Vol. 7, No. 3, March 2026
E-ISSN:2723 – 6692
P-ISSN:2723– 6595
http://jiss.publikasiindonesia.id/

Analysis of Teacher Quality and Teaching Methods on the Use of Information and Communication Technology (ICT) and its Implications for Learning Quality (Case Study at Smkn 5 Bandung)

Eka Rachman
Universitas Sangga Buana YPKP, Indonesia
Email: ekarachmanindrawan@gmail.com

KEYWORDS
Teacher Quality, Learning Methods, Use of ICT, Learning Quality

ABSTRACT
This research aims to analyze the influence of teacher quality and learning methods on ICT utilization and its impact on learning quality at SMKN 5 Bandung, both partially and simultaneously, with ICT as an intervening variable. The study uses a quantitative survey method with 83 teacher respondents. Data were analyzed through descriptive and verifiable analysis using SPSS path analysis. The descriptive results showed that teacher quality, learning methods, and learning quality were in the medium category, while ICT utilization was in the high category. Verifiable analysis showed that teacher quality and learning methods simultaneously had a significant effect on ICT utilization (R^2 = 0.488). Partially, learning methods had a significant effect on ICT utilization (ρ = 0.775; Sig. < 0.001), while teacher quality did not show a significant effect. ICT utilization has a positive and significant effect on learning quality (path coefficient = 0.342; R^2 = 79.3%). Learning methods also had a direct effect on learning quality (ρ = 0.500), while teacher quality did not show a significant influence. Path analysis showed that the indirect effect of learning methods through ICT (26.5%) was greater than the direct effect (25.0%). Simultaneously, teacher quality and learning methods have a significant effect on learning quality. The study concludes that learning methods and ICT utilization are dominant factors in enhancing learning quality at SMKN 5 Bandung, while teacher quality still requires optimization, particularly in ICT integration.

INTRODUCTION

Based on the explanation of the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System, it is stated that national education has several strategic missions. These include expanding and equalizing opportunities to obtain quality education for all Indonesian people; assisting and facilitating the development of the nation's full potential from early childhood to the end of life in order to realize a learning society;

improving the readiness of educational inputs and the quality of educational processes to optimize the formation of moral personalities; enhancing the professionalism and accountability of educational institutions as centers for the cultivation of knowledge, skills, experiences, attitudes, and values based on national and global standards; and empowering community participation in the implementation of education based on the principle of autonomy within the framework of the Unitary State of the Republic of Indonesia.

An educator (teacher) has a very important role in learning activities to determine and direct all teaching and learning processes (Glukhov et al. 2016; Lawrence et al. 2018; Rindu et al. 2017). Teaching and learning activities are directed toward achieving planned educational goals, not merely as a formality but accompanied by the educator's ability to perform their duties effectively. Doyle, as quoted by Danim (2015:1), states two main roles of teachers in learning: determining order (establishing order) and facilitating learning. The concept of order here includes aspects directly or indirectly related to the learning process, such as seating arrangements, student discipline in the classroom, interactions among students, interactions between students and teachers, entry and exit times for subject sessions, management of learning resources and materials, procedures and systems supporting the learning process, and the learning environment.

The quality of basic education is continuously expected to improve in response to changing national and global developments (Hu et al. 2024; Sayed et al. 2015; Wagner 2025). However, the quality of education in Indonesia has not yet optimally produced human resources capable of competing at higher levels. One contributing factor is that some educators are not sufficiently aware of the importance of continuously improving teaching quality and instructional strategies.

A paradigm has developed in society that equates the learning process primarily with books and writing (Pavlik 2015). This perception has indirectly limited educators' creativity in exploring dynamic and effective teaching systems. As a result, many parties have expressed concerns that teaching systems emphasizing one-way communication (lectures) in classrooms are monotonous and unengaging (Monitor 2018; Mubanga 2025; Segabutla 2015; Wagner 2025). One reason teachers struggle to build interactive learning relationships is the lack of knowledge regarding alternative learning media, particularly digital learning technologies. Quality can be defined as a measure of the good or bad level of something, while learning refers to efforts to change student behavior for the better. The quality of the learning process can be observed through learning activities, student understanding based on basic competencies and indicators that must be achieved, and teacher performance in supporting the learning process.

Education generally refers to a lifelong process of developing individuals so they can live and function effectively in society. Education plays an essential role in supporting children's development and future success. According to Law Number 20 of 2003 Article 3 concerning the National Education System, national education functions to develop capabilities and shape the character and civilization of a dignified nation in order to educate

the life of the nation. It aims to develop students' potential to become individuals who believe and fear God Almighty, possess noble character, are healthy, knowledgeable, capable, creative, independent, and responsible democratic citizens (Hakim 2015; Rahmatullah 2016; Shakoor et al. 2025; Sperti 2019; Sudargini et al. 2020).

Law Number 20 of 2003 Article 37 Paragraph 1 further states that the basic education curriculum must contain religious education, civic education, language, mathematics, natural sciences, social sciences, arts and culture, physical education and sports, skills or vocational education, and local content (in Sanjaya, 2011:154–155). In accordance with cognitive development theory, much of a child's cognitive development is determined by manipulation and active interaction with the environment and physical experiences. Piaget (in Trianto, 2016:29) states that social interaction with peers—particularly through argumentation and discussion—helps clarify thoughts and ultimately makes reasoning more logical. According to Piaget (in Saminanto, 2016:19), logical thinking involves thinking about various complex matters, provided that these are presented concretely in forms that can be perceived through the five senses.

The learning objectives contained in the Education Unit Level Curriculum (KTSP) are considered effective because they incorporate social and humanitarian values and anticipate national and global technological developments. However, in practice, many problems still occur in the implementation of learning that are not aligned with content standards. According to Hidayati (2018:7–5), communication in the learning process often experiences deviations, making learning ineffective due to tendencies toward verbalism, lack of preparation, and low student interest. The integrated use of learning media is one effort to overcome these communication problems. Media in learning activities functions not only as a stimulus presenter but also as a tool to improve harmony in information reception and to regulate steps in providing feedback.

Learning is considered successful when it achieves predetermined goals. The Ministry of National Education (2004) defines learning quality as the systemic and synergistic relationship between teachers, students, curriculum and learning materials, media, facilities, and learning systems in producing optimal learning processes and outcomes according to curricular demands. Components of learning quality include teacher learning behavior, student learning behavior and its impact, learning materials, media, learning climate, and learning systems.

Several previous studies have examined factors influencing learning quality. Haris and Proverbs (2020) found that ICT training and workshops significantly improve teachers' ICT understanding and skills, enabling them to update the learning process. Surakhmad (1990) and Jaka (2012) emphasized that synergy between teacher competence and appropriate learning methods encourages effective and integrated ICT utilization, supporting the achievement of learning goals. Widyaningsih (2015) revealed that emotional intelligence and the utilization of ICT-based learning media influence student learning outcomes. Budiana, Sjafirah, and Bakti (2015) explained that ICT in the learning process has two roles: as a presentation medium and

as an independent learning medium. However, these studies have not comprehensively examined the mediating role of ICT utilization in the relationship between teacher quality, learning methods, and learning quality, particularly in the vocational high school context.

Despite extensive research on teacher quality and learning methods, several gaps remain. First, most previous studies have examined the direct effects of teacher quality and learning methods on learning outcomes without considering ICT as a mediating variable. Second, research findings regarding the influence of teacher quality on ICT utilization remain inconsistent, with some studies showing significant effects while others do not. Third, limited research has been conducted in the vocational high school context, where ICT integration is crucial for preparing students with 21st-century skills. Fourth, previous studies have not comprehensively analyzed the simultaneous effects of teacher quality and learning methods on both ICT utilization and learning quality in an integrated model.

This research offers novelty in several aspects. First, it examines the mediating role of ICT utilization in the relationship between teacher quality, learning methods, and learning quality, providing a more comprehensive understanding of the mechanisms through which teacher-related factors influence learning outcomes. Second, the research context at SMKN 5 Bandung—a reputable vocational high school with various majors including Building Drawing Engineering, Mapping Survey Engineering, Chemical Analyst, and Network Computer Engineering—provides unique insights into ICT integration in vocational education. Third, this study simultaneously analyzes direct and indirect effects using path analysis, enabling a more nuanced understanding of the complex relationships among variables. Fourth, the findings contribute to the development of theoretical frameworks for understanding how teacher quality and learning methods interact with ICT utilization to enhance learning quality in vocational education settings.

This study aims to analyze the influence of teacher quality and learning methods on the use of ICT, as well as its impact on learning quality at SMKN 5 Bandung. The research includes eight problem formulations that assess the direct, indirect, and simultaneous influences of teacher quality, learning methods, and ICT utilization on learning quality. The results are expected to provide practical benefits for school management and the community, as well as theoretical contributions to the development of knowledge related to vocational education and ICT integration.

RESEARCH METHOD

The object of research is the target from which data are obtained. According to Sugiyono (2015:20) in Aguswanto, the definition of a research object is “an attribute, trait, or value of a person, object, or activity that has certain variations determined by the researcher to be studied and then drawn into conclusions.”

The object of this research is the educational unit of SMKN 5 Bandung, located at Jalan Bojongkoneng No. 37A, Sukapada, Cibeunying Kidul, Bandung City. SMKN 5 Bandung has a strong reputation at the city level. The majors offered at this school include Building

Drawing Engineering (TGB) or Building Interior Modeling Design (DPIB), Mapping Survey Engineering (TSP) or Geomatics, Concrete Stone Construction Engineering (TKBB) or Sanitation and Maintenance Building Construction (KGSP), Chemical Analyst (AK), Network Computer Engineering (TKJ), and the newest major, Film Production (PF). The school has approximately 1,750 students and 147 educators and education personnel. Graduates of SMKN 5 Bandung are readily absorbed in the industrial sector, particularly in construction and surveying services, though many also continue their studies at the university level, demonstrating a high interest in further education.

This study employs descriptive and verifiable methods with a quantitative approach. Research methods are understood as scientific procedures used to obtain valid data for specific purposes and uses, based on rational, empirical, and systematic principles (Sugiyono, 2015). The descriptive method aims to portray conditions or variable values in a systematic, factual, and accurate manner without comparing or relating them to other variables, while the quantitative approach is used to test hypotheses through statistical analysis grounded in the philosophy of positivism.

The types of data used consist of primary and secondary data. Primary data were obtained through questionnaires distributed to teachers of SMKN 5 Bandung and interviews with related parties. Secondary data were sourced from literature such as books, modules, e-books, and supporting documents from the research object. The data include subject information in the form of respondents' attitudes and characteristics derived from the results of questionnaire processing.

Sources of research data include literature studies—such as activity reports, school performance reports, reference books, and student grade lists—as well as field studies in the form of interviews and questionnaires. Overall, the main source of data in this study is primary data obtained directly from respondents without intermediaries.

RESULTS AND DISCUSSIONS

In this chapter, the results of the research that have been carried out in May 2021 will be described, this research was carried out at SMKN 5 Bandung by distributing questionnaires. The results of this questionnaire are primary data that will be used as the basis for descriptive analysis and verifiable analysis, the purpose of the analysis of hypothesis test results that have been statistically tested using the SPSS data processing application.

Characteristics of Respondents by Education Level

The results of the data collected through the questionnaire that were distributed, the characteristics of the respondents according to their level of education, can be seen in the following table.

Table 1. Characteristics of Respondents by Education Level

Education	Frequency (People)	Percentage
S1	72 Guru	86,75%
S2	11 Guru	13,25%

Quantity	**83 Guru**	**100%**

Source: Processed primary data, 2021

According to Law Number 14 of 2005 concerning Teachers and Lecturers, it is mandated that teachers of SMK/MAK must have academic qualifications, competencies, and educator certificates. Then it was reaffirmed in Ministerial Regulation No. 34 of 2018 concerning National Education Standards, especially regarding the standards of educators and education personnel, it is stated that the academic qualification standards for vocational teachers/MAK obtained through formal education are at least S1 or D-IV. By looking at the data table above, all respondents involved in this study have met the qualifications as teachers of SMKN 5 Bandung. Where all teachers have S1 graduate qualifications and there are even S2 graduate teachers.

Characteristics of Respondents by Tenure

According to the working period of the respondents involved in filling out the distributed questionnaire, the data summarized in the table below appears:

Table 2. Characteristics of Respondents by Tenure

Tenure	Frequency (People)	Percentage
Less than 5 Years	14 Guru	16,87 %
6 – 10 Years	25 Guru	30,12 %
11 – 15 Years	17 Guru	20,48 %
More than 15 Years	27 Guru	32,53 %
Quantity	**83 Guru**	**100 %**

Source: Processed primary data, 2021

The subchapter of discussion in this study describes the results of descriptive and verifiable analysis. The descriptive discussion aims to answer the formulation of the problem regarding the description of the average value of each variable studied, including human resource development, provision of incentives, work productivity, and teacher performance.

Meanwhile, the verifiable discussion focused on testing the research hypothesis to prove the magnitude of the positive and significant influence of human resource development and the provision of incentives on work productivity, both partially and simultaneously. In addition, the verifiable discussion also explains the positive and significant influence of work productivity on teacher performance, as well as the positive and significant influence of human resource development and the provision of incentives on teacher performance partially.

Descriptive Discussion

The descriptive discussion aims to describe the average score of each research variable, namely teacher quality, learning method, ICT use, and learning quality. In addition, this discussion also explains the factors that cause the average score as presented in the research results, as well as proposes alternative solutions that can be done to increase the average value of each of these variables.

Verifiable Discussion

The verifiable discussion aims to test and empirically prove the influence between research variables, both partially and simultaneously, in accordance with the hypothesis that has been set. The test was carried out through statistical analysis by paying attention to the path coefficient (beta) and the level of significance, in order to obtain an objective picture of the causal relationship between independent variables, intervening variables, and bound variables.

The Influence of Teacher Quality (X1) on ICT Use (Y)

The results of the study show that the quality of teachers does not have a significant effect on the use of ICT in learning. The rapid development of technology requires ICT training or workshops so that teachers are able to update the learning process, as supported by research by Haris and Proverbs (2020) which found an increase in teachers' ICT understanding and skills after training. However, the teacher still looks at ICT is limited to supporting media, not as the main learning material. This is in line with Ministerial Regulation No. 34 of 2018, which places the use of ICT only as a general principle of learning, not as a core competency of teachers. In addition, the limitations of school facilities and infrastructure also limit the use of ICT, so that its application is adjusted to the available facilities and the needs of learning practices in vocational schools that are not always ICT-based.

The Effect of Learning Method (X2) on the Use of ICT (Y)

The results of the study show that learning methods have a significant effect on the use of ICT. The use of ICT in schools has been widely implemented to varying degrees, and its effectiveness depends heavily on how teachers integrate learning methods with ICT so that students can learn optimally. Student-centered learning will be more effective if ICT is used in an integrated manner, which is reflected in the learning planning (RPP), strategies, classroom environment, assessment system, and available technology. Learning methods are part of the learning model and serve as guidelines in the learning process in the classroom. The accuracy of the method used by teachers will determine the effectiveness of achieving learning objectives.

Therefore, teachers are required to be able to choose and apply learning methods that suit the characteristics of students, supported by ICT-based learning media, in order to create an effective, efficient, and fun learning atmosphere. In addition, the use of ICT has a significant effect on the quality of learning. The quality of learning is reflected in the level of effectiveness of the learning process which is able to facilitate active interaction of students with various learning resources. In learning, ICT plays a role as a presentation medium and an independent learning medium (e-learning) that allows the learning process to take place without space and time limitations. The use of ICT has been proven to improve the quality of learning, expand access to education, facilitate material understanding, and encourage interaction and exploration of knowledge, so schools need to continue to strive to provide and develop adequate ICT facilities.

Results of Examination of the Influence of Teacher Quality (X1) on Learning Quality (Z)

The results of the study show that the quality of teachers has no effect on the quality of learning. These findings are supported by the results of questionnaires that show that teachers tend to feel satisfied with the curriculum set by the government without developing it according to the conditions of the education unit, and do not fully understand the application of learning that meets philosophical, professional, psychopedagogical, and practical criteria. In addition, the quality of teachers in this study is only measured from pedagogic competence, while according to Law No. 14 of 2005, teachers must have four competencies (pedagogical, personality, social, and professional) in their entirety in order to be able to produce quality learning. Therefore, the quality of learning is also influenced by other factors such as the condition of students, learning resources, environment, and facilities and infrastructure.

On the other hand, the results of the study show that learning methods have a significant effect on the quality of learning. The paradigm shift from teacher-centered learning to student-centered learning requires teachers to choose the right and effective learning methods. Learning methods play an important role as an operational step in implementing learning strategies so that learning goals are optimally achieved. The success and quality of learning depend heavily on the accuracy, effectiveness, and efficiency of the methods used by teachers in the teaching and learning process.

The Influence of Teacher Quality (X1) and Learning Methods (X2) on the Use of ICT (Y)

The results of the study show that the Quality of Teachers (X1) and Learning Methods (X2) simultaneously affect the Use of ICT (Y). Teachers with good competence and the right learning methods tend to be better able to utilize ICT effectively and integrated, thereby supporting the achievement of learning goals. The synergy between teacher quality and learning methods encourages the use of ICT that is relevant, sustainable, and improves student learning outcomes. These findings are in line with previous research (Surakhmad, 1990; Jaka, 2012). Furthermore, Teacher Quality (X1) and Learning Method (X2) also have a simultaneous effect on Learning Quality (Z). The optimal quality of learning is achieved when professional teachers apply methods that suit the characteristics of the students, creating an interactive, systematic, and effective learning process.

Results of Examination of the Influence of Teacher Quality (X1) on Learning Quality (Z)

The results of the study show that the quality of teachers has no effect on the quality of learning. These findings are supported by the results of questionnaires that show that teachers tend to feel satisfied with the curriculum set by the government without developing it according to the conditions of the education unit, and do not fully understand the application of learning that meets philosophical, professional, psychopedagogical, and practical criteria. In addition, the quality of teachers in this study is only measured from pedagogic competence, while according to Law No. 14 of 2005, teachers must have four competencies (pedagogical,

personality, social, and professional) in their entirety in order to be able to produce quality learning. Therefore, the quality of learning is also influenced by other factors such as the condition of students, learning resources, environment, and facilities and infrastructure.

On the other hand, the results of the study show that learning methods have a significant effect on the quality of learning. The paradigm shift from teacher-centered learning to student-centered learning requires teachers to choose the right and effective learning methods. Learning methods play an important role as an operational step in implementing learning strategies so that learning goals are optimally achieved. The success and quality of learning depend heavily on the accuracy, effectiveness, and efficiency of the methods used by teachers in the teaching and learning process.

The Influence of Teacher Quality (X1) and Learning Methods (X2) on the Use of ICT (Y)

The results of the study show that the Quality of Teachers (X1) and Learning Methods (X2) simultaneously affect the Use of ICT (Y). Teachers with good competence and the right learning methods tend to be better able to utilize ICT effectively and integrated, thereby supporting the achievement of learning goals. The synergy between teacher quality and learning methods encourages the use of ICT that is relevant, sustainable, and improves student learning outcomes. These findings are in line with previous research (Surakhmad, 1990; Jaka, 2012). Furthermore, Teacher Quality (X1) and Learning Method (X2) also have a simultaneous effect on Learning Quality (Z). The optimal quality of learning is achieved when professional teachers apply methods that suit the characteristics of the students, creating an interactive, systematic, and effective learning process.

Based on the results of the research and discussion in the previous chapters, conclusions are presented in this section as answers to the problems that have been formulated earlier. Suggestions that may be useful for related parties are also provided. The conclusions obtained are as follows: descriptive analysis of the variables of Teacher Quality, Learning Methods, ICT Use, and Learning Quality at SMKN 5 Bandung shows that all are in the “very high” category.

Teacher Quality Variable

Teachers do not make changes to the curriculum provided by the government for further development. The existing curriculum is considered to be in accordance with the demands of the SMKN 5 Bandung education unit. Furthermore, the curriculum component that emphasizes character development among students is viewed very positively, as it received the highest average score on the questionnaire for this variable. The variable of teacher quality is assessed solely from a pedagogical perspective.

Learning Methods

One of the learning methods applied is the assignment of tasks or exercises to students. These assignments or exercises are closely aligned with the intended learning objectives. Teachers are careful and deliberate in giving assignments, considering not only how quickly

or easily students complete them but also ensuring that the applied learning methods help achieve the desired learning outcomes.

ICT Use

Teachers at SMKN 5 Bandung already share a common understanding of the information technology media used in the learning process. According to Budiana, H. R., Sjafirah, N. A., and Bakti, I. (2015), ICT in the learning process serves two roles: first, as a presentation medium and second, as an independent learning medium. These roles have been adequately fulfilled at the school, and all teachers have mastered their use. However, in increasing student concentration, additional factors beyond ICT utilization during the learning process are still needed.

Learning Quality

Learning quality consists of teacher learning behavior, student learning behavior and outcomes, learning climate, learning materials, learning media, and school learning systems (Ministry of National Education, 2004). From the statement above, it can be concluded that learning quality relies on five interrelated factors. The learning quality at SMKN 5 Bandung has been supported by the professional teaching behavior of teachers who comply with the regulations established by both central and provincial governments. Although they face challenges such as frequent curriculum changes that affect learning materials and heavy administrative workloads, teachers are expected to possess endurance and adaptability to maintain high learning quality.

Referring to the results of the analysis of the influence of Teacher Quality (X1) on ICT Use (Y), a significance value of 0.554 (> 0.05) was obtained, indicating that there is no significant influence of X1 on Y. Referring to the results of the analysis of the influence of Learning Methods (X2) on ICT Use (Y), a significance value of 0.001 (< 0.05) was obtained, showing that there is a significant influence of X2 on Y.

Referring to the analysis of the influence of ICT Use (Y) on Learning Quality (Z), a significance value of 0.001 (< 0.05) was obtained, indicating a significant influence of Y on Z. Referring to the analysis of the influence of Teacher Quality (X1) on Learning Quality (Z), a significance value of 0.172 (> 0.05) was obtained, meaning that there is no significant influence of X1 on Z.

Based on the analysis of the influence of Learning Methods (X2) on Learning Quality (Z), a significance value of 0.001 (< 0.05) was obtained, showing a significant influence of X2 on Z. Referring to the analysis of the influence of Teacher Quality (X1) and Learning Methods (X2) on ICT Use (Y) simultaneously, a significance value of 0.001 (< 0.05) was obtained, indicating a simultaneous significant influence of X1 and X2 on Y.

Furthermore, referring to the analysis of the influence of Teacher Quality (X1) and Learning Methods (X2) on Learning Quality (Z) simultaneously, a significance value of 0.001 (< 0.05) was obtained, indicating a simultaneous significant influence of X1 and X2 on Z. Finally, based on the analysis of the influence of Teacher Quality (X1) and Learning Methods (X2) on Learning Quality (Z) simultaneously through ICT Use (Y), a significance value of

0.000 (< 0.05) was obtained. It can therefore be concluded that there is a simultaneous significant influence of X1 and X2 on Z through Y, with the direction of the influence of Teacher Quality being negative, while the influence of Learning Methods is positive. The total influence of variable X2 on Z is greater than that of variable X1 on Z.

CONCLUSION

Based on the results of the research and discussion, it can be concluded that the descriptive analysis of the variables of teacher quality, learning methods, ICT use, and learning quality at SMKN 5 Bandung are all in the very high category. Teacher quality, assessed from a pedagogical perspective, shows that teachers do not make changes to the curriculum provided by the government, as it is considered to be in accordance with the demands of the education unit. The applied learning methods, particularly in the form of assignments or exercises, consistently align with the intended learning objectives. The use of ICT has been well understood by teachers, both as a presentation medium and as an independent learning medium, although increasing student concentration requires more than just ICT utilization during the learning process. Learning quality is supported by professional teacher learning behavior, despite challenges such as frequent curriculum changes and administrative burdens.

The results of hypothesis testing show that learning methods have a significant effect on both ICT use and learning quality, while teacher quality does not exhibit a significant direct effect on either ICT use or learning quality. ICT use has a significant effect on learning quality. Simultaneously, teacher quality and learning methods have a significant effect on both ICT use and learning quality. The indirect influence of learning methods on learning quality through ICT use is greater than its direct influence, indicating that ICT serves as an effective mediating variable.

Based on the research findings, it is recommended that SMKN 5 Bandung optimize teacher quality through continuous professional development programs, particularly those emphasizing ICT integration in learning, as teacher quality measured solely by pedagogical competence has not shown significant direct effects on ICT utilization and learning quality. Teachers should be encouraged to actively develop and adapt the curriculum according to the specific needs of the education unit rather than relying solely on the government-provided curriculum without modification.

The school should improve ICT facilities and infrastructure to support more effective technology integration, considering that ICT use significantly influences learning quality and functions as an effective mediator for learning methods. Regular training sessions and workshops on innovative ICT-based learning strategies should be conducted to strengthen teachers' ability to integrate appropriate learning methods with technology.

For future researchers, it is recommended to examine teacher quality more comprehensively by including all four competencies mandated by Law No. 14 of 2005—pedagogical, personality, social, and professional—rather than focusing solely on pedagogical

competence. Future studies may also explore other factors influencing learning quality, such as student characteristics, the learning environment, and school management systems.

REFERENCES

Budiana, H. R., Sjafirah, N. A., & Bakti, I. (2015). Pemanfaatan teknologi informasi dan komunikasi dalam pembelajaran bagi para guru SMPN 2 Kawali Desa Citeureup Kabupaten Ciamis. *Dharmakarya, 4*(1).

Glukhov, G. V., & Gromova, T. V. (2016). Functional components and roles of the university teacher in distance education. *International Review of Management and Marketing, 6*(5), 235–242.

Hakim, A. (2015). Contribution of competence teacher (pedagogical, personality, professional competence and social) on the performance of learning. *The International Journal of Engineering and Science, 4*(2), 1–12.

Hu, G., & Du, B. (2024). Basic education in the context of global governance: Policy implications and future directions. *Journal of International Economics and Global Governance, 1*(5), 24–40.

Lawrence, J. E., & Tar, U. A. (2018). Factors that influence teachers' adoption and integration of ICT in teaching/learning process. *Educational Media International, 55*(1), 79–105.

Monitor, C. (2018). *So this funny thing happened in class... A study on humour, student-teacher immediacy, and perceived teacher-efficacy.* Central Michigan University.

Mubanga, N. L. (2025). *An analysis of the instructional strategies used by teachers of English in selected secondary schools of Lusaka District of Zambia.*

Pavlik, J. V. (2015). Fueling a third paradigm of education: The pedagogical implications of digital, social and mobile media. *Contemporary Educational Technology*, *6*(2), 113–125.

Rahmatullah, M. (2016). The relationship between learning effectiveness, teacher competence and teachers performance Madrasah Tsanawiyah at Serang, Banten, Indonesia. *Higher Education Studies, 6*(1), 169–181.

Rindu, I., & Ariyanti, A. (2017). Teacher's role in managing the class during teaching and learning process. *Script Journal: Journal of Linguistic and English Teaching, 2*(1), 83–100.

Saminanto, & Kartono. (2015). Analysis of mathematical connections ability in linear equation with one variable based on connectivity theory. *International Journal of Education and Research.* http://www.ijern.com

Sayed, Y., & Ahmed, R. (2015). Education quality, and teaching and learning in the post-2015 education agenda. *International Journal of Educational Development, 40*, 330–338.

Segabutla, M. H. (2015). *Exploring perceptions of lecturers' instructional communication as a reflection of instructional competence.* University of Pretoria.

Shakoor, Z., Lateef, A., & Mehmood, S. (2025). Bridging communication gaps: Enhancing student-teacher interaction for academic success. *Indus Journal of Social Sciences.*

Sperti, S. (2019). Cross-cultural mediation in ELF migration contexts: Pedagogical implications on ELT multilingual settings. *Eurasian Journal of Applied Linguistics.*

Sudargini, Y., & Purwanto, A. (2020). The effect of teachers pedagogic competency on the learning outcomes of students. *Journal of Industrial Engineering & Management Research, 1*(4), 1–8.

Sugiyono. (2015). *Metode penelitian kombinasi (mixed methods).* Alfabeta.

Sugiyono. (2017). *Metode penelitian pendidikan: Pendekatan kuantitatif, kualitatif, dan R&D.* Alfabeta.

Wagner, D. A. (2025). *Learning as development: Rethinking international education in a changing world.* Taylor & Francis.

Widyaningsih, W. (2015). *Pengaruh kecerdasan emosional dan pemanfaatan media pembelajaran berbasis teknologi informasi dan komunikasi terhadap hasil belajar akuntansi siswa kelas X SMK Negeri 1 Dewantara Kabupaten Aceh Utara*.