



The Effect of Digital Literacy and Educational Technology on School Quality: Case Study of The Tiara Bangsa School

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Abstract: Poor media literacy skills will have a negative impact on the information obtained related to the truth of the information. Building awareness of media literacy will at least help in the world of education. The aim of this study is to analyze digital literacy and educational technology in quality schools at the Tiara Bangsa. This type of research is quantitative using validity techniques, frequency distribution tables, normality, linearity, and path analysis. The type of data collected was primary data which was carried out by distributing questionnaires to all employees. Tiara Bangsa School has begun to be able to apply digital literacy and educational technology together to the quality of education. The results of the study also show that digital literacy and the quality of education have not been carried out as expected. Educational Technology with the quality of Education has not been implemented properly.

Keywords: Digital literacy; educational technology; Media literacy; Tiara Bangsa school

Introduction

The change in world culture from offline to online encourages everyone to be prepared to live and follow a new culture. If we go backward after the industrial revolution (Mohajan, 2019), there were many developments in the world of information, starting from writing manuals, then printing machines were found, moving information centers to print. The printing information industry was still developing, both books, newspapers, tabloids, magazines, and so on (Rächeru et al., 2021). Today, printing and its media ornaments, newspapers, tabloids, and magazines have been replaced by the digital world and the internet. The post-industrial revolution literacy culture focuses on printing, even world change is driven by the development of the world of information (Latif, 2020) said that after 1900 many Middle Eastern newspapers that reached Indonesia at that time carried a number of information, including the issue of Pan Islamism. This issue was enough to make a fundamental change in the

archipelago at that time. In the middle of the turmoil of the Dutch kingdom due to local Dutch media coverage regarding slavery in colonialism under the VOC criticized by Van Deventer, a member of the Dutch parliament who criticized Queen Wilhelmina's feelings, and finally, the queen issued a policy of "ethical politics"/politics of return for citizens in the archipelago at that time (Surya & Fikriya, 2022). The issue of pan-Islamism itself was developing in Indonesia, encouraging the Islamic way of education through developing pesantren at that time (Nurtina, 2019). From the two issues between Pan Islamism and the ethical politics of the print media, it is this information that spreads quickly throughout the world, although don't imagine that the speed of information like today for some of these issues can develop several months or years to reach the archipelago (Soekarba & Supratman, 2022).

The development of information in the world of printing, as previously stated, lasted until the early 2000s. Then it developed with the growth of friendship platforms such as Friendster, Facebook, Blog, Youtube,

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Twitter, Instagram, and finally Tiktok and other digital platforms (Simonova et al., 2021). The development of the digital world must be filled with positive cultural growth including digital literacy. Today's digital world is very developed where we can search for and get various information, but there are bad sides in this digital such as hackers, fraud, hoaxes, pornography, crime etc (Malter & Rindfleisch, 2019). The negative impact of the digital world must be balanced with the production of positive bias in increasing educational literacy in cyberspace.

The quality of education is a term for schools, the products produced, the quality of education can be measured from the variety of school achievements that have been fought for and produced (Suresh & Kumaravelu, 2017). Both academic and non-academic achievements, especially accompanied by increasingly advanced times and the increasing need for technology in people's lives. Digital media makes it easy for each user to share information with each other. Sources of information can come from anywhere. It is undeniable, the development of digital media is so rapid. Based on research conducted by UNICEF and the Ministry of Communication and Informatics (Riana Mardina, 2017), internet users in Indonesia who come from children and adolescents are predicted to be around 30 million. Teenagers are born and grow with social media as part of their life and daily life. Currently they are very dependent on social media in education (ÖZÇAKIR et al., 2015). According to a social marketing agency, there are 72 million active users of social media.

The lack of understanding and unpreparedness of teachers towards digital media, both in the form of competence and literacy in the development and adjustment of the quality of education with the times (AlAmmary, 2012). The presence of social media is part of the development of the internet and a reference for students in learning (Dashtestani & Hojatpanah, 2022). Social media offers various ways to interact, communicate, socialize and even study with very interesting supporting features (Ansari & Khan, 2020). Over time, the flow of information is easier to spread. Similarly, technology that delivers information is growing faster (Chiu et al., 2022). The public as the target or target for providing information certainly benefits greatly from the development of today's communication technology (Alhumaid, 2020). However, on the other hand, there are not a few media companies that are

aggressively providing information as a lucrative business which eventually creates what is known as the media industry (Serdyukov, 2017). However, this fact is not matched by intelligence in processing information (Sasikala et al., 2021). Poor media literacy skills will have a negative impact on the information obtained related to the truth of the information. Building awareness of media literacy will at least help in the world of education. The aim of this study is to analyze digital literacy and educational technology in quality schools at the Tiara Bangsa.

Method

This type of research is quantitative using validity techniques, frequency distribution tables, normality, linearity and path analysis which was carried out from June to December 2022 at Tiara School Private Elementary School. The sample size was 33 employees of the Tiara School Jakarta aged 20 to 50 years and over taking into account $\alpha = 0.05$, $\beta = 95\%$ The type of data collected was primary data which was carried out by distributing questionnaires to all employees.

Result and Discussion

Based on the results of the questionnaire data analysis that has been distributed, information is obtained that the mean/average of respondents who know the effect of digital literacy on quality is at a score of 13.54 and the mode (highest number) is at 14.47. That means that there are still many respondents who have not fully implemented the application of digital literacy in the quality of tiara schools (Table 1).

Table 1. Frequency Distribution of Research Results Data Scores

Intervals	f	fk	c	fc	F.C2
8-9	2	2	-5	-10	50
10-11	10	12	-4	-40	160
12-13	20	32	-3	-60	180
14-15	39	71	-2	-78	156
16-17	19	90	-1	-19	19
18-19	8	98	0	0	0
20-21	1	99	1	1	1
	99		-14	-206	566

The results of the normality test for each variable can be seen in Table 2, 3, and 4.

Table 2. Normality results error X1 to Y

Observation	\hat{Y}_1	$Y - \hat{Y}_1$	Z	F_Z	S_Z	$F_Z - S_Z$
1	15.2864	-3.2864	-2.3579	0.0092	0.0303	0.0211
2	15.7380	-2.7380	-1.9644	0.0247	0.0606	0.0359
3	15.7380	-2.7380	-1.9644	0.0247	0.0909	0.0662
4	15.2864	-1.2864	-0.9230	0.1780	0.1212	0.0568

Observation	\hat{Y}_1	$Y-\hat{Y}_1$	Z	F_z	S_z	F_z-S_z
5	15.2864	-1.2864	-0.9230	0.1780	0.1515	0.0265
6	17.0928	-1.0928	-0.7840	0.2165	0.1818	0.0347
7	14.8348	-0.8348	-0.5990	0.2746	0.2121	0.0625
8	14.8348	-0.8348	-0.5990	0.2746	0.2424	0.0322
9	14.8348	-0.8348	-0.5990	0.2746	0.2727	0.0019
10	15.7380	-0.7380	-0.5295	0.2982	0.3030	0.0048
11	15.7380	-0.7380	-0.5295	0.2982	0.3333	0.0351
12	14.3832	-0.3832	-0.2750	0.3917	0.3636	0.0280
13	15.2864	-0.2864	-0.2055	0.4186	0.3939	0.0247
14	16.1896	-0.1896	-0.1360	0.4459	0.4242	0.0217
15	16.1896	-0.1896	-0.1360	0.4459	0.4545	0.0086
16	14.8348	0.1652	0.1185	0.5472	0.4848	0.0623
17	14.8348	0.1652	0.1185	0.5472	0.5152	0.0320
18	14.8348	0.1652	0.1185	0.5472	0.5455	0.0017
19	14.8348	0.1652	0.1185	0.5472	0.5758	0.0286
20	13.4801	0.5199	0.3730	0.6454	0.6061	0.0394
21	13.4801	0.5199	0.3730	0.6454	0.6364	0.0091
22	14.3832	0.6168	0.4425	0.6709	0.6667	0.0043
23	14.3832	0.6168	0.4425	0.6709	0.6970	0.0260
24	14.3832	0.6168	0.4425	0.6709	0.7273	0.0563
25	15.2864	0.7136	0.5120	0.6957	0.7576	0.0619
26	16.1896	0.8104	0.5814	0.7195	0.7879	0.0684
27	13.9317	1.0683	0.7665	0.7783	0.8182	0.0399
28	14.8348	1.1652	0.8360	0.7984	0.8485	0.0501
29	15.7380	1.2620	0.9054	0.8174	0.8788	0.0614
30	17.5443	1.4557	1.0444	0.8518	0.9091	0.0572
31	17.0928	1.9072	1.3684	0.9144	0.9394	0.0250
32	16.6412	2.3588	1.6924	0.9547	0.9697	0.0150
33	14.8348	3.1652	2.2709	0.9884	1.0000	0.0116

Table 3. Normality results error X1 to X2

Observation	\hat{Y}_2	$Y-\hat{Y}_2$	Z	F_z	S_z	F_z-S_z
1	13.5484	-4.5484	-2.7133	0.0033	0.0303	0.0270
2	16.7364	-2.7364	-1.6324	0.0513	0.0606	0.0093
3	13.5484	-2.5484	-1.5202	0.0642	0.0909	0.0267
4	11.9544	-1.9544	-1.1659	0.1218	0.1212	0.0006
5	12.7514	-1.7514	-1.0448	0.1481	0.1515	0.0035
6	9.5635	-1.5635	-0.9327	0.1755	0.1818	0.0063
7	11.1574	-1.1574	-0.6905	0.2449	0.2121	0.0328
8	11.1574	-1.1574	-0.6905	0.2449	0.2424	0.0025
9	11.9544	-0.9544	-0.5694	0.2846	0.2727	0.0118
10	12.7514	-0.7514	-0.4483	0.3270	0.3030	0.0240
11	13.5484	-0.5484	-0.3272	0.3718	0.3333	0.0384
12	14.3454	-0.3454	-0.2060	0.4184	0.3636	0.0547
13	11.1574	-0.1574	-0.0939	0.4626	0.3939	0.0686
14	11.9544	0.0456	0.0272	0.5108	0.4242	0.0866
15	11.9544	0.0456	0.0272	0.5108	0.4545	0.0563
16	11.9544	0.0456	0.0272	0.5108	0.4848	0.0260
17	11.9544	0.0456	0.0272	0.5108	0.5152	0.0043
18	15.9394	0.0606	0.0362	0.5144	0.5455	0.0310
19	12.7514	0.2486	0.1483	0.5589	0.5758	0.0168
20	12.7514	0.2486	0.1483	0.5589	0.6061	0.0471
21	9.5635	0.4365	0.2604	0.6027	0.6364	0.0336
22	13.5484	0.4516	0.2694	0.6062	0.6667	0.0605
23	14.3454	0.6546	0.3905	0.6519	0.6970	0.0451
24	11.1574	0.8426	0.5026	0.6924	0.7273	0.0349
25	11.9544	1.0456	0.6237	0.7336	0.7576	0.0240
26	11.9544	1.0456	0.6237	0.7336	0.7879	0.0543
27	15.9394	1.0606	0.6327	0.7365	0.8182	0.0816

Observation	\hat{Y}_2	$Y-\hat{Y}_2$	Z	F_z	S_z	F_z-S_z
28	13.5484	1.4516	0.8659	0.8067	0.8485	0.0417
29	10.3605	1.6395	0.9781	0.8360	0.8788	0.0428
30	15.1424	1.8576	1.1081	0.8661	0.9091	0.0430
31	11.9544	2.0456	1.2203	0.8888	0.9394	0.0506
32	12.7514	3.2486	1.9379	0.9737	0.9697	0.0040
33	14.3454	3.6546	2.1801	0.9854	1.0000	0.0146

Table 4. Normality results error X2 to Y

Observation	\hat{Y}_2	$Y-\hat{Y}_2$	Z	F_z	S_z	F_z-S_z
1	14.9793	-2.9793	-2.1317	0.0165	0.0303	0.0138
2	16.5931	-2.5931	-1.8554	0.0318	0.0606	0.0288
3	15.3828	-2.3828	-1.7049	0.0441	0.0909	0.0468
4	15.3828	-1.3828	-0.9894	0.1612	0.1212	0.0400
5	16.1897	-1.1897	-0.8512	0.1973	0.1515	0.0458
6	16.9966	-0.9966	-0.7130	0.2379	0.1818	0.0561
7	14.9793	-0.9793	-0.7007	0.2417	0.2121	0.0296
8	13.7690	-0.7690	-0.5502	0.2911	0.2424	0.0487
9	14.5759	-0.5759	-0.4120	0.3402	0.2727	0.0674
10	14.5759	-0.5759	-0.4120	0.3402	0.3030	0.0371
11	14.5759	-0.5759	-0.4120	0.3402	0.3333	0.0068
12	17.4000	-0.4000	-0.2862	0.3874	0.3636	0.0237
13	15.3828	-0.3828	-0.2739	0.3921	0.3939	0.0018
14	15.3828	-0.3828	-0.2739	0.3921	0.4242	0.0321
15	16.1897	-0.1897	-0.1357	0.4460	0.4545	0.0085
16	14.1724	-0.1724	-0.1234	0.4509	0.4848	0.0339
17	14.9793	0.0207	0.0148	0.5059	0.5152	0.0092
18	14.9793	0.0207	0.0148	0.5059	0.5455	0.0395
19	14.9793	0.0207	0.0148	0.5059	0.5758	0.0699
20	14.9793	0.0207	0.0148	0.5059	0.6061	0.1002
21	15.7862	0.2138	0.1530	0.5608	0.6364	0.0756
22	15.7862	0.2138	0.1530	0.5608	0.6667	0.1059
23	14.5759	0.4241	0.3035	0.6192	0.6970	0.0777
24	15.3828	0.6172	0.4416	0.6706	0.7273	0.0566
25	13.3655	0.6345	0.4540	0.6751	0.7576	0.0825
26	14.1724	0.8276	0.5921	0.7231	0.7879	0.0648
27	14.1724	0.8276	0.5921	0.7231	0.8182	0.0951
28	14.1724	0.8276	0.5921	0.7231	0.8485	0.1254
29	15.7862	1.2138	0.8685	0.8074	0.8788	0.0714
30	16.9966	2.0034	1.4335	0.9241	0.9091	0.0150
31	16.5931	2.4069	1.7221	0.9575	0.9394	0.0181
32	14.9793	3.0207	2.1613	0.9847	0.9697	0.0150
33	15.7862	3.2138	2.2995	0.9893	1.0000	0.0107

Normality Test

Error Normality X1 over Y: Testing data on the Effect of Digital Literacy on School Quality. From the calculation results, the value is Lcount = 0.0684 (the largest value). With n = 33 and a significant level $\alpha = 0.05$, the value of Ltable = 0.1542 is obtained. Because Lcount < Ltable, it can be concluded that the sample comes from a normally distributed population

Error Normality X2 over Y: Testing data on the Effect of Educational Technology on School Quality. From the calculation results, the value is Lcount = 0.1254 (the largest value). With n = 33 and a significant level α

= 0.05, the value of Ltable = 0.1542 is obtained. Because Lcount < Ltable, it can be concluded that the sample comes from a normally distributed population.

Error Normality X1 over X2: Testing data on the Effect of Digital Literacy on Educational Technology. From the calculation results, the value of Lcount = 0.0866 (the largest value). With n = 33 and a significant level $\alpha = 0.05$, the value of Ltable = 0.1542 is obtained. Because Lcount < Ltable, it can be concluded that the sample comes from a normally distributed population. Next is testing through linearity and regression significance (Table 5, 6, and 7).

Table 5. ANOVA results X1 to Y

Source of variation	Degree of freedom	Squared sum	Middle square	F-count	F-table
Regression (a)	1	7.697	7967		
Regression (b/a)	1	30.379	30.379		
Residu	31	62	2.005	15.149	
Suitable tuna	8	23.360	2.920	1.731	2.375
Mistake	23	38.806	1.687		

Table 6. ANOVA results X2 to Y

Source of variation	Degree of freedom	Squared sum	Middle square	F-count	F-table
Regression (a)	1	7.697	7967		
Regression (b/a)	1	30.039	30.039		
Residu	31	63	2.016	14.897	4.160
Suitable tuna	9	13.45	1.494	0.670	2.342
Mistake	22	49.06	2.230		

Table 7. ANOVA results X1 to X2

Source of variation	Degree of freedom	Squared sum	Middle square	F-count	F-table
Regression (a)	1	5.345	5345		
Regression (b/a)	1	94.624	94.624		
Residu	31	90	2.901	32.621	4.160
Suitable tuna	8	27.92	3.489	1.294	2.375
Mistake	23	62.01	2.696		

Test of Significance and Linearity Regression

Table Anova X1 over Y is testing the data the effect of digital literacy on the quality of the Tiara School Foundation based on the analysis of regression significance and regression linearity, the regression significance is known Fcount = 15.149 and Ftable = 4.159 so that Fcount > Ftable, it can be concluded that the regression equation model X1 over Y is significant. Regression linearity is known, Fcount: 1.7307 and Ftable: 2.375 so that Fcount < Ftable, it can be concluded that the X1 equation model over Y is Linear

Table Anova X2 over Y

Testing the data on the Effect of Educational Technology on School Quality at the Tiara School foundation based on the analysis of regression significance and regression linearity, the Regression Significance is known as Fcount: 14,897 and Ftable: 4,159 so that Fcount > Ftable, it can be concluded that the X2 over Y regression equation model is significant. Regression linearity is known, Fcount: 0.670 and Ftable: 2.374 so that Fcount < Ftable, it can be concluded that the X2 equation model over Y is Linear.

Table Anova X1 on X2

Testing the data on the Effect of Digital Literacy on Educational Technology at the Tiara School foundation based on the analysis of regression significance and regression linearity, the Regression Significance is known Fcount: 32,621 and Ftable: 4,159 so that Fcount >

Ftable, it can be concluded that the regression equation model X1 over X2 is significant. Regression Linearity is known, Fcount: 1.294 and Ftable: 2.375 so that Fcount < Ftable, it can be concluded that the equation model X1 over X2 is Linear.

Path Analysis

Path analysis is the final analysis of data testing, in the analysis all variables will have a positive effect on each other or not? And in this path analysis will know the percentage of influence on each variable. in this analysis focuses on testing the t-test and f-test. Here is a path map and calculations:

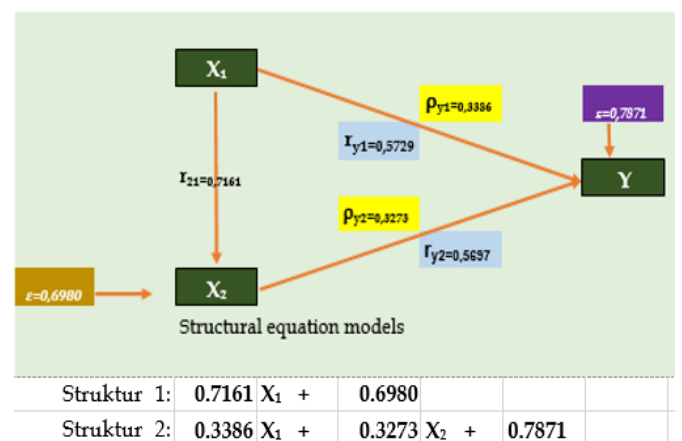


Figure 1. Path map and calculations

Table 8. The coefficient of influence of other factors

		5%	1%	
F_{count}	9.211	3.316	5.390	= F_{table}
T_{count1}	1.672	1.70	2.46	= t_{table1}
T_{count2}	1.590	1.70	2.45	= t_{table2}
$T_{count12}$	5.712	1.70		= $t_{table21}$

t-count1

Explaining the relationship between X1 and X2 or the independent variable, namely the Effect of Digital Literacy on Educational Technology at the Tiara School Foundation. Based on the calculation results above, the value of $t_{count} = 5.712$, while $t_{table}(0.05;30) = 1.70$ and $t_{table}(0.01;32) = 2.45$ It appears that $t_{count} = 5.712 > t_{table}(0.05;32) = 1.66$ then the path coefficient is significant and H_0 is rejected. It can be interpreted that there is a positive direct effect of variable (X1) on variable (X2).

t-count1

Explaining the relationship between X1 and Y or the independent variable, namely the Effect of Digital Literacy on School Quality at the Tiara School Foundation. Based on the above calculation results, the path coefficient value $rY1 = 0.264$ with $t_{count} = 1.645$ while $t_{table}(0.05;30) = 1.70$ and $t_{table}(0.01;30) = 2.46$. It can be seen that $t_{count} = 1.64 < t_{table}(0.01;30) = 2.40$, so the path coefficient is not significant and H_0 is accepted. So, it can be interpreted that there is no positive direct effect of variable (X1) on variable (Y).

t-count2

Explaining the relationship between X2 and Y or the independent variable, namely the Influence of Educational Technology on School Quality at the Tiara School Foundation. Based on the above calculation results, the path coefficient value $rY2 = 0.327$ with $t_{count} = 1.590$ while $t_{table}(0.05; 30) = 1.70$ and $t_{table}(0.01; 30) = 2.42$. It can be seen that $t_{count} = 4.723 < t_{table}(0.05;77) = 1.66$, so the path coefficient is significant and H_0 is accepted. It can be interpreted that there is no positive direct effect of variable (X2) on variable (Y).

F-count

Explaining the relationship between X1 and X2 together with Y, namely the Effect of Digital Literacy on Educational Technology at the Tiara School Foundation. Based on the calculation results above, the value of $F_{count} = 9,211$ while the critical value is $F_{table}(0.05,2,30) = 3,316$ and $F_{table}(0,01,1,30) = 5,390$. It appears that the calculated F value is greater than the F_{table} value or $30,678 > 4,892$, so the calculated F value is located in the H_0 rejection area. It can be interpreted that there is an influence between var (X1) and var (X2) on var (Y), because the path from X1, X2 to Y is statistically

significant. This shows that var (X1) and var (X2) have a very significant effect on var (Y)

Based on the research that has been done, it can be seen that Tiara School has begun to be able to apply digital literacy and educational technology together to the quality of education. This means that between digital literacy and educational technology must be a unified whole if seen in the sample during research so that the quality of education can run positively (Kusumawardani et al., 2022). While digital literacy is a person's ability to read and interpret data in the digital world and competence to utilize the digital world (digital competence) is influenced by digital literacy (Yustika & Iswati, 2020). Digital literacy competencies consist of using, understanding, accessing, managing, gathering, and evaluating information from information and communication technology based (ICT-based) sources (Rusydiyah et al., 2020). An efficient organization of the educational process within rapid acceleration of the society digitization is impossible without increasing its digital literacy, if the latter is really estimated and new models of digital learning didactics are developed respectively. So, it is necessary to study an actual state of digital literacy, as well as to search for and introduce new learning models in the educational system based on the use of modern innovative technologies and digital learning methods (Arroio, 2017).

The results of the study also show that digital literacy and the quality of education have not been carried out as expected. Educational Technology with the quality of Education has not been implemented properly. Teachers must have high digital literacy to understand and use information in various sources accessed through computers/laptops or mobile phones With digital literacy, teachers can improve the quality of learning (Afriliandhi et al., 2022). The quality of learning is considered quality if it succeeds in changing students' attitudes, behavior, and skills in relation to their educational goals. Quality learning in question is effective and efficient learning that involves teachers' ability in the learning process (Iskandar, 2022).

The educational technology is very important in the world of education because it can facilitate the process of learning activities (Iskandar, 2022). Progress in the development of science and technology has contributed well to education. This can be felt by the education community (lecturers, teachers, students) in terms of accessing learning materials (Wekke et al., 2021). Learning materials can be easily accessed through electronic media. The use of technology and its adaptation require the concerted efforts of educational institutions and teachers to enable teachers to transfer technology skills to their students (Al Njadat et al., 2021). One of the benefits of learning using technology is

enhancing learning for outstanding students, reinforcing students with low achievement, promoting education, and offering a good opportunity for self-learning (Wekke et al., 2021). At present, significant transformations have already taken place in the field of higher education.

Conclusion

Tiara School has begun to be able to apply digital literacy and educational technology together to the quality of education. The results of the study also show that digital literacy and the quality of education have not been carried out as expected. Educational Technology with the quality of Education has not been implemented properly.

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