

THE INFLUENCE OF DIGITAL LITERACY AND DIGITAL WORKPLACE ON E-LEADERSHIP OF EDUCATORS AND EDUCATION STAFF OF A STATE VOCATIONAL SCHOOL

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Article Info	Abstract
<p>Received: 28 June 2022 Accepted: 25 September 2022 Published: 25 October 2022</p> <hr/> <p>Keywords: Digital literacy; digital workplace; E-Leadership</p>	<p>The development of information and communication technology has influenced the current leadership style. Leadership not only can be implemented face-to-face but can also be done through the use of electronic devices and the internet, which is called e-leadership. This study aims to obtain an empirical picture about the influence of digital literacy and digital workplace on e-leadership of educators and education staff of State Vocational Schools 5 Pekanbaru – Riau, either partially or simultaneously. This research was conducted from January to June 2022, but the data was collected in March 2022. The research instrument was a questionnaire given to 95 educators and education staff selected as the samples. The obtained data then analyzed through descriptive statistics and inferential statistics. The results of data analysis show that digital literacy has a significant influence as many as 30% on e-leadership and the digital workplace has a significant influence as many as 47.1% on e-leadership. Simultaneously digital literacy and digital workplace influence as many as 32%. on e-leadership. This implies that it is necessary to improve the digital literacy and digital workplace skills of educators and education staff of State Vocational Schools 5 Pekanbaru – Riau to improve their e-leadership skills.</p>

INTRODUCTION

Leadership is one of the important components in running an organization. The existence of a quality leader is very necessary so that the organization does not lose its way. Further in this era of the industrial revolution 4.0, leaders who have the right strategy in carrying out leadership can bring the organization to achieve the goals outlined by the organization. A leader can be described as a guide and a role model. Thoha (2019) describes a leader as someone who has the authority and power in making decisions. In an educational institution, the principal is the highest leader in the school. In fact, an educator and education staff are also leaders. As an educator, the teacher is the leader in implementing learning activities in his class, while the education staff is the leader in carrying out school administrative tasks. In addition, teachers and education staff are also leaders for themselves. Therefore, all principals, teachers and education staff are required to have a leadership spirit.

The development of information and communication technology (ICT), has changed the leadership style in educational institutions. Leadership patterns no longer have to take place manually, but can be supported by electronic devices and the internet. In this context, communication takes place virtually. This leadership approach is called e-leadership. According to Avolio et al. (2014), e-leadership is leadership that uses information technology to support the achievement of the goals of an organization. In the application of e-leadership, a leader can carry out his duties remotely, and e-leadership can be implemented at all hierarchical levels within the institution. Wildahlia (2015) says that e-leadership is a new paradigm in carrying out the work. Leaders can carry out the tasks of leadership and management functions anytime, anywhere in real space through technology.

It is known that the emergence of the Covid-19 pandemic at the end of 2019 has caused so many changes in almost all aspects of life, including in the field of education. The emergence of the Covid-19 pandemic has forced learning activities are shifted from studying at school to studying from home. Research conducted by Nablah (2022) proves that learning from home brings a series of problems as well as benefits for all members of school society. For students, the problems are related to internet access, monotonous teaching methods of the teachers, limited interaction, and ineffective material and assignment delivery. However, studying from home also provides the opportunity to improve their digital capability. On the teachers' side, the problems that arise are related to the teaching methods used. Teachers must strive in such a way that learning materials can be delivered to students effectively. Like teachers, principals also faces various management problems at their school. In short, Covid-19 causes principals, educators, education staff and also students couldn't interact directly. Innovation needs to be carried out to support learning activities by using technology. This situation has indirectly encouraged the implementation of e-leadership.

SMK Negeri 5 is one of the Vocational High Schools in Pekanbaru – Riau, Indonesia, which also has to implement e-leadership. Based on initial observations, it appears that principals, educators and education staff have implemented e-leadership. This can be seen from the implementation of various virtual activities they conducted: teaching and learning activities, school administration service activities, management and supervision activities by school principals, and new student admissions activities. However, the implementation of e-leadership in each activity has not achieved maximum results. For example, the delivery of instructions and information by the principal is not completely acceptable to all educators and education staff. The implementation of supervision by the principal has also not achieved the expected results. From observations on the official website of SMKN 5 Pekanbaru - Riau <https://smkn5pekanbaru.sch.id/> on December 15, 2021, there is no available information on digitizing school administration or information on learning platforms yet. Breitkopf (2018) says that educational leaders have to empower individuals to become technology users to implement various technologies with a team of individuals with multiple abilities.

Anwaruddin, A (2014), mentions that there are six aspects of ability that must be possessed by a leader to be able to implement e-leadership, namely: (1) Visionary - able to create visions and goals to be achieved, creative and have a broad view; (2) Convener - the ability to manage differences towards goal attainment and problem-solving; (3) Team leader - has the ability to form and direct the working group; (4) Manager - has the ability to manage the organisation; (5) Innovators - have the ability to find new ways to do jobs outside of their main duties and functions, and (6) Mentors - have the ability to guide and direct potential new leaders in their work environment. Without these skills, good e-leadership can be difficult to implement

Various problems that occur in the implementation of e-leadership at SMK Negeri 5 Pekanbaru - Riau, among others are caused by the unequal levels of digital literacy owned by principals, teachers and education staff. Martin (2006) defines digital literacy as the awareness, attitude and ability of an individual to use digital tools and facilities appropriately in identifying, managing, accessing, interpreting, analyzing, evaluating and synthesizing digital resources. Furthermore, someone who has the ability about digital literacy can build new knowledge, make media expressions and communicate with others in the context of certain life situations to enable him to carry out constructive social action.

Digital literacy has a significant role in learning activities or virtual meetings. Like other competencies, digital literacy skills do not appear instantly but are influenced and composed by many aspects. Bawden (2018) says that digital literacy is related to things such as (1) *Functional Skills and Beyond* - related to ICT-Skills and one's familiarity with technology; (2) Creativity - related to one's way of thinking in building knowledge and providing ideas by utilizing digital technology; (3) Collaboration - work in teams, dialogue, and build ideas to create understanding; (4) Communication - able to communicate effectively through technology media; (5) The ability to find and select

information - the ability to find and select information; (6) Critical Thinking and Evaluation – the ability to not only receive information but also to be able to contribute, analyze and sharpen critical thinking when dealing with information; (7) Cultural and Social Understanding - The practice of digital literacy should be in line with the context of social and cultural understanding; and (8) E-Safety - emphasizes choices that ensure security when exploring, creating, collaborating with digital technology.

Having digital literacy skills only is not enough. Principals, educators and education staff should also be equipped with a digital workplace – a new way of working that uses technology to work. With a good digital workplace, work can be done easier. There are no specific rules when it comes to designing and implementing a digital workplace concept. However, one description of the digital workplace was put forward by Deloitte (2014), where the work environment must have: (1) Connection, collaboration, and communication; (2) Technology as a digital toolbox; (3) Governance, compliance and risk control; (4) Measuring business value through business drivers - build communities of interest, encourage knowledge management, and collaborate according to their preferences.

In order for the benefits to be felt, the digital workplace must be able to overcome all the challenges that exist today. However, the reality shows that there are still educators and education staff at SMKN 5 Pekanbaru – Riau who are not familiar with the digital workplace environment. Moreover, some educators and education staff do not yet have adequate digital devices personally. Therefore, the purpose of this study is to obtain an empirical description of: (1) The influence of digital literacy on e-leadership of educators and education staff at SMKN 5 Pekanbaru - Riau; (2) The influence of the digital workplace on e-leadership of educators and education staff at SMKN 5 Pekanbaru - Riau; and (3) The influence of digital literacy and the digital workplace simultaneously on e-leadership of educators and education staff at SMKN 5 Pekanbaru – Riau. The findings and results of this study can be used as a reference by the government, especially the Education and Culture Office of Pekanbaru – Riau to design and make various policies in the field of education related to e-leadership, digital literacy and digital workplace.

RESEARCH METHODS

This descriptive quantitative research is intended to discuss e-leadership, digital literacy and digital workplace of educators and education staff at SMKN 5 Pekanbaru – Riau. The formulation of the problems to be answered are: (1) Is there any influence of digital literacy on e-leadership of educators and education staff at SMKN 5 Pekanbaru – Riau?; (2) Is there any influence of digital workplace on e-leadership of educators and education staff at SMKN 5 Pekanbaru – Riau?; and (3) Is there any influence of digital literacy and digital workplace simultaneously on e-leadership of educators and education staff at SMKN 5 Pekanbaru – Riau?

This research was carried out from January to June 2022 and data were collected in March 2022. Through the use of the Slovin Formula with a significant level of 10%, 95 of 125 educators and education staff were randomly selected as research samples. The instrument used was a questionnaire consisting of 4 parts. Part A is intended to obtain demographics data of respondents. This data is used as supporting information only. Part B is intended to obtain data on the e-leadership of educators and education staff, part C is intended to obtain data on the digital literacy of educators and education personnel and part D is intended to obtain data about the digital workplace of educators and education staff at SMKN 5 Pekanbaru – Riau. The questionnaire on e-leadership was adapted from the theory given by Burke and Anwaruddin (2014). The questionnaire on digital literacy was adapted from Bawden's (2008) theory, and the Questionnaire about the digital workplace was adapted from Deloitte's theory (2014). Before the questionnaire was given to the research samples, the questionnaire was first tried out on 30 teachers who were not selected as samples for validity and reliability testing. The results of the analysis showed that three items of the questionnaire related to digital literacy are invalid and the value of Cronbach Alpha is 0.873. For a questionnaire related to the digital workplace, one item is invalid and the value of Cronbach Alpha is 0.765. Meanwhile, in the questionnaire on e-leadership, two items of the questionnaire were invalid and the value of Cronbach Alpha is 0.854.

Finally, the research data obtained were analyzed through descriptive inferential statistics with the help of the SPSS application.

FINDINGS

The following part presents the results of the questionnaire analysis given to 95 educators and education staff at SMKN 5 Pekanbaru – Riau who have been selected as research samples. Of the 95 questionnaires given, all of them were returned by the respondent and met the requirements for analysis.

1. Demographic Data of Educators and Education Staff

Table 1. Demographic Data of Respondents

No	Criteria	Percentage
1	Gender	
	Male	46.3
	Female	53.7
2	Level of Education	
	SMA/SMK	6.3
	D3	4.2
	S1/D4/Bachelor	80.0

	S2/Magister	6.3
	S3/Doctorate	3.2
No	Criteria	Percentage
3	Position	
	Educator / Teacher	60.
	Head of Study Program	16.8
	Principal/Deputy/Head of Administration staff	6.3
	Administration staff	16.8
4	Working experience	
	1 – 5 Years	21.1
	6 - 10 Years	41.0
	11 – 15 Years	8.4
	16 - 20 Years	8.4
	> 20 Years	21.1

Table 1 shows that the percentage of female educators and education staff is bigger than the percentage of male educators and education staff.

2. Digital Literacy of Educators and Education Staff

Table 2. Digital Literacy of Respondents

No	Sub Indicator	Response was Given				
		Strong disagree	Disagree	Neutral	Agree	Strongly Agree
1	Functional Skill and Beyond	5	18.7	20	41.9	14.5
2	Creativity	1.48	8.24	28.2	43.6	18.5
3	Collaboration	5.58	11.6	36.1	36.6	10.3
4	Communication	1.08	5.6	32.4	39.4	21.9
5	The Ability to find and select Information	0.37	2.43	20.7	52.6	23.8
6	Critical Thinking and Evaluation	0.44	5.7	32	49.9	12
7	Cultural and Social Understanding	6.3	26.9	20.5	39.5	6.85
8	E-safety	1.58	4.23	28.4	46.6	19.2

From Table 2, it appears that 76.4% of educators and education staff at SMKN 5 Pekanbaru – Riau have the ability to find and select Information. A total of 61.9% of them

have abilities related to critical thinking and evaluation and 20% do not agree with functional skills and beyond.

3. Digital Workplace of Educators and Education Staff

Table 3. Digital Workplace of Respondents

No	Statement	Response was Given (%)				
		Strong disagree	Disagree	Neutral	Agree	Strongly Agree
1	Connection, collaboration and communication	1.77	9.13	23.3	41.1	24.7
2	Technology as a digital toolbox	0.84	3.82	19.6	57.9	17.9
3	Governance, compliance and risk control	1.33	3.15	27.4	51.6	16.6
4	Measuring business value through business drivers	3.98	7.65	24.7	44.5	19.2

Table 3 shows that 65.8% of educators and education staff have and need connection, collaboration and communication. As many as 68.2% perform governance, compliance and risk control and a total of 63.7% are able to measure business value through business drivers in completing their work.

4. E-leadership of Educators and Education Staff

Table 4. E-leadership Respondents

No	Statement	Responses (%)				
		Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
1	Visionary	0,53	2,65	15,6	55,1	26,1
2	Convener	0,37	5,27	20	41	33,4
3	Team Leader	0,42	4,22	16,8	52,9	25,7
4	Manager	0	2,13	24,2	53,7	20
5	Innovator	0,86	2,12	17	56,7	23,3
6	Mentor	0,64	3,58	22,7	50,1	22,9

Based on Table 4 it can be seen that the e-leadership of educators and education staff of SMKN 5 Pekanbaru – Riau is in a good position. The highest aspect was in the field of visionary ability (81.2%) and followed by a statement that they were able to act as innovators (80%) and team leaders in carrying out their work (78.60%).

5. Hypothesis testing

There are three hypotheses to be answered in this study.

First hypothesis:

H₀₁: There is no influence of digital literacy on the e-leadership of educators and education staff at SMK Negeri 5 Pekanbaru - Riau.

H_{a1} : There is an influence of digital literacy on the e-leadership of educators and education staff of SMK Negeri 5 Pekanbaru - Riau.

Second hypothesis:

H₀₂ : There is no influence of the digital workplace on the e-leadership of educators and education staff at SMK Negeri 5 Pekanbaru - Riau.

H_{a1} : There is an influence of the digital workplace on the e-leadership of educators and education staff of SMK Negeri 5 Pekanbaru - Riau.

Third hypothesis:

H₀₃: There is no influence of digital literacy and digital workplace simultaneously on the e-leadership of educators and education staff at SMK Negeri 5 Pekanbaru - Riau.

H_{a3} : There is an influence of digital literacy and digital workplace simultaneously on the e-leadership of educators and education staff at SMK Negeri 5 Pekanbaru - Riau.

Before testing the hypothesis, it is necessary to test the analysis requirements, namely: normality testing, linearity testing and homogeneity testing. This is in accordance with the rules in performing multiple regression analysis. From the results of the normality test, linearity test and homogeneity test, it can be seen that the data used in this study has met the requirements to perform multiple linear regression analysis properly.

The partial test is a statistical test tool to determine the influence of digital literacy and digital workplace on e-leadership. Partial test results can be seen in the following table 5:

Table 5. Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	77.910	11.218		6.945	.007
Digital Literacy	.236	.099	.286	2.390	.035
Digital Workplace	.079	.173	.055	.460	.002

a. Dependent Variable: *e-leadership*

In the digital literacy variable, the significance value is 0.035 which is smaller than the constant value of 0.005. Thus, digital literacy has a significant effect on e-leadership. From the results of the analysis obtained the value of t test = 2,390 with a significance value of 0.035. This means that the significance value is $< \alpha$ 0.05, so H_0 is rejected and H_a is accepted. Thus, there is an influence of digital literacy on the e-leadership of educators and education personnel of SMK Negeri 5 Pekanbaru - Riau.

Table 6. Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.417 ^a	.300	.091	9.161	.100	10.370	1	93	.002

a. Predictors: (Constant), Literasi Digital

b. Dependent Variable: *E-Leadership*

Based on this table, it can be seen that the coefficient of determination is 0.300, meaning that the effect of digital literacy on e-leadership is 30%.

Furthermore, for the digital workplace variable, the significance value is 0.002 which is smaller than the constant value of 0.005. Thus the digital workplace has a significant influence on e-leadership. The results of the analysis show the value of t test = 0.460 with a significance value of 0.002. This means that the significance value is $< \alpha$ 0.05, so H_0 is rejected and H_a is accepted. Thus, there is an influence of the digital workplace on the e-leadership of educators and education staff at SMK Negeri 5 Pekanbaru - Riau.

Table 7. Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.516 ^a	.471	.036	9.430	.471	4.553	1	93	.035

a. Predictors: (Constant), *Digital Workplace*

b. Dependent Variable: *E-Leadership*

Based on this table, it can be seen that the coefficient of determination is 0.471, meaning that the influence of the digital workplace on e-leadership is 47.1%.

Simultaneous testing was carried out to answer the third hypothesis, namely to determine the influence of digital literacy and digital workplace on e-leadership.

Table 8. ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	888.166	2	444.083	5.247	.007 ^b
	Residual	7786.571	92	84.637		
	Total	8674.737	94			

a. Dependent Variable: *e-leadership*

b. Predictors: (Constant), *Literasi Digital*, *Digital Workplace*

The results of the analysis show that the value of F test = 5.247 with a significance value of 0.007. This means that the significance value is $< \alpha 0.05$, so H_0 is rejected and H_a is accepted. Thus, there is an influence of digital literacy and digital workplace on the e-leadership of educators and education staff of SMK Negeri 5 Pekanbaru - Riau.

Table 9. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.412 ^a	.320	.083	9.200

a. Predictors: (Constant), Digital literacy, Digital workplace

From this table, it appears that digital literacy and the digital workplace together have a significant influence on e-leadership. The significance value of F (0.007b) is less than 5% and determination 0.320 or 32%.

DISCUSSION

The development of information and communication technology (ICT) has a very big influence in the field of education. The existence of ICT provides many facilities that can be used by all school members: principals, educators, education staff, students and parents. Apart from the various problems that arise, the use of ICT in learning activities is still needed. Teachers have a positive perception of the use of ICT in learning activities (Mahdum, 2019). In fact, when they encounter various obstacles, the teachers have their own way of solving the problems they face.

The importance of using ICT is felt by all school members, especially during the Covid-19 pandemic where they all cannot meet face to face in carrying out school activities. In carrying out their duties and functions, principals and educators as well as education staff use technology and the internet to communicate. This kind of leadership is called e-leadership. Hambley et.al (2005) describe e-leadership as a new paradigm in work

because work can be done anytime, anywhere, in a real space or through technology.

SMKN 5 Pekanbaru – Riau is one of the schools affected by the Covid-19 pandemic. Not wanting to be left behind, educators and educational staff also adopt e-leadership. A total of 81.2% of respondents agree and strongly agree that they have the ability in the field of visionary. A total of 79.9% says that they have the ability to innovate, find new ways to carry out tasks outside of their main duties and functions. 78.6% have the ability to manage activities in their school both real and virtual. Their average number of e-leadership is in position 77. This means that their application of e-leadership has been supported by the use of technology. Savolainen (2014) says that advanced information technology can influence and be influenced by leadership.

Blau & Presser (2013) state that a well-implemented delegation of responsibilities can promote e-leadership and will also increase the effectiveness of leaders in managing school activities. Moreover, the implementation of e-leadership may change the entire school culture, including in terms of making data-driven decisions, monitoring curriculum implementation and learning performance as well as in interacting with other school members and parents. In the end, the pedagogical effectiveness of the school will increase.

Technology is also part of social transformation in organizations and in turn is part of leadership. However, the implementation of leadership with the help of technology cannot be separated from skills related to digital literacy. At first literacy only referred to the ability to read and write texts and the ability to interpret them, but at this time the concept of literacy continues to develop and is divided into several forms of literacy, one of which is digital literacy. Maulana (2015) says that digital literacy is used as a broad concept indicator that links together various relevant literacies. Digital literacy is also defined as the ability to understand, analyze, assess, organize and evaluate information using digital technology. Akhras (2016) says that digital literacy is part of every virtual project where computer-mediated devices connect leaders anytime, anywhere.

Digital literacy also includes an understanding of digital content. This is in line with Paul Gilster's opinion, quoted again by Nurriszqi (2020), that digital literacy is a person's perception of understanding and using information from various formats as a source that is presented through computers, especially through internet media. The results of data analysis in this study show that digital literacy contributes significantly by 30% to e-leadership. Data analysis shows that the digital literacy ability of educators and education staff at SMKN 5 Pekanbaru – Riau is still at 59.5 (medium level). Of course this number needs to be increased again. Brian Wright (2015) says that there are many benefits if someone has digital literacy skills, including: always getting the latest information, making work easier and being able to help make better decisions. In line with this opinion, Leu et al (2004) describe that the new era of literacy contains several skills that are considered important, including being able to use information technology in personal and

professional life, finding information, evaluating information and communicating that information to others.

In carrying out so many tasks, a school principal and educators as well as education staff must also be able to create a conducive atmosphere so that it can lead to work motivation and prevent disintegration or division in the school organization. Digital workplace is a place to do every activity during work. A good and comfortable place to work will have a positive impact, namely increasing the quality of work. Kisworo (2012) says that a conducive environment can be created if there is good communication within the organizational environment.

The results of data analysis also show that the digital workplace contributed as many as 47.1% to e-leadership. This finding is in line with the opinion of Rasyid & Tanjung (2020), where the work environment contributes to job satisfaction. The average number of digital workplace educators and education staff at SMKN 5 Pekanbaru – Riau is at 68, which is good enough, but still needs to be improved even in reality most organizations are not ready for the presence of a digital workplace (Attaran, 2019). With the availability of a comfortable digital work environment, one's workforce will be able to work comfortably, and all work can be completed on time.

CONCLUSIONS AND SUGGESTIONS

The use of technology in leadership or also called e-leadership in the school environment is unavoidable. The use of technology to achieve a better quality of education must be carried out by every leader: principals, educators and education staff. Based on the data analysis this research has proven that digital literacy has a significant influence as many as 30% on e-leadership and the digital workplace has a significant influence as many as 47.1% on e-leadership. Simultaneously digital literacy and digital workplace influence as many as 32% of the e-leadership of educators and education staff of State Vocational Schools 5 Pekanbaru – Riau. For this reason, all parties should be able to improve their respective digital literacy skills, both through participating in training and learning independently. The government through the Education and Culture Office of the Riau Province should design and make various policies in the field of education related to e-leadership, digital literacy and digital workplaces. the Education and Culture Office of the Riau Province have to provide the necessary facilities and give opportunities to school principals, educators and education staff to take part in training and education on the use of technology in learning activities.

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