

# Teacher's Competencies Profile In Teaching and Learning Using Digital Technology In Postmodern Society

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**Abstract.** Technological developments in postmodern society and the COVID-19 pandemic situation require education systems worldwide to adapt to a new normal context. However, there are still teachers who still need to gain the competence to use digital technology in teaching and learning in schools. The research aims to see the teacher's competencies profile in teaching and learning using digital technology at schools. The research subjects were teachers at a private school in Tangerang amount 61 respondents. The results showed that further efforts must be developed to develop teachers' competencies concerning CL-3, CL-4, CL-5, CL-6, AS-7, and AE-5. Based on the research result, it is necessary to conduct further research to see how much a teacher's competencies enhance using digital technology after participating in professional development or teacher training..

**Keywords:** Digital technology, learning, teaching, teacher's competencies

## 1. Introduction

Along with technological developments in postmodern society and COVID-19 pandemic situation, which requires the education systems across the world to be able to adapt to a new normal context, thus encouraging significant changes in education, which previously used a conventional approach to a technology-based approach. Of course, with these changes, there is need to for efforts to improve teaching quality and conceptual frameworks development to enhance teacher's competencies relevant to their fields of expertise, especially competencies related to digital technology use in education activities process [1]. This is related to the ability of teachers to plan and implement technology tools and digital resources in the learning process, either to collaborate or independently, to create an active teaching and learning process in the classroom. Technology is used in the classroom so that students do not become passive learners and teachers are responsible for it [2]. When teachers use technology in them learning, students should become the center of learning so that they can become active learners [3].

Starting from the ideal conditions described above, where digital technology should be used as a mechanism for teachers to provide quality learning experiences for students to be involved in learning, but it is still found that teachers do not have the competence related to digital technology use in teaching and learning process in schools [4]. Many teachers still follow outdated learning patterns where most of them have difficulty using technology to support teaching and learning process because teachers' understanding of learning technology

is still limited [5]. In addition, there is still an uneven infrastructure distribution that supports digital technology application in the teaching and learning process, so that this becomes a problem for teacher competence development in accessing digital technology that must be immediately addressed by the authorities [6]. Through the two quotes above, it can be concluded that problems are still faced by teachers today as they lack competence in using digital technology and supporting infrastructure for digital technology in the teaching and learning process in schools. This has a significant impact on the learning process, where the teacher's lack of mastery of teaching materials or messages that will be communicated to students through teaching materials can certainly affect the quality student learning [7].

Discussing about teacher's competence using digital technology related to teaching and learning process involved in learning and working in a society with various cognitive, motor, and social skills, as well as sociologically and emotionally [8]. In addition, the impact of technology used by teachers enables and causes change in communications, planning, operations, management, decision-making, curriculum, teaching, and learning [9]. Based on problems identification and literature review above, in this paper, we focus on reviewing teacher's competencies profile about teaching and learning using digital technology as a solution to enhance teacher's competencies with six supporting sub-aspects, namely planning and implementing digital tools and resources in teaching process (teaching), using digital technology to encourage student collaboration, as part of collaborative tasks to improve communication and collaboration (collaborative learning), use digital technology to support independent learning processes, i.e., enable students to plan, monitor, and reflect on their own learning, provide evidence of progress, share insight and generate creative solutions (self-regulated learning), use digital technology for formative and summative assessments to enhance diversity and suitability of assessment formats and approaches (assessment strategies), critically analyze, and interpret digital evidence about student activity, performance, and progress to inform the teaching and learning process (analyzing evidence), using digital technology to provide targeted and timely feedback to students (feedback and planning).

Thus, the research problem in this paper is, how the teacher's competencies profile in teaching and learning using digital technology? The objective of this research is to determine teacher's competencies profile in teaching and learning using digital technology as further policies by school leaders related to efforts to enhance teacher competencies using digital technology in teaching and learning process, as well as further research that can be developed from the findings and follow-up results from the school policy after conducting personal development or teachers training. Based on the introduction described above, this research takes the title, "Teacher's Competencies Profile in Teaching and Learning Using Digital Technology in Post Modern Society."

## **2. Method**

The research design used is survey research through data collection from randomly selected respondents. Data obtained from respondents will be analyzed by accumulating answers from respondents in the form of percentages. The research subjects were teachers at a private school in the city of Tangerang with 61 respondents, which represents the actual conditions related to teacher's competencies sample of this research and using Likert scale. Data collected will be analyzed descriptively and qualitatively by calculating the average score obtained for the boldest statements in the questionnaire, which are grouped according to the following scale interpretation table, that is score 4.5-5 (very good), 3.5-4.4 (good), 2.5-3.4 (enough), 1.5-2.4 (less), and 0-1.4 (very poor) [10]. Each item of the observed aspect is provided in coding to make it easier to read the diagram and understand the interpretation

conveyed by the researcher. The following can be seen as an explanation of the coding used in this study:

**Table 1.** The explanation of sub-aspect coding

<b>Aspect</b>	<b>Sub-aspect teacher's competence</b>	<b>Coding</b>
Teaching	Digital technology refers to learning objectives	T-1
	Choosing digital technology refers to learning context	T-2
	Manage various integration available digital content into learning and teaching process	T-3
	Appropriate social (ethical) norms when integrating digital technology in the learning process	T-4
	Evaluating the effectiveness of continuously on teaching strategies and implementing digital technology regularly	T-5
	Make efforts to improve the teaching strategies used regularly	T-6
Collaborative Learning	Implementing collaborative activities and encouraging students to use digital technology to support task completion	CL-1
	Implementing collaborative activities, where digital technology can be used by students to elaborate knowledge	CL-2
	Asking students to document their collaborative activities using digital Technology	CL-3
	Designing varied collaborative learning activities	CL-4
	Managing varied collaborative learning activities	CL-5
	Using digital technology for peer assessment	CL-6
Self-Regulated Learning	Using digital technology for peer assessment as a form of support for collaborative independent learning	SLR-1
	Encourage students to use digital technology to collect evidence of progress in completing assignments	SLR-2
	Helping students in developing digital technology	SLR-3
	Assisting students in applying digital technology	SLR-4
	Helping students revise the appropriate criteria for self-assessment using digital technology support	SLR-5
	Developing digital formats to encourage independent learning for students	SLR-6
Assessment Strategies	Using several digital technologies that already exist for formative Assessment	AS-1
	Using several existing digital technologies for summative assessment	AS-2
	Using various applications on electronic devices for formative or summative assessment purpose	AS-3
	Using various electronic assessment approaches for formative assessment purpose	AS-4
	Critically reflects on digital technology use for appropriate assessment	AS-5
	Using digital technology for appropriate learning strategies	AS-6
	Developing the latest digital format for assessment that reflects an innovative pedagogic approach to open space for universal skills Assessment	AS-7
Analyzing Evidence	Realizing that digital assessment tools can be used to teach students Categorized	AE-1

Aspect	Sub-aspect teacher's competence	Coding
Feedback and Planning	Realizing that digital assessment tools can be used to provide timely feedback related to the learning progress of students	AE-2
	Evaluating the results of digital assessment	AE-3
	Realizing that digital data regarding student learning activities	AE-4
	Using data analysis tools provided in a digital environment for monitoring learning activities	AE-5
	Using digital technology to assess assignments collected Electronically	FP-1
	Using digital technology to provide feedback on assignments	FP-2
	Providing personal feedback for students based on the data produced	FP-3
	Providing varied feedback for students based on the data produced	FP-4
	Reflects learning strategies in response to digital evidence	FP-5
	Discuss, learning strategies in response to digital evidence	FP-6
Redesign learning strategies in response to digital evidence	FP-7	

### 3. Result And Discussion

Observing data tabulation results in Figure 1, teacher's competence profile in teaching and learning using digital technology, Teaching (T) accumulatively been achieved with a good category where teacher's competence profile criteria as expected. This means that teacher's competence in using digital technology when teaching is good, so it needs to be improved so that they become more creative in teaching using more varied digital technology.

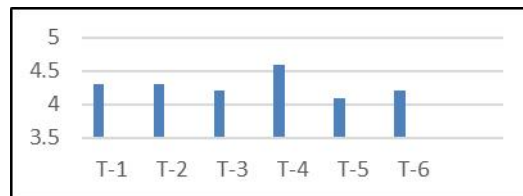
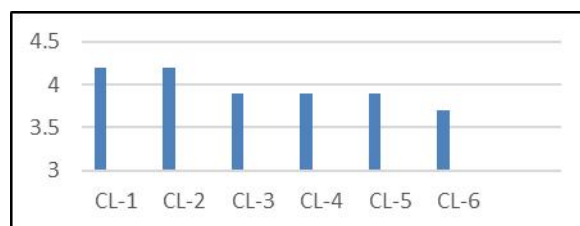


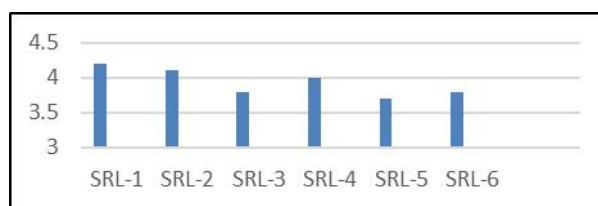
Fig. 1. Data tabulation result diagram of teaching (T)

Based on achieved results teacher's competence profile in teaching and learning using digital technology in sub-aspects of Collaborative Learning (CL) has accumulatively been achieved in a good category where teacher competency profile criteria as expected. Nevertheless, there is need for further efforts in enhancing teacher competence related to CL- 3, CL-4, CL-5, and CL-6. This means teacher's competencies using digital technology when assessing student assignments and assigning assignments still needs to be continuously improved and accustomed so that it opens space for teachers to accommodate and direct assignments given to students using digital technology devices.



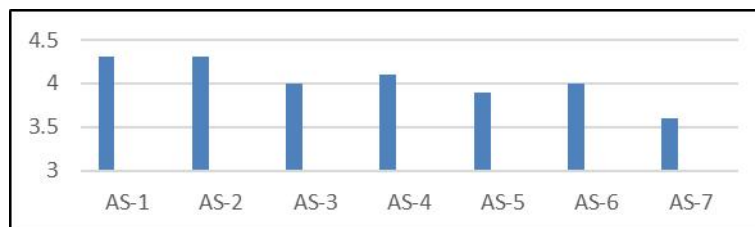
**Fig. 2.** Data tabulation result diagram for collaborative learning (CL)

Based on achieved results teacher's competencies in teaching and learning using technology sub-aspects of Self-Regulated Learning (SRL) has accumulatively been achieved with a good category where teacher's competence profile criteria as expected. Nevertheless, there is needs for further efforts to enhance teacher competence related to SRL-3, SRL-5, and SRL-6. This shows that until now the teachers have not practiced digital formats to familiarize students with self-assessment and their assignments independently and encourage them to develop the ability to assess their assignments independently.



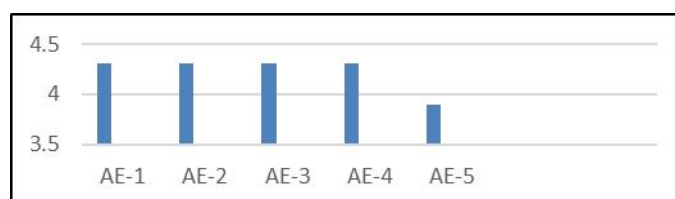
**Fig. 3.** Data tabulation result diagram of self-regulated learning (SRL)

Based on achieved results teacher's competencies profile in teaching and learning using digital technology in sub-aspects of Assessment Strategies (AS) has accumulatively been achieved with a good category where teacher competency profile criteria as expected. However, there needs to be further efforts to develop teacher competence related to AS-5 and AS-7. When a teacher does not have the competence to reflect on assessment strategies using digital technology, then he or she will be stuck in assessing routine and not being creative in making assessment varieties and rubrics.



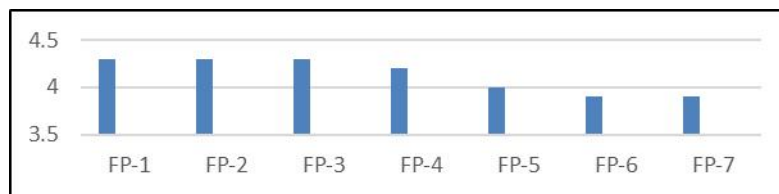
**Fig. 4.** Data tabulation result diagram of assessment strategies (AS)

Based on achieved results teacher's competence profile using digital technology in sub-aspects of Analyzing Evidence (AE) has accumulatively been achieved with a good category where teacher competence profile criteria as expected. However, there needs to be further efforts to improve teacher competence related to AE-5. Efforts to improving teacher's competence to present student assessment reports using digital technology are important as a tangible manifestation of providing speed and easy access for parents or stakeholder to find out the student's assessment work result.



**Fig. 5.** Data tabulation result diagram of analyzing evidence (AE)

Based on achieved results teacher's competence profile in teaching and learning using digital technology in Feedback and Planning (FP) sub-aspect has accumulatively been achieved with a good category where teacher's competence profile criteria as expected. Nevertheless, there is need for further efforts to improve teacher competence related to FP-6 and FP-7. These two teacher competencies that need to be improved are important related with teachers to discuss, learning strategies in response to digital evidence related to the preferences and needs of students as well as the effectiveness of teaching interventions and various learning.



**Fig. 6.** Data tabulation result diagram of Feedback and Planning (FP)

#### 4. Conclusion

Referring to respondent data analysis using Likert scale category interpretation, it can be concluded that there is need for further efforts to develop teacher's competencies concerning items of CL-3, CL-4, CL-5, CL-6, AS-7, and AE-5. Follow-up efforts that can be done in response to the findings above, it is necessary to immediately follow-up efforts to develop teacher's competencies through professional development or teacher's training continuously and do further research based on the findings and follow-up results from the school policy after conducting personal development or teachers training.

#### 5. References

- [1] Akbar, A., & Noviani, N. 2019. *Tantangan dan solusi dalam perkembangan teknologi pendidikan di Indonesia. Seminar Nasional Pendidikan Program Pascasarjana Universitas PGRI, Proc. national sem., Palembang, 3 Mei 2019.* Palembang: Universitas PGRI.
- [2] Harwati, H. 2018. *Application of technology in postmodern society education. International Journal of Research in Counseling and Education, 02(01): 1-6.*
- [3] Ismail Raob, I., AL-Oshaibat, H., & Saw Lan, O. 2012. *A factor analysis of teacher competency in technology. New Horizons in Education, 60(1): 13-22.*
- [4] Krumsvik, R. J. 2014. *Teacher educators' digital competence. Scandinavian Journal of Educational Research, 58(3): 269-280.*
- [5] Lin Sim, S. P., Khiok Sim, H. P., & Quah, C. S. 2020. *Online learning: a post covid-19 alternative pedagogy for university students. Asian Journal of University Education (AJUE), 16(4): 137-151.*
- [6] Munthe, E. (2019). *Pentingnya penguasaan iptek bagi guru di era revolusi 4.0. Seminar Nasional Teknologi Pendidikan Pascasarjana UNIMED, Proc. national sem., Medan, 30 November 2019.* Medan: UNIMED.
- [7] Purnasari, P. D., & Sadewo, Y. D. 2020. *Pemanfaatan teknologi dalam pembelajaran*

- sebagai upaya peningkatan kompetesnsi. Jurnal Publikasi Pendidikan, 10(3): 189-196.*
- [8] Wibawanta, B., Chrismastianto, I. A., & Mumu, B. 2021. *Teachers' competencies profile in digital learning era: professional engagement and selecting digital resources.* Jurnal Pendidikan Dasar, 1(1): 103-116.
- [9] Widoyoko, E. P. 2013. *Teknik Penyusunan Instrumen Penelitian.* Yogyakarta: Pustaka Pelajar.
- [10] Wilson, A. C., Robutti, O., & Thomas, M. 2020. *Teaching with digital technology.* ZDM, 52(7): 1223-1242