

# The Influence of Educators' Perceptions of Principal Leadership and School Culture on Digital Teacher Literacy Services at School

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## Abstract:

This study was conducted to determine the effect of digital literacy services on educators' perception regarding the leadership of school principals and the influence of digital literacy services on school culture and the influence of school culture on educators' perceptions of principal leadership. Researchers chose a quantitative method with a path analysis technique, and with a total population of 152 teachers and up to 110 respondents. Data were collected through questionnaires distributed to each respondent and analyzed using SPSS 25. The results show a direct influence of teachers' perceptions of school leadership on digital teacher literacy services with a correlation of 0.518 and a path coefficient of 0.306, contributing to 15.84 percent. There is also a direct influence of school culture on digital teacher literacy services with a correlation of 0.586 and a path coefficient of 0.439, contributing to 25.75 percent. Meanwhile, an influence of educators' perceptions regarding principal's leadership and school culture on digital teacher literacy can be viewed from a correlation of 0.483. In other words, there is a joint influence of educators' perceptions of principals' leadership and school culture on digital teacher literacy services with a correlation of 0.64 and a contribution of 41.59 percent. This means that teachers' perceptions of principal leadership and school culture have a significant influence of 41.59 percent on teacher digital literacy services.

**Keywords:** *Digital Literacy, Teacher Perception, Principal Leadership, School Culture*

## Abstrak:

Penelitian ini dilakukan untuk mengetahui pengaruh pelayanan literasi digital terhadap persepsi tenaga pendidik mengenai kepemimpinan kepala sekolah. Pengaruh pelayanan literasi digital terhadap budaya sekolah dan pengaruh budaya sekolah terhadap persepsi tenaga pendidik mengenai kepemimpinan kepala sekolah. Peneliti memilih metode kuantitatif dengan Teknik path analysis, dengan jumlah populasi sebanyak 152 guru dan sampe 110 responden. Pengumpulan data akan menggunakan kuesioner yang disebar kepada tiap responden dan selanjutnya diolah data menggunakan bantuan SPSS 25. Diperoleh hasil penelitian menunjukkan adanya pengaruh langsung persepsi guru tentang kepemimpinan kepala sekolah dan pelayanan literasi digital guru dengan korelasi 0.518 dan koefisien jalur 0.306 yang menyumbang kontribusi sebesar 15,84 persen. Adanya pengaruh langsung antara budaya sekolah dan pelayanan literasi digital guru dengan korelasi 0.586 dan

koefisien jalur 0.439 yang meyumbang kontribusi 25,75 persen. Terdapat pengaruh antara persepsi tenaga pendidik mengenai kepemimpinan kepala sekolah dan budaya sekolah dengan korelasi 0.483. Terdapat pengaruh secara bersama antara persepsi tenaga pendidik mengenai kepemimpinan kepala sekolah dan budaya sekolah terhadap pelayanan literasi digital guru dengan korelasi 0.64 dan menyumbang kontribusi sebesar 0.4159. Artinya persepsi guru tentang kepemimpinan kepala sekolah dan budaya sekolah memiliki total pengaruh 41.59 persen terhadap pelayanan literasi digital guru.

**Kata Kunci:** *Literasi Digital, Persepsi Guru, Kepemimpinan Kepala Sekolah, Budaya Sekolah*

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## INTRODUCTION

The development of digital technology that continues to grow requires the community and every organizational institution to adapt to providing services for recipients or consumers in order to achieve satisfaction and trust, which has an impact on improving the quality of an institution. Similarly, the world of education competes to improve their services. Educational institutions try to provide services by considering the development of digital technology in learning programs (Alajmi, 2022; Petrus et al., 2020). Currently, the Era of Society 5.0 demands the advancement of digital technology (Rowan, 2022). Thus, teaching staff need to be able to control and utilize the digital literacy services in classrooms (Aslan, 2020).

Digital literacy services are teacher knowledge in creating and providing learning by utilizing digital media as a communication tool as well as learning media to provoke and increase student interests in collaborative learning between teachers and students. Teachers providing digital literacy learning can be motivational tools that attract students' attention and guide them to learning utilizing digital literacy (Çetin, 2021; Nurrohmah, 2021; Tomczyk 2020). Digital literacy is important for today's young generations as they are familiar with technology in daily routines, giving access to information. Students in this era are vulnerable and adaptable to the digital 3. Hence, digital literacy services are the ability to provide learning explanations by utilizing digital technology as a communication tool, media, learning tool, and as a bridge for collaborative relationships between teachers and students. Today's youths are easier to be guided due to their familiarity with digital communication tools and the digital-based learning (Purnama et al., 2022; Purtilo-Nieminen et al., 2021).

Nonetheless, digital literacy services are not evenly distributed throughout the country, particularly to the Eastern Region of Nabire Regency, Papua Province. Papua's education officials (2022) state that digital literacy education services in the province have not been optimal due to lack of digital literacy skills among local teachers. The government has been trying to encourage teachers to attend education trainings in order that their teaching skills are improved. By paying attention to the development and utilization of digital technology in the classroom, teachers are expected to be able to provide digital literacy services and additional skills for students to open pathways to job opportunities when they graduate.

Senocak (2019) suggests that digital technology and literacy media in Papua are still rarely used due to limited infrastructure, which causes a lack of knowledge in utilizing technology media in schools. This is relevant to Yanti's research (2018) that the use of digital literacy in Papua is only 2.5 percent, considered low when compared to other regions.

The achievement of school quality in Papua in 2019 is the lowest rate of 57.7%, followed by that of West Papua. This indicates that the quality of education in Papua in achieving the National Education Standards is still low, particularly at that of vocational schools. According to Fabio Costa (2018), the low quality of education in Papua is caused by the low quality of teachers, especially in pedagogic competence. Based on the results of the 2017 competency test results, over 2000 teachers failed the test. This means that only hundreds of teachers attained the passing grade. Pedagogic competence is teacher ability to master the learning materials. Research confirms that most teachers have not mastered and adapted to the digital development of learning. Hence, they conduct learning in a monotonous way (lecturing and the like), and they leave their students with notes that must be copied into students' notebook.

According to Viktor Tebay, an education official of the Nabire District, the factors for the decline in the quality of education in Nabire include teachers that have lack of ability to master learning materials and use digital technology in learning, learning services that are not following the school calendar and school culture, the insufficient ability of principals to lead the institution, lack of communication and coordination among school community and of representative education facilities. The decline in quality of education in Nabire Regency is also due to lack of digital literacy services for teachers in providing learning materials, lack of teacher professional development and digital mastery as media of learning, incomplete facilities and infrastructure so that students (consumers) do not receive maximum learning services.

Karpus Belau (2020) states that the decline in the quality of education in Papua, Nabire district, is due to low motivation as to the importance of education and the low level of teacher service and constantly changing curriculum, which is quite difficult for teachers and education personnel to adapt. This can be seen when the Nabire district was facing the covid pandemic period, which requires learning to be carried out online. With limited facilities, the school provides a policy for teachers to conduct distance learning to reduce the risk of being exposed to the covid virus. Educators in Papua with limited digital literacy skills are quite difficult to keep up with the digital development that grows rapidly.

Various studies on digital technology have been carried out in several Asian countries such as Thailand, Singapore, Japan, Korea, Indonesia. However, teacher digital literacy seems to be more common in large areas in Western Indonesia. There are few who analyze digital literacy services in eastern Papua, especially in Nabire Regency. Also, no research uses the equation of school culture as an analytical material to measure teachers' digital literacy services, whereas school culture has a role in determining school habits

or culture generated from today's learning. If this problem continues, it will result in the low competence of teachers in providing digital literacy services. These students do not receive optimal learning and the leadership of school principals are considered unsuccessful in managing human resources. This kind of research needs to be done to provide information about digital literacy services in Nabire and become material for improving digital literacy services in Eastern Indonesia, especially in the Nabire district. The study was conducted to analyze the influence of educators' perceptions of principal leadership and school culture on teacher digital literacy services.

## RESEARCH METHODS

The study uses a quantitative approach to research with two independent variables, namely the perception of educators about the leadership of the principal and the school culture. The dependent variable covers teachers' digital literacy services. This research was conducted at SMKN (vocational schools) in Nabire Regency. The study had a total population of 152 teachers and a total sample of 110 teachers. The instrument used in the research is the questionnaire previously tested in terms of its validity of items. The items that are declared to be valid were distributed to 110 teacher respondents (Sugiyono, 2018). The analysis technique used is the path analysis. The test in this research used Microsoft Excel program, while path analysis is calculated using SPSS 25. The following is Figure 1 of the influence between variables.

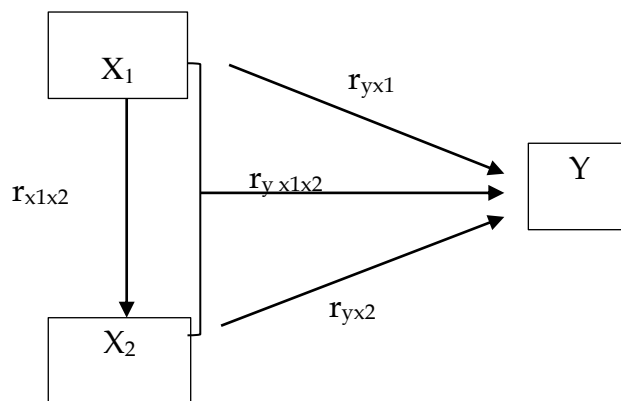


Figure 1. Effect of X1 and X2 variables on X3

In collecting data, the researchers use questionnaires as research instruments. The tables below present the research instruments for teacher digital literacy services, school culture and teacher perceptions of principal leadership.

Table 1. The Instrument Teacher Digital Literacy Service

No	Dimension	Indicator	Item number	Total
1	<i>Tangible</i>	Condition of School Facilities	1,2,3,4	4
		Educator Condition	5,6,7,8	4
2	<i>Reliability</i>	Lesson planning	9,10,11,12	4
		Learning process	13,14,15,16	4
		Learning assessment	17,18,19,20	4

3	<i>Responsivens</i>	Meeting student needs	21,22,23,24	4
4	<i>Assurance</i>	Adapting learning conditions to the environment	25,26,27,28	4
		Teacher-student relationship	29,30,31,32	4
5	<i>Empathy</i>	Communication	33,34,35,36	4
		Ease of service	37,38,39,40,41	5
Total				41

**Table 2. The Instrument for School Culture**

No	Dimension	Indicator	Item number	Total
1	Score	Intellectual Value	1,2,3,4	4
		Spiritual Value	5,6,7,8	4
		Social Value	9,10,11,12	4
2	Tradition	Wear clothes according to school rules	13,14,15,16	4
		Follow environmental rules	17,18,19,20	4
		Take advantage of technology	21,22,23,24	4
		Have a polite attitude	25,26,27,28	4
3	Routine	Have a sense of caring for the development of the digital literacy generation	29,30,31,32	4
		Receive consultations from students	33,34,35,36	4
		Problem solving media	37,38,39,40	4
Total				40

**Table 3. The Instrument for Teacher Perceptions of Principal Leadership**

No	Dimension	Indicator	Item number	Total
1	Innovator	Organizational structure updates	1-8	8
		Teacher Coaching Update	9-10	5
		Renewal of activities in school	11-15	3
		Leveraging school resources	16-18	3
2	Motivator	Partnership cooperation	19-23	5
		Exemplary	24-30	7
		Democratic and transparent	31-34	4
		Giving awards and teacher motivation	35-38	4
3	Supervisor	Designing a teaching supervision program	39-41	3
		Implementing a learning supervision program	42-46	4
4	Eductor	Guiding teacher	47-49	3
		Improving the competence of educators	51-52	3
		Following the development of science and technology	53-55	3
Total				55

## RESULTS AND DISCUSSION

The data obtained in this study were based on the questionnaires distributed to 110 teacher respondents. The data consist of measurements of two independent variables, namely the perception of educators regarding the principal leadership (X1) and school culture (X2) along with one dependent variable, namely the teacher digital literacy services (X3). The table below

shows the summary of the descriptive statistics calculated using SPSS version 25:

**Table 4. Summary of Research Descriptive Statistics**

		Teacher's perception of principal's leadership	School culture	Teacher digital literacy services
N	Valid	110	110	110
	Missing	0	0	0
Mean		193.88	148.83	130.06
Median		199.00	146.00	130.00
Mode		203	134	121
Std. Deviation		28.142	18.253	18.552
Variance		791.995	333.190	344.189
Range		136	94	100
Minimum		119	100	83
Maximum		255	194	183
Sum		21327	16371	14307

The next stage is testing the normality of regression estimates between variables. The first normality test between educators' perceptions of principal leadership on digital literacy services for teachers, which obtains a  $L_{count}$  of 0.048, and a  $L_{table}$  of 0.084, which shows  $L_{count} < L_{table}$ . Hence, the distribution of data on the perception of educators regarding the leadership of school principals have formed a normal curve. The second normality test between school culture and teacher digital literacy services, which obtains  $L_{count}$  of 0.052, and  $L_{table}$  of 0.084, indicating  $L_{count} < L_{table}$ . In this respect, the distribution of school culture data on teacher digital literacy services have formed a standard curve. The third normality test between the perceptions of educators regarding the principal's leadership on school culture, which obtains  $L_{count} = 0.062$  and  $L_{table} = 0.084$ , which then displays  $L_{count} < L_{table}$ . In this regard, the distribution of data on the perception of educators regarding school principal leadership have formed a normal curve. The fourth normality test between the perceptions of educators regarding the leadership of school principals and school culture on teacher digital literacy services, which obtains  $L_{count} = 0.050$ , and  $L_{table} = 0.084$ , indicating  $L_{count} < L_{table}$ . In this stance, the distribution of educators' perceptions of principal leadership and school culture toward digital literacy services forms a normal curve. The following table indicates summary of the normality test results:

**Table 5. The result of normality test of regression estimation error**

Regression Estimate Error	n	LCount	$L_{table} (\alpha=5\%)$	Information
$X_3$ atas $X_1$	110	0.048	0.084	Normal
$X_3$ atas $X_2$	110	0.052	0.084	Normal
$X_1$ atas $X_2$	110	0.062	0.084	Normal
$X_3$ atas $X_1$ dan $X_2$	110	0.050	0.084	Normal



The next stage is testing the significance and linearity between variables. The first test of relevance and linearity between teachers' digital literacy service equations (X3) on the perception of educators regarding the leadership of the principal (X1) gets the equation  $Y=63.900+ 0.341X_1$ . It is known ( $F_{\text{count}} 39,535 > F_{\text{table}} 3,94$ )  $=0.05$ . If  $F_{\text{count}}$  exceeds  $F_{\text{table}}$ , the regression equation turns to be significant. For the linearity test, it was obtained ( $F_{\text{count}} 1.52 < F_{\text{table}} 1.61$ )  $=0.05$ . As  $F_{\text{count}}$  is under  $F_{\text{table}}$ , the estimated point of distribution forms a linear line. The second significance and linearity test was carried out on the school culture variable (X2) and the teacher digital literacy service (X3), and hence the equation  $Y=41.371+ 0.596X_2$  was obtained. It is known ( $F_{\text{count}} 56.583 > F_{\text{table}} 3.94$ )  $=0.05$ . Since  $F_{\text{count}}$  exceeds  $F_{\text{table}}$ , the regression equation is declared significant. For linearity test, it is obtained ( $F_{\text{count}} 1.222 < F_{\text{table}} 1.59$ )  $=0.05$ . Because  $F_{\text{count}}$  is below  $F_{\text{table}}$ , the estimated point of distribution forms a linear line, which means to be accepted.

Furthermore, the test of the significance and linearity of the teacher's perception variable about the principal's leadership (X1) on school culture (X2) has obtained the equation  $X_2 = 88,045+ 0.314X_1$ . It is known that  $F_{\text{count}} = 32.92$  is greater than  $F_{\text{table}} = 3.94 = 0.05$ . Because  $F_{\text{count}}$  exceeds  $F_{\text{table}}$ , the regression equation is declared significant. For the linearity test,  $F_{\text{count}}$  is 1.083 below  $F_{\text{table}}$  of 1.60 at  $=0.05$ . Because  $F_{\text{count}}$  is below  $F_{\text{table}}$ , the estimated point distribution forms a linear line and is acceptable. The test of significance and linearity on the variables of perceptions of educators regarding principal leadership and school culture on teacher digital literacy services, the linear regression equation model is  $Y = 24,651 + 0.202X_1 + 0.446 X_2$ . It is known that  $f_{\text{count}} 38,016$  with  $F_{\text{table}} 3.94$  so that  $f_{\text{count}}$  exceeds  $f_{\text{table}}$ , meaning that  $H_a$  is accepted. It is concluded that the perception variable of educators regarding principal leadership (X1) and school culture (X2) simultaneously has a direct and significant effect on teacher digital literacy services (X3).

Based on the analysis in the previous discussion, it is possible to test the research hypothesis using path analysis techniques with the help of the SPSS 25 application operation (IBM SPSS Statistics). SPSS results or outputs and their interpretations are as follows:

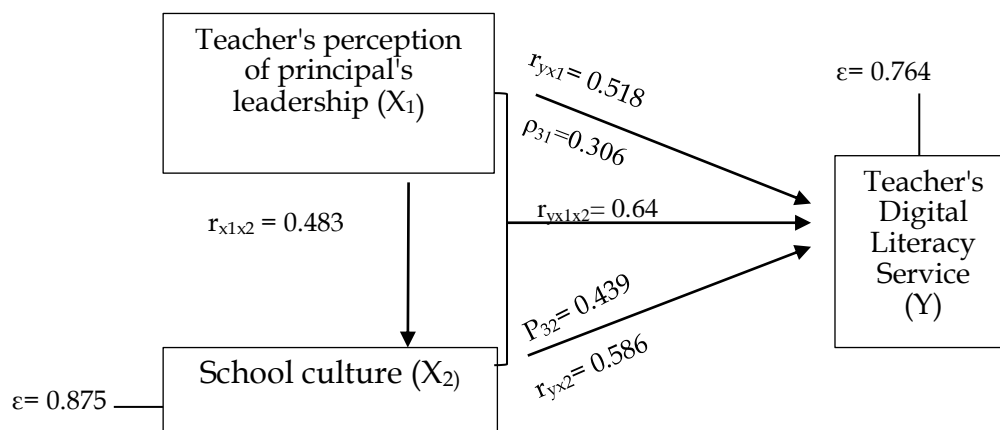
As to the first hypothesis, based on the results of the path analysis test on the influence of educators' perceptions of the principal's leadership on teacher digital literacy services, the path coefficient = 0.306 and  $t = 3.620$  and coefficient  $t_{\text{table}} = 1.980$  at  $\alpha = 0.05$ . As the coefficient value  $t_{\text{count}} > t_{\text{table}}$ ,  $H_0$  is rejected, and  $H_a$  is accepted. This means that the perception of educators regarding the leadership of school principals causes an increase in teacher digital literacy services and is acceptable.

For the second hypothesis, based on the results of the path analysis test on the influence of school culture on teacher digital literacy services, the path coefficient = 0.439 and  $t_{\text{count}} = 5.195$  and coefficient  $t_{\text{table}} = 1,980$ . The value of the t-count coefficient exceeds the automatic t-table, and so  $H_a$  is accepted. In other words, school culture causes an increase in teacher digital literacy services and is acceptable.

Regarding the third hypothesis, based on the results of the path analysis test on the influence of educators' perceptions of the principal's leadership on school culture, the path coefficient = 0.483,  $t_{count} = 5.738$  and  $t_{table}$  coefficient at  $\alpha=0.05$  is 1,980. Since the value of the  $t_{count}$  coefficient exceeds  $t_{table}$ ,  $H_a$  is accepted, in the sense that school culture causes an increase in teacher digital literacy services and is acceptable.

In relation to the fourth hypothesis, based on the test results of the effect of educators' perceptions of principal leadership and school culture on teacher digital literacy services, the path coefficient is 0.64, coefficient  $F_{count}$  27.44 and  $F_{table}$  3.09 at  $\alpha=0.05$ . Thus, the coefficient  $f_{count}$  exceeds the automatic  $f_{table}$ , meaning that  $H_a$  is accepted, that is teacher perceptions and school culture lead to an increase in teacher digital literacy services.

The results of the fourth hypothesis analysis provide findings that the perception of educators regarding the leadership of school principals and school culture directly affects cultural teacher digital literacy services. Therefore, it can be concluded that teacher digital literacy services are directly influenced by educators' perceptions regarding principal leadership and school culture. The increasing perception of educators regarding top leadership and school culture has augmented teacher digital literacy services.



**Figure 2. Correlation model between variables  $X_1$  and  $X_2$  to  $X_3$**

The real influence of the perception of educators regarding principal leadership and school culture on teacher digital literacy services is 0.4159 (41.59%). The findings indicate that educators' perception of top leadership and school culture significantly influences teacher digital literacy services at SMKN Nabire Regency, Papua Province. Digital literacy services are one of the concerns of the Papuan government. One of the Nabire education authority suggests that the problems of teacher digital literacy services relate to school culture or daily school habits that are monotonous and unresponsive to the development of digital technology. Teachers feel that principals cannot provide socialization and improve school human resources. The regional education office has presented training programs for educators to enhance their digital



literacy, which applicable in the classroom teaching and learning activities, particularly in vocational high schools. It is expected that the digital literacy services can make students actively compete in the industrial world.

The results of this study indicate that digital literacy services are influenced by school culture and educators' perceptions regarding the principal leadership of SMKN Nabire Regency, Papua Province. The results of this study are relevant to the research (Egitim, 2022; Fitra et al., 2021; Lee & Louis, 2019; Lismawati & Trihantoyo, 2021; Veletić & Olsen, 2021 ), which stipulates that to obtain optimal digital literacy services, one must first improve the quality of teacher resources in schools as the primary key to providing learning materials with and all being inseparable from the participation of principals in leading. A good school can be seen from its daily routines, in which it can build a new habit in the school environment and provide a solution to change the school environment into a better direction according to the needs of community and the development of technology.

The principal, as the main driver of the institution, has a role in increasing teacher discipline and creating a positive culture for school members. The research (Amri et al., 2021; Brown et al., 2021; Degner et al., 2022; Ilhami et al., 2021; Milara et al., 2020; Moreno-Morilla et al., 2021; Almusawi et al., 2021; Gautam et al., 2022; Lomsdal et al., 2022; Nofrial et al., 2019; Prastiyo et al., 2022) confirms that the principal's leadership can influence teacher's digital literacy services, for he or she has control over the institution he or she leads. The principal has the right to change the school system through the rules applied. Principal's ability to manage schools makes a significant impact on teacher digital literacy services. Thus, the perception of educators regarding the leadership of school principals influences teacher digital literacy services, school culture influences teacher digital literacy services, educators' perceptions of principal leadership influence school culture, and educators' perceptions of top leadership and school culture give an effect to teacher digital literacy services.

## CONCLUSION

From the results of the study, researchers can conclude that the perception of educators regarding the leadership of the principal and school culture has a direct influence on teacher digital literacy services. This means that if the perception of educators regarding the principal's leadership has an immediate effect on teacher digital literacy services, school culture directly impacts teacher digital literacy services. The perception of educators regarding the principal's leadership has an immediate impact on school culture and, subsequently, the perception of educators regarding the principal's leadership. Schools and school culture have a direct influence on teacher digital literacy services. This means that the increasing perception of educators regarding principal leadership and school culture will affect teacher digital literacy services. This research is helpful for principals, educators, and educational institutions as a reference in improving teacher digital literacy services to

improve the quality of human resources in schools by following the development of technology and creating a new school atmosphere or culture that utilizes digital media in teaching and learning processes.

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