

Investigating teachers' attitude toward digital literacy in EFL classroom

Bambang Widi Pratolo, Hana Amri Solikhati

English Education Department, Universitas Ahmad Dahlan, Indonesia

Article Info

Article history:

Received Feb 6, 2020

Revised Dec 9, 2020

Accepted Jan 10, 2021

Keywords:

Digital literacy

Digital literacy challenges

EFL learning

ABSTRACT

Digital literacy has been a major concern for people involved in education sectors including students, teachers and policy makers. Thus, to make the education in this era more effective to help reach the goals, English teachers should be digitally more literate. The aims of this study are; 1) to find out how the digital literacy was implemented; 2) to determine teachers' attitude in implementing the digital literacy; 3) to scrutinize the challenges; and 4) the actions they took to cope with them. Employing a qualitative research method, this study used a semi-structured interview and classroom observation to collect the data from two EFL teachers at a junior high school in Temanggung, Central Java, Indonesia as the subjects. The data were then identified, categorized, organized, coded, described and reported following the thematic analysis. The findings showed that they used computer and smartphone to search for digital information. The teachers exhibited positive attitudes in the use of digital literacy for EFL teaching. They used syllabus as a major consideration, understood their position as teachers, developed effective teaching, implemented multiple literacy and improved the four language skills. However, issues related to lack of technology, students' background, lack of time and limited budget were acknowledged as hindrances in digital literacy implementation. As a strategy, teachers have therefore developed an early planning and support plan to deal with these challenges. Finally, this study suggests the need to develop teachers' technical facilities, technological pedagogy, and policy makers to give digital literacy more attention.

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Corresponding Author:

Bambang Widi Pratolo

English Education Department

Universitas Ahmad Dahlan

Jl. Ringroad Selatan, Bantul, Yogyakarta, Indonesia

Email: bambang.pratolo@pbi.uad.ac.id

1. INTRODUCTION

Digital Literacy Advocates Network (JAPELIDI) which managed a mapping research toward the digital literacy movement in Indonesia found that school institutions placed a lower rank in organizing digital literacy [1]. It ranked 3.68%, which is lower than NGOs, communities, government, and universities, whereas school is expected to be the most significant organizer in providing information to students and other stakeholders. JAPELIDI also reported that high schools were true allies (29.55%) in the organization of digital literacy programs, followed by university students (18.5 percent). This is because learners are known to be the fastest cluster to spread impact. They are, on the other hand, seen as the agents of transformation in this digital world.

Students are known as digital natives in this millennium age as they evolve in almost daily life with technology. To enhance students' digital literacy skills, the teacher should also be digitally savvy. When the teachers are digitally savvy, they will normally find the teaching process more relaxing. Indonesian educators claimed that language learning could combine different types of technologies to enhance students' language skills [2].

Very few studies have been carried out on digital literacy in Indonesian EFL classroom, especially how digital literacy was practiced under a lack of technological facilities. As such, more information about whether suburban school can use technology to teach digital literacy is needed. Therefore, this study aims to investigate challenges in implementing digital literacy, specifically based on teachers' view on how they incorporate technology into the EFL classroom, the obstacles they encountered, and how they coped with them.

Literacy skill is one of the skills required in the 21st century, along with learning skills and life skills. Multiliteracy shows the richness of literacy sources, including digital literacy. Gilster [3] described digital literacy as the ability to receive information from multiple forms based on the computer. That was two decades ago when the computer was the most sophisticated device in that era. As technology developed rapidly, it is easier for people to attain information from many sources. Alkalai [4] described digital literacy as the ability to use software and digital technologies, including cognitive, sociological, motoric and emotional skills, to provide what users wanted. Others described it as knowledge literacy, which requires a cognitive standard to view, interpret and generate information from digital tools [5]. Ozden [6] more precisely described digital literacy as the ability to collect information from a digital medium. Knowledge can be obtained from a variety of sources, as Kerkhof [7] said, that digital literacy consists of language, phrase, visual display, motion graphics, audio, video, and multimedia.

Boche [8] suggested that multiliteracy raises more varying information from several technology sources. Multiple literacies are new forms and unique ways of reading meaning outside written text such as gaming literacy, digital literacy, and multiliteracy [5]. McCord cited that the complete understanding of multiliteracy effects on how teacher position it in the teaching process. An intersect combination of traditional and new technology develops a more effective and energetic classroom. For instance, combining multiple sources such as a printed book, e-learning, internet, and video observation [9]. Based on Cope and Kalantzis [10], multiple literacies are needed in this current age of learning, considering the large media format of literacy.

Computer as a digital device is applicable in language learning because students and teachers can reach the mastery of language by operating this device [11]. With respect to digital literacy and educational development, Simpson and Obdaloova [12] affirm the CALL satisfies the requirements of digital literacy practice. The explanation CALL passes the qualification is that the CALL-based lesson involves both English language and technology topics. As far as CALL practice is concerned, PowerPoint presentation is the most commonly used feature of CALL practice, which enables teachers to design technical presentations and teach English [13]. Visual format promotes improved learning and provides more interesting material for students to concentrate [13]. In the optimal situation of instruction, PPT is often referred to as a poorly used medium. In the meantime, conventional teaching approaches also struggle with inefficiency in learning [14]. However, after practicing technology, a professional instructor may prevent students' timidity and negative results.

In the context of education, it is agreed that the use of smartphones is an innovative means of teaching EFL [15]. The advancement of smartphone proves that it is the most used mobile device for learning activity because of mobility and accessibility [16]. The mobility of the smartphone creates limitless space and time to be used out of classroom situations. The accessibility provides learners with a variety of applications in line with educational objectives. Therefore, it is accepted that using smartphones to teach EFL has been groundbreaking. The advancement of smartphones shows that mobile learning is a major trend, because of the affordability and versatility of the device. The versatility of the mobile offers unlimited opportunity for classroom instruction at odd hours. Accessibility offers a range of applications for learners in compliance with educational goals. The use of smartphones and specific apps have been mainly studied and discussed in previous studies. McCord [5] documented the more varied technology and application in digital literacy such as Twitter, browser, interactive storybooks, play store application on a tablet, group websites, Promethean board programs, eBooks and group websites. The following order, such as Facebook closed groups, blogs, Skype (and other VoIPs), and WhatsApp were integrated within literacy activity [17].

The basic skill of a teacher to practice digital literacy is being knowledgeable in digital literacy itself. As mentioned by McCord [5] both teachers and students should be able to understand how a digital device presents information by its language. McCord also found that the teacher confirmed how crucial digital literacy helped students to learn. The teacher revealed that digital literacy makes students more engaged and captures all of the information. On the contrary, other teacher stated that making the young generation overwhelmed with technology could be dangerous for them, for instance films, videos, or images that provoke focus distraction. Thus, Clarke [18] intended to maintain the learning goals as noted in the

syllabus. However, the complex and dynamic classroom situation drives a flexible nature of teacher pedagogy [19].

Understanding teacher's position as a role model and classroom director does not mean that learning activity is a teacher-centered [20]. The teacher is the most eligible person to bring the learning process to meet the objectives. Thus, the role of the teacher in learning with technology remains principal. However, every teacher has a personal way of utilizing digital media within the English classroom. Preparedness is one of teachers' considerations before utilizing technology [9] such as the consideration to use curriculum which assists how teacher arranges the learning conceptually and epistemologically reasonable with the real situation [21]. It also suggests that teachers need to redesign resources. It can be done to make students more focused on key points rather than any less-important stuff. Redesigning resources means creating new material from a source or adding several materials from the existing source.

In the context of integrating digital literacy into EFL learning, this study intended to explore what are teachers' attitudes toward how technology contributes to enhance English skills. Cahyani and Cahyono [2] concluded that teachers agree on the effectiveness of teaching English skills using technology followed by the variation of technology such as video/television, notebook/computer, digital camera, email, websites, weblog, and the virtual web forum. Interactive eBooks was also found to increase reading skill level or storybooks were used to enhance reading, listening, and speaking skills [5].

Technology resources such as web (YouTube, Wikiblog), laptop, and computer are identified as effective devices for improving and modifying education [22]. Nevertheless, the real world of teaching shows that it is not easy. The most common problem is the lack of technology in an education setting. Firman [23] found that Indonesian education still needs to make improvement especially in the aspect of education facility. A lot of problems were identified, for instance, the lack of e-learning implementation, the lack of ICT facilities and skillful personnel, particularly in rural territories.

Bates [24] formulated "ACTION" as a model of effective factors to use technology. The C on the acronym stands for Cost, meaning that budgeting is a key to afford the technology. The advanced function of technology makes the cost expensive. Moreover, maintaining technology needs a lot of funding [25]. In the education scope, the government has contributed to the school budgeting since the launching of the School Operational Assistance Program (BOS) in 2005. The majority of government financial support then was channeled through BOS [26]. However, the lack of funding in private school still needs to be overcome. As a result, poor school budgeting prevents the teacher from practicing a better application of technology [9].

Technology facility is not a mere and a technological training for teachers was required to select information from various digital formats. Although teachers nowadays are familiar with technology, the technology itself keeps developing and getting more and more complex. Thus, the essential skill in operating technology for education is needed [27]. Meanwhile, Omwenga and Waema [28] found that teachers felt regretful over abandoning available instructional resources. Thus, enhancing teachers' self-confidence is the new focus to overcome teachers' low interest in technology [29]. It was also confirmed that the obstruction in integrating technology into classroom instruction is because the teacher is a huge demanding profession with classroom and social responsibility [30]. The high demanding job is caused by several stressors such as limited time, discipline pressure, and students' lack of motivation [31]. Based on Skaalvik's study [31], teachers have limited time to rest and do other jobs in school hours. The rush schedule during teaching practices demanded teachers to spend extra hours to complete academic or administrative work. Meetings, administrative duty, and student supervision caused a lack of time to prepare teaching material. Previous investigations also indicated the lack of time in planning technology lessons as the most significant obstacle to digital literacy instruction [29].

A teaching and learning process involved both teachers and students, and both parties should contribute to create digital literacy atmosphere to improve learning engagement. However, due to the students' less experience, they were unable to accept the integration of technology within the learning process. Students' unpreparedness in using technology as a digital source can be addressed in several dimensions. First, Hosseini [29] pointed out that students' self-management skill often presents a greater challenge to teach technology. Secondly, a study by McCord [5] showed that teachers prefer to use a contemporary method rather than technology because of students' incapability to learn through the utilization of technology. It proves that students' low motivation influences the integration of technology in EFL learning. In the context of educational technology research, it is found that students with a high-level of an economic background support the practice of digital literacy [17].

2. RESEARCH METHOD

The study was descriptive qualitative research and conducted at one private junior high school located in Temanggung, Central Java, Indonesia. The school was selected following the criteria that it is

located in a suburb area, had EFL millennial teachers who were considered as technological literate indicated by the ability to work with technology and had often joined training on educational technologies. Besides, the school provided technological learning devices although they were limited.

An open invitation to join this study was posted and few teachers responded. However, there were only two EFL teachers, Nagita and Dewi (pseudonym) who were eligible and met the criteria; having been in the job for 5-10 years as suggested by [32] and considered skilful in operating technology [5]. The teacher participants were technologically literate teachers indicated by their intensive participation in educational technology training, able to utilize various applications in their gadget, computer and other digital devices, and ready to perform technology in the classroom. Furthermore, they were born in the 1980s and considered as the millennial generation. The time and resource limitations interfered the researcher to meet the ideal number of the participants, as suggested by Dornyei [33]. However, he added that qualitative is concerned with how representative the participants in the population are; therefore, less participants with varied and rich experiences, as those participated in this research were sufficient.

A semi-structured interview was used because it allowed the researchers to develop the nature and flexibility of the interview [34]. The researchers used interview guidelines as proposed by McCord [5] and observation through video recording as suggested by Dornyei [33]. The interview was developed to answer the research questions. In the field, some of the prepared questions changed or even were not asked if the participants already explained. Video recording as chosen because it could give comprehensive description on what was really happening in the classroom. Thematic analysis framework by Braun and Clarke's [35] was used to analyze the data. All the responses from the participants were categorized and grouped into the same topics. These topics were then aligned into theme and explored for further analysis.

3. RESULTS AND DISCUSSION

3.1. Types of technology used in digital literacy

Teachers have used laptops and tablets as means of digital literacy. The idea of using a computer in delivering language help supports the notion of Simpson and Obdalova [12] that CALL (Computer Aided Language Learning) will enhance digital literacy. Regarding teachers' use of smartphones in EFL, it is accepted that creative means are used in teaching [15]. Regardless of a teacher's choice, teachers should be provided with different forms of technologies to better teach language [2].

3.2. Digital literacy practices in EFL classroom

This study shows that the computer was used by Nagita and Dewi to provide English materials. For other assignments, they used smartphones. It suggests that teachers often used a PC and occasionally used a cell phone. This research demonstrates how computers have been the most prevalent device used by teachers to perform daily teaching and learning practices. This might be due to the similar characteristics of subjects involved in this study and those participated in Cahyani and Cahyono's [2] study.

3.3. Teachers' attitude toward digital literacy

As regards teachers' belief in digital literacy, Nagita identified digital literacy as the ability to read visual content from digital devices. This belief reflects the Ozden's concept [6] that defined digital literacy as the capacity to process data and to understand the objectives of a digital display. Dewi argued that digital literacy is the ability to use information technology on digital platforms, including the ability to properly, appropriately, and meaningfully absorb and create content. Her views are similar to those of Alkalai [4]. Alkalai defined digital literacy as the ability to use software and digital technologies to access what the users wanted, including cognitive, sociological, motoric and emotional devices. The notion of digital literacy in educational activities was also acknowledged by all participants.

In this report, all participants suggest that they have committed to integrate technology into schooling in the 21st century. Nagita thought that technology pushes the learning experience to be more interesting and lets students meet the goals of learning. Dewi, however, disclosed that technology is like a double-edged knife. The positive side is that technology brings engaging learning, while the bad side is that learners are unable to efficiently use technology. In brief, both teachers demonstrate strong views about the application of classroom technologies. The performance in incorporating technology in the classroom has been seen to be demonstrated by teachers' optimistic perception of the use of technology [36].

This study revealed the detail of how teachers practiced digital literacy. First, teachers considered learning objectives as a guide. It was worth noting that it is important to keep learning objectives inside ICT practice [18]. In introducing digital literacy, Nagita deemed the syllabus to ensure that the learning process achieves the purpose of the course as stated out in the curriculum. In practicing digital literacy, teachers should be mindful of their status as the primary role in handling the classroom situation. Dewi stressed that a

teacher has a major role to play as a teacher planner and coordinator of the classroom. Teachers are able to successfully learn digital learning by playing these essential tasks. This result is applied to current research, in which the role of teachers is a key factor in digital and multi-literacy [20].

Secondly, the teachers used multiple literacy. This study showed that digital literacy is not the only form of literacy used in the EFL classroom. The two teachers used several literacies (visual, textual, and digital literacy). To demonstrate this, the instructor used power points, film, and songs to teach English. Conventional teaching methods and unsympathetic pupils triggered the reasoning behind taking advantage of multiple literacies. On the basis of literature, various literacies cannot be distinguished from digital literacy [5]. This research finds that teachers have produced meaningful learning to practice digital literacy. Teachers reflected an apt mindset, that of using technologies to conduct successful and workable education. For example, Dewi used WhatsApp to share students' assignments because this application was the easiest and most popular among the students. She found it effective to use this application to assist her teaching. Most of the previous studies also show that teachers agree that technology constructs an effective learning process [2]. Overall, teachers believe that technology has the potential to build a capable learning process.

The emergence of technology has motivated students to be versatile in a world with more opportunities for language learning. Nagita suggested that using music to teach foreign languages could improve the four language skills; she noted that the method would encompass the four language skills. Despite this, Dewi claims digital literacy is most important in speaking and listening. She believed audiovisual methods performed the best with the students. In this report, English language teachers have effectively used technology to encourage English skills and enjoyed it [2].

3.4. Challenges in implementing digital literacy in EFL learning

The findings of this study showed that the school has a lack of technology sources. The school only provides computer and projector as digital literacy sources because the school prohibited the use of smartphones in the learning process. The findings of this study shows that there is a shortage of technology for the school. The school only has digital reading outlets for computers and projectors since the school banned the use of smartphones in the learning process. The policy of this school in regard with the use of smart phones in the classroom was very uch different from what Durriyah and Zuhdi [17] found in their study. In their study, Duriyah and Zuhdi found that smart phones were allowed and used effectively in the teaching and learning process. They also observed that powerful multi-applications were used to teach digital literacy including social networks, Blogs, Skype, and WhatsApp. Durriyah and Zuhdi concluded that, as students reside in an urban city, the students participating in their research may be viewed as committed users of social media platforms. Simultaneously, we analyzed how people use new media in suburban areas. Because of the lack of evidence in this report, it restricts increasing technologies to incorporate in the classroom. As a result, teachers must come up with creative approaches to teach digital literacy in the EFL classroom.

Lack of time in employing digital literacy was also found as significant barrier. A teacher is an extremely stressful career that entails social and classroom accountability [30]. This study showed that aside from workload, administrative activities require extra effort. Given the difficulty of a suitable subject, the teacher frequently lacks enough time to produce it. It should also be pointed out that teachers had the ideas, but they had little time to anticipate all the potential applications of these concepts as learning media. In the investigation performed by Hosseini [29], it was found that time allocated for infrastructure preparation was the most important barrier in digital literacy instruction.

Although teachers' activities, school infrastructure, and students' readiness must be addressed, these considerations must also be combined with one another. However, students in SMP Muhammadiyah 1 Temanggung were not ready yet to utilize technology at any time. Hosseini [29] claimed that improved self-management skills would make technology more effective for educators. The current study showed that students require more experience to be able to use technology well. Participants admitted that students lost interest very easily in studying English. Therefore, teachers rely primarily on classroom management strategies rather than improve the efficiency of instructional technologies. The discovery is consistent with previous studies demonstrating that teachers favor the use of modern teaching strategies, such as those incorporating computers, over using conventional teaching methods. The most daunting part of this topic is the lack of technical skill of certain students who can't afford technology. As a result, teachers cannot execute multiple English technology. Different from the research of Durriyah and Zuhdi [17] which finds that students' high-level of economic background supports and encourages them to experience digital literacy, the current study showed students' unreadiness to learn with technology.

Another key problem in adopting digital literacy concerns the lack of adequate infrastructure budget. To foster digital literacy, schools should have teaching opportunities that improve students' technical competencies and skills. And as technology progresses, it gets more costly. Despite being the lowest charge,

student tuition actually prohibits schools from purchasing technology. Alice [9] further raises the idea that low budget prohibits teachers from using technologies in creative and varied ways.

3.5. Teachers' strategy to cope with the challenges in implementing digital literacy

Considering the lack of technology, the teacher prepares the learning early. Thus, the teacher can ensure the presence of technology in the classroom. The teacher schedules the learning early in spite of the lack of technology. One can do this by using technology in the classroom. This strategy provides similar results as obtained by Spencer that an essential part of doing first is preparation to create good learning.

In order to conquer the hurdle, it is necessary to prepare well. The strong explanation is that classroom situations vary with every lesson, so teachers can get new ideas from every lesson. Determining the benefits and disadvantages of different classroom scenarios, the teacher has been prepared for every imaginable circumstance. By organizing the contingency, teachers will prevent an unexpected situation from unfolding in the classroom. This finding aligns with Harmer's [37] suggestion that for teaching to thrive, a back-up plan is needed.

This study reveals that technology is, as teachers claim, inseparable with the advancement of learning. The teachers were skilled about teaching EFL by using interactive literacy. Regardless of the minor forms of technology, the teachers were very excited about how incorporating technology in the learning process was very important. This paper was able to address the actual practice of digital literacy in suburban school; however, the case of digital literacy in urban school could not be replied. The question of how digital literacy was applied in the learning process was addressed by the specifics of how teachers incorporated technology into digital literacy. This research offered new ideas that were not previously established. McCord [5] and Alice [9] did not have an in-depth description of how the technologies they used were used to teach English. This report explores the obstacles that conflict with teachers' efforts to teach digital literacy, and their methods as to how to surmount the barriers. Thus, this finding can be used as a consideration for the policy makers to make improvement in term of school technology infrastructure to facilitate learning engagement.

4. CONCLUSION

Digital literacy is information literacy which needs a cognitive level to access, analyze, and produce information from digital tools. However, digital literacy implementers (teachers, school and students) were faced with barriers which hinder the successful implementation of digital literacy. It is difficult to practice digital literacy successfully if the education system has limited funding capacities and technologies. Among the barriers in practicing digital literacy, some obstacles were out of the teachers' authority including the lack of technologies and funding, teachers' demanding job and the students' unreadiness to learn with technology. These obstacles could only be done by the policy makers (the government and the headmaster) by providing supporting facilities or designing curriculum for digital literacy. The teachers' capacity to overcome the barriers were only preparing the best in teaching digital literacy and preparing back-up plan for unexpected obstacles occurred in the classroom.

REFERENCES

- [1] N. Kurnia and S. I. Astuti, "Map of the digital literacy movement in Indonesia: Studies on actors, various activities, target groups and partners conducted by Japelidi (*In Bahasa*)," *Informasi*, vol. 47, no. 2, p. 149-166, 2017.
- [2] H. Cahyani and B. Y. Cahyono, "Teachers' attitudes and technology use in Indonesian Efl classrooms," *TEFLIN J.*, vol. 23, no. 2, pp. 130-148, 2012.
- [3] P. Gilster, *Digital literacy*, NY: John Wiley & Sons, Inc, 1997.
- [4] Y. Eshet-alkalai, "Digital literacy: A conceptual framework for survival skills in the digital era," *Jl. of Educational Multimedia and Hypermedia*, vol. 13, no. 1, pp. 93-106, 2004.
- [5] Samantha Shannon McCord "Digital literacy in the classroom: Teachers' attitudes towards technology and the language curriculum," *A research paper submitted in conformity with the requirements For the degree of Master of Teaching Department of Curriculum, Teaching and Learning Ontario Institute for Studies in Education of the University of Toronto*, Apr 2015.
- [6] M. Özden, "Digital literacy perceptions of the students in the department of computer technologies teaching and Turkish language teaching," *International Journal of Progressive Education*, vol. 14, no. 4, pp. 26-37, 2018.
- [7] H. A. Spires, C. Medlock Paul, and S. N. Kerkhoff, "Digital literacy for the 21st century," *Encycl. Inf. Sci. Technol. Fourth Ed.*, no. January, pp. 2235-2242, 2017.
- [8] Boche and Benjamin, "Multiliteracies in the classroom: Emerging conceptions of first-year teachers," *J. Lang. Lit. Educ.*, vol. 10, no. 1, pp. 114-135, 2014.

- [9] O. Alice, "Challenges facing teachers and students in the use of instructional technologies : A case of selected secondary schools in Kisii County, Kenya," *Master dissertation Kenyatta University, Kenya*, 2012.
- [10] B. Cope and M. Kalantzis, "'Multiliteracies': New literacies, new learning," vol 4, no. 3, pp 164-195, 2009.
- [11] V. Naimova, "Factors affecting the implementation of instructional technology in the second language classroom," *Master dissertation Brigham Young University, USA*, 2008.
- [12] R. Simpson and O. A. Obdalova, "New technologies in higher education – ICT skills or digital literacy?," *Procedia - Soc. Behav. Sci.*, vol. 154, pp. 104–111, 2014.
- [13] F. S. Lari, "The Impact of using powerpoint presentations on students' learning and motivation in secondary schools," *Procedia - Soc. Behav. Sci.*, vol. 98, 2014, pp. 1672–1677.
- [14] D. Berrett, "Harvard conference seeks to jolt university teaching," *Chron. High. Educ.*, pp. 1-11, 2012. [Online] Available: <http://www.todroberts.com/USF/teaching-the-teachers.pdf>
- [15] C. D. Oriogu, "The use of mobile devices in learning foreign languages : Survey of a private university," *Library Philosophy and Practice (e-journal)*, vol. 2018, Dec 2018.
- [16] M. Tayebnik and M. Puteh, "Mobile Learning to support teaching English as a second language mobile learning to support teaching English as a second language," *Journal of Education and Practice*, vol 3, no. 7, pp. 56-62, 2012.
- [17] T. Lathipatud Durriyah and M. Zuhdi, "Digital literacy with EFL student teachers: Exploring Indonesian student teachers' initial perception about integrating digital technologies into a teaching unit," *Int. J. Educ. Lit. Stud.*, vol. 6, no. 3, pp. 53-60, 2018.
- [18] M. Clark, "The use of technology to support vocabulary development of English language learners," *Master dissertation St. John Fisher College, USA*, 2013.
- [19] I. Choi and Æ. K. Lee, "Designing and implementing a case-based learning environment for enhancing ill-structured problem solving : Classroom management problems for prospective teachers," *Education Tech. Research Dev.*, vol. 57, no. 1, pp. 99–129, 2008.
- [20] D. L. Grisham and T. D. Wolsey, "Recentring the middle school classroom as a vibrant learning community: students, literacy, and technology intersect," *J. Adolesc. Adult Lit.*, vol. 49, no. 8, pp. 648–660, 2006.
- [21] M. J. Koehler and P. Mishra, "Technological pedagogical content knowledge: A framework for teacher knowledge Punya Mishra," *Teach. Coll. Rec.*, vol. 108, no. 6, pp. 1017–1054, 2006.
- [22] Paul A. Howard-Jones, and Tim Jay, "Reward, learning and games," *Current Opinion in Behavioral Sciences*, vol. 10, pp. 65–72, 2016.
- [23] H. Firman, "The future of schooling in Indonesia," *Journal of International Cooperation in Education*, vol. 11, no. 1, pp. 71–84, 2008.
- [24] A. Bates, *Managing technological change: Strategies for college and university leaders*, San Francisco: Jossey-Bass Publisher, 2000.
- [25] P. A. Young, "Integrating culture in the design of ICTs," *British Journal of Educational Technology*, vol. 39, no. 1, pp. 6–17, 2008.
- [26] Rohan Joshi, *Public funding for low cost private schools (in Bahasa)*. Center for Indonesian Policy Studies, pp. 1-14, 2018. [Online] Available: <https://repository.cips-indonesia.org/media/270461-pendanaan-publik-untuk-sekolah-swasta-be-bc2db80f.pdf>
- [27] A. Bhatt, "Teaching agents with deep apprenticeship learning," *Master dissertation Rochester Institute of Technology, USA*, 2017.
- [28] Omwenga, E and Waema, T. M., "Towards development of a model expressing a set of e-learning variables," *Proceedings of ED-MEDIA 2006--World Conference on Educational Multimedia, Hypermedia & Telecommunications*, 2006, pp. 2734-2740.
- [29] D. Hosseini, "Digital literacy in early elementary school: Barriers and support systems in the era of the common core," *PhD dissertation San José State University, USA*, 2018.
- [30] Luciana, "Developing standards for language teacher education programs in Indonesia: Professionalizing or losing in complexity?," *TEFLIN J.*, vol. 15, no. 1, pp. 27–41, 2004.
- [31] E. M. Skaalvik and S. Skaalvik, "Teacher stress and teacher self-efficacy as predictors of engagement, emotional exhaustion, and motivation to leave the teaching profession," *Creative Education*, vol. 7, no. 13, pp. 1785–1799, 2016.
- [32] C. Kyriacou, "Teacher stress: Directions for future research," *Educ. Rev.*, vol. 53, no. 1, pp. 27–35, 2001.
- [33] Z. Dörnyei, *Research methods in applied linguistics: Quantitative*, Oxford: Oxford University Press, 2007.
- [34] S. E. Rabionet and F. Lauderdale, "How i learned to design and conduct semi-structured interviews : An ongoing and continuous journey," *Wkly. Qual. Rep.*, vol. 14, no. 3, pp. 203–206, 2009.
- [35] V. Braun, V and Clarke, "Using thematic analysis in psychology," *Qual. Res. Psychol.*, vol. 3, no. 2, pp. 77–101, 2006.
- [36] A. Sadaf and B. L. Johnson, "Teachers' beliefs about integrating digital literacy into classroom practice: An investigation based on the theory of planned behavior," *J. Digit. Learn. Teach. Educ.*, vol. 33, no. 4, pp. 129–137, 2017.
- [37] J. Harmer, *How to teach English: An introduction to the practice of English language teaching*, Harlow: Longman, 1998.