Quest Journals Journal of Research in Business and Management Volume 13 ~ Issue 5 (May 2025) pp: 28-32 ISSN(Online):2347-3002 www.questjournals.org

Research Paper



Empirical Study of the Influence of Teacher Competence and Technology Support on the Quality of Elementary Schools in the Digitalization Era

Saribulan¹, Saban Echdar², Hasmin³, Umi Farida⁴, Ansar⁵, Kurniawaty⁶ STIE AMKOP Makassar^{1,2,3,4,5,6}

Abstract

This study aims to examine the influence of teacher competence and technology support on the quality of Elementary Schools in Biringkanaya District, Rapocini District and Tamalate District in Makassar City with a sample of 244 teachers and educators. This study consists of three variables, namely teacher competence, technology support and the quality of Elementary Schools. The analysis method used in this study is correlation analysis. This study found that the indicator of pedagogical and professional teacher abilities from the teacher competency variable has the largest and strongest correlation to the quality of Elementary Schools of 0.606, followed by the correlation of the information technology infrastructure indicator from the technology support variable to the quality of elementary schools with a correlation value of 0.518. Teacher competence and technology support are two crucial variables in supporting the quality of education in elementary schools because the combination of qualified teachers and adequate technology can create a conducive and responsive learning environment to the needs of the times.

Keywords: Teacher Competence, Technology Support, School Quality

Received 09 May., 2025; Revised 15 May., 2025; Accepted 17 May., 2025 © *The author(s) 2025. Published with open access at www.questjournas.org*

I. INTRODUCTION

The rapid development of information and communication technology has brought significant changes in various aspects of life, including education. In the digital era, the demands for improving the quality of education are increasing, especially at the Elementary School level which is the main foundation for character formation and basic abilities of students. The quality of elementary schools today is not only determined by traditional aspects such as curriculum and physical facilities, but also by the ability of educational institutions to integrate technology and the competence of their human resources, especially teachers. Teachers play a central role in the learning process. Teacher competence, both in pedagogical, professional, social, and personality aspects, is the main determinant in creating an effective and meaningful teaching and learning process. In the digital era, this competence is increasingly complex because teachers are required to master digital literacy and be able to utilize technology as a learning medium. Without adequate competence, efforts to digitize learning will not run optimally.

In addition, adequate technological support is also an important factor in supporting the quality of education. Schools that have complete technological infrastructure and stable internet access tend to be better prepared to face the challenges of digital-based learning. However, the existence of technology will be meaningless without proper management and teacher readiness to use it effectively.

Based on this background, this study aims to empirically examine the influence of teacher competence and technology support on the quality of Elementary Schools in the digitalization era. This study is expected to contribute to the development of technology-based elementary education quality improvement strategies, as well as being a reference for policy makers, principals, and education practitioners.

Teacher Competence

II. LITERATURE REVIEW

According to Kurniasih (2017:25) teacher competence is defined as the result of a combination of various types of abilities, which can be a set of knowledge, skills, and behaviors that must be possessed, internalized, and mastered by teachers in carrying out their duties, their professional duties. The definition of competence itself is ability or skill. On the other hand, Fachruddin and Ali (2015:31) say "competence is a number of abilities that teachers must have to reach the level of professional teachers. These competences include: pedagogical competence, professional competence, personality competence, and social competence". Meanwhile, according to Sagala (2016:23) "competence is a set of knowledge, skills, and behaviors that must be possessed, internalized, and mastered by teachers to be able to carry out their professional duties.

IT Supporting

According to Riwayadi (2013) Information technology is a technology that can be used to produce quality information, namely timely, accurate and relevant information, which is used for individual, industrial and public purposes and is strategic information in decision-making through data processing, including obtaining, processing, compiling, manipulating data, and storing it in various ways. Meanwhile, Oetomo (2002) stated that technology has been utilized by many educational institutions as a force to face increasingly tight competition in today's modern era.

The role of information technology (IT) in the context of educational management goes beyond simply simplifying administrative and operational tasks. As expressed by Anvari et al., (2012), IT plays a crucial role in spurring innovation in education. Through the strategic integration of IT and knowledge management, schools are able to create a learning environment that is not only collaborative but also innovative. Such initiatives not only support the learning and teaching process but also pave the way for more effective pedagogical development. In the context of educational improvement and management, Schaffer & Richardson, (2004) underlined the vital role of information technology in supporting teachers' tasks and school management. They recognized that IT is not only a tool for administrative efficiency, but also a key driver in enriching teaching and learning processes. Klassen, (2001) emphasized that information technology (IT) has the potential to improve teaching practices, suggesting that effective integration of technology into curriculum and teaching strategies can enrich students' learning experiences. In line with this, Handzic et al., (2011) examined how students' perceptions and intentions towards IT-supported learning influence their acceptance of new technologies.

School Quality

Education quality consists of the words quality and education. Quality in Arabic is "khasana" which means good (Yunus, 1984), in English quality means quality (John M, 1988). In the big Indonesian dictionary, quality is a measure, good or bad of an object, level or degree (skill, intelligence, etc.). In terms, quality is the quality of meeting or exceeding customer expectations. Thus, quality is a level of quality that has met or can even exceed what is expected (Lukman Ali, 1995). Based on observations of education quality in terms of process and results, education quality can be detected from the following characteristics: competence, relevance, flexibility, efficiency, results, credibility. According to Mujammil, education quality is the ability of institutions to utilize educational resources to improve learning abilities as much as possible. Referring to Edward Sallis' opinion, a quality school is characterized by the following:

a. The school focuses on customers, both internal and external customers.

b. The school focuses on efforts to prevent problems from arising, meaning there is a commitment to work correctly from the start.

c. The school has an investment in its human resources.

d. The school has a strategy to achieve quality, both at the leadership level, academic staff, and administrative staff.

e. The school manages or treats complaints as feedback to achieve quality and positions mistakes as an instrument to do right in the next event or incident.

f. The school has a policy in planning to achieve quality

g. The school strives for an improvement process by involving everyone according to their main tasks, functions and responsibilities.

h. The school encourages people who are seen as having creativity, are able to create quality, and stimulate others to be able to work with quality.

i. The school clarifies the roles and responsibilities of each person, including clarity of work direction vertically and horizontally.

j. The school has a clear strategy and evaluation criteria.

k. The school views or places the quality that has been achieved as a way to improve the quality of service further.

1. The school places continuous quality improvement as a necessity

III. RESEARCH METHOD

The sample in this study were teachers and educators of Elementary Schools from three sub-districts, namely Biringkanaya District, Rapocini District and Tamalate District, using a purposive sampling method with a total of 244 teachers and educators. This study consists of three independent variables, namely teacher competence with indicators of digital literacy, pedagogical and professional skills, continuous professional development. The IT supporting system variable with indicators of the availability of ICT infrastructure, technical support in digital learning, and IT integration in school management. and the dependent variable is the quality of elementary schools. The analysis method used in this study is correlation analysis.

IV. RESEARCH RESULTS AND DISCUSSION

Results

Correlations

		digital literacy	pedagogical and professional skills	continuous professional development	availability of ICT infrastructure	technical support in digital learning	IT integration	primary school quality
digital literacy	Pearson Correlation	1	.292**	.442**	.391**	.277*	159	.288**
	Sig. (2-tailed)		.009	.000	.000	.013	.159	.010
	N	244	244	244	244	244	244	244
pedagogical and professional skills	Pearson Correlation	.292**	1	.248*	.088	.701**	.361**	.606**
	Sig. (2-tailed)	.009	l I	.027	.437	.000	.001	.000
	N	244	244	244	244	244	244	244
continuous professional development	Pearson Correlation	.442**	.248*	1	.286*	.413**	102	.138
	Sig. (2-tailed)	.000	.027		.010	.000	.367	.221
	Ν	244	244	244	244	244	244	244
availability of ICT infrastructure	Pearson Correlation	.391**	.088	.286*	1	025	047	.518**
	Sig. (2-tailed)	.000	.437	.010		.822	.680	.000
	Ν	244	244	244	244	244	244	244
technical support in digital learning	Pearson Correlation	.277*	.701**	.413**	025	1	.355**	.447**
	Sig. (2-tailed)	.013	.000	.000	.822		.001	.000
	N	244	244	244	244	244	244	244
IT integration	Pearson Correlation	159	.361**	102	047	.355**	1	.347**
	Sig. (2-tailed)	.159	.001	.367	.680	.001		.002
	Ν	244	244	244	244	244	244	244
primary school quality	Pearson Correlation	.288**	.606**	.138	.518**	.447**	.347**	1
	Sig. (2-tailed)	.010	.000	.221	.000	.000	.002	
	Ν	244	244	244	244	244	244	244

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Discussion

From the results of the study, it can be seen that from the teacher competency variables, the indicator with the greatest correlation to school quality is pedagogical and professional ability of 0.606 in the strong category. The importance of pedagogical and professional abilities to school quality is very large, because these two aspects are the main foundations in creating an effective and quality learning process. Pedagogical ability is the ability of teachers to design, implement, and evaluate the learning process according to the characteristics of students, this has a direct effect on school quality because teachers must be able to provide effective learning, meaning that teachers are able to adjust learning methods and strategies to student needs, so that students can more easily understand the material. Providing effective learning means that teachers are able to adjust learning methods and strategies to student needs, so that students can more easily understand the material. Providing effective learning means that teachers are able to adjust learning methods and strategies to student needs, so that students can more easily understand the material. And teachers who have pedagogical abilities are able to create a pleasant, safe, and supportive classroom atmosphere. While professional abilities are related to mastery of material, scientific competence, and the ability of teachers to apply this knowledge appropriately. Professional teachers are able to provide accurate and in-depth learning materials, meaning that teachers can provide correct understanding to students, and answer questions appropriately.

Professional teachers are able to develop interesting and effective teaching materials, learning media, and evaluation techniques, and professional teachers are respected and trusted, thus having a positive impact on the school's image. The combination of pedagogical and professional abilities will create an ideal teacher: able to teach well and master the material in depth. This will improve the quality of the education process as a whole, which ultimately improves the quality of the school—both in terms of academics, student character, and the school's image in the community. This is in line with research from Maullidina, K., (2023), Lustiawati, Y., (2024), Anwar, K., Hendrik, M (2022) and Pricilia, M., (2024) which states that pedagogical and professional abilities make teachers effective, competent, and inspiring educators. This has a direct impact on the quality of learning and student achievement, as well as improving the quality of education in schools as a whole.

Next, for the digital literacy variable, the indicator that has the greatest correlation with school quality is the availability of ICT infrastructure with a strong correlation. ICT infrastructure includes all facilities and infrastructure that support the use of technology in educational activities, such as computers, internet, projectors, local networks, and learning software. According to respondents, with the existence of ICT infrastructure, there is access to extensive learning resources: meaning that with the internet and digital devices, teachers and students can access learning materials from various sources, including e-books, learning videos, and educational platforms. The use of ICT enables methods such as blended learning, e-learning, and digital project-based learning that are more interesting and motivating for students. In addition, School Management Efficiency is better, for example, student data, lesson schedules, grades, and attendance can be managed digitally, reducing manual work and increasing accuracy. And most importantly, with ICT, improving the Digital Competence of Teachers and Students will be easier, for example, ICT infrastructure helps students develop 21st century skills such as digital literacy, critical thinking, and online collaboration and teachers can take training, webinars, and access various self-development resources online. In conclusion, ICT infrastructure is an important element in supporting the digital transformation of education. With adequate ICT, schools can improve the quality of education services, learning effectiveness, and graduate competitiveness in the digital era. This research is in line with research from Saputra, R. E., (2021), Rahma, S. F., (2024), Azizah, C. P. N., & Subiyantoro, S. (2023) and Huraerah, A. J. A., (2024) which states that ICT infrastructure is not only a supporter, but a primary need in building a quality modern school. With good ICT, schools can improve the quality of education, work efficiency, and global competitiveness.

V. CONCLUSION

Teacher competence and technological support are important variables in supporting the quality of elementary schools because both directly affect the quality of the learning process and student learning outcomes. Teachers who have high competence are able to design, implement, and evaluate learning effectively and adjust methods to students' needs. This competence includes mastery of material, pedagogical skills, and social and professional skills. Meanwhile, technological support allows teachers and students to access wider learning resources, present materials in a more interesting and interactive way, and encourage digital-based learning that is relevant to the demands of the times. With a combination of competent teachers and optimal use of technology, the education process in elementary schools can take place more efficiently, adaptively, and with quality, thus having a positive impact on improving the quality of schools as a whole.

Bibliography

- Anvari, A., Alipourian, G. A., Moghimi, R., & Taleb-Beidokhti, A. (2012). An investigation of innovation in higher educational environments-a consideration of five substructures (technical, administrative, information systems, information technology and knowledge management). Middle East Journal of Scientific Research, 11(9), 1278–1285. https://doi.org/10.5829/idosi.mejsr.2012.11.09.3780
- [2]. Anwar, K., Hendrik, M., Waruwu, Y., Suyitno, S., & Dewi, C. (2022). Pengaruh Sarana Prasarana Pendidikan Dan Kompetensi Guru Terhadap Mutu Pendidikan Di Sekolah Menengah Kejuruan. Al-Mada: Jurnal Agama, Sosial, Dan Budaya, 5(3), 413-426.
- [3]. Azizah, C. P. N., & Subiyantoro, S. (2023). Pemanfaatan Teknologi Informasi Dalam Menunjang Mutu Pendidikan Sekolah. Kelola: Journal of Islamic Education Management, 8(1), 11-28.
- [4]. Fachruddin, S. d. (2015). Pengembangan Profesionalitas Guru. Jakarta: Gaung Persada Press
- [5]. Handzic, M., Obralic, M., & Cickusic, E. (2011). Students' Perceptions of It Supported Learning. Bilgi Ekonomisi ve Yönetimi Dergisi, VI(II), 95–100.
- [6]. Huraerah, A. J. A., Abdullah, A. W., & Rivai, A. (2024). Pengaruh teknologi informasi dan komunikasi terhadap pendidikan indonesia. Journal of Islamic Education Policy, 8(2).
- [7]. John M. Echolis, (1998). Kamus Inggris Indonesia Cet. Ke XVI .Jakarta: Gramedia
- [8]. Kurniasih, I. &. (2017). Ragam Pengembangan Model Pembelajaran Guru. Jakarta: Kata pena
- Klassen, J. (2001). Pedagogical Support for Use of Information Technology in Teaching. Proceedings of the 2001 InSITE Conference, June. https://doi.org/10.28945/2414
- [10]. Lukman Ali, (1995). Kamus Besar Bahasa Indonesia Cet. Ke-3. Jakarta: Balai Pustaka.
- [11]. Lustiawati, Y., Abdullah, G., & Sudana, I. M. (2024). PENGARUH KEPEMIMPINAN TRANSFORMASIONAL KEPALA SEKOLAH, KOMPETENSI PROFESIONAL GURU, DAN KUALITAS SARANA PRASARANA TERHADAP MUTU SEKOLAH PADA SEKOLAH DASAR NEGERI DI KECAMATAN KEDUNGTUBAN KABUPATEN BLORA. Jurnal Review Pendidikan dan Pengajaran (JRPP), 7(4), 12757-12761.

- [12]. Maullidina, K., Mulyani, E. S., & Atikah, C. (2023). Pengaruh profesionalisme guru terhadap kualitas pendidikan. Journal of Education Research, 4(4), 1731-1736.
- [13]. Oetomo, Budi Sutedjo Dharma. (2002). E-Education (Konsep, Teknologi dan Aplikasi Internet Pendidikan. Andi: Yogyakarta
 [14]. Pricilia, M., Febrianti, F., Ikhsan, F. F., & Putri, M. I. (2024). Pengaruh Kompetensi Pedagogik Guru Dalam Meningkatkan Mutu
- Pembelajaran Siswa. Dewantara: Jurnal Pendidikan Sosial Humaniora, 3(1), 56-62.
 [15]. Rahma, S. F., & Kartiasih, F. (2024). Pengaruh Infrastruktur Transportasi serta Teknologi Informasi dan Komunikasi (TIK) terhadap
- Ketimpangan Pendidikan di Indonesia. Jurnal Ekonomi Indonesia, 13(2), 153-170.
 Riwayadi, Purwo. (2013) Pemanfaatan Perkembangan Teknologi Informasi Dan Komunikasi Untuk Kemajuan Pendidikan Di
- [10]. Kiwayadi, Fulwo. (2013) Femanaatan Ferkenbargan Technologi Informasi Dan Komunikasi Ontuk Kemajuan Fenderakan Di Indonesia. PLS-UM.
 [17]. Schaffer, S. P., & Richardson, J. C. (2004). Supporting technology integration within a teacher education system. Journal of
- [17]. Schaffer, S. P., & Richardson, J. C. (2004). Supporting technology integration within a teacher education system. Journal of Educational Computing Research, 31(4), 423–435. https://doi.org/10.2190/V1BX-35NW-7AH6-6MME
- [18]. Sagala, S. (2016). Konsep dan Makna Pembelajaran.Bandung: Alfabeta
- [19]. Saputra, R. E., Handra, H., & Primayesa, E. (2021). Analisis Pengaruh Infrastruktur Jalandan Teknologi Informasi Dan Komunikasi (Tik) Terhadap Pembangunan Manusia Di Wilayah Timur Indonesia. Jurnal Menara Ekonomi: Penelitian Dan Kajian Ilmiah Bidang Ekonomi, 7(1).