

DIGITAL LITERACY FOR GENERATION Z IN THE ERA OF SOCIETY 5.0

Hanura Febriani^{1*}, Zelvya Liska Afriani²

¹hanura.febriani@mail.uinfasbengkulu.ac.id, ²zelvya@mail.uinfasbengkulu.ac.id

Universitas Islam Negeri (UIN) Fatmawati Sukarno Bengkulu

Received: October 25, 2024; Accepted: January 3, 2025

ABSTRACT

Technological developments in society have encouraged the formation of a new era, namely society 5.0, where digital technology is inherent in humans, specifically in generation Z. This study aims to analyze the digital literacy levels of generation Z in learning English and examine the relationship between digital literacy competency and academic success in English. It also explores effective strategies for teachers to enhance digital literacy among students to improve their learning outcomes in the classroom. A sequential explanatory mixed-method approach was used, involving senior high school students and teachers in Bengkulu City. Data collection combined questionnaires to assess students' digital literacy competencies and in-depth interviews using the think-aloud protocol technique to gather qualitative insights. The data were analyzed using an independent sample T-test to examine the correlation between digital literacy and academic success. The findings reveal that students in senior high schools in Bengkulu have good digital literacy skills in English learning. Furthermore, the correlation analysis indicates that higher digital literacy proficiency positively affects students' success in learning English. In addition, teachers have employed some strategies to increase generation Z's proficiency with digital literacy to improve the success of English learning in the classroom.

Keywords: Digital literacy, Generation Z, Technological praxis, Society 5.0

A. INTRODUCTION

The concept of Society 5.0, officially launched on January 21, 2019, represents a proactive response by the Japanese government to mitigate the potential challenges posed by the advancements of the Fourth Industrial Revolution. The extensive utilization of digital technology is widely regarded as a catalyst for the erosion of human roles across various domains of existence. The significance of humans in this concept is paramount, as they serve as the focal point of all technology-driven phenomena. Digital literacy is a crucial factor that necessitates consideration when utilizing technology. This pertains to an individual's capacity to effectively employ digital media, communication tools, or networks for the purpose of seeking, utilizing, and generating information, while also employing it in a manner that is astute, cautious, accurate, and compliant with legal regulations, in order to

facilitate communication and interaction in daily existence (Rizqiana, 2021; Nguyen & Habók, 2022; Yu, 2022).

According to the survey conducted by the IMD World Competitiveness Centre Team (2021), it is evident that Indonesia ranks among the countries with the lowest digital competitiveness index in Asia, occupying the third position from the bottom among the 64 countries surveyed. This observation indicates that the adoption of digital technology in Indonesia remains relatively limited, highlighting the necessity for comprehensive assistance and instruction in digital literacy practices. Particularly, there is a pressing need for integrating these practices into the educational curriculum. According to Mudra (2020), Forutanian (2021), and Vorobel et al. (2021), presently, the demographic of digital consumers is primarily comprised of individuals belonging to generation Z, whose birth years typically range from 1995 to 2010. This assertion is further substantiated by the findings of the APJI (2022) survey, which indicate a significant rise of 76.63% in the frequency of internet usage among individuals aged 13 to 18 during the COVID-19 pandemic. These results suggest that the generation known as generation Z, or digital natives, currently holds a prominent position in terms of technology and internet utilization.

The integration of digital literacy competencies within the classroom learning process exhibits a strong correlation with praxis. Riani et al. (2018) posit that praxis entails the integration of theoretical knowledge with practical application in real-world contexts. Praxis, in its most basic sense, can be conceptualized as the practical application or execution of a particular activity or endeavor. In the realm of digital literacy practice, it is imperative to possess knowledge of seven key components, which include: 1) software and hardware; 2) information and data literacy; 3) communication and collaboration; 4) digital content creation; 5) security; 6) problem solving; and 7) career-related competencies (Law et al., 2018). Every individual element is essential to enable students to effectively utilize gadgets or digital tools with intelligence. Hence, it is imperative to comprehend and enhance one's digital literacy skills to shape an individual's character. This notion aligns with the principles advocated in the era of smart society 5.0, emphasizing the necessity for humans to effectively manage their personalities, particularly in the context of technology usage, thereby fostering a more organized life.

In the context of English language learning and teaching, integrating digital literacy is crucial for preparing students for the modern world. Digital literacy means having the skills to find, evaluate, and use information from online sources effectively (Hague & Payton, 2010). Research shows that using digital tools in the classroom makes learning more engaging and motivating. For example, interactive apps and online platforms can make lessons more exciting (Arvanitis, 2019). This approach aligns with Constructivist Learning Theory, which suggests that students learn best when they are actively involved (Piaget, 1976). Teaching students to think critically about online information is also important, as it helps them improve their academic performance (Avcı & Ergün, 2019; Yang & Wu, 2012). Additionally, technology allows for different teaching methods that cater to various learning styles, making classrooms more inclusive (Warschauer & Healey, 1998).

Moreover, incorporating digital literacy helps students develop strong communication skills, which are vital for learning a language. The Common European Framework of Reference for Languages (CEFR) emphasizes the need for interaction and communication in language learning (Council of Europe, 2001). Digital platforms give students opportunities to practice

English in real-life situations, such as through social media and online discussions. As technology continues to change, it is essential for educators to equip students with the digital skills they need for both academic success and future careers. By doing this, teachers can help students navigate the digital world while improving their language skills.

Based on the explanation above, the purpose of the research is to analyze the praxis of digital literacy in Generation Z and its application in efforts to improve English language learning in senior high schools in Bengkulu. This study is particularly relevant within the framework of Society 5.0, which emphasizes the importance of human-centric approaches in the face of rapid technological advancement. Given Indonesia's low digital competitiveness ranking, this research highlights the urgent need to enhance digital literacy among Generation Z, who are increasingly becoming digital natives. By investigating how digital literacy influences English language learning and identifying strategies for teachers to improve these competencies, this research aims to contribute valuable insights to educational practices that foster responsible and proficient technology users in an evolving digital landscape. Therefore, this research aims to critically examine and enhance the understanding of technology utilization in facilitating successful English language learning by answering three research questions below:

1. What is the digital literacy level of Generation Z in SMA/MA in Bengkulu City?
2. Is there any significant relationship between digital literacy competency and the academic success of Generation Z in learning English?
3. What strategies do teachers use to enhance Generation Z's digital literacy in order to improve English learning outcomes in the classroom?

B. METHOD

The researchers used a sequential explanatory design mixed methods approach in this research. Mixed methods research is a research method that combines quantitative and qualitative research methods in one study (Creswell, 2015). The type of explanatory sequential mixed method is a mixed qualitative and quantitative method that takes quantitative data first at the beginning, after which it continues with obtaining research implications by means of qualitative evidence. There are several considerations in choosing this research method. First, researchers wanted to measure the digital literacy level of Generation Z, which in this study are students who are currently studying at Senior High Schools according to the criteria from Francis & Hoefel (2018) and APJI (2022), that generation Z or the internet generation are those born from 1995-2010. In measuring students' digital literacy competencies, the researchers distributed questionnaires from the instruments that have been created. Then, researchers also measured the extent of students' proficiency in understanding English using test that was created by researchers which later went through a validation process from experts. The results of measuring the level of digital literacy and the English language proficiency test were analyzed using a T-test to see whether these two variables are related to each other using quantitative calculations to measure correlation. For qualitative data, the researchers obtained the data from the process of conducting in-depth interviews using think-aloud-protocol techniques with English teachers in each school to be studied. This was done to obtain data regarding how teachers integrate and improve students' digital literacy competencies in the classroom.

The following is a picture of the use of mixed sequential explanatory methods that was carried out in this research:

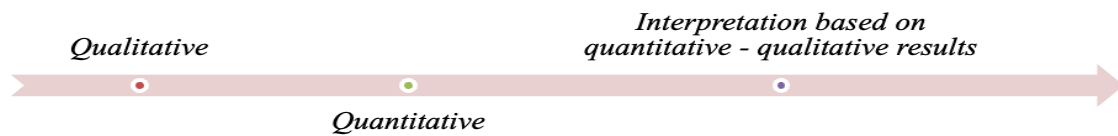


Figure 1. Mixed methods sequential explanatory

The study population consists of students from grades X, XI, and XII of Senior High Schools in Bengkulu City who belong to Generation Z, born in the era of technology and the internet. According to Dapodik data, there are 13 state high schools in the city, with a total of 7,152 students. The researchers applied random sampling, selecting samples from six A-accredited schools in Bengkulu. Using the Slovin formula with a 5% margin of error, the sample size was calculated as follows:

$$n = N / (1 + (N \times e^2))$$

Where:

n = number of samples

N = population size

e = margin of error (0.05)

After applying the formula, the sample size was calculated to be approximately 360 students. Furthermore, the researchers distributed the research questionnaires containing digital literacy components and gave the students English tests with a total of 40 question items. Apart from that, the researchers also conducted interviews with English teachers who were willing to participate in this study with a total number of six participants. The selection of respondents was based on the criteria of teachers who had more than 10 years of teaching experience and a background in English education. The data obtained was analyzed quantitatively first, then it was analyzed qualitatively following the model from Miles and Huberman (1994), namely following stages such as: collecting data from the results of questionnaires and tests carried out, reducing the collected data (reducing data), presenting data that has been analyzed (displaying data), and drawing conclusions or verifying data (concluding or verifying data).

C. FINDINGS AND DISCUSSION

1. Digital Literacy Level of Generation Z in SMA/MA in Bengkulu City

Digital literacy level of generation Z in SMA/MA throughout the city of Bengkulu has been measured to obtain data about students' abilities in using digital devices. The result of the questionnaire can be seen in table 1.

Table 1. The result of students' questionnaire of all schools in Bengkulu

No	Statements	School A Mean score	School B Mean score	School C Mean score	School D Mean score	School E Mean score	School F Mean score	All Schools Mean score
1.	I can find information related to English learning materials on the internet	3.37	3.77	3.48	3.43	3.53	3.23	3.47
2.	I can collect information that I find on the internet	3.07	3.27	3.40	3.20	3.20	2.97	3.18
3.	I can decide whether the information I find on the internet is honest, relevant, and useful	3.07	2.93	3.00	3.13	3.03	3.03	3.03
4.	I understand the use of hardware and software	2.80	2.27	2.87	2.97	2.73	3.07	2.78
5.	I can operate hardware and software properly and correctly	2.77	2.83	2.80	2.87	2.76	2.97	2.83
6.	I can manage the information I find	3.40	3.17	3.23	3.30	3.13	2.90	3.19
7.	I can use information and what I have learned from the internet to create new work by combining, adapting, applying, designing, creating	2.90	3.30	3.23	2.83	3.13	2.77	3.03
8.	I can create information products related to English learning that suit the audience, context and medium	2.50	3.17	2.97	2.50	3.03	2.90	2.84
9.	I can use various online application media to support the English learning process	3.07	3.33	3.37	3.47	3.33	3.31	3.31
10	I can create digital content about English subject materials and assignments from various online applications	2.97	2.70	3.03	2.87	3.00	2.83	2.90
11.	I can communicate with other people such as teachers or friends by sharing knowledge digitally	3.03	3.10	3.20	3.17	3.07	3.13	3.12
12.	I can communicate with other people by exchanging information and creating information products that suit the audience.	2.97	2.87	2.90	3.03	2.87	2.90	2.92
13	I can use ICT appropriately and responsibly	3.10	2.60	3.03	3.30	2.97	3.13	3.02
Average score		3.00 (Good)	3.02 (Good)	3.12 (Good)	3.08 (Good)	3.06 (Good)	3.01 (Good)	3.05 (Good)

Based on the average results of the digital literacy questionnaire given to students, several important points stand out. Overall, the findings show that students have a good level of digital literacy, with average scores above 2.50 on all statements. This means they understand how to use information and communication technology (ICT) effectively in learning English. Such skills are essential today, as using technology well can significantly improve their education. When it comes to searching for and evaluating information, students showed strong abilities. They can find relevant English learning materials online, which indicates they know how to navigate digital resources. Additionally, they are skilled at assessing the information they discover, which is very important in a time when there is so much content available. Being able to identify credible sources helps them succeed academically.

The results also indicate that students are good at managing the information they collect. They can organize, store, and retrieve useful content for future use, which supports their ongoing learning. These skills ensure that important information is easy to access and can be integrated into their English studies. By mastering these abilities, students can learn more effectively. Moreover, students use different online applications and media to aid their English learning. Their willingness to engage with digital tools shows they are eager to enhance their educational experiences. They also feel confident in communicating digitally with both teachers and classmates. This ability to share knowledge online is vital for collaboration and effective learning. While students excel in many areas, there is still room for improvement, especially in using hardware and software and creating digital content. Developing these skills further could boost their engagement and effectiveness in learning English. Overall, these findings highlight the importance of digital literacy in supporting students' educational journeys, pointing out both their strengths and areas where they can grow.

In general, the findings of the survey indicate that students possess a commendable level of digital literacy within the realm of English language acquisition. Nevertheless, it is worth noting that certain areas, such as the development of digital content, may warrant additional attention in terms of further advancement. There is room for further enhancement in the integration of technology and digital literacy within the context of English language learning, with the aim of augmenting the efficacy of the learning process and equipping students with the necessary competencies to navigate the complexities of the digital age. The findings of this study diverged from the research outcomes reported by Perdana et al. (2019) in their study titled "Evaluating the Digital Literacy Skills of Senior High School Students in Yogyakarta." The findings of the study indicated that the digital literacy skills of all students were found to be deficient. However, the present research reveals that students' digital literacy levels were deemed satisfactory. In light of the COVID-19 pandemic, students have been compelled to adjust to the implementation of digital learning, resulting in a notable enhancement of their digital literacy skills. In contrast, Pratama et al. (2020) and Dhika, et al. (2021) assert that a significant number of students and educators utilize various online platforms such as Google Classroom, Webex, and Zoom for the purpose of facilitating learning process. This adoption of online learning methods by teachers and students signifies a notable enhancement in students' digital literacy throughout the pandemic period, with ongoing improvements observed to date.

2. The relationship between Digital Literacy Competence and Students Success in Learning English

This study examines the relationship between digital literacy competency and academic success in English. The following data highlights the significance of this relationship, showing how digital literacy can enhance students' English learning outcomes.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.508 ^a	.258	.254	15.54721

a. Predictors: (Constant), DIGITAL LITERACY

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14968.339	1	14968.339	61.925	.000 ^b
	Residual	43025.411	178	241.716		
	Total	57993.750	179			

a. Dependent Variable: STUDENTS' ACHIEVEMENT

b. Predictors: (Constant), DIGITAL LITERACY

Coefficients^a

Model		Unstandardized Coefficients	Standardized Coefficients		
		B	Std. Error	Beta	t
1	(Constant)	-35.763	10.381		-3.445
	DIGITAL LITERACY	26.725	3.396	.508	7.869

a. Dependent Variable: STUDENTS' ACHIEVEMENT

The research results indicate a positive correlation between digital literacy competence and students' success in learning English. The correlation coefficient (R) value of 0.508 demonstrates a fairly strong relationship between these two variables. This suggests that as students' digital literacy skills improve, their achievement in English also tends to increase. The significance of this relationship underscores the importance of digital literacy in the educational landscape, particularly in the context of language learning. In an era where technology is intertwined with education, these findings highlight how essential it is for students to develop strong digital skills. This correlation also implies that interventions aimed at improving digital literacy could lead to enhanced English learning outcomes. Overall, this positive relationship between digital literacy and academic achievement is a crucial finding that merits further exploration.

The contribution of digital literacy to students' success is further reinforced by the standard beta coefficient of 0.508. This standardized coefficient indicates that digital literacy competence significantly contributes to students' achievements in learning English. Such a strong contribution emphasizes that digital literacy is not just an added skill but a

foundational element that supports learning. Students with good digital literacy skills are more equipped to access and utilize a variety of resources that enhance their understanding of the English language (Adeniyi-Egbeola, et al., 2021). This finding encourages educators to consider digital literacy as a core component of language instruction. By fostering these skills, educators can help students become more proficient in both digital tools and the English language (Soifah et al., 2021).

The research also reveals a statistically significant influence of digital literacy on students' learning success, with a significance value (sig.) of 0.000. This indicates that the relationship between digital literacy competence and English learning success is not due to chance but is a genuine association. The strong statistical significance of this finding highlights the need for educational institutions to prioritize digital literacy in their curricula. As students increasingly engage with digital tools, understanding how to effectively use these resources becomes crucial for their academic success (Yang & Wu, 201). This significance reinforces the argument for integrating digital literacy training into English language programs, making it an essential part of the learning process. Additionally, the findings emphasize the role of digital literacy competencies in helping Generation Z navigate the challenges of learning English in a digital era. Students with strong digital skills are better positioned to leverage technology and online resources, enriching their learning experiences (Ng, 2012). This ability to use digital tools effectively not only aids in language acquisition but also fosters a more interactive and engaging learning environment (Adeniyi-Egbeola, et al., 2021). As the landscape of education continues to evolve with technology, equipping students with the skills to utilize digital resources becomes increasingly important (Yang & Wu, 2012; Ng, 2012). This adaptation is essential for preparing students to thrive in a world where digital communication and resources are ubiquitous.

The educational implications of these findings are significant. They underscore the necessity for schools and educational institutions to integrate digital literacy into the English language learning curriculum. By providing students with opportunities to develop these skills, such as through accessing digital learning resources and using English learning applications, schools can enhance their students' overall learning experiences. Collaboration in online environments should also be encouraged, as it promotes communication skills and teamwork. Institutions must recognize that digital literacy is not just a supplemental skill but an integral part of modern education that can lead to improved academic performance. Finally, the results highlight the need for training and development of digital literacy skills for teachers. Educators must be equipped with the knowledge and tools necessary to effectively guide and support students in using digital technology for English learning. Professional development programs focused on digital literacy can enhance teachers' confidence and competence in this area. As teachers become more proficient in integrating technology into their instruction, they can better assist students in navigating the digital landscape (Soifah et al., 2021). This emphasis on teacher training is crucial for creating a supportive learning environment where students can thrive in both their language studies and digital literacy development.

In conclusion, the results of this research show that digital literacy competence has a positive effect on the learning success of generation Z in learning English. By increasing students' digital literacy, it is hoped that they can be better prepared to face the demands of an increasingly connected world and adapt to ever-growing technological developments. This was in line with research conducted by Sari (2022) who found that there was a significant

relationship between digital literacy competence and academic performance with self-directed learning readiness in EFL students.

3. Teachers' Strategies in Increasing Generation Z's Digital Literacy

Based on the interviews with teachers, three strategies were identified to enhance digital literacy in learning English:

Integration of Technology

Based on the interviews with teachers, to ensure the success of English learning, the teachers used a strategy by incorporating technology into the classroom. It is mentioned by some of the teachers who say integrate technology into their lessons to support the learning process. Here is stated one of the excerpts from the teachers:

"In my classroom, I make sure to incorporate technology as much as possible. We use various online learning platforms and apps to practice vocabulary and grammar. This not only makes learning more engaging but also familiarizes students with the tools they'll use in the future."
(Teacher at school B)

This teacher's commitment to integrating technology goes beyond mere tool usage; it represents a pedagogical shift aimed at enhancing student engagement. When teachers utilize online learning platforms, such as interactive websites and mobile applications, teachers create dynamic and interactive learning environments that cater to different learning styles (Kumi-Yeboah, et al. 2020). For example, apps that offer gamified vocabulary exercises allow students to practice in a fun and competitive manner, making the learning experience enjoyable and motivating (Dindar, et al. 2020; Thiagarajah, 2022).

Guidance on Evaluating Online Resources

The data from the interview also revealed that the teachers provided direct guidance to students on how to use online resources wisely. They taught students how to assess the validity of information obtained from the internet. One of the teachers emphasized the importance of guiding students in their use of online resources. It can be seen in the following excerpt:

"I always emphasize the importance of evaluating online information. I teach my students how to distinguish between credible sources and unreliable ones. It's crucial for them to develop this skill in today's information age."
(Teacher at school F).

This aligns with the finding that critical thinking is essential in the digital era (Tang, 2024). The teacher explains the benefits and drawbacks of using technology, as well as the importance of critical thinking when using technology, so that students can use technology wisely in learning and minimize the negative effects of increasingly sophisticated technology.

Encouragement of independent learning

In terms of independent learning, teachers encourage students to look for online learning resources in English, such as learning videos, online courses, or blogs, and they assign independent assignments that involve searching and analyzing English language content on the internet. Sometimes the teacher will use social media. They believe that social media is an application that cannot be separated from Generation Z and that it can be used as a

learning tool, increasing students' creativity and motivation to learn English. As one teacher explained as follows:

"Social media is a big part of my students' lives, so I integrate it into learning. For example, I assign projects where they create English-language vlogs. This makes learning relevant and fun while also improving their writing skills."

(Teacher at school A).

This approach not only engages students but also encourages them to use technology creatively. Incorporate social media into learning in a constructive way; for example, a project to create an English-language vlog or social media account can encourage students to participate in English-focused online communities. Integrating multimedia is also inextricably linked to teacher strategies such as: Allow students to create multimedia projects in English, such as videos or interactive presentations, and encourage them to think creatively when communicating messages through various media (Hafner, 2014). Based on the findings, it can be concluded that teacher factors play a significant role in influencing students' digital literacy levels. The level of digital literacy of students and teachers is always in sync in every school. This demonstrates that students' high and low digital literacy can be caused by a teacher's basic skills in both teaching and directing in school (Soifah, 2021; Prestidge, 2012). As a result, one of the keys to improving students' success in learning English is teachers' efforts and strategies to increase generation Z's digital literacy.

D. CONCLUSION

The purpose of this study was to assess the digital literacy levels of Generation Z in learning English, investigate the relationship between digital literacy skills and academic achievement in English, and identify effective teaching strategies to boost students' digital literacy in the classroom. The findings demonstrate that high school and MA school students in Bengkulu province showed a good level of digital literacy in the context of learning English. It was noted that the average score on all questionnaire statements was above 2.5, that is, 3.05, which is a positive sign. This indicates that students have good understanding and skills in using information and communication technology (ICT) when learning English. Moreover, in examining the relationship between digital literacy and English learning success, the study found a strong positive correlation ($r = 0.508$) with a significance value of 0.000. This statistical significance indicates that higher digital literacy is associated with improved success in learning English, supporting the hypothesis that digital competencies play a pivotal role in academic achievement in this context. The last finding emphasizes that teachers in Bengkulu City employ three distinct strategies to improve digital literacy. These strategies include integrating technology into lessons, providing guidance on evaluating online resources, and encouraging independent learning through online tools and social media. These practices demonstrate teachers' recognition of the critical role of digital literacy in preparing students for a technology-driven future.

E. REFERENCES

- Adeniyi-Egbeola, F. O., Achike, K. J., & Bello, Y. (2021). Teachers' knowledge and practices in using digital literacy in enhancing communicative competence in the English as a second language class. *Journal for Language Teaching = Ijenali Yekufundzisa Lulwimi = Tydskrif vir Taalonderrig*, 55(1), 37-55. https://hdl.handle.net/10520/ejc-langt_v55_n1_a3

- APJI. (2022). Hasil Survey Profil Internet Indonesia 2022. *Apji.or.Od, June*. apji.or.id
- Arvanitis, P. (2019). Self-paced language learning using online platforms. *The handbook of informal language learning*, 117-138. <https://doi.org/10.1002/9781119472384.ch8>
- Avcı, Ü., & Ergün, E. (2019). Online students' LMS activities and their effect on engagement, information literacy and academic performance. *Interactive Learning Environments*, 30(1), 71–84. <https://doi.org/10.1080/10494820.2019.1636088>
- Council of Europe. (2001). *Common European Framework of Reference for Languages: Learning, Teaching, Assessment*. Cambridge University Press.
- Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Pearson.
- Dindar, M., Ren, L., & Järvenoja, H. (2021). An experimental study on the effects of gamified cooperation and competition on English vocabulary learning. *British Journal of Educational Technology*, 52(1), 142-159. <https://doi.org/10.1111/bjet.12977>
- Dhika, H., Destiawati, F., Surajiyo, S., & Jaya, M. (2021, January). Distance learning during the pandemic period of COVID-19 with Zoom and Webex comparison. In *Proceedings of the 1st International Conference on Social Science, Humanities, Education and Society Development, ICONS 2020, 30 November, Tegal, Indonesia*. <http://dx.doi.org/10.4108/eai.30-11-2020.2303683>
- Forutanian, S. (2021). Exploring the Components of Digital literacy Curriculum: EFL and IT Instructors' Voice. *Journal of English Language Teaching and Applied Linguistics*, 3(1), 25–34. <https://doi.org/10.32996/jeltal.2021.3.1.4>
- Francis, T., & Hoefel, F. (2018). True Gen': Generation Z and its implications for companies. *McKinsey & Company*, 12(2).
- Hafner, C. A. (2014). Embedding digital literacies in English language teaching: Students' digital video projects as multimodal ensembles. *TESOL quarterly*, 48(4), 655-685. <https://doi.org/10.1002/tesq.138>
- Hague, C., & Payton, S. (2010). *Digital literacy across the curriculum*. Futurelab
- IMD World Competitiveness Centre Team. (2021). IMD World Digital Competitiveness Ranking 2021. *IMD World Competitiveness Center*, 96–97. <https://www.imd.org/globalassets/wcc/docs/release-2017/world-digital-competitiveness-yearbook-2017.pdf>
- Kumi-Yeboah, A., Kim, Y., Sallar, A. M., & Kiramba, L. K. (2020). Exploring the use of digital technologies from the perspective of diverse learners in online learning environments. *Online Learning*, 24(4), 42-63.
- Law, N., Woo, D., de la Torre, J., & Wong, G. (2018). A Global Framework of Reference on Digital Literacy. *UNESCO Institute for Statistics*, 51, 146.
- Miles, M. B. (1994). *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks.
- Mudra, H. (2020). Digital Literacy Among Young Learners: How Do EFL Teachers and Learners View Its Benefits and Barriers? *Teaching English with Technology*, 20(3), 3–24.
- Ng, W. (2012). Can we teach digital natives digital literacy?. *Computers & education*, 59(3), 1065-1078. <https://doi.org/10.1016/j.compedu.2012.04.016>
- Nguyen, L. A. T., & Habók, A. (2022). Digital Literacy of EFL Students: An Empirical Study in Vietnamese Universities. *Libri*, 72(1), 53–66. <https://doi.org/10.1515/libri-2020-0165>
- Perdana, R., Yani, R., Jumadi, J., & Rosana, D. (2019). Assessing Students' Digital Literacy Skill in Senior High School Yogyakarta. *JPI (Jurnal Pendidikan Indonesia)*. 8(2), 169-177. <https://doi.org/10.23887/jpi-undiksha.v8i2.17168>

- Pratama, H., Azman, M., Kassymova, G., & Duisenbayeva, S. (2020). The trend in using online meeting applications for learning during the period of pandemic COVID-19: A literature review. *Journal of Innovation in Educational and Cultural Research*, 1(2), 58-68. doi:<https://doi.org/10.46843/jiecr.v1i2.15>
- Prestridge, S. (2012). The beliefs behind the teacher that influences their ICT practices. *Computers & education*, 58(1), 449-458. <https://doi.org/10.1016/j.compedu.2011.08.028>
- Piaget, J. (1976). *To understand is to invent: The future of education*. Viking Press
- Riani, D., Mayuni, I., & Sulistyaningrum, S. D. (2018). Cultural Literacy Praxis in Teaching and Learning English At SMPN 14 Padang (Case Study). *IJLECR (International Journal of Language Education and Cultural Review)*, 4(2), 137-142.
- Rizqiana, N. U. (2021). "New Literacies" As University Students' Essential Skills for Self-Regulated Digital Learning. *ISCE: Journal of Innovative Studies on Character and Education*, 5(2), 286-292. <http://iscjournal.com/index.php/isce/article/view/126%0Ahttps://iscjournal.com/index.php/isce/article/download/126/117>
- Sari, D.M.M. (2022). DIGITAL literacy and academic performance of students' self-directed learning readiness. *Elite Journal: International Journal of Education, Language, and Literature*, 2(3), 127-136. <https://doi.org/10.26740/elitejournal.v2n3.p127-136>
- Soifah, U., Jana, P., & Pratolo, B. W. (2021, March). Unlocking digital literacy practices of EFL teachers. In *Journal of Physics: Conference Series* (Vol. 1823, No. 1, p. 012030). IOP Publishing.
- Tang, F. (2024). Understanding the role of digital immersive technology in educating the students of english language: does it promote critical thinking and self-directed learning for achieving sustainability in education with the help of teamwork?. *BMC psychology*, 12(1), 144. <https://doi.org/10.1186/s40359-024-01636-6>
- Thiagarajah, K., Ng, M. M., Jeyaraja, S. S. B., Gunasehgaran, V., & Maniam, M. (2022). Effectiveness of gamification tool in teaching vocabulary. *International Journal of Academic Research in Business and Social Sciences*, 12(9), 1046-1063. <http://dx.doi.org/10.6007/IJARBS/v12-i9/14604>
- Vorobel, O., Voorhees, T. T., & Gokcora, D. (2021). Language learners' digital literacies: Focus on students' information literacy and reading practices online. *Journal of Computer Assisted Learning*, 37(4), 1127-1140. <https://doi.org/10.1111/jcal.12550>
- Yang, Y.-T. C., & Wu, W.-C. I. (2012). Digital storytelling for enhancing student academic achievement, critical thinking, learning motivation: a year-long experimental study. *Computers and Education*, 59(2), 339-352. <https://doi.org/10.1016/j.compedu.2011.12.012>
- Yu, Z. (2022). Sustaining student roles, digital literacy, learning achievements, and motivation in online learning environments during the COVID-19 pandemic. *Sustainability*, 14(8), 4388. <https://doi.org/10.3390/su14084388>
- Warschauer, M., & Healey, D. (1998). Computers and language learning: an overview. *Language Teaching*, 31(2), 57-71. <https://doi:10.1017/S0261444800012970>