Language Circle: Journal of Language and Literature 17(2) April 2023 P-ISSN 1858-0157
Available online at http://journal.unnes.ac.id/nju/index.php/lc E-ISSN 2460-853X

The Integration of Technology in English Language Teaching to Stimulate Students' Critical Thinking

Luh Wina Sari Merta
Universitas Pendidikan Ganesha, Indonesia
Email: wina.sari@undiksha.ac.id

Ni Made Ratminingsih
Universitas Pendidikan Ganesha, Indonesia
Email: made.ratminingsih@undiksha.ac.id

I Gede Budasi
Universitas Pendidikan Ganesha, Indonesia
Email: gede.budasi@undiksha.ac.id

Abstract

This study was aimed at describing the effectiveness of integrating technology in English language teaching for stimulating students' critical thinking designing in the form of a systematic literature review. The data were obtained by documenting relevant research articles published in national and international journals indexed in SINTA (4-1) and SCOPUS. There were 52 research articles focusing on the integration of technology in English language teaching for stimulating students' critical thinking. Those research articles were re-selected by using inclusion criteria. The gained data were reviewed, compared, and interpreted with relevant theories. A factual content analysis was conducted to check its validity and reliability. The findings showed that the integration of technology is distributed into three learning aspects; learning method, learning media, and learning platform. Technology is integrated as a learning method through the implementation of online learning, digital storytelling, and online peer-reviewed assessment. Those methods showed a positive impact towards students' critical thinking. The integration of technology as a learning media was purposed to provide a fun learning environment and improve students' learning motivation. It also influences students' critical thinking. It was found that the learning media used by teachers in English language teaching were Youtube video, Toondoo, E-book, Mind Mapple, podcast, and other browsing applications. Those media were effective in stimulating students' critical thinking. Using technology as a learning platform is also effective to stimulate students' critical thinking as a supporting tool in providing forum discussions and conducting online classrooms interaction that enable students to explore their critical thinking skills.

Keywords: critical thinking, english language teaching, integration of technology

INTRODUCTION

21st century learning has been positioned as the rapid changed environment toward the education system. Yang and Wu (2012) state that 21st century learning is placed in a rapidly changing of technology that brings a new environment toward education system by providing an abundant sources and information, increasing classroom availability, and emerging required sub-skills to prepare the students ad 21st century citizenship. Students are necessary to be introduced to the activities that offer them 21st century skills, which cover; creativity, collaboration, critical thinking, problem-solving, communication, and innovation for preparing them as the most competent individuals in work industry (Trilling & Fadel, 2009 as cited in Suwastini et al., 2021). Fernández-Gutiérrez et al. (2020)investing substantially in this area. However, scientific evidence does not clearly support this effort. This paper analyses the impact of the use of ICT at school on students' outcomes in compulsory secondary education in maths, reading and science. It uses data from three rounds of PISA (2009, 2012, 2015 state that the unpredictable development of 21st century learning revolutionizes the teaching and learning practice in which it attracts a great enthusiasm from policy makers to support this new learning system by emphasizing the 21st century skills into classrooms. A striking difference that differentiates 21st century learning and conventional learning is the emphasizing of 6C; creativity, collaboration, critical thinking, communication, citizenship, and connectivity and the involvement of technology. Rahmawanti and

Umam (2019) argue that the global world attracts to the great impact of 21st century learning in which it is realized by emphasizing one of 21st century skills, such as; critical thinking and actively engaged students to have a digital communication as their basic skills. It is clearly supported by the evidence in English as Foreign Language (EFL) context where the teaching and learning English process has been integrated with a critical thinking development and the use of ICT (Jiang & Zhang, 2020; Moeljono & Lintangsari 2021).

Recently, critical thinking skill is perceived as a central objective of education. It is undeniable that critical thinking has been widely integrated in all of educational aspects including in EFL context in which it adapts as one of the main learning objective (Eftekhari et al., 2016; Stroupe, 2006). Yang et al (2014) ever states that critical thinking and English literacy become two important competencies in 21st century learning in which they are prioritized in the teaching and learning process in order to provide digital learning environment and declared as the key competencies for a success contemporary society. Critical thinking is also viewed as a meta cognitive process that covers a purposeful thinking process, self-regulatory, analysis skills, evaluation and inference, and reflective judgment that supports the logical conclusion and problem solution produced by individuals that supports their professional development (Dwyer & Walsh, 2020). It is relevant to the previous statement argued by Gökçearslan et al (2019), critical thinking has been placed as the educational process of analyzing, self-regulating, judging, assuming, explaining, and evaluating a problem or authentic phenomenon.

The importance of critical thinking leads the policy makers and governments in some countries trained and developed it into their educational curriculum. □enda□ and Odabasi (2009) view critical thinking as a focus that has been implemented in the current educational setting in which it is required to be examined continuously and objectively regarding its implementation content and how it is elaborated in the teaching and learning process. As one of 21st century skills, critical thinking has been fostered ad a fundamental mission of formal education in which it is not valued as a skill of finding and having information but it is more referred to the skills of how individuals analyze and use the information to solve the problem critically(Gerber & Scott, 2011). As what has been occurred in Indonesia where 21st century skills particularly critical thinking skill is attached in the 2013 curriculum (Saputri et al., 2019). The Indonesian government demands critical thinking as an essential skills for students needs to be emphasized at primary until higher education as what has been stated in 2013 published by Indonesian Ministry of Education and Culture (Pravita & Kuswandono, 2021).

Therefore, students are supposed to be familiarized towards a problem or task that can stimulate their critical thinking but in fact Yang et al (2013)educational technology is being developed to enhance teaching and learning. This study examined the effectiveness of integrating CT into individualized English listening and speaking instruction using Moodle, a virtual learning environment. Individualized instruction was designed with three key elements, namely proficiency level grouping, individualized instructional strategies and materials, and individualized feedback. Participants were 83 students enrolled in a semester-long general education course at a large university in Taiwan. The four dependent measures were CT skills (CTS state that the familiarization of critical thinking can be trained during the learning process through the interaction done by students and teachers. Related to this demand, the recent issue shows that critical thinking is not yet encouraged optimally both in national and international education scope. Suratno and Aydawati (2017) figure out that the low critical thinking skills are still found in many parts of Indonesia, and previously, most of Asian students particularly in Hongkong have a negative attitude towards critical thinking skills (Chiu, 2009). Puadi in Ilyas (2016) states that people are aware towards the role of critical thinking but it has been a debate in society where there is still a lack of clear instruction of critical thinking implemented in the classrooms, for instance; in language classrooms, where there is no barrier that can stimulate students' critical thinking due to the minus of method, strategy, or media that practically stimulate students' critical thinking (Pravita & Kuswandono, 2021; Suratno & Aydawati, 2017).

Technology is one of the impacts of 21st century which has an essential role in all humans' aspects including education. The massive development of technology is viewed as a necessity and opportunity in improving the education quality over the world (Haswani, 2014; Velasco & Dolor, 2016;Wiranda et al., 2020). In educational context, the term of technology is defined as a rational skill of producing a creativity means for achieving the learning objectives (Charlile & Jordan as cited in Fitriah, 2018). It requires teachers and other educators to acknowledge technol-

ogy and implement it in their classrooms. It is supported by Kurniawati (2018) who states that technology has a tremendous influences on education recently which obligates teachers to familiarize themselves with technology and follow the current situation by applying technology in the teaching and learning process. Technology has been integrated in many learning subjects as the realization of 21st century learning, for instance; the integration of technology in English language teaching. Several types of technology has been used to shape the teachers' ways in teaching English in which is referred to electro mechanical systems used as delivery mode (Cahyani & Cahyono, 2012). The integration of technology in language teaching has a potential impact in providing language experience for the students and significantly improves the learning quality and it is also figured out that technology provides a beneficial impacts in English language teaching particularly towards students' critical thinking enhancement (Chappell, 2016;Vasileiadou & Makrina, 2017;Fatimah et al., 2019). Tathahira (2020) states that the challenge of bringing critical thinking concept into classrooms can be minimized by the existence of technology that can be functioned to promote and stimulate students' critical thinking (Tathahira, 2020).

Several documented studies show a positive result as a response towards this current issue in which it is found that the integration of technology is effective in stimulating students' critical thinking skills. The integration of technology is effective in developing students' critical thinking. Technology provides a lot of practical problems that can be used to stimulate students' critical thinking in which it also offers a space for the students to express and deliver their argument freely (Giraldo-García et al., 2015; Rusdin, 2018;Jannah et al., 2020)and the validity was tested using source triangulation techniques. The data analysis used descriptive data analysis techniques, including data condensation, data display, and drawing conclusion. The results show that teachers consider digital integration in elementary schools to bring positive changes, both in the process and student learning outcomes. It is proven by student responses in the form of increased motivation, activity, enthusiasm, and critical thinking skills. The findings confirm two things. First, the main factor for the success of digital based learning does not depend on the availability of digital equipments, rather in the competence of the teachers (digital skills, creative thinking, and communication skills. Murugan et al (2013) previously states that critical thinking can be developed through an action and practice contained by real-life contextual in which it can be reached by using technology. It is proved by a study conducted by Ismail et al (2018) that investigated how the use of application as one of technological means can develop and explore students critical thinking. The result of HOTS-based test used in this study indicates that the application influences students critical thinking. Shakirova (2007) conducts a study which shows the implementation of technology as the learning media through the use of video and podcast for shaping students critical thinking. The results shows that the students who are assigned more complex task can finish it in a limit time where there are less logical errors found in their answers. It can be concluded that integrating technology stimulates and develops students' critical thinking.

Teachers and other educators no longer ignore the advantages provided by technology for improving the teaching and learning quality due to the evidence shown through the previous studies that have been documented particularly regarding to the impact of technology towards students' critical thinking (Waluyo & Apridayani, 2021). Another response shows that it is still assumed that not all of educators are aware toward the utilization of technology into their classroom that can stimulate their students' critical thinking due to the technological access and knowledge that are still becoming a consideration (Rohayati, 2021). Therefore, this problem underlines this study to investigate the integration of technology in stimulating students' critical thinking particularly in language teaching which deals with a research question; how is technology integrated in English language teaching to stimulate students' critical thinking? By reviewing previous studies, the integration of technology in English language teaching is elaborated from its implementation as learning method, learning media, and learning platform.

METHODS

This study was designed in the form of systematic literature review. Systematic literature review is defined as a systematic process of identifying, reviewing, and interpreting a whole findings of certain phenomenon or issue to answer the research question that has been determined previously (Kitchenham & Charters, 2007). A critical systematic approach proposed by Raes et al (1019) as cited in Kusmaryono and Kusumaningsih (2021) was used in this study in which the data were collected by reviewing, comparing,

and interpreting several relevant empirical studies that were focused on discussing the integration of technology for stimulating students' critical thinking in English language teaching. The articles were collected from several journals that have been indexed in Sinta ristekdikti (SINTA 4 until SINTA 1) and SCIMAGO (SCOPUS). In addition, the articles were also selected by using inclusion criteria that can be seen through Table 1.

Table 1. Inclusion Criteria

Research Areas	Description
Topic	The research articles that focused on the same topic about technology integration for stimulating students' critical thinking in English language teaching (technology as learning method/ approach, technology as learning media, and technology as learning platform)
Period	The research articles were published between 2016 until 2021
Research Base	The research articles were covered as quantitative, qualitative, or mix-method research that have been indexed in SINTA (4-1) and SCOPUS
Transparency	The research articles completely indicated methods, samples, instruments, and analysis
Reliability/Validity	The results or findings were valid and reliable based on its types of researches.

There were 49 research articles were collected in which those articles were sorted based on the inclusion criteria. The findings were analyzed by using Document Analysis proposed by Fraenkel dan Wallen (2007) which more focused on a factual content analysis.

RESULT AND DISCUSSION

From 52 research articles that had been collected from the journals indexed by SINTA (4-1) and SCOPUS, there were only 22 research articles relevant to the inclusion criteria. The distribution of those research articles was presented in Table 2.

The findings shown in those articles were elaborated with other theories relevant to topic of this study in which it was divided into subsections such as; 1) the integration technology as learning method or approach, 2) the integration of technology as learning media, 3) the integration of technology as a learning platform.

The Integration of Technology as a Learning Method

Learning method in English language teaching is defined as a systematic underlined by a selected approach used for presenting a language (Richards & Rodgers, 2003 as cited in Ratminingsih, 2017). Technology can be modified as a learning method that provides a unique opportunity in exploring students' abilities that influence their critical thinking skills. Technology is beneficial for conducting a distance learning that link self-regulated learning and students' critical thinking (Dwyer & Walsh, 2020). Distant learning is commonly recognized in many terms, such as; online learning, mobile learning, and remote learning, briefly all those terms represent one condition where the learning process is not framed in the classroom but it is conducted without time and space limitation (Okmawati, 2020). Lee et al (2016) shows that mobile learning offers an advantage that provided a rich learning experience for students to have a broader integration that can assists them to develop their cognitive and collaborative in which they can express their thought freely and have a deeper critical investigation towards the authentic problems. It is found out that mobile learning is effective in fostering students' cooperative thinking skills through an implicit interaction.

Teachers are not focused on implementing one learning method into their classrooms in which they are allowed to function technology and modify as a learning method. Rosyidah and Putri (2019) implement the combination between conventional learning approach and technology which is digital storytelling as a learning method that enables students to generate themselves to be more critical, confident, and creative. Students show positive attitudes towards the use of digital storytelling in which it also fosters their critical thinking skills considering that their abilities in writing a draft stories are increased (Derbashi, 2021). Online learning provides a collaborative environment that gives a complex cognitive development includes their critical thinking skills (Jiang & Zhang, 2020). Students are given their own authorities to decide in what extent that technology will be used actively where they can process an information and learn it by themselves and use unlimited information provided through online sources and allow them to think critical-

Table 2. The Distribution of Published Research Articles (Technology Integration)

No	Research Areas	Publication Years	Number of Paper	References
1.	Technology as Learning Method	2016	1	Lee et al (2016)
		2019	2	Rosyidah and Putri (2019)
		2020	2	Dwyer and Walsh (2020);Jiang and Zhang (2020); Tathahira (2020)
		2021	4	Derbashi (2021); Lin et al (2021); Todorova and Koleva (2021); Zhan (2021)
2.	Technology as Learning Media	2016	1	Eftekhari et al (2016)
		2017	1	Murniati and Sanjaya (2017).
		2018	1	Ratminingsih et al (2018)
		2019	1	Fatimah et al (2019)
		2020	5	Dewi et al (2020); Nurkhin et al (2020); Fernández-Gutiérrez et al (2020); Prasojo et al (2020); Wiranda et al (2020)
		2021	2	(Rohayati, 2021)(Sari et al., 2021)
		2022	1	Agustina et al (2022)
3.	Technology as Learning Platform	2019	1	(Wahyuni et al., 2019)
Total			22	

ly towards the problem found (Todorova & Koleva, 2021). In addition, online learning embed online peer-assessment as a method that helps them to cultivate their critical thinking (Lin et al., 2021;Zhan, 2021)but there is a dearth of relevant studies in a Confucian heritage context. This study investigated the effects of online peer assessment in a General Education course on the development of critical thinking among Hong Kong undergraduates, with a design characterised by six elements (i.e. online peer assessment training, provision of guiding questions, peer feedback requirements, anonymity, student evaluation of the usefulness of peer feedback and summative use of online peer assessment, and prepare a well-designed online interaction (discussion), critical content, and online course instructors for their online learning are effective to enhance students' critical thinking (Tathahira, 2020)in which all the information in this paper was obtained from books and journal articles. Briefly, the findings reveal that online learning can be good support for students to improve their critical thinking ability. However, there are also several challenges to do so involving the socio-cultural matter, the students' previous learning habits, and the familiarity of using updated technology for learning. To end the discussion, the author provides several strategies to overcome those challenges. The well-designed online discussion (interactivity.

The Integration of Technology as Learning Media

In many cases, language learning environment does not always provide the students with a natural and real setting to develop their critical thinking but the rapid development of technology enables teachers to use various technological means to stimulate students' critical thinking in a real and natural setting (Albert, 2013). Nurkhin et al. (2020) point out that the integration of technology as a learning media allows students to have a better grade reflected through HOTS test. There is no influence given from their sex difference towards their critical thinking test but the effect is coming from the use of technology as a learning media such as; online quiz, digital game, Youtube video, and podcast (Eftekhari et al., 2016). Using technology as a learning media depends on the type of technology used and its subjects in order to achieve a positive impact towards students' critical thinking (Fernández-Gutiérrez et al., 2020)investing substantially in this area. However, scientific evidence does not

clearly support this effort. This paper analyses the impact of the use of ICT at school on students' outcomes in compulsory secondary education in maths, reading and science. It uses data from three rounds of PISA (2009, 2012, 2015. The interaction between teachers and students is linked through the use of technology as teachers' preparation in conducting the teaching and learning process. Teachers function technology as one of teaching and learning media that can support the learning process in which it shows that the use of Youtube video is significantly impact students' learning outcomes. Students' learning outcomes indicate that they have an improvement towards their critical thinking skills (Murniati & Sanjaya, 2017; Rohayati, 2021).

Fatimah et al (2019) argue that providing a fun learning environment is useful to stimulate students' critical thinking skills in which adapting Toondoo as one of learning media is effective in promoting students' critical thinking skills by exploring a visualization into English classrooms. Students' critical thinking also relates to their learning motivation in which it has been examined that students' who have a higher learning motivation tend to have a better score towards a test consists of HOTS-based questions (Sari et al., 2021). It is relevant to the results of mind mapping implementation through the use of Mind Maple application as the learning media where students tend to have a better critical thinking skills rather than before (Prasojo et al., 2020). The utilization of technology into English classrooms also can be done by using e-book and browsing application as the learning media that supports students in having a rich of learning source and information in which those information assists them to think critically (Wiranda et al., 2020).

On another side, integrating technology into classroom can be done in a simple way by functioning mobile application that can be accessed through smartphone without minimizing its influence towards students' critical thinking. Agustina et al (2022)there is a scarcity of investigation on mobile learning applications' impact on developing critical thinking as the learning outcome. Thus, this study reports the effect of a mobile learning application, 'English with Noni', designed to infuse critical thinking instruction in EFL classes on students' critical thinking level by employing a sequential explanatory mixed-method approach. A quasi-experimental study was conducted to examine the critical thinking level of 65 students of a junior high school in Jakarta, Indonesia, by administering a post-test assessed using a SOLO rubric. Semi-structured interviews to explore students' responses from using the 'English with Noni' application and class observation contributed to the qualitative findings. The quantitative result showed that the critical thinking level of the experimental group using this application improved significantly more than the controlled group did. The qualitative result suggested that the experimental group had positive responses to using it. They confirmed that it was interesting. They also admitted that it contributed to developing their critical thinking (i.e., predicting, providing reasons, expressing viewpoints, finding alternatives, and making conclusions show that the use of mobile-based learning application gains a positive perception from EFL students. It also reveals that the positive perception emerges from students' awareness from the use of mobile-base learning application infusing their critical thinking, for example; expressing point of view, providing reason, predicting ideas, finding solution, and making conclusion. In addition, it is also found that the improvement of students' critical thinking will also improves students' language skills and motivation. It is relevant to the previous study which indicates that mobile-assisted task-based learning influences students' critical thinking that significantly improves students' writing competence and motivation (Dewi et al., 2020). The use of mobile-based learning as one of technology integration can be furtherly functioned for conducting interactive game that stimulates students' critical thinking. The study shows that interactive games significantly affects students' critical thinking in which it improves their learning motivation and achievement (Ratminingsih et al., 2018)the better their acquisition will be. The main goal of TEYL is to give foundation of simple oral communication skills as the basis for further written communication skills. This research was a descriptive study which aimed to explain: (1. All those results are relevant and support the role of teachers as active mediators and facilitators. The teachers can integrate mobile application as the involvement of technology that improves their performance as a facilitator that will help students to improve their critical thinking (Agustini et al., 2019).

The Integration of Technology as Learning Platform

Learning platform is an essential means that assists teachers in providing an online learning environment for the students as what has been stated by Kong (2015), a digital classroom can be extended by using a learning platform that assists teachers in engaging students by providing

a classroom discussion or giving online pre-lesson in preparing students. A well-preparation of online learning enables students to have a better readiness that leads them in thinking critically through the learning activities provided in the learning platform. Yang et al. (2014) highlight that students' critical thinking can be encouraged in online learning by providing them a clear space interaction, open-ended discussion, and time reflection. Therefore, learning platform has an important role for stimulating students' critical thinking in online learning environment, for instance; the use of Edmodo in blended classroom can motivate students and foster their scientific critical thinking through a discussion section provided in Edmodo. Students are allowed to have open-ended discussion towards the problem presented by teachers in that learning platform (Wahyuni et al., 2019)Indonesia. The instruments used were teacher activity observation sheets, student activity observation sheets, scientific critical thinking skills assessment sheets, and student motivation sheets. Before and after learning activity, students are given the same initial test (pre-test.

CONCLUSION

From the result of this study, it is concluded that the integration of technology in English language is effective for stimulating students' critical thinking in which technology is integrated into three main learning aspects, such as; learning method, learning media, and learning platform. The integration of technology as a learning method positively gives an impact toward students' critical thinking in which technology is combined and adapted as online learning, digital storytelling, and online peer-assessment. Learning media has an important role to support the learning process where the teachers are required to provide useful learning media to show their optimal teaching. The teachers can use technology such as; Youtube video, Toondoo, E-book, Mind Mapple, podcast, and other browsing application as a learning media in which it is proved the mentioned technological means are effective in stimulating students' critical thinking. In addition, technology is also integrated as learning platform that is essentially required in conducting online learning to provide a learning discussion forum, and as a place for conducting online classroom interactions. It is shown that the use of Edmodo as a learning platform proves that integrating technology as learning platform is effective in stimulating students' critical thinking where students have an improvement towards their critical thinking when they join a classroom discussion in Edmodo. These results are expected to be used as a consideration and reference for the teachers and other stakeholders in adapting 21st century learning in the context of English language teaching considering that the result of this study covers two main aspects such as; critical thinking and the integration of technology as the characteristics of 21st century learning. Further research is needed in order to get a deeper understanding towards the integration of technology particularly in affecting other 21st century skills (6C).

REFERENCES

Albert. (2013). Technology-enhanced teaching : A revolutionary approach to teaching english as a foreign language. *TEFLIN Journal*, *24*(1), 1–13.

Cahyani, H., & Cahyono, B. Y. (2012). Teachers' attitudes and technology use in Indonesian EFL classrooms. *TEFLIN Journal*, *23*(2), 130–148. https://doi.org/10.15639/teflinjournal.v23i2/130-148

Chappell, P. (2016). Creativity through inquiry dialogue.*Creativity in language teaching: Perspectives from research and practice* (pp. 130–145). Routledge.

Chiu, Y. C. J. (2009). Facilitating Asian students' critical thinking in online discussions. *British Journal of Educational Technology*, *40*(1), 42–57. https://doi.org/10.1111/j.1467-8535.2008.00898.x

Derbashi, K. Y. (2021). Attitudes of primary school students in UAE towards using digital storytelling as a learning method in classroom. *Research on Humanities and Social Sciences*, *11*(10). https://doi.org/10.7176/rhss/11-10-03

Dwyer, C. P., & Walsh, A. (2020). An exploratory quantitative case study of critical thinking development through adult distance learning. *Educational Technology Research and Development*, *68*(1), 17–35. https://doi.org/10.1007/s11423-019-09659-2

Eftekhari, M., Sotoudehnama, E., & Marandi, S. S. (2016). Computer-aided argument mapping in an EFL setting: does technology precede traditional paper and pencil approach in developing critical thinking? *Educational Technology Research and Development*, *64*(2), 339–357. https://doi.org/10.1007/s11423-016-9431-z

Fatimah, A. S., Santiana, & Saputra, Y. (2019). Digital comic : An innovation of using toondoo as media technology for teaching english short story. *English Review: Journal of English Education*, *7*(2), 101–108. https://doi.org/10.25134/erjee.v7i2.1526.Received

Fernández-Gutiérrez, M., Gimenez, G., & Calero, J. (2020). Is the use of ICT in education leading to higher student outcomes? analysis from the spanish autonomous communities. *Computers and Education*, *157*(July). https://doi.

org/10.1016/j.compedu.2020.103969

Fitriah. (2018). The role of technology in teachers' creativity development in English teaching practices. *Teflin Journal*, *29*(2), 177–193. https://doi.org/10.15639/teflinjournal.v29i2/177-193

Gerber, S., & Scott, L. (2011). Gamers and gaming context: Relationships to critical thinking. *British Journal of Educational Technology*, *42*(5), 842–849. https://doi.org/10.1111/j.1467-8535.2010.01106.x

Giraldo-García, R., Roy, M., & Alotebi, H. (2015). TheInterplay of technologyand critical thinking skills in the 21st century blended classroom. *International Journal of Advanced Research*, *2*(3), 4.

Gökçearslan, S., Solmaz, E., & Coskun, B. K. (2019). Critical thinking and digital technologies: An outcome evaluation.*Handbook of Research on Individualism and Identity in the Globalized Digital Age* (Issue September, pp. 1407–1433). Information Science Reference (an imprint of IGI Global) 701. https://doi.org/10.4018/978-1-5225-8060-7.ch066

Haswani, F. (2014). The role of technology in EFL classroom. *IJEE (Indonesian Journal of English Education)*, *1*(2), 107–118. https://doi.org/10.15408/ijee.v1i2.1303

Ismail, N. S., Harun, J., Zakaria, M. A. Z. M., & Salleh, S. M. (2018). The effect of mobile problem-based learning application science PBL on students' critical thinking. *Thinking Skills and Creativity*, *28*, 177–195. https://doi.org/10.1016/j.tsc.2018.04.002

Jannah, M., Prasojo, L. D., & Jerusalem, M. A. (2020). Elementary school teachers' perceptions of digital technology based learning in the 21st century: Promoting Digital technology as the proponent learning tools. *Al Ibtida: Jurnal Pendidikan Guru MI*, *7*(1), 1–18. https://doi.org/10.24235/al.ibtida.snj.v7i1.6088

Jiang, D., & Zhang, L. J. (2020). Collaborating with 'familiar' strangers in mobile-assisted environments: The effect of socializing activities on learning EFL writing. *Computers and Education*, *150*(August 2019), 103841. https://doi.org/10.1016/j.compedu.2020.103841

Kitchenham, B., & Charters, S. (2007). *Guidelines for Performing Systematic Literature Reviews in Software Engineering*. Joint Techincal Report Press.

Kong, S. C. (2015). An experience of a three-year study on the development of critical thinking skills in flipped secondary classrooms with pedagogical and technological support. *Computers and Education*, *89*(2), 16–31. https://doi.org/10.1016/j.compedu.2015.08.017

Kurniawati, N. (2018). Bridging technological gap among English. *English Review: Journal of English Education*, *7*(1), 41–50. https://doi.org/10.25134/erjee.v7i1.1494.Received

Kusmaryono, I., & Kusumaningsih, W. (2021). A Systematic Literature Review on the Effectiveness of Distance Learning : Problems, opportunities, challenges, and predictions.*International Journal of Education*, *14*(1), 62–69. https://doi.org/10.17509/ije.v14i1.29191

Lee, H., Parsons, D., Kwon, G., Kim, J., Petrova, K., Jeong, E., & Ryu, H. (2016). Cooperation begins: Encouraging critical thinking skills through cooperative reciprocity using a mobile learning game. *Computers and Education*, *97*(2), 97–115. https://doi.org/10.1016/j.compedu.2016.03.006

Lin, H. C., Hwang, G. J., Chang, S. C., & Hsu, Y. D. (2021). Facilitating critical thinking in decision making-based professional training: An online interactive peer-review approach in a flipped learning context. *Computers and Education*, *173*(June 2020), 104266. https://doi.org/10.1016/j.compedu.2021.104266

Mike Okmawati. (2020). The Use of google classroom during pandemic.*Journal of English Language Teaching*, *9*(2), 438–443.

Moeljono, E. E., & Lintangsari, A. P. (2021). Investigating indonesian efl learners ' critical thinking : Current state and future directions. *English Review: Journal of English Education*, *10*(1), 83–92.

Murniati, C. T., & Sanjaya, R. (2017). Students as producers: A case study of technology-based projects.*Celt: A Journal of Culture, English Language Teaching & Literature*, *17*(2), 121. https://doi.org/10.24167/celt.v17i2.1173

Murugan, A., Noorli, W., & Razali, B. (2013). Enhancing students' interaction skills and critical and creative thinking through movies.*English Review: Journal of English Education*, *1*(2), 1–7.

Nurkhin, A., Kardoyo, Pramusinto, H., Setiyani, R., & Widhiastuti, R. (2020). Applying blended problem-based learning to accounting studies in higher education; Optimizing the utilization of social media for learning. *International Journal of Emerging Technologies in Learning*, *15*(8), 22–39. https://doi.org/10.3991/IJET.V15I08.12201

Prasojo, L. D., Wijayanti, W., Yuliana, L., Agus, N., Habibi, A., & Yaakob, M. F. M. (2020). Instruments' validation of access to motivation, skills, and use of digital technology: Efl context in indonesia. *Studies in English Language and Education*, *7*(2), 308–322. https://doi.org/10.24815/siele.v7i2.16788

Pravita, A. R., & Kuswandono, P. (2021). Critical thinking implementation in an English education course: Why is it so challenging? *EduLite: Journal of English Education, Literature and Culture*, *6*(2), 300. https://doi.org/10.30659/e.6.2.300-313

Rahmawanti, M. R., & Umam, A. (2019). Integrating web 2.0 tools in writing class to promote assessment for learning. *JEES (Journal of English Educators Society)*, *4*(2), 53–59. https://doi.org/10.21070/jees.v4i2.2516

Ratminingsih, N. M. (2017). *Metode dan strategi pembelajaran bahasa inggris*. Rajawali Pers.

Rohayati, D. (2021). The Impacts of Creating Youtube video project to facilitate students ' critical thinking. *English Review: Journal of English Education*, *9*(2), 97–106.

Rosyidah, A., & Putri, A. (2019). Digital storytelling implementation for enhancing students' speaking ability in various text genres. *International Journal of Recent Technology and Engineering*, *8*(4), 3147–3151. https://doi.org/10.35940/ijrte.d8002.118419

Rusdin, N. M. (2018). Teachers' readiness in implementing 21st century learning. *International Journal of Academic Research in Business and Social Sciences*, *8*(4), 1271–1284. https://doi.org/10.6007/ijarbss/v8-i4/4270

Saputri, A. C., Sajidan, Rinanto, Y., Afandi, & Prasetyanti, N. M. (2019). Improving students' critical thinking skills in cell-metabolism learning using Stimulating Higher Order Thinking Skills model. *International Journal of Instruction*, *12*(1), 327–342. https://doi.org/10.29333/iji.2019.12122a

Sari, R. M., Sumarmi, Astina, I. K., Utomo, D. H., & Ridhwan. (2021). Increasing students critical thinking skills and learning motivation using inquiry mind map.*International Journal of Emerging Technologies in Learning*, *16*(3), 4–19. https://doi.org/10.3991/ijet.v16i03.16515

□enda□, S., & Odabasi, H. F. (2009). Effects of an online problem based learning course on content knowledge acquisition and critical thinking skills. *Computers and Education*, *53*(1), 132–141. https://doi.org/10.1016/j.compedu.2009.01.008

Shakirova, D. M. (2007). Technology for the shaping of college students' and upper-grade students' critical thinking. *Russian Education and Society*, *49*(9), 42–52. https://doi.org/10.2753/RES1060-9393490905

Stroupe, R. R. (2006). Integrating critical thinking throughout ESL curricula. *TESL Reporter*, *39*(2), 49–61.

Suratno, A., & Aydawati, E. N. (2017). Exploring students perception and ICT use in Indonesian high schools. *Celt: A Journal of Culture, English Language Teaching & Literature*, *16*(2), 177. https://doi.org/10.24167/celt.v16i2.735

Suwastini, N. K. A., Puspawati, N. W. N., Adnyani, L. P. S., Dantes, G. R., & Rusnalasari, Z. D. (2021). Problem-based learning and 21 st -century skills : Are they compatible? *EduLite; Journal of English Education, Literature, and Culture*, *6*(2), 326–340.

Tathahira, T. (2020). Promoting students' critical thinking through online learning in higher education: Challenges and strategies. *Englisia: Journal of Language, Education, and Humanities*, *8*(1), 79. https://doi.org/10.22373/ej.v8i1.6636

Todorova, M., & Koleva, E. (2021). Enhancing critical thinking skills through the use of ICT in academic writing classes. *Computer and Education*, *2*(3). https://doi.org/10.1063/5.0041810

Vasileiadou, I., & Makrina, Z. (2017). Using online computer games in the ELT classroom: A case study.*English Language Teaching*, *10*(12), 134. https://doi.org/10.5539/elt.v10n12p134

Velasco, Y. P., & Dolor, M. A. V. (2016). The notions of English language and research instructors on the impact of digital technologies on the research writing process of their college students. *English Review: Journal of English Education*, *5*(1), 89. https://doi.org/10.25134/erjee.v5i1.392

Wahyuni, S., Gusti Made Sanjaya, I., Erman, & Jatmiko, B. (2019). Edmodo-based blended learning model as an alternative of science learning to motivate and improve junior high school students' scientific critical thinking skills. *International Journal of Emerging Technologies in Learning*, *14*(7), 98–110. https://doi.org/10.3991/ijet.v14i07.9980

Waluyo, B., & Apridayani, A. (2021). Teachers' beliefs and classroom practices on the use of video in english language teaching. *Studies in English Language and Education*, *8*(2), 726–744. https://doi.org/10.24815/siele.v8i2.19214

Wiranda, R., Petrus, I., & Vianty, M. (2020). The use of ICT in learning process by vocational teachers of English. *English Review: Journal of English Education*, *8*(2), 119. https://doi.org/10.25134/erjee.v8i2.2617

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

Yang, Y. T. C., Chuang, Y. C., Li, L. Y., & Tseng, S. S. (2013). A blended learning environment for individualized English listening and speaking integrating critical thinking. *Computers and Education*, *63*, 285–305. https://doi.org/10.1016/j.compedu.2012.12.012

Yang, Y. T. C., Gamble, J. H., Hung, Y. W., & Lin, T. Y. (2014). An online adaptive learning environment for critical-thinking-infused English literacy instruction. *British Journal of Educational Technology*, *45*(4), 723–747. https://doi.org/10.1111/bjet.12080

Zhan, Y. (2021). What matters in design? Cultivating undergraduates' critical thinking through online peer assessment in a Confucian heritage context. *Assessment and Evaluation in Higher Education*, *46*(4), 615–630. https://doi.org/10.1080/02602938.2020.1804826