179–185. http://www.yourdictionary.com/library/reference/word-definitions/definition-of-
- Nafisa, A., & Ardiansyah. (2017). Tingkat Kemampuan Literasi Digital Peserta Didik Kelas V SD Se-Kecamatan Laweyan. *J. Pendidik*, 2(1).
- Perifanou, M., Economides, A. A., & Tzafilkou, K. (2021). Teachers' Digital Skills Readiness During COVID-19 Pandemic. *Int. J. Emerg. Technol. Learn*, 16(8), 238–251. https://doi.org/10.3991/ijet.v16i08.21011.
- Pinto, M., & Leite, C. (2020). Digital technologies in support of students learning in higher education: Literature review. *Digital Education Review*, *37*, 343–360. https://doi.org/10.1344/DER.2020.37.343-360
- Rakstu, S. P. (2021). Human, Technologies And Quality Of Education Cilvēks. *Tehnoloģijas Un Izglītības Kvalitāte Proceedings of Scientific Papers Rakstu krājums*". https://doi.org/10.22364/htqe.2021
- Rosyadi, A. R., Afandi, & Wahyuni, E. S. (2022). Digital Age Literacy Profile of High School Students and Its Implementation in Biology Learning. *Assim. Indones. J. Biol. Educ*, 5(1), 17–25. https://doi.org/10.17509/aijbe.v5i1.43692
- Sailer, M., Murböck, J., & Fischer, F. (2021). Digital learning in schools: What does it take beyond digital technology? *Teach. Teach. Educ*, 103. https://doi.org/10.1016/j.tate.2021.103346
- Sari, S. S. (2019). Kemampuan Literasi Digital Kalangan Siswa SMP dan SMA di Daerah Pedesaan Kabupaten Blitar. *J. Chem. Inf. Model*, *53*(9), 1689–1699.
- Shakina, E., Parshakov, P., & Alsufiev, A. (2020). Rethinking the corporate digital divide: The complementarity of technologies and the demand for digital skills. *Technol. Forecast. Soc. Change*, 162, 120405. https://doi.org/10.1016/j.techfore.2020.120405
- Turner, D. P. (2019). Guest Editorials Sampling Methods in Research Design (pp. 8–12). https://doi.org/10.1111/head.13707.
- Yurinova, E. A., Byrdina, O. G., & Dolzhenko, S. G. (2022). Transprofessional competences of school teachers in the digital environment: education employers' perspective. *Educ. Inf. Technol*, 27(2), 1841–1863. https://doi.org/10.1007/s10639-021-10687-w.