



SCOPE

Journal of English Language Teaching

| p-ISSN 2541-0326 | e-ISSN 2541-0334 |
<https://journal.lppmunindra.ac.id/index.php/SCOPE/>



Research Article

The Integration of ICT Literacy Skill in ELT Praxis at EFL Classrooms in Indonesia: A Systematic Literature Review

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KEYWORDS

ICT Literacy;
 ELT Praxis;
 ICT Literacy in ELT Praxis;
 EFL Classrooms

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A B S T R A C T

ICT Literacy skill that is included into one of the 21st century skills, is a term that is widely used to usage of information, communication and technology in all aspect of life, including in education. The rapid advancement of Information and Communication Technology (ICT) has transformed educational practices across all subjects, including language education. Integrating ICT literacy into English language teaching enables students to not only acquire linguistic competencies but also essential digital skills needed for the modern world. ICT literacy skills, which encompass the ability to locate, evaluate, and use digital information, support both teachers and students in enhancing traditional learning with interactive and dynamic tools. However, limited discussions regarding to ICT usage in the EFL classroom are found in the existing literature. This study aims to produce a systematic literature review on the ICT integration usage in the ELT practices of EFL classroom in Indonesia. In this systematic review, the researcher identified that the findings reported in research articles on the English education praxis published in 2015 up to 2022 whose authors mentioned the work of ICT literacy skill. After searching and screening, data were extracted from the sample of 10 articles and examined the *words*, *statements* and *paragraphs* signifying the descriptor ICT literacy skill mentioned in the literature review, and presentation of findings. The findings showed that the most elements being used is for learning and teaching media by implementing the ICT literacy skills in the EFL classrooms to infrastructure to bridge the gap between traditional and modern teaching methods, ensuring equitable access and effective implementation in diverse educational contexts.

INTRODUCTION

Recently, there has been wide interest in the usage of Information, Communication and Technology or well known as ICT. Additionally, it also is considered as the life aspect facilitator; work, leisure, and education (Pelgrum &

Law, 2003). Various supporting technologies and applications have also been developed as an effort to support and facilitate the activities of human and organizational life, including teaching and learning activities in the world of education. The development of ICT is accompanied by the development of students' and teachers' or educators' 21st century skills, defined by

Griffin, Care and McGaw (2012) as any skills that are essential for navigating the twenty first century can be classed as twenty first century skills. It is apparent that educational systems must take into account the significance of 21st-century abilities. As a result, teachers are accountable for ensuring that students are prepared for the twenty-first century. Teachers use textbooks to help students gain effective 21st-century skills that will enable them to perform responsibly and effectively within a worldwide community of English language speakers, since textbooks play an important part in teaching and learning (Rakhmawati & Priyana, 2019).

Learning skills (creativity and innovation; critical thinking and problem-solving; communication and collaboration), literacy skills (information literacy; media literacy; ICT literacy), and life skills are listed by the Partnership for 21st Century Skills, a joint government–corporate organization (flexibility and adaptability; initiative and self-direction; social and cross-cultural skills; productivity and accountability; leadership and responsibility) (Van Laar, *et.al*, 2020).

The traditional learning environments have been transformed into new learning environments with the existence of ICT. This condition also has been caused by the COVID-19 pandemic which was damaging to all human activity sectors, including education in Indonesia. For these reasons, learning and teaching activities are eliminated using online learning systems. ICT usage is more crucially needed Website, virtual reality, mobile application and any other online platform or social media are being used during the online learning. It is generally accepted that the internet has become a demand for teachers in Indonesia to be able to use it as a source of positive learning media in supporting the teaching and learning process.

In the case of Indonesia, the Central Bureau of Statistics 2018 indicated the extent to which ICT has infiltrated the educational system. The proportion of all levels of education, with the exception of higher education, that employed mobile phones in the learning process is 46.01 percent, based on a total of 4.014 schools (64.55 percent elementary schools, 19.22 percent junior high schools, and 16.23 percent senior high schools). Less than a third of students (33.67 percent) have access to the Internet at school, and even fewer have teachers who are trained to teach about technology (10.1 percent). Overall, less than half of educational levels in Indonesia have implemented ICT (Junaidi, *et.al*, 2020). The integration of Information Communication Technology (ICT) as a learning concept in English language teaching and learning, with the goal of improving students' learning autonomy and communicative development, is one of the concerns within

the framework of Indonesia's 2013 Curriculum (Lubis, 2018).

In 2013, the Minister Decree No. 65 was amended to include technology integration. To ensure effective and efficient teaching and learning practices and results, point 13 said that technology must be integrated into all disciplines at all levels of education in Indonesia. As a result, the government's proposal for the use of ICTs was recently presented. In any case, the usage of ICTs has become the norm in reshaping Indonesia's educational system.

Fortunasari (2022) investigated that the ICT's usefulness in the English teaching and learning includes everything from word processing, to multimedia programs, to communication and social media tools. Moreover, she also found that the use of ICT has improved young learners' ability in science, math and language learning. Additionally, a study by Ratminingsih (2014) discovered that the audio media with scripted songs increased the young learners' English achievement and motivation. Additionally, Hidayati (2016) explores the use of ICT in Indonesian ELT classrooms, addressing the challenges and opportunities teachers face while integrating ICT tools into their teaching practices. It emphasizes the need for training and support to enhance ICT literacy among educators. Moreover, Azmi (2017) investigates the perceived benefits and challenges of using ICT in EFL classrooms. This study highlights the transition from understanding the utility of ICT to addressing practical implementation barriers, offering insights for future integration strategies.

However, other people believe that the usage of ICT is still ineffective in practice (Yusuf, 2010; Fitriyadi, 2015). The facilities were already in place in some schools, but only a few teachers took advantage of them during the teaching and learning process. Other schools, on the other hand, required greater resources to meet the demands of their teachers and students for technology-based teaching and learning. Not all teachers and educators have used technology formally or informally, therefore the problem appeared to be interconnected (Yusuf, 2010). Furthermore, they also have not been informed about the progress of information and communication technologies used in Indonesia.

As a result, this gap has led the research to investigate this study. While existing literature provides a solid foundation, there is a lack of longitudinal studies measuring the sustained impact of ICT literacy on language learning outcomes. Departing from the main points, this paper reports on a study that focuses on analysing published English Language Teaching articles which investigate the usage of ICT in EFL classroom in Indonesia. The

published articles refer to the studies reported and conducted that there are 14 published articles that were reviewed and analysed. This present paper addresses these following research questions:

1. What particular Twenty First Century Skills were addressed in the reported researches?
2. In which elements of English Education were the ICT literacy skills integrated?
3. How were the ICT literacy skills integrated in the respective researches?
4. What research methodologies were employed in the researches?

Hence, the objectives are:

1. To analyse what particular 21st century skills that were addressed in the reported researches.
2. To identify the elements of English Language Education which the ICT literacy skills were integrated.
3. To identify how the ICT literacy skills were integrated in the perspective researches
4. To investigate what research methodologies were employed in the researches.

METHOD

In reviewing the published articles, the researcher used PRISMA which stands for Preferred Reporting Items for Systematic Review and Metanalysis. Because it contributed in the framing of specific research questions and allowed us to conduct systematic searches through its 14 items, its usage was still appropriate in this study (Moher, *et.al*, 2009 as cited in Hamzah, *et.al*, 2022). Furthermore, PRISMA eliminates numerous biases and aids in efficiently synthesizing a study by demanding a systematic search approach comprised of four unique processes: identification, screening, eligibility, and article quality rating.

Identification

The researcher identified and diversified the relevant keywords for some article searches. Keywords are required during the searching process to improve the accuracy of the articles. The main keywords used were: ICT literacy skills, digital skills, ICT integration in ELT in Indonesia, ICT integration in Indonesian EFL classroom. Synonyms, related words, and variations of the main keywords were also searched from publish and perish search of Semantics Scholars database. The consideration of deciding the database because of the accessibility.

The following are the stages of the identification process: (1) searching open access in search engine of Semantics Scholar databases for materials related to English language education by using the keywords, and (2) deciding on a main search on the division of English language education.

Following the identifying steps, it was revealed that 50 studies had been collected. All of these studies went through the screening step of the systematic review.

Screening

In this stage, the researcher established inclusion or exclusion criteria for selecting appropriate published articles for systematic literature review (Shaffril, *et.al*, 2020 as cited in Damayanti, *et.al*, 2022). The identification of 50 results from the first stage were screened. Inclusion is important to ensure that all selected articles provide insights related to systematic literature reviews (refer to Table 1). The first criteria involved in this stage was the year of publication which is from 2015-2022. Moreover, the next criteria is involving the country that the study was conducted, Indonesia only. 5 of 50 studies were eliminated due to the country of the studies were conducted. In addition, the types of 21st century skills which is ICT literacy skill was chosen as the next criteria. After the screening process, 13 studies were removed and 37 were left for the next process of PRISMA.

Table 1 The Inclusion Criteria

Criterion	Inclusion
Year of Publication	2015-2022
Particular 21 st Century Skills	ICT Literacy Skills
Country Conducted	Indonesia

Eligibility

This stage performs to ensure that all selected articles are relevant and available for the process of systematic review. This stage is implemented by considering the full-text of the title and the abstract. If a study's title and abstract do not lead to a decision, the methods, results, and discussion sections are examined. The PRISMA process used is shown in figure 1.

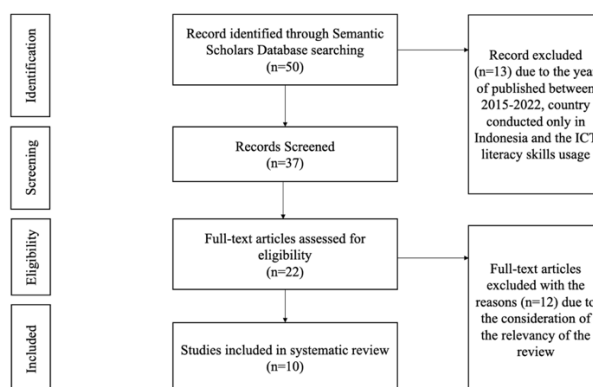


Figure 1 The Flow Diagram of Systematic Review

RESULTS AND DISCUSSION

As previously indicated, the research in this review were categorized and analyzed. The studies identified focused on the use of ICT literacy skills in the Indonesian EFL classroom from the year of 2015 to 2022. From the figure

1, it can be identified that the final search found 10 studies are included through the stages of identification, screening and eligibility. The record of the final search which is considered as the answers of the research questions is identified in the table 2 and 3.

Table 2 List of Included Articles

No.	Title	Author	Publisher
1.	The use of information and communication technologies (ICTs) on English as foreign language learning: A review of recent practices in Indonesia	Fortunasari (2022)	The Asian EFL Journal Professional Teaching Articles Issue 92
2.	Video subtitle to teach listening skill of junior high school students	Mutmainnah Mustofa & Ani Sukma Sari (2020)	Journal of English Educators Society 5:2
3.	Teaching Narrative Text in Junior High School: Digital Story Telling in English as a Foreign Language (EFL) Context	Mutiara Shasqia (2020)	The Journal of Ultimate Research and Trends in Education 2:1
4.	Factors Influencing the Use of ICT for English Language Learning of Indonesian EFL University Students	Tubagus Zam Zam AlArif & Reli Handayani (2022)	Journal of English Language Study 4:1, pp 24-33
5.	ICT Integration in 21st-Century Indonesian English Language Teaching: Myths and Realities	Arif Husein Lubis (2018)	Cakrawala Pendidikan (1)
6.	ICT Usage in Teaching English in Pekanbaru: Exploring Junior High School Teachers' Problems	Junaidi, Budianto, Hamuddin, Wendy Simangunson g, Fathu Rahman and Tatum Derin (2020)	International Journal of Advanced and Technology 29:03, pp. 5052-5063
7.	Needs Analysis of Literacy Assessment Using Blended Learning for Beginner EFL Learners	Ni Nyoman Padmadewi, Luh Putu Artini, Ni Made Ratminingsih, IGA Lokita Purnamika Utami, Ni Putu Era Marsakawati (2022)	Journal of Language Teaching and Research, Vol. 13, No. 2, pp. 441-452
8.	The Integration of ICT in ELT Practices: The Study on Teachers' Perspective in New Normal Era	Mister Gidion Maru, Chris Caesar Pikirang, Donal M Ratu & Jim Ronny Tuna	-

9.	Designing Online Module-based English Learning Materials for STAIN Bengkulu's First-Year Students	Rini Fitria (2021)	Jurnal Keagamaan dan Pendidikan vol.17 no.2
10	Developing Web-Based English Instructional Material Oriented to Promote Independent Learning at Indonesian University Context	Aminah Suriaman & Muhammad Asfah Rahman (2018)	Journal of Language Teaching and Research

Table 3 Answers of Research Questions Identification

Study No.	RQ1	RQ2	RQ3	RQ4
1.	ICT Literacy as the 21 st century skill inserted	Learning media as the element	The usefulness in English teaching and learning everything from word processing, to multimedia programs, to communication and social media tools	ICT's in the teaching includes from review of some EFL cases
2.	ICT Literacy as the 21 st century skill inserted (video subtitle)	Teaching media as the elements	The development of an ICT-based teaching media using video captions is purposed to help students in listening	The method is research & development
3.	ICT Literacy as the 21 st century skill inserted	Teaching media	Digital storytelling is one of the media for teaching writing narrative text	Classroom action research
4.	ICT Literacy as the 21 st century skill inserted	Teaching media	The study concluded that the influence of motivation and skills for ICT usage was mediated by three main TAM variables, namely perceived ease of use, perceived usefulness, and attitudes.	Structural Equation Modeling (SEM) with SmartPLS3 program
5.	ICT Literacy as the 21 st century skill inserted	Learning and teaching media, assessment	Seeking 13 English teachers' perception on and attitude toward the implementation of ICT integration	Descriptive qualitative
6.	ICT Literacy as the 21 st century skill inserted	Learning and teaching media	Referencing multiple studies from current years to obtain the most up-to-date picture on the situation of ICT usage in teaching English. This study tries to examine the issue of teachers of	Case study

			English from various Junior High Schools in Pekanbaru, Riau, Indonesia.			activities and along with the flexible learning atmosphere and methods of delivery, the web-based English instructional materials are effective to promote students' independent learning.
7.	ICT Literacy as the 21 st century skill, Critical Thinking Skill, Problem Solving and Collaborati on Skill inserted	Assessme nt	The phenomena of technology developments influence how assessment instruments must be developed to achieve the learning objectives and outcomes. The present study aimed at conducting a needs analysis of literacy assessment using blended learning for beginner EFL learners in Bali, Indonesia.	Survey		
8.	ICT Literacy as the 21 st century skill inserted	Teaching media	The study showed that teachers' knowledge and perception toward the integration of ICT is high. Further, this study found that despite acknowledging the importance of the enjoyment of integrating the ICT in the learning process, teachers identified the aspects of learners' lack of technological literacy and infrastructure, and lack of motivation can be barriers for the success of the ICT integration.	Narrative Inquiry		
9.	ICT Literacy as the 21 st century skill inserted	Learning media, content, assignments	According to the study's findings, students preferred topics related to daily life and science and technology when learning English using module-based English material.	R&D		
10	ICT Literacy as the 21 st century skill inserted	Instructio nal Materials	In summary, the development of web-based English instructional materials oriented to promote independent learning is effective and responded positively both lecturers and students. With the various supported	R&D		

Based on the finding elaborated in the table 2 and 3, it was found that the usage of ICT literacy skill in ELT still have high demand. Most of the result showed that the elements being integrated is learning and teaching media which implemented ICT literacy skill as the 21st century skills integration.

The findings of this research align with and build upon existing studies that emphasize the transformative potential of ICT in EFL teaching and learning contexts. Previous studies, such as Hidayati (2016) and Sabiri (2020), have highlighted how ICT tools can enhance language learning by fostering a more interactive and autonomous environment for students. Similarly, Azmi (2017) discussed how ICT integration provides diverse resources that support personalized learning experiences and improve learners' motivation and engagement.

However, challenges identified in earlier studies also resonate with this review. For instance, Parvin and Salam (2015) highlighted the infrastructural barriers that rural schools face, which are echoed in the Indonesian context where ICT implementation is hindered by regional disparities and unequal access to resources. Teacher readiness, as identified by Azmi (2017), remains a significant barrier, with many educators lacking sufficient training in digital literacy and pedagogy, a concern reinforced by findings in this review.

Overall, while prior research has extensively documented the advantages of ICT in ELT, this study underscores the necessity of bridging gaps in accessibility, teacher training, and policy alignment to realize its full potential in diverse EFL classrooms across Indonesia.

CONCLUSION

However, the benefits of integration are still focused on technical levels, such as locating relevant materials and creating presentations, rather than communicative and functional levels for their students' English learning process and advancement. Second, while they believe that integrating ICT may make learning more meaningful and

enjoyable, time limits and technological issues become key roadblocks to a successful integration.

ICT integration has been widely recognized as a catalyst for enhancing teaching efficacy, student engagement, and language learning outcomes. However, the implementation remains uneven due to infrastructural and professional challenges. The reviewed studies revealed that ICT integration prominently supports critical 21st-century skills, including digital literacy, collaboration, critical thinking, and communication. These skills are pivotal for students to thrive in a technology-driven global environment. ICT literacy skills were integrated across various elements of English language education, such as teaching vocabulary, grammar, speaking, listening, reading, and writing. The tools and resources employed included multimedia applications, interactive platforms, and mobile-assisted language learning (MALL) technologies.

Future studies should explore the practical application of ICT literacy skills in diverse EFL classroom contexts across Indonesia, considering factors like regional disparities, resource availability, and teacher readiness. Research could also investigate how specific ICT tools impact language acquisition outcomes and address challenges in integrating these tools into rural and underserved schools. Longitudinal studies examining the long-term effects of ICT literacy on EFL learning outcomes and teacher professional development are recommended.

This study is limited by its reliance on secondary data from the reviewed literature, which may not fully capture real-time classroom dynamics or address recent developments in ICT integration. The generalizability of findings may also be constrained due to variations in regional educational policies, technological infrastructure, and socio-economic factors across Indonesia. Additionally, the scope was confined to English language teaching, potentially overlooking insights from broader educational settings.

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