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Digital Literacy and Digital Competence of Teachers on Teaching English at SMKN 4 Pekanbaru

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Abstract

This research aims to examine the digital literacy and digital competence of teachers on teaching English and its effect. Quantitative data is the result of the correlational study in the form of a questionnaire on teachers' digital literacy and digital competence. Data processing is done by simple regression, multiple regression test and correlation test using spss version 25. The simple regression test results concluded that the literacy and competence of digital teachers on teaching English at SMKN 4 Pekanbaru are high scores. The coefficient of determination (R Square) of digital literacy and digital competence is 90.3 % and 85.4 %. Then, the effect concluded that T calc < T table ; 1,182 <4,302 and 0,567 < 4,302. According to the basis of decision making, it was concluded that the null hypothesis is accepted. it means that digital literacy and digital competence in teaching English are not significant.

Keywords: Digital Literacy, Digital Competence, Teaching English

Introduction

Education is surrounded by the internet and a series of digital technologies. Technology has been steadily infused into the regular lives of teachers and thus has ended up as a crucial portion of teacher instruction programs across the nation. According to Martin (2018) even though today's teachers are technologically familiar with ordinary technologies, numerous still battle with how to effectively actualize technology into instruction. It has been a difficult challenge for teachers to adapt to. The teachers must act flexibly to utilize the current development situation. They should embrace and stay digitalized to retain their existence following the rapid digitalization. The main problem is teachers struggle to find valid information sources in digitalization because information can be easily produced and distributed to information users, and finding valid information becomes difficult. Then searching for information or material through the internet causes teachers to switch from physical reading sources to digital reading sources, so teachers lack problem-solving skills when using digital in the classroom. English teachers find challenges in teaching English through digitalization. On the other hand, they are proficient in communicating and conveying subject matter, questions, criticism, and suggestions to increase student enthusiasm for learning, while a comprehensive understanding of media literacy or digital is still speculative. It's happened and vice versa. The teacher should possess and improve their digital literacy and digital competence as a solution. Teacher digital literacy can be used to gain access to teaching materials such as articles and explanations of English materials using audio, visual, and video media, among other things. The ability of teachers to apply their literacy is referred to as their digital competence. Hence, the use of digital technology in the English teaching and learning process must be integrated into the process. Many studies have confirmed that integrating digital technologies

into English teaching and learning could benefit students. For instance, social networking applications can create effective learning processes and establish learning motivation among students. Therefore, to be useful for students, teachers need more reading skills and digital application skills to develop and strengthen their intellectual and emotional abilities. Adapting to technological change challenges teachers on two levels: first, to develop their literacy of digital. Second, to develop their competence in digital activities that give all students the competencies they need to succeed in the digital age.

Moreover, teachers' motivation to integrate digital literacy and digital competence is to prepare teaching for better careers in the future. It also describes intuition that has a significant effect on the use of digital devices in the teaching process. Access to digital devices, internet networks, and mobile phones are the main problems faced by teachers in integrating digital literacy and digital competence into teaching. Apart from this, the most important thing is the teacher's knowledge of how to utilize all resources and media to successfully achieve teaching and learning objectives. Thus, this research helps teachers develop the necessary professional skills to support teachers in integrating digital literacy and competence into English language teaching.

According to Putri (2020), "Literacy is an important part of language learning. Reading and writing skills are preferred aspects of literacy, but literacy is not just two skills". The understanding to recognize, develop, and create new media expressions through the use of digital media in specific situations to communicate with others is referred to as digital literacy (Lankshear, Colin Knobel, 2008). Forutanian, (2021) also argues that digital literacy is somehow a set of awareness, contexts, and skills that change with time and situation. To put it another way, it refers to the use of digital tools and technology for a simpler and better life. It is more than just computers, ICT, information, data, and media literacy. Digital literacy is the ability to understand to create meaning using digital tools and to communicate effectively with others. It includes using visual representations and integrating different digital texts, navigating non-linear texts, and analyzing digital content (Neumann et al., 2017). Liza & Andriyanti (2020) also argue that through the use of digital technologies, digital literacy is the a set of understanding to access, organize, understand, and evaluate information that includes multimodal perspectives as well as to participate in the rapidly growing digital communication channel by interpreting, managing, sharing, and creating meaning. Information literacy describes skills related to analyzing and interpreting information critically, interpreting visual media via visual literacy, utilizing digital content or computer literacy, and utilizing technology. Digital literacy is divided into numerous capability groups (Yustika & Iswati, 2020). It can be concluded that digital literacy is defined as a set of understandings in the digital era is required to comprehend, produce, and negotiate meaning in a culture dominated by powerful images, words, and sounds (Gallardo et al., 2015).

The purpose of digital literacy is that teachers can help students understand and build awareness of the broader factors surrounding the use of technology and its impact in future classrooms, and to help them understand and develop attention to the broader considerations surrounding the use of technology and its impact (Janssen et al., 2013). Teachers, academics or researchers, and cultural commentators frequently reread The Uses of Literacy (Hoggart 1957) to address current difficulties in education and social mobility. Literacy is viewed as having two functions: facilitating mobility on the one hand and regulating power on the other. In practice, teacher educators must constantly reflect on existing capabilities and requirements, and access professional learning, to respond to the rapidly changing educational environment and the opportunities presented by emerging technological breakthroughs. Nugroho (2022), said that the purpose of digital literacy can be seen from the importance of implementing digital literacy namely: Literacy is essential for a person's success in coping with a variety of issues, and literacy abilities allow a person to not only learn new information but also record experiences for future reference and digital literacy increases vocabulary, improves brain function, and new insights and information are just a few of the advantages of a literacy culture. It can help people enhance their interpersonal skills and sharpen their ability to grasp the significance of the information they are reading. And also Train someone's thinking and analytical skills, increase one's focus and concentration, and practice writing and word stringing. Newman (2017), state that there are three basic components of digital literacy in the form of social awareness, critical thinking and knowledge of digital tools (Putri, 2022).

Meanwhile, Competence consists of more than just ability. From (2017), states that digital competencies first emerged in the European debate in 2000, when conditions for lifelong learning were being developed and were expanded further when they were presented as one of the eight core

competencies in the 2006 EU guidelines. For the ability to use ICT, "digital competence" includes the ability to utilize certain digital technologies or software, such as Microsoft Word, or a type of digital equipment such as a word processor, etc (Krumsvik, 2011). Most of the literature deals with "basic Information and Communication Technology (ICT) skills or specific sub-skills (Ilomäki et al., 2016). In the context of education, digital competence is defined as the ability to apply the knowledge, attitudes, and skills necessary to plan, implement, evaluate, and maintain an overview of the teaching and learning process supported by ICT, together with a solid theoretical foundation, investigation, and experimentation. Based on the explanation above can be concluded that digital competence is a set of abilities, skills, and attitudes needed for using ICT and digital media so that tasks are performed, problems are solved, communication is managed, information is shared, collaboration is achieved, content is created and shared, and knowledge is developed for work, leisure, learning, socializing, consuming, and empowerment (Ferrari, 2013).

The pedagogical community has recognized the importance of digital competencies for teaching and learning and believes that they will help in solving many problems in the teaching and learning process (Zhao, Pinto Llorente, et al., 2021). Digital competence is the foundation for teacher education and a means of strengthening their professionalization. The development of digital competence is critical in achieving the minimum level of competence at various stages of education. People's ability to utilize technology, including appropriation, recognizing ethical problems, and critical use, is conceptualized as digital competence (Ilomäki et al., 2011). Based on the foregoing, it is clear that digital competence can aid in the direction of learning in a digital world that is constantly changing, while also promoting the critical, responsible, and creative use of technology. Thus, digital literacy is essential for training in educational processes and involvement in twentieth-century society.

Digital competence is also understood as cognitive skills, attitudes, and technology (Zhao, Sánchez Gómez, et al., 2021). For deeper detail, digital competence also has a purpose, such as helping relieve many problems and challenges in today's knowledge society. For teachers, digital competence means using ICT with a good pedagogical-didactic understanding and being aware of how this might impact the learning strategies and educational formation of pupils. The possibilities of digital competence are also mentioned by the European Commission (2016), namely: (1) a new training syllabus for digital competence in adult education; (2) professional development programs for teachers; and (3) third-sector education and training programs. According to Putri (2022) there are five components of digital competence such as information, communication, content creation, safety, and problem-solving. The research will analyze (a) How is the digital literacy of teachers towards teaching English at SMKN 4 Pekanbaru? (b) How is the digital competence of teachers towards teaching English at SMKN 4 Pekanbaru? (c) How is the effect of digital literacy and digital competence of teachers towards teaching English at SMKN 4 Pekanbaru?

Digital literacy and digital competence in education are especially important in light of both the dangers posed by the Internet and the opportunity for learning information that it provides. There is a tight relationship between digital competence and digital literacy. According to Putri (2022), “Digital literacy is a digital technology that is effectively and critically navigated and evaluated. In another words, digital litercy is technology-based literacy”(p.5). Then she add that “Digital competence is the ability of a person to use technology based or digital literacy” (p.5). However, they are sometimes referred to as one and used to support one another while having separate definitions. The term "digital literacy" is defined as the combination of computer literacy, information literacy, and media literacy. Then, "digital competence" is frequently used to describe the skills that people in today's society should possess. In terms of teacher education, generating digitally literate pupils entails prioritizing technical abilities in the use of digital tools and systems deemed appropriate for education, as well as identifying how they might be applied in units of study.

Because of technological innovation, teachers must better comprehend and critically examine their role and influence in the emergence of new practices when teaching English. This is a significant problem for teachers, who must not only help students utilize digital technology more actively and effectively in class but also help them understand and pay attention to a broader variety of considerations around the use of technology and its effects (Janssen et al., 2013).

Furthermore, Lund (2014) said this is especially difficult to achieve because it necessitates catering to more than just students' immediate capability needs to develop transformative competence, which will allow them to translate how to best use digital resources to support their own students'

learning into specific instructive, learning design, classroom organization, and assessment practices. As a response to the significance of improving English teaching and learning, teachers' digital literacy and digital competence in teaching English must be continuously improved and developed.

Methods

This research uses a quantitative approach and a correlational study design. This research was carried out to show the measurement score and significance influence based on the facts and object of this study. The primary data came from participants, 5 English teachers at a vocational school, SMKN 4 Pekanbaru. The variables X, digital literacy and digital competence, and Y, teaching English, are used in the questionnaire to measure teachers' digital literacy and digital competence (Putri, 2022b). The data was analyzed using the SSPS 25 application.

Result and Discussion

Table 1 shows Correlation (R) = 0.903 it is mean there is correlation between digital literacy (X1) towards teaching English. The total correlation is 90.3 %. From that output was obtained (R Square) = 0.815 which means that the contribution of the total influence of digital literacy (X1) towards teaching English is 81.5 %. Based on the correlation strength table, the correlation is in between 0.81 - 0.99. So the correlation rate between digital literacy (X1) towards teaching English is categorized as high score. The hypothesis shows that H0 is rejected.

Table 1. Simple Regression model summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.903[a]	.815	.753	1.077
a. Predictors: (Constant), Digital Literacy				

Table 2 shows Correlation (R) = 0.854 it is mean there is correlation between digital competence (X1) towards teaching English. The total correlation is 8.54 %. From that output was obtained (R Square) = 0.729 which means that the contribution of the total influence of digital competence (X2) towards teaching English is 72.9 %. Based on the correlation strength table, the correlation is in between 0.81 - 0.99. So the correlation rate between digital competence (X2) towards teaching English is categorized as high score. The hypothesis shows that H0 is rejected.

Table 2. Simple Regression model summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.854[a]	.729	.639	1.302
a. Predictors: (Constant), Digital Competence				

Table 3 shows that Fcalc < F Table = 5,275 < 19,00 and Sig > 0,05 = 0,159 > 0,05 From the amount above, shows that digital literacy and digital competence in teaching English together are influential but insignificant in the other words it can be concluded that literacy of digital and competence

of digital teachers towards teaching English at SMKN 4 Pekanbaru are not significance which means that H0 is accepted.

Table 3. Multiple Regression Anova

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	15,804	2	7,902	**5,275**	**,159[b]**
	Residual	2,996	2	1,498		
	Total	18,800	4			

a. Dependent Variable: Teaching English

b. Predictors: (Constant), Digital Competence, Digital Literacy

Table 4 shows that the formula of multiple regression is Y = a + b1X1 + b2X2.. Y= -1,488 + 0,415X1 + 0,061X2. It is mean when digital literacy increases 1 % then Teaching English increases 41,5% While digital competence increases 1 % then teaching English increases 6,1%. For each digital literacy and digital competence shows that Tcalc < TTable = 1,182 < 4,302 and 0,567 < 4,302 which means that digital literacy toward teaching English and digital competence toward teaching English are not significant or H0 is accepted. The correlation (Zero-order) of digital literacy towards teaching English = 0,903 (very strong relationship) and digital competence towards teaching English = 0,854 (very strong relationship). When viewed at Collinearity Statistics tolerance is more than 0,1 then, VIF less than 10. Hence, it is concluded that there is no multicollinearity.

Table 4. Correlation Test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	**-1,488**	7,276		**-0,205**	0,857					
	Digital Literacy	**0,415**	0,351	0,64	**1,182**	0,359	**0,903**	0,641	0,334	0,271	3,687
	Digital Competence	**0,061**	0,107	0,307	**0,567**	0,628	**0,854**	0,372	0,16	0,271	3,687

a. Dependent Variable: Teaching English

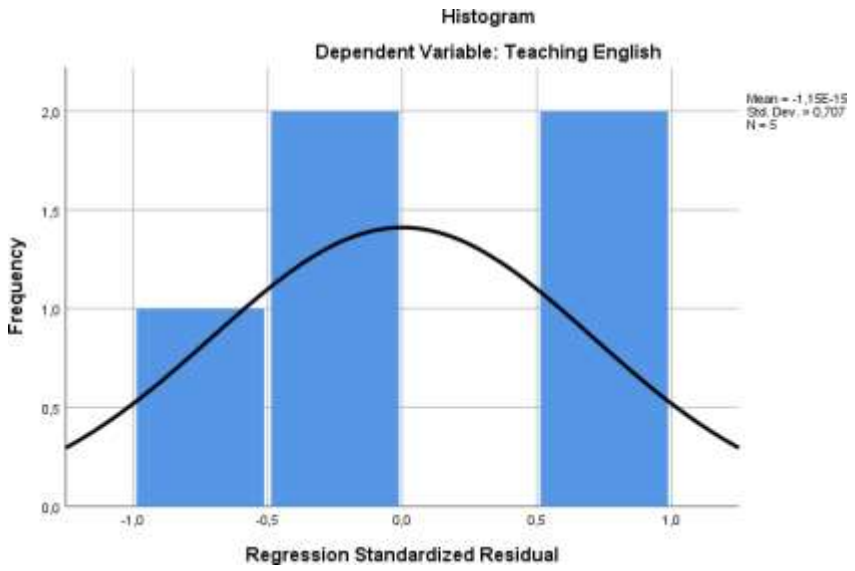

Figure 1. Normality Histogram Test

Based on the histogram figure, it looks bell curve shaped which shows that the residual is normally distributed.

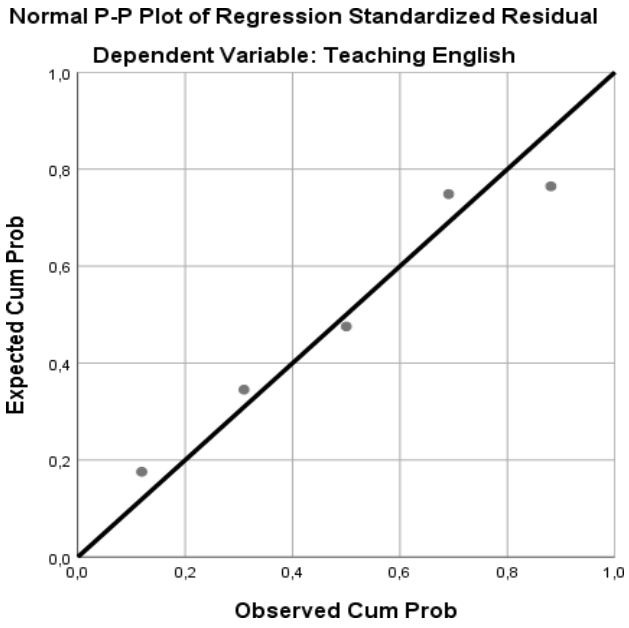

Figure 2. Normality Probability Plot Test

It shows the residual value based on the location of the dots concluding that has been normally distributed.

Table 5. Normality Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		5
Normal Parameters[a,b]	Mean	0,0000000
	Std. Deviation	0,86543527
Most Extreme Differences	Absolute	0,228
	Positive	0,154
	Negative	-0,228
Test Statistic		0,228
Asymp. Sig. (2-tailed)		,200[c,d]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

The significance of the Kolmogorov-Smirnov Test One-Sample is greater than 0.05 hence the variables are normal or normally distributed.

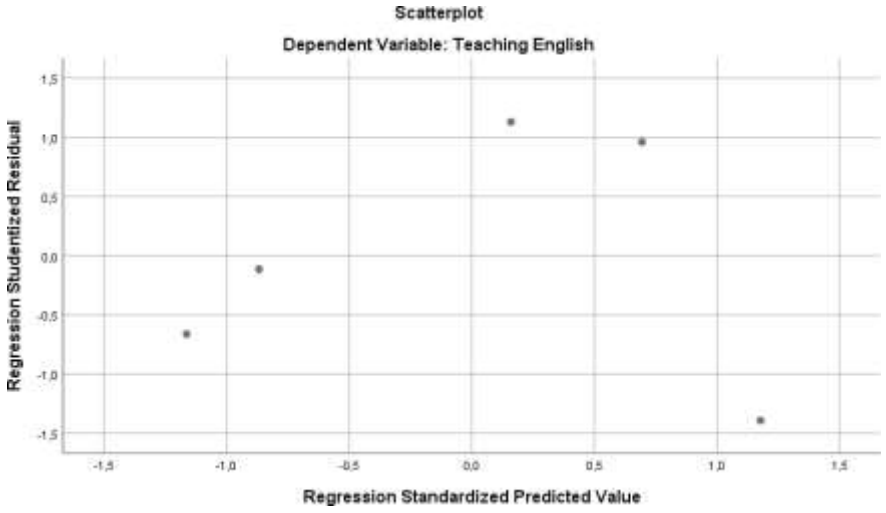

Figure 3. Normality Scatterplot Test

The visible pattern shows the pattern of dots spreading above and below the number 0 on the Y axis, so it is concluded that there is no heteroscedasticity.

Table 6 Hypothesis Testing Design shows that $T_{calc} < T_{table}$ = **3,636** < 4.302. So, it can be concluded that H0 is rejected while H1 is accepted which means there is an effect between the variables of Digital literacy and teaching English

Table 6. Hypothesis Testing Design X1

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	**-2,125**	6,324		-,336	,759
	Digital Literacy	**,585**	,161	,903	**3,636**	**,036**

a. Dependent Variable: Teaching English

Table 7 Hypothesis Testing Design X2 shows that $T_{calc} < T_{table}$ = **2,844** < 4.302. So, it can be concluded that H0 is rejected while H1 is accepted which means there is an effect between the variables of Digital Competence and teaching English.

Table 7. Hypothesis Testing Design X2

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,055	5,917		,685	,542
	Digital Competence	,168	,059	,854	2,844	,065

a. Dependent Variable: Teaching English

Research Question # 1: How is the digital literacy of teachers towards teaching English at SMKN 4 Pekanbaru?

Table 8. Descriptive Statistics Digital Literacy

	N	Minimum	Maximum	Mean	Std. Deviation
Digital Literacy	5	35	43	39.20	3347
X1.1	5	3	4	3.80	.447
X1.2	5	3	4	3.60	.548
X1.3	5	2	5	3.00	1.225
X1.4	5	3	5	4.00	.707
X1.5	5	4	5	4.20	.447
X1.6	5	3	5	4.40	.894
X1.7	5	3	5	4.20	.837

X1.8	5	3	5	4.00	.707
X1.9	5	3	5	4.00	.707
X1.10	5	3	5	4.00	.707
Valid N (listwise)	5				

The above table show that teacher's Digital Literacy variabel has the highest order of values on the six sub-indicator of the cognitive, then on the first of sub-indicator Technique. So that it can be conluded that the influential indicators are (1) Cognitive (2) Technique (3) Socio Emosional.

Research Question # 2: How is the digital competence of teachers towards teaching English at SMKN 4 Pekanbaru?

Table 9. Descriptive Statistics Digital Competence

	N	Minimum	Maximum	Mean	Std. Deviation
X2.1	5	4	5	4.40	.548
X2.2	5	3	5	4.40	.894
X2.3	5	3	5	4.00	.707
X2.4	5	3	5	4.20	.837
X2.5	5	3	5	4.00	.707
X2.6	5	4	5	4.40	.548
X2.7	5	4	5	4.40	.548
X2.8	5	4	5	4.40	.548
X2.9	5	3	5	4.60	.894
X2.10	5	3	5	3.80	.837
X2.11	5	3	5	3.60	.894
X2.12	5	3	4	3.40	.548
X2.13	5	2	4	3.20	.837
X2.14	5	3	5	4.20	.837
X2.15	5	3	5	4.20	.837
X2.16	5	3	5	4.40	.894
X2.17	5	3	5	3.80	.837
X2.18	5	3	5	3.80	.837
X2.19	5	3	4	3.60	.548
X2.20	5	3	5	3.80	.837
X2.21	5	3	5	4.00	.707
X2.22	5	3	4	3.60	.548
X2.23	5	3	4	3.40	.548
X2.24	5	3	5	4,20	.837
X2.25	5	2	5	3,60	1.140
Digital Competence	5	86	112	99,40	10.991
Valid N (listwise)	5				

The above table shows that Digital Competence variable has the highest order of values in the fourth sub-indicator of the communication indicator. Then, the first and second sub-indicator of information indicator; The fourteenth and fifteenth sub-indicator of safety indicator; then the twenty first sub-indicator of the problem solving indicator; and the content creation indicator is on the seventeen and eighteen sub-indicator. So that it can be concluded that the influential indicators are (1) communication; (2) information; (3) safety; (4) problem solving and (5) content creation.

Research Question # 3: How is the effect of digital literacy and digital competence of teachers towards teaching English at SMKN 4 Pekanbaru?

Tabel 10. Descriptive Statistics Digital Literacy and Digital Competence on Teaching English

	N	Minimum	Maximum	Mean	Std. Deviation
Digital Literacy	5	35	43	39.20	3.347
Digital Competence	5	86	112	99.40	10.991
Teaching English	5	18	23	20.80	2.168
Valid N (listwise)	5				

The above table present the data Digital Literacy (X1) with N of 5 ; Mean of 39.20 then SD of 3.347. while Digital Competence (X2) with N of 5; Mean of 99.40 then SD of 10.991. Furthermore, Teaching English with N of 5; mean of 20.80 then SD 2.168.

Table 11. Descriptive Statistics Teaching English

	N	Minimum	Maximum	Mean	Std. Deviation
Teaching English	5	18	23	20.80	2.168
Y.1	5	4	5	4.40	.548
Y.2	5	4	4	4.00	.000
Y.3	5	3	5	4.00	1.000
Y.4	5	3	5	4.00	.707
Y.5	5	4	5	4.40	.548
Valid N (listwise)	5				

In teaching English the technique and problem solving indicator very influential which is software and hardware knowledge and identifying digital needs. The correlation between digital literacy on teaching English is: First, there is correlation between digital literacy (X1) towards teaching English. The total correlation is 90.3 %. Second, the correlation value is positive with coefficient of determination (R Square) = 0.815. 0.815 > 0.01 which means that is correlated in the same direction. So the correlation rate between digital literacy (X1) towards teaching English is categorized as high score. The hypothesis shows that H0 is rejected.

The correlation between Digital Competence on teaching English is: First, there is correlation between digital competence (X1) towards teaching English. The total correlation is 85.4 %. From that output was obtained (R Square) = 0.729 > 0.01 which means that the contribution of the total influence of digital competence (X2) towards teaching English is 72.9 %. So the correlation rate between digital competence (X2) towards teaching English is categorized as high score. The hypothesis shows that H0

is rejected. For the significance between digital literacy and digital competence toward teaching English is: First, digital literacy increases 1% then teaching English increases 41.5% While digital competence increases 1% then teaching English increases 6.1%. For each digital literacy and digital competence shows that $T_{calc} < T_{Table} = 1.182 < 4.302$ and $0.567 < 4.302$ which means that digital literacy toward teaching English and digital competence toward teaching English are not significant or H0 is accepted. Meanwhile, the correlation (Zero-order) of digital literacy towards teaching English = 0.903 (very strong relationship) and digital competence towards teaching English = 0.854 (very strong relationship).

The insignificant caused by not all indicator of the instrument are influential. From the researcher data analysis it can be concluded that Teacher's digital literacy (1) Cognitive indicator with the sixth sub-indicator very influential which is evaluate and contextualize information. (2) Technique indicator with the first sub-indicator which is software and hardware knowledge; (3) Socio Emosional indicator with the ninth and tenth sub-indicator which is understand to collaborate, communicate according to context

Teacher's digital competence (1) Communication indicator with the fourth sub-indicator very influential which is sharing, connecting, collaborating, interacting. (2) Information indicator with the first and second sub-indicator which is identify, locate, retrieve, store, organize, and analyze information. (3) Safety indicator with fourteenth and fifteenth sub-indicator which is personal data. (4) Problem solving indicator with nineteenth sub-indicator which is identifying digital needs and (5) Content creation indicator with seventeenth and eighteenth sub-indicator which is creating and editing new concept. Teacher's teaching English on technique and problem solving indicator very influential which is software and hardware knowledge and identifying digital needs.

Conclusion

After analyzing the obtained data, it can be concluded that there is an influence of digital literacy and digital competence on teaching English. The strength of the relationship between digital literacy towards English is shown by the presented scores of **90.3 %.** Then digital competence towards teaching English is **85.4 %.** Based on the score strength table of correlation (R), the score is categorized as a very strong relationship. The null hypothesis (H0) is rejected. it concluded that the literacy and competence of digital teachers in teaching English at SMKN 4 Pekanbaru are high scores. The effect of digital literacy and digital competence of teachers on teaching English influence each other. The null hypothesis (H0) is accepted which means the literacy of digital and the competence of digital teachers in teaching English at SMKN 4 Pekanbaru is not significant.

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