Incorporating Technology In Teaching: An Analysis Of Junior High School English Teacher's Proficiency Based On Bloom's Digital Taxonomy Framework

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Abstract
This research aimed to reveal the extent of the proficiency level of Bloom's Digital Taxonomy (BDT) Junior High School English Teachers and examined the factors that influenced English Teachers' Proficiency in integrating technology into instruction based on Bloom's Digital Taxonomy. Information and Communication Technology (ICT) was increasingly important in improving the learning process. This research used a mixed methods approach that combined a quantitative approach, namely a questionnaire, and a qualitative approach consisting of interviews, observations, and document analysis was gather comprehensive insights into teachers' skills in integrated Technology Pedagogy Content Knowledge (TPACK) into ELT. This research used stratified Cluster Random Sampling to determine the regions and English teachers who participated in this research. Data was obtained from a quantitative approach by distributing questionnaires to all Junior High Schools throughout North Denpasar to find out the results of the highest and lowest scores using Descriptive Statistical Analysis techniques with a total of 28 teachers who filled out the questionnaire. Then it was clarified using qualitative observations and interviews with small numbers of 2 English teachers from 2 different Schools who got high and low scores. The finding of this study is that the level of teacher proficiency is at level C3 and teacher proficiency factors are caused by external and internal factors. For further research, other researchers can explore the same study but with a larger sample take other regencies and investigate ELT from kindergartens or early preschool.

Keywords: Teacher's Proficiency, Bloom's Digital Taxonomy, TPACK

INTRODUCTION

In the era of globalization, technology has an impact on the fields of communication, transportation, medicine industry and education. Many schools and institutions have implemented technology in their teaching process to support and make the teaching and learning process more interesting (Hartatik et al., 2022). Technology has benefits in increasing productivity, quality of life and social progress (Agar, 2020). Technology is not just tools or objects but includes websites and digital software that can be accessed by anyone. In the field of education, technology plays an important role, for example: by using technology, student interest will increase, students will not get bored in the teaching process, teachers and students can look for more in-depth and up-to-date material, and students will learn new skills more easily. Second, make the teaching and learning process easy and useful. Teachers can distribute assignments or materials to students via applications and the web, allowing them to complete assignments more quickly. Third, the material offered is more interesting. Because teachers can integrate technology into the curriculum, students feel more comfortable. This rapid technical progress has resulted in the development of tools and applications that are

easy to understand and use as learning materials, making teachers integrate technology as an alternative teaching strategy (Almulla, 2022). some teachers started using technology in their teaching when the pandemic occurred so teachers had to do ODL (Online Distance Learning) with students Noori, (2021) using several applications and digital technology. The integration of technology in education can significantly influence student learning outcomes, as well as increase the effectiveness and efficiency of the learning process. Some teachers have combined the teaching process with technology and digital sites. Therefore, a type of teacher has emerged who integrates technology into the teaching process called E-learning. E-learning comes in two types: internet-based and electronic-based. Teaching with information and communication technology, including projectors, LCDs, laptops, OHPs, videos and films, is known as electronic-based education. On the other hand, learning using the internet and its applications can be done at any time and from any location, this is known as internet-based learning namely PowerPoint, Quizzes, Google Classroom, Word wall, Zoom, Google Meet, Padlet, WhatsApp, and YouTube.

Furthermore, based on this issue, teachers can apply the principle of TPACK in the teaching process. TPACK (Technology Pedagogy and Content Knowledge) was founded by Koehler and Mishra Koehler et al. (2013). Also, teachers apply Bloom's Digital Taxonomy in their activities in the teaching process. The curriculum requires that the knowledge content that must be taught to students follow Bloom's Digital Taxonomy. It is important to highlight teachers' proficiency in implementing Bloom's Digital Taxonomy, as well as recognizing key issues regarding weaknesses in its implementation. The researcher conducted a preliminary study in three Junior High Schools through observation and interviews, which included direct observation followed by semi-structured interviews, and document analysis. The teacher who is the subject of this research is an English teacher. Researchers analyzed the teaching modules that compiled observation sheets. The results from the three schools show that there was a phenomenon that technologies integrated into their schools, which can support the teacher in the teaching process. This study will answer research questions, What is the proficiency level of Junior High School English Teachers in integrating technology into instruction based on Bloom's Digital Taxonomy? What are the factors influencing Junior High School English teachers' proficiency in integrating technology into instruction based on Bloom's Digital Taxonomy?

Literature Review

Teacher Proficiency

Teacher proficiency refers to the level of ability, knowledge, skills, experience and competence that teachers have in a particular field (Paul, 2016). This also follows research by Aina.S and Aina.M (2023) which states that the level of teaching competency refers to information, skills, abilities and attitudes needed by a teacher to support the learning process and course design.

TPACK (Technological, Pedagogical and Content Knowledge)

Technological, Pedagogical and Content Knowledge (TPACK) was introduced as a framework for integrating technology in teaching that was proposed by J. Koehler and Punya Mishra in 2007 at Michigan University. According to Schmid et al. (2021) knowing how concepts are represented through technology, pedagogical strategies that use technology to present content efficiently, understanding the factors that make the learning and learning process easy or difficult to learn, and comprehension of how the technology can support and solve specific issues are all the purpose of the TPACK.

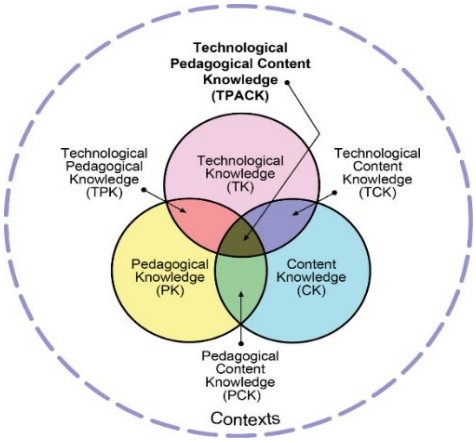


Figure II.1 TPACK Framework

According to Koehler et al. (2013), TPACK has three important components of a teacher's knowledge: Content, Pedagogy, and Technology. These three important components are classified as PK (Pedagogical Knowledge, CK (Content Knowledge) and TK (Technology Knowledge)

As the result by (Saubern et al., 2020) the three main components can be combined namely TCK (Technological Content Knowledge) means teachers' knowledge regarding the material that is delivered with the help of technology, PCK (Pedagogical Content Knowledge) means teachers can deliver specific subjects with appropriate teaching strategies and TPK (Technological Pedagogical Knowledge) means teachers' strategies for integrating technology in the classroom.

BDT (Bloom's Digital Taxonomy)

This guideline is a revision of Bloom's Taxonomy which was introduced by Benjamin Bloom in 1956. A framework called Bloom's Digital Taxonomy modifies Bloom's Taxonomy of educational goals to take into account the context of digital skills and technology. This new version focuses on how the teacher uses technology. A study (Churches, 2012) published to the world the existence of Bloom's Digital Taxonomy which is relevant and effective for the current generation, all teachers certainly can operate technology in the classroom, but the skills possessed by each teacher are different at the level of Bloom's Digital Taxonomy. Bloom's Digital Taxonomy have different levels, ranging from (LOTS) Lower-Order Thinking Skills to (HOTS) Higher Thinking Skills. The Lower Order Thinking Skill (LOTS) includes this level, remembering Understanding, and Applying. In addition, the Higher Thinking Skills (HOTS) includes levels are Analyzing, Evaluating, and Creating.

Figure II.2 Bloom Digital Taxonomy Framework

Assessing Teacher's Proficiency

The guideline used to measure teachers' TPACK abilities is Bloom's Digital Taxonomy. Bloom's Digital Taxonomy, was developed by (Churches, 2012) to measure the teachers'

proficiency level in integrating TPACK into the teaching-learning process. The BDT is used to assess the teacher's proficiency in integrating the technology into the teaching process Indirectly, BDT is used because researchers can assess the teachers without making the teachers reluctant, worried or uncomfortable. A study by Wahyu Mahendra et al., (2023) some teacher are reluctant to be assess, with BDT the researcher can assess indirectly.

METHODS

Design

This study uses a Mixed Method study with type an Explanatory Sequential research design is a research design that combines quantitative and qualitative methods.

Participants

Setting and Participants

This study uses multi-stage random sampling containing stratified random sampling then followed by cluster random sampling. The data were collected by 26 English Teachers filling out the questionnaires from 18 Schools in North Denpasar and 2 female teachers carried out observations and interviews from two schools of North Denpasar namely SMPN 10 Denpasar and SMP Harapan Nusantara Denpasar.

Data analysis

Instrument

The data were collected using Questionnaire five-point Likert scale with responses ranging from 1 to 5 never, rare, moderate, often, always and consisted of 48 items. Semi-structured Interview, Participated Observation, and Document Analysis by Teaching Module.

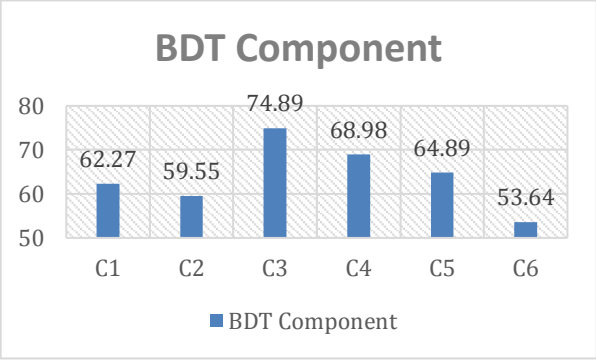
Furthermore, the questionnaire was first distributed to the English Teachers in the MGMP *(Musyawarah Guru Mata Pelajaran*) group. Then, as the result of the questionnaire the researcher got the highest and lowest scores of the teacher. The next step is for the teacher who got the lowest and highest scores to be interviewed and observed to clarify the result that they got.

FINDINGS AND DISCUSSION

1. Findings on Teachers' Digital Proficiency Level Technology in Instruction based on Bloom's Digital Taxonomy

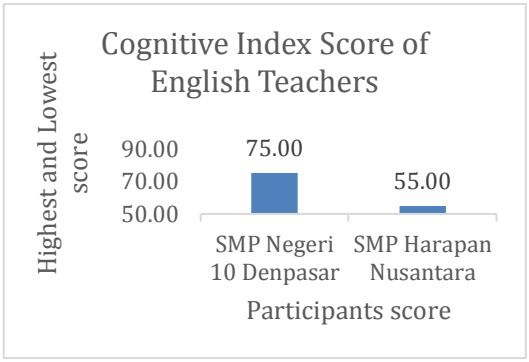
The questionnaire calculated the index level of all teachers who were selected as the sample. The following chart illustrates the Proficiency level of English Teachers in North Denpasar.

Chart IV.1 The Recapitulation of BDT Proficiency Level of English Teacher



The chart defected that in general, the C3 level is the most frequently used framework with 74.89. The chart also shows that the C4 level of 68.98 became the second most frequent framework used. On the other hand, C6 occurrences are considered as the less apparent aspect with 53.64.

Chart IV.2 The Recapitulation of Cognitive Index Score of English Teachers



The teacher who came from SMPN 10 Denpasar got the highest cognitive index level among several teachers from other schools with an indexing score of 75.00 and the other teachers who came from SMP Harapan Nusantara got the lowest cognitive index level among several teachers from other schools with an indexing score of 55.00. The factors that influence such findings are explained through observation and interviews were employed.

The conclusions, based on this finding the teacher applying the TPACK knowledge in their teaching and learning process. The results of questionnaires which displayed by chart and defected that the teacher who get the highest score is SMP Negeri 10 Denpasar with indexing score 75.00 and the lowest score is SMP Harapan Nusantara Denpasar 55.00. The chart defected that, C3 (Applying) level is the most frequently used by teachers with 74.89. The teachers most integrating the digital activities that classified in C3 level.

2. Factors Influencing Teachers' Proficiency in Integrating Technology

External Factors

The External Factors included Curriculum Demands, School Facilities, Digital Literacy, and Digital Training. Based on the results of observations and interviews show that theexternal factors influencing teachers' Proficiency in Integrating Technology are Curriculum Demands, the Curriculum was used in this school are Independent Curriculum *(Kurikulum Merdeka).* Where the curriculum demand for learning English is that students can master cognitive levels at levels C3 and C4 therefore teachers are required to be able to carry out digital activities included in levels C3 and C4 including Editing, Uploading, Calculating, Charting, Mind Mapping, Connecting, Surveying, and Validating, on the other hand the incorporation of the technology was adjusted to the curriculum demands.

Secondly, an external factor is School Facilities. The available facilities in schools can generally be used by everyone, but if these facilities are limited, their existence can affect the quality of integrating technology. At these schools, the available facilities are limited this statement is also in line with the teacher's response:

"The limitation is that there are only a few LCDs" (T19).

It's made when the teacher wants to use the facilities, the teacher must quickly get it. Otherwise, the teacher must makeother plans to integrate technology into the classroom.

Thirdly, an external factor is Digital Training. Digital training also has an impact on teachers in integrating technology. Based on this teacher's statements

"I attended webinars from the MGMP English group several times and then joined in webinars from Merdeka Belajar that sharing about integrating technology into teaching" (T19).

Teacher attends webinars that are provided by the government namely webinars from Merdeka Belajar and from MGMP English Teachers in Denpasar, the digital training can help teachers get more information onintegrating the technology.

Lastly, an external factor is Digital Literacy which provides some digital information that everyone can assess. The external factor comes fromthe student's lack of digital literacy. Because of the less information of using technology, they cannot use the application or other technology that teachers provide in their classroom. It can make the teaching process not optimal.

Internal Factors

Furthermore, Internal Factors included Self-Motivations and Teaching Experiences. There are also Internal Factors involved in Teaching Experience. Usually, teachers who have taught for more than 5 years have a lot of experience inteaching, includes terms of strategies, methods and media used in learning. Meanwhile, teachers who have freshly graduated or teachers who have taught for lessthan 5 years usually do not have much experience in teaching.

Secondly, an internal factor is Self-Motivations. Motivation can impact theteacher's influence in integrating technology cause motivation is the same as support. When a teacher is motivated to do something which they have not mastered,they will study that thing so that they can master it. Motivation usually appears ina person who is directed towards a goal that gives someone enthusiasm and perseverance. It same as when the teacher is motivated to master some application that supports of teaching process, they will search for more information about it and practice it.

Moreover, from the analysis of the factors contributing to Teacher Proficiency, the most frequently appearing levels C3 and C4 are mostly intended for TPACK, TCK and TPK to support the learning process in the classroom. Based on the index score of 74.89, there are 5 occurrences of teacher digital activities at level C3 that all intend to TPACK. The first, digital activity whichleads to TPACK was carried out by teachers at level C3 using WA too. The teacherintegrates WhatsApp group to Upload Link Google Drive that consists of material for teaching and learning process namely LKPD and Audio for teaching listening. This statement is also in line with the teacher's response:

“I use WhatsApp to uploadlink Google drive for the student to submit their assignment that I was given and also link Google drive that consists of LKPD and audio for listening section” (T19).

The teacher asked students to upload their assignments on YouTube and then put the link on Google Drive, she used Google Drive because it can help her to collectthe students' assignments in the learning process, this statement is also in line withher response:

“When giving assignments I ask students to upload to YouTube and put the link on Google Drive, I think it can help me to check the students' assignments easier” (T19).

The LKPD that has been uploaded will be used as teaching material in class. In the LKPD several activities will be carried out by students in class. Then, when she teaches listening, she will play the audio from Google Drive to students and also give the cloze test. This statement is also in linewith her statements

"For listening skills, I sometimes give close test questions, I play the audio and then they answer the questions while I play the audio, sometimesI use Google Translate to get the sound out" (T19).

Furthermore, the second digital activity leads to TPACK carried out by teachers at level C3 when the teacher uploads a link to Quizizz on the WhatsApp Group. She used Quizizz as the content of the teaching process. In one situation the teacher used Quizizz to test students understanding of the material given by a teacher. This statement is in line with the teacher's response:
"I also use quizzes to test students understanding of the material given" (T19). Besides, Quizizz is the content of teaching. Quizizz includes some questions which are related to teaching material that can be answered by playing a game. Using Quizizz in the teaching process can be a strategy for teachers to control the students' boredom in their teaching and learning process This statement is in line with the teacher's response:
"I use questions that are already available on Quizizz to students and then Uploadthe link Quizizz on the WA. Quizizz is like playing a game but contains questions related to the material being taught sometimes when they feel bored, I give them Quizizz, and then they will be excited again" (T19).

The third, digital activity which leads to TPACK was carried out by teachersat level C3 where teachers used WhatsApp applications to upload link quizizz which is given to students as the learning materials. In quizizz teacher provides some questions that she made related to the topic that was given previously. She will not give the students the test again because she only used the quizizz to check the students understanding. This statement also is in line with the teacher's response:

"I make several questions from the material I have taught and then I make it into aquizizz then upload the quizizz link to WA. So I don't hold tests, I judge from students' daily lives using quizizz who is usually active, answering my questions when I do quizizz" (T7).
The fourth, digital activity that leads to TPACK carried out by teachers at level C3 is editing the learning material by using Canva Application. She used Canva applications to edit her learning materials namely PPT, and Module. She made interesting media for teaching with a design template that is available on Canva. Itcan make the teaching and learning process more interesting. This statement is basedon the teacher's response:
"I used Canva to edit my PPT, modules and learning materials to make my learning process more interesting by using a design template" (T19).

Besides the media of teaching, the Canva application can support the content material, when the teacher wants to edit the module and other learning materials, editing a pamphlet or poster they use the Canva application to edit. Thisstatement is in line with the teacher's response:
"*There are sites at Merdeka Belajar, Belajar. id and BBC are references to makinga module and learning material like pamphlet and poster for topic advertisement, then I editing the materials that are suitable to students by using Canva Application" (T19).*

Furthermore, the fifth digital activity leads to TPACK was carried out by a teacher at level C3, who uploaded Audio to WA. The teacher used audio as the content and teaching media that she made before teaching. She will ask students to play the audio that was uploaded on the WA group then, students can hear the audio while asking them to take notes when hearing the audio provided, after that she will play the audio and check the answers of students. This statement is supported by the teacher's response:

"I uploaded the audio to WA. I used Audio when teaching the listening section andasked them to note what they heard on the audio" (T7).

Moreover, there are 3 occurrences was teachers do in integrating technology, The first digital activity leads to TCK was carried out by a teacherat level C3 who uploaded some videos from YouTube. She uploads on the WA group. The teacher used videos as the content material, she gave the instructions based on the video students watched and asked them to analyze the video and then make a note of what they watched previously. This statement is based on the teacher's response:
"*I use WhatsApp to upload a video from YouTube and ask themto analyze the video that I give"* (T7).

The second, digital activities lead to TCK were carried out by teachers at level C3 where teachers use YouTube applications to Upload teaching material videos. This statement was supported by the teacher who answered

"I use YouTubeto upload my material there, on YouTube. I uploaded a video about descriptive text"(T19).

The material that she uploaded was a reference for students and other teachers.This also will be shown when she teaches in the classroom because students like tostudy with audiovisuals that consist of video, audio and picture. Besides that, usingteaching material videos in the learning process in the classroom increases students'enthusiasm and does not get bored with their studies. This statement is also in linewith the teacher's response:
"*To increase their enthusiasm for the learning process, I usually show videos and video presentations because students like visuals such as video and audio. I just show the material then take video from YouTube via the LCD projector" (T19).*
Furthermore, the third digital activity leads to TCK was carried out by teachersat level C3 where the teacher uploaded the LKPD and live worksheet. She used a live worksheet and LKPD as the learning material that consists of several activitiesthat students can do during the teaching and learning process in the class. In the teaching process, the teacher only searches the material on one website finds the topic that she appropriately taught then, directly uploads it to the WA group. This statement also is in line with the teacher's response:

Furthermore, also there are 2 occurrences was teachers do in integrating technology, the first digital activity carried out by teachers at level C3 which leads to TPK is besides using YouTube teachers use an application that is very familiar to many people, namely WhatsApp. Teachers use WhatsApp to upload PPTs. The material she uploaded on WhatsApp be used as content of teaching and learning material for students this statement is in line with her response:
"I use WA to Upload the PPT because if I can't get the LCD Projector, I ask students to bring their smartphones then, I share the PPT via WA and the students will open it on their smartphones. Besides that, I also interact with students via myWhatsApp (WA) Group to provide assignments and other information" (T19).

Besides that, she showed and explained the material from PPT to students, which made it easier to teach. Because students can more understand if she teaches by providing the images, video or audio in the PPT. This statement also is in line with the Teacher's response:
"I use PowerPoint, with PowerPoint I can put the videos and materials that I havemade, and I explain the material with PPTs which makes it easier for me to teach because I present examples of video, audio, and images. My material makes it easier for students to understand the material" (T19).

Furthermore, the second digital activity leads to TPK was carried out by a teacher at level C3 where teachers uploaded the PPT to the WA group. She used PPT as material in teaching. Because the school did not use an LCD Projector but operated the Television in every classroom. To avoid those students not seeing the material when she gave the

assignment on PPT, the teacher anticipated by uploading the PPT to the WA group students could see directly the material that was given. This statement is in line with the teacher's response:

"*Because only there is a TV and microphone here, I use it to show the PPT and explain the material to the students, I will upload the PPT to WA to avoid studentsunclear seeing the material on TV"* (T7).

DISCUSSION

The result showed that English Teachers' Junior High School level proficiency in integrating technology based on the BDT framework assessment is at the LOTS at C3 and lowest at C6. Digital activity out the most is editing and uploading. The highest score of teacher's indexing score is 75.00 while the lowest teacher score on the indexing score is 55.00. It is known that the highest level of BDT Proficiency is at level C3 with a score of 74.89 and the lowest level of BDT Proficiency is at level C6 with a score of 53.64.

Furthermore, the low and high factors are caused by each teacher's proficiency in integrating technology into the teaching and learning process. Level C3 (Applying) is higher than level C6 (Creating). This is in line with a study by Amin & Mirza, (2020) where teachers mostly employ digital tools and verbs that involve LOTS level. Moreover, Level C3 (Applying) is the easiest level from the component of digital activities which teachers can implement in their teaching and learning process, in level C6 (Creating) is the hardest level from the component of digital activities to be implemented this statement also supported by (Matore, 2021). Level C3 is higher than level C6 because, based on the observation and interview of the teachers more often carry out digital activities included in Level C3 (Applying). In this study, the teachers were more proficient used digital activities at the level of C3 (Applying) and C4 (Analyzing) this is also in line with the study (Coşgun Ögeyik, 2022).

Furthermore, because of curriculum demands require teachers to adapt learning objectives to the technology-based teaching method and teaching materials used (Achadiyah & Azmi, 2024). School status also impacts the influence which means different facilities between private schools and public schools (Ronguno & Ejore, 2019). This study Public Schools are better than Private schools. Usually, Public schools' facilities are funded by the Government Budget *(Dana BOS),* therefore the necessary facilities are available at the school and teachers can integrate the available facilities as best possible. Meanwhile, in private schools, all facilities are funded by the foundation or the school owner who built the school himself. In terms of the education budget, the results also showed that there was an impact on the quality of teachers. Because the budget is very needed in carrying out activities namely providing the relevant facilities, buying stationery, paying teacher salaries, and building (Azhari et al., 2020). The school status is related to the Technological provided by schools. The limitations of technology in schools become a challenge for teachers to integrate technology into teaching (Ajayi & Salma, 2021). Students' Lack of digital literacy also impacts the teacher quality teaching can be a factor of teachers not integrating technology in the teaching process because the students cannot use digital tools this statement is also in line with the study by Mae E. Nava et al., (2022). Digital training factors are elements that influence the success of digital activities of teachers, including the quality of the content and strategy that teachers use based on their training, this statement is also in line with a study by Reisoğlu, (2022).

Moreover, there are also Internal factors namely, Teaching Experience or Teacher Status. Teachers who have many years of teaching experience usually have a lot of experience in adapting to new curricula and school environments, this statement is also in line with a study by Shaiegy, (2021). The teacher who has less experience in teaching can have an impact on integrating technology because they do not have more information this statement is also in line with Abalkheel, (2021). Self-motivation. Teachers who are motivated by circumstances or by what they see will be inspired to learn new things which is an action which

arises from a desire to learn on my own or without the guidance of others this study is also in line with (Castro et al., 2023). As a result, this factor also affects how well teachers integrate technology into the classroom. Most teachers in the modern classroom have expanded their knowledge through online tutorials from various sources.

CONCLUSION

The conclusion of this study investigated the proficiency of Junior High School English Teachers in Integrating technology into teaching instruction based on BDT. The finding shows that the highest proficiency level of teachers is at level C3 (Applying) with an index score of 74.89 while the lowest proficiency level is at level C6(Creating) with a score of 53.64. Factors influencing teachers' proficiency in integrating technology include external factors such as schools' status and facilities, curriculum demand, lack of students' digital literacy and digital training as well as internal factors such as teaching experience and self-motivation. This study also compares the quality of teachers of public and private schools in North Denpasar which is the teachers with longer experience (5 years) and freshly graduated teachers (9 months). For future studies, the researcher suggests investigating the same study but with larger sample with the subject of kindergarten or preschool teachers.

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