

ORIGINAL RESEARCH ARTICLE

University students' perceptions of interactive response system in an English language course: a case of *Pear Deck*

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Pear Deck is one interactive response system that has gained popularity in recent years. This study addressed the gap in the literature and considered students' experience of the platform in a Thai university context. This was a mixed-method study in which 320 students completed a survey including closed and open-ended components. Quantitative data measuring students' perceptions using Likert-scale surveys were collected, while qualitative data were used to get a deeper understanding of students' experience in learning using *Pear Deck* in the classroom. The data were analysed based on gender differences and students' proficiency levels. According to the findings of this study, students' perceptions were not significantly different based on gender. However, despite the finding that both basic and independent users had good attitudes towards the platforms, the latter group gave a substantially higher score. Furthermore, the study revealed that the students had a favourable impression of *Pear Deck*. They believed that the platform was engaging, easy to use, and had the potential to aid learning.

Keywords: English language courses; interactive response system; learning technology; *Pear Deck*; students' perceptions.

Introduction

Technology integration has become commonplace in English language teaching around the world. It has been demonstrated that technology-mediated training promotes active learning. Active learning is the polar opposite of traditional learning in that it refers to a series of learning activities that result in active engagement and discoveries by students (Javed and Othabi 2018; Jones and Palmer 2017). Active learning in English teaching can take place individually, such as via brainstorming, reading, and writing, or in groups, such as through debates and roleplaying (Jones and Palmer 2017; Kariadi and Pratiwi 2022). Positive learning outcomes have been linked to active learning (El Shaban 2017; Kariadi and Pratiwi 2022; Pratiwi and Waluyo 2022). Active learning encourages student-centred education, which helps pupils build motivation, positive perspective, and autonomy in language acquisition (Lei and Lin 2022; Leong *et al.* 2018).

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At present, active learning has been improved by using interactive response systems (IRSs) such as *Pear Deck*, *Kahoot*, and *Quizizz*, which provide several advantages. IRSs have been recognised for encouraging student participation in class and assisting students in directing their attention, offering real-time feedback, and assessing students' understanding (Collins 2007; Paul *et al.* 2020). Waluyo (2020) found that students' success across all skills was enhanced by incorporating active learning and smart classroom tools such as Socrative, Google Forms, and Facebook into basic English courses. Since its debut in 2014, *Pear Deck* has grown in popularity among a wide range of users. This platform enables students to give real-time responses in various formats, including selecting from multiple choices, writing short and long passages and drawing. Recent studies reported that *Pear Deck* could enhance students' engagement in class (Dong *et al.* 2018). Most importantly, *Pear Deck* can improve students' achievement (Liu, Sands-Meyer, and Audran 2019). However, little research on the platform in English as a Foreign Language (EFL) contexts in Asia, including Thailand, has been conducted. It is critical to comprehend the experiences of its users to develop future uses of the platform (Anggoro 2021). As a result, the focus of this study was on Thai university students' perceptions of *Pear Deck* in English language courses. This study also compared students' perceptions based on gender and English proficiency levels.

Pear Deck as an IRS

An IRS, as defined by Liu (2003), is a technology-enabled learning environment that improves student engagement. An IRS, as defined by Awedh *et al.* (2014), is an online student response system that allows teachers to test student comprehension and track their progress by assigning educational assignments. An IRS enables educators to improve student participation in the classroom, stimulate deeper conversation, foster cooperation, and provide quick feedback (Turner 2015). An IRS is typically comprised of hardware, such as a set of simple personal handheld signal transmitters and a response signal receiver connected to a classroom computer to collect responses from classroom participants, and software configured on a classroom computer to process the collected responses and present the results on a screen (Liu 2003). Nonetheless, as technology advances, the IRS increasingly employs mobile technologies, which are practical for students. Recent IRS research included the usage of students' mobile phones (Balta and Hamza 2017; Sun and Hsieh 2018).

Pear Deck, a platform that combines slides with interactive features, is one IRS that has gained much popularity. Mache *et al.* (2017) mentioned that *Pear Deck* acts as an online presenting platform that is combined with an interactive classroom response system. This platform has a real-time response system that enables teachers to observe students' answers synchronously; thus, giving immediate feedback becomes possible (Anggoro 2021). Concerning accessibility, Liu, Sands-Meyer and Audran (2019) stated that *Pear Deck* is more convenient, simple to use, and inexpensive than other student response systems because any digital device with internet connectivity can access the platform. Anggoro (2021) also states that people familiar with *Google Slides* and *Microsoft PowerPoint* can quickly learn how to operate *Pear Deck*.

On the platform, students can promptly respond to the various types of questions provided in the interactive slide, and teachers can check the students' answers

simultaneously through the teacher dashboard (Sengsri and Anggoro 2021). Teachers can display the answers anonymously on the projector screen while giving verbal feedback (Dong *et al.* 2018). *Pear Deck* also enables review sessions. Teachers can access all students' answers any time after the lesson (Anggoro and Khasanah 2022). At the same time, students receive takeaways which are their answers, and the slides are sent back to them through email (Anggoro 2021).

Several studies reported on the benefits of *Pear Deck* to learning. Ni *et al.* (2020) studied the use of the site along with a game to facilitate vocabulary instruction, and their investigation found that students' motivation and achievement were improved. Mache *et al.* (2017) reported that the tool could improve students' engagement. This study is congruent with Javed and Odhabi (2018), who found that the platform can improve engagement and facilitate students' active learning. In EFL, *Pear Deck* was also utilised in several studies. Liu, Sands-Meyer and Audran (2019) utilised *Pear Deck* to facilitate English grammar learning and reported improved learning motivation and self-efficacy in learning English grammar. In addition, to use it in a classroom, *Pear Deck* can also enhance online instruction in terms of solving problems with students' engagement and participation (Anggoro 2021). Since previous research (Archambault, Pagani, and Fitzpatrick 2013; Javed and Odhabi 2018) reported that engagement relates to achievement, *Pear Deck* has the potential to improve online learning.

Students' perceptions of technology tools based on gender and English proficiency levels

To investigate students' perceptions of *Pear Deck*, further, this study aims to analyse students' comments based on their gender. Even though technology has been widely employed, gender differences should be considered. According to several researchers, female students are more comfortable utilising technology tools than male pupils (Pratiwi and Ubaedillah 2021; Shin *et al.* 2018). Their studies revealed that women were more likely to believe that technology tools were useful. These findings contradicted several other studies (Cuadrado-García, Ruiz-Molina, and Montoro-Pons 2010; Tucker 2014). Tucker (2014) found that men were more involved in discussions utilising computers as new media, as a result they gained more helpful knowledge than women who perceived computers as more of a social media tool. Furthermore, Cuadrado-García, Ruiz-Molina and Montoro-Pons (2010) discovered that young men are more familiar with virtual language than women, influencing their online performance. Another finding showed no substantial differences between genders (Gunamala and Sneha 2013). They stated that gender disparities had little effect on their ability to use technology tools and both sexes had similar attitudes towards it.

Another discussion is on the connection between students' perceptions of *Pear Deck* and their English proficiency levels. Previous studies have disclosed the benefits of *Pear Deck* for English learners. The platform can be advantageous for improving students' engagement (Mache *et al.* 2017) and achievement (Anggoro and Khasanah 2022). Also, it is user-friendly (Liu, Sands-Meyer, and Audran 2019). Nonetheless, there is a lack of studies discussing how groups of learners with different English proficiency levels react to *Pear Deck*. By knowing the reactions of learners from different English proficiency levels, we might figure out which group might benefit more from its utilisation.

Methodology

Research objectives and design

This research aimed to investigate students' perceptions of using *Pear Deck* in English language classes. Furthermore, it compared students' perceptions of *Pear Deck* in relation to their genders and English proficiency levels. The mixed-method research design was utilised to achieve the research objectives. It was used to strengthen the triangulation of data (Creamer 2017). Triangulation of data helps to achieve trustworthiness (Korstjens and Moser 2018). Hence, it is expected that the results obtained in this study are trustworthy.

Setting and participants

The study was conducted at a university in the south of Thailand. A total of 320 consented students participated in the survey. The students, aged from 19 to 21 years old, were enrolled in a course named English communication skills. The students came from eight different sections. Each section approximately consisted of 35–40 students. They were diverse in relation to their English proficiency levels. To determine their English proficiency levels, their Common European Framework of Reference for Languages (CEFR) levels were investigated from the results of their university English proficiency tests. CEFR has been widely used worldwide and has impacted language standards, curricula, and revision reform (North 2014). The most prominent part of the framework is its vertical dimension, which includes proficiency levels ranging from basic user to proficient user (Huhta 2012).

Most importantly, the participants were taught using *Pear Deck* slides. Five classes were onsite and seven were online because of the re-rising case of Covid-19 (COVID-19). *Pear Deck* was often utilised from the beginning to the end of the class for lesson review and language practice purposes. Two lecturers designed *Pear Deck* slides for 2-h classes. The slides normally included several activities, including a warm-up activity, vocabulary building, reading or listening activity, grammar points, and speaking or writing activity. The following Figure 1 shows the types of slides used in each activity:

Data collection

An online questionnaire consisting of closed-ended and open-ended sections was utilised to collect data. A five-point Likert scale was used in the closed section. The questions were about the use of IRS in online English classes. For instance, students were given a statement, 'I understand the lesson more because of *Pear Deck*', and asked to

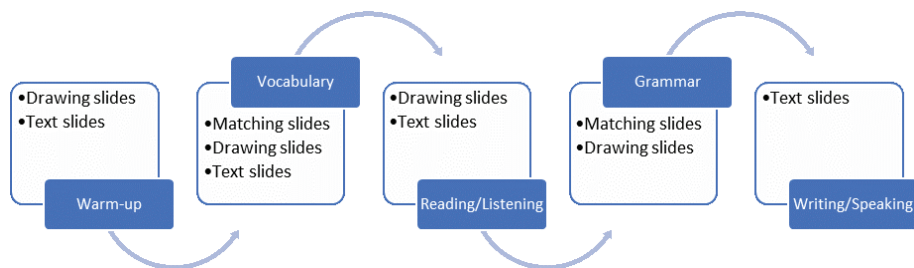


Figure 1. Flow of lesson and types of *Pear Deck* slides used.

select an option that came closest to their opinion. The options were Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), or Strongly Disagree (SD). More sample statements are available in the following Table 1. In the open-ended section, students had the opportunity to write comments and opinions on their experiences with *Pear Deck* as well as suggestions for future use.

Data analysis

The gathered data were held in strict confidence and only accessible to the researchers. Throughout the study’s duration, participants were informed of and assured of their confidentiality. The collected quantitative data were analysed by using descriptive statistics and inferential statistics. Content analysis was applied to analyse the qualitative data. The collected qualitative data were carefully and repetitively examined to discover themes, which were then classified and organised according to the research questions given for this study.

Results

Students’ perception of *Pear Deck* in an English language class

Table 2 shows that students’ overall perception of *Pear Deck* in an English language class is high ($M = 4.32$, $SD = 0.70$). Table 3 further explains students’ perceptions based on three categories, engagement, accessibility, and achievement. The mean in each category is over 4.0, showing the students’ positive perceptions.

In the open-ended section of the survey, 85% of the students left a comment, while 15% did not write anything. From 85% of the comments, 81% showed a positive reaction to the use of *Pear Deck* in class. A total of 4% students conveyed about some problems they had with the platform. Students’ positive comments were categorised into three parts: engagement, convenience, and achievement. The following Table 4 contains some students’ comments based on the three categories.

Table 1. Sample items from the survey.

Perceptions	Item samples
Achievement	1. I understand the lesson more because of <i>Pear Deck</i> . 2. Activities on <i>Pear Deck</i> make me practice and understand more.
Engagement	1. I feel engaged when <i>Pear Deck</i> is used. 2. <i>Pear Deck</i> makes my class more fun.
Convenience	1. <i>Pear Deck</i> is convenient to use. 2. I am happy to use <i>Pear Deck</i> in my classes.

Table 2. Descriptive statistics of students’ overall perception.

Descriptive statistics					
	N	Minimum	Maximum	Mean	Std. deviation
Perception	320	1.00	5.00	4.3275	0.70701
Valid N (listwise)	320				

Table 3. Descriptive statistics of students' perception by categories.

No.	Categories	Mean	SD
1	Engagement	4.36	0.72
2	Convenience	4.32	0.72
3	Achievement	4.29	0.75

Table 4. Students' positive comments.

No.	Categories	Comments
1	Engagement	1.1. Can make us excited and fun in learning. 1.2. Using <i>Pear Deck</i> is a lot of fun and made the lesson more understandable. 1.3. It is good for using the app this year, study online because it can create more enthusiasm for students to study online.
2	Convenience	2.1. Easy to get into, easy to use. 2.2. Nice because the teacher can see the student's answer so I have no need to say it again and again due to my poor internet connection. 2.3. It is convenient, fast and easy to access.
3	Achievement	3.1. Activities on the <i>Pear Deck</i> made me practice and understand more, make learning more efficient 3.2. The teacher taught me vocabulary, grammar through this programme and made me understand. 3.3. It is a good app for learning English skills, including writing, listening, and drawing.

As previously mentioned, several students mentioned a major issue they had while using *Pear Deck* in an online class. The issue is a bad internet signal. The following are students' comments.

Yes, *Pear Deck* is difficult to use because the internet is lost, and the images in the Webex are not exactly in the *Pear Deck*.

Yes, but I have a problem with the internet.

I think it is good. But stuck with the problem that the internet contract is unstable.

Students' perceptions based on gender

To gain more in-depth results, students' perceptions were compared based on their gender. Table 5 points out that both female and male students showed a positive attitude towards the use of *Pear Deck*. Additionally, the independent samples *t*-test, as shown in Table 6, discloses that there was no significant difference between the female ($M = 4.36$, $SD = 0.68$) and male ($M = 4.20$, $SD = 0.76$) students' perceptions, $t(318) = 1.65$, $p = 0.41$. However, the mean of female students' perception was slightly higher than that of the male.

Students' perceptions in the open-ended section were also categorised based on their gender. The majority of both female and male students showed positive perceptions of *Pear Deck*. The comments from both genders can also be categorised

Table 5. Descriptive statistics of students' perception based on gender.

Group statistics					
	Gender	N	Mean	Std. deviation	Std. error mean
Perception	Female	250	4.3620	0.68685	0.04344
	Male	70	4.2043	0.76735	0.09172

into engagement, convenience, and achievement. The minority (4%) who wrote about internet issues were all female students.

Students' perceptions based on English proficiency levels

Students' proficiency levels were categorised into two parts: the basic user or CEFR A1 and A2 and the independent user or CEFR B1 and B2. Table 7 discloses that the mean of the independent users' perception ($m = 4.44$) is higher than that of the basic user ($m = 4.20$). An independent samples t -test, as shown in Table 8, further elaborates that there was a significant difference in the perceptions between the independent users ($M = 4.44$, $SD = 0.53$) and basic users ($M = 4.20$, $SD = 0.84$), $t(318) = 2.98$, $p = 0.00$.

Students' perceptions in the open-ended section were also categorised based on their English proficiency levels: basic user and independent user. The majority of both levels showed positive perceptions of *Pear Deck*. The comments can also be categorised into engagement, convenience, and achievement. The minority (4%) who wrote about internet issues came from two different levels: 2.5% were from the basic user group and 1.5% were independent users.

Discussion

The use of IRSs has become more common at present. *Pear Deck* is one platform that can be utilised in English classes. This study reports that the platform was enjoyed by the vast majority of survey respondents. Most respondents agreed or strongly agreed with positive statements about *Pear Deck* in the survey. The open-ended section of the survey also mainly consisted of favourable comments on the platform. One prominent category in the findings is engagement. The findings show that *Pear Deck* has the potential to engage English learners during class. This is in line with the finding of Archambault, Pagani and Fitzpatrick (2013) and Mache *et al.* (2017). Students also conveyed that they became more active in class when *Pear Deck* was used. This is congruent with the finding of Javed and Odhabi (2018) that *Pear Deck* can facilitate active learning.

Another category is convenience or accessibility. This category is important for IRSs because they are expected to make the class easier, not more complicated. A large number of the survey respondents agreed that using *Pear Deck* was convenient. It was user friendly and did not require intensive training. This finding supports that of Anggoro (2021) about the easy accessibility of *Pear Deck*. It is also congruent with the finding of Liu, Sands-Meyer and Audran (2019). However, for students with a bad internet signal, the experience might be different. The minority of the respondents informed us that due to unreliable internet connection, they were not able to

Table 6. Independent samples *t*-test for students' perception based on gender.

	Levene's test for equality of variances			<i>t</i> -test for equality of means					
	F	Sig.	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
							Lower	Upper	
Perception	0.671	0.413	318	0.099	0.15771	0.09535	-0.02988	0.34530	
	Equal variances assumed								
	Equal variances not assumed		102.008	0.123	0.15771	0.10148	-0.04358	0.35901	

Table 7. Descriptive statistics of students' perception based on English proficiency levels.

Group statistics					
	English proficiency (EP)	N	Mean	Std. deviation	Std. error mean
Perception	Basic user	155	4.2071	0.84000	0.06747
	Independent user	165	4.4406	0.53213	0.04143

access the platform. A similar finding was also reported by Anggoro and Khasanah (2022). Hence, a stable internet signal is a prerequisite to utilising the platform.

The last category is achievement. The respondents positively reacted to statements on learning achievement. They mentioned that the platform made them understand the lesson more. Several comments made by students talked about the use of *Pear Deck* to learn specific English skills, including vocabulary, listening, writing, reading, and grammar. Hence, the platform has the potential to help improve students' English skills. This is in line with the finding of Archambault, Pagani and Fitzpatrick (2013) and Javed and Odhabi (2018). Several students also pointed out that due to the COVID-19 restrictions, they were forced to study online. They further explained that using *Pear Deck* made them able to comprehend the online class more, and they were able to practice several English skills during class. This finding supports that of Anggoro and Khasanah (2022) about the use of *Pear Deck* in an online class.

Apart from the three categories, this study discussed students' perceptions based on gender and English proficiency levels. Based on gender, even though the female participants did score a higher mean than the male, there was no significant difference in the respondents' perceptions of *Pear Deck*. Hence, the finding that female students are more comfortable using technological tools than male might not be in line with that of Huo (2013) and Shin *et al.* (2018). This finding is more congruent to that of Gunamala and Sneha (2013), that there are no significant differences between the female and male students' performances in using technology tools for learning. In relation to the English proficiency level, this study found that both the basic user and independent user groups showed positive reactions to *Pear Deck*. Both groups conveyed their satisfaction with the use of the platform and wished that it would be used in other courses as well. The independent user groups, moreover, scored a significantly higher mean than that of the basic user. This implies that *Pear Deck* might be a beneficial platform to select to teach basic user students and it might be more advantageous for independent user students. The basic user students can enjoy the lesson more, while the independent user students can increase their achievement.

Conclusion

As an IRS, *Pear Deck* has been used in classrooms, especially in English class of higher education context. This study reports that the platform might have the potential to improve English classes by engaging students and assisting their learning. The platform is also easy to use, so that students will get used to it quickly. *Pear Deck* is a versatile tool since it can be used for both onsite and online classes as long as the internet connection is strong. Students with bad internet signals might struggle to participate in activities on the platform. This study also discussed students' perceptions based on gender and English proficiency levels and found that the platform was

Table 8. Independent samples *t*-test for students' perceptions based on English proficiency levels.

Independent samples test		Levene's test for equality of variances				<i>t</i> -test for equality of means				
Perception	Equal variances assumed	F	Sig.	<i>t</i>	df	Sig. (2-tailed)	Mean difference	Std. error difference	95% confidence interval of the difference	
									Lower	Upper
	Equal variances assumed	12.835	0.000	-2.989	318	0.003	-0.23351	0.07812	-0.38721	-0.07981
	Equal variances not assumed			-2.949	257.617	0.003	-0.23351	0.07917	-0.38942	-0.07760

enjoyed by both female and male students, as well as the two different English proficiency groups found in the study: basic users and independent users. Although both users showed a positive attitude towards the use of *Pear Deck*, the independent user showed higher satisfaction than the basic user.

There are several limitations to this study. Firstly, the imbalance of the number of students based on gender. The female and male students were 250 and 70 people, respectively. Secondly, it was the English proficiency levels. There were only two out of three levels found. No advanced user participated in the study. The last was the different environments where *Pear Deck* was utilised. Several students had experiences using it in the classroom, while others were online. A future study comparing students' perceptions of the platform in online, onsite, and hybrid environments might enrich the results of this study.

References

- Anggoro, K. J. (2021) Pear deck. *RELC Journal*, vol. 52, no. 3, pp. 645–647. doi: 10.1177/0033688220936735
- Anggoro, K. J. & Khasanah, U. (2022) EFL students' independent learning with pear deck interactive slides. *Studies in Self-Access Learning Journal*, vol. 13, no. 1, pp. 172–176. doi: 10.37237/130111
- Archambault, I., Pagani, L. S. & Fitzpatrick, C. (2013) Transactional associations between classroom engagement and relations with teachers from first through fourth grade. *Learning and Instruction*, vol. 23, pp. 1–9. doi: 10.1016/j.learninstruc.2012.09.003
- Awedh, M., et al., (2014) Using socrative and smartphones for the support of collaborative learning. *International Journal on Integrating Technology in Education*, vol. 3, no. 4, pp. 17–24. doi: 10.5121/ijite.2014.3402
- Balta, N. & Hamza, M. (2017) The effect of student collaboration in solving physics problems using an online interactive response system. *European Journal of Educational Research*, vol. 6, no. 3, pp. 385–394. doi: 10.12973/eu-jer.6.3.385
- Collins, L. J. (2007) Livening up the classroom. *Medical Reference Services Quarterly*, vol. 26, no. 1, pp. 81–88. doi: 10.1300/J115v26n01_08
- Creamer, E. G. (2017) *An introduction to fully integrated mixed methods research*, 1st edn, Los Angeles: Sage.
- Cuadrado-García, M., Ruiz-Molina, M.-E. & Montoro-Pons, J. D. (2010) Are there gender differences in e-learning use and assessment? evidence from an interuniversity online project in Europe. *Procedia – Social and Behavioral Sciences*, vol. 2, no. 2, pp. 367–371. doi: 10.1016/j.sbspro.2010.03.027
- Dong, Y., et al., (2018) Interactive presentation tools using mobile devices. *Society for Information Technology & Teacher Education International Conference*, vol. 2018, no. 1, pp. 743–748. Available at: <http://www.learntechlib.org/p/182605/>
- El Shaban, A. (2017) The use of socrative in ESL classrooms. *Teaching English with Technology*, vol. 17, no. 4, pp. 64–77. Available at: <http://www.tewtjournal.org>
- Gunamala, S. & Sneha, S. (2013) Application of a gamified interactive responses system to enhance the intrinsic and extrinsic motivation, student engagement, and attention of English learners. *International Journal of Engineering Research*, vol. 2, no. 2. Available at: <https://www.indianjournals.com/ijor.aspx?target=ijor:ijer&volume=2&issue=2&article=022>
- Huhta, A. (2012) Common European framework of reference. In *The encyclopedia of applied linguistics*. doi: 10.1002/9781405198431.wbeal0157 Wiley-Blackwell: New Jersey.
- Huo, Q. (2013) *Gender Difference in Perception and Adoption of Technology to Enhance Second Language Learning Out-of-School*, HKU Theses Online (HKUTO), The University of Hong Kong.

- Javed, Y. & Odhabi, H. (2018) Active learning in classrooms using online tools: evaluating pear-deck for students' engagement. *2018 Fifth HCT Information Technology Trends (ITT)*, pp. 126–131. doi: 10.1109/CTIT.2018.8649515
- Jones, B. A. & Palmer, R. (2017) Active learning in Japanese university EFL classes: clarifying the construct. *Hirao School of Management Review*, vol. 7, pp. 107–125. doi: 10.14990/00002306
- Kariadi, M. T. & Pratiwi, D. I. (2022) Revealing university students' attitudes toward English language. *The Journal of Asia TEFL*, vol. 19, no. 3, pp. 1053–1062. doi: 10.18823/asiatefl.2022.19.3.20.1053
- Korstjens, I. & Moser, A. (2018) Series: practical guidance to qualitative research. Part 4: trustworthiness and publishing. *European Journal of General Practice*, vol. 24, no. 1, pp. 120–124. doi: 10.1080/13814788.2017.1375092
- Lei, J. & Lin, T. (2022) Emergency online learning: the effects of interactional, motivational, self-regulatory, and situational factors on learning outcomes and continuation intentions. *International Review of Research in Open and Distributed Learning*, vol. 23, no. 3, pp. 43–60. doi: 10.19173/irrodl.v23i3.6078
- Leong, L. C., et al., (2018) Mobile x-space design, teaching strategies and undergraduate students' collaborative learning behaviour: a case study in Taylor'S university, Malaysia. *Malaysian Journal of Learning and Instruction*, vol. 15, no. 2, pp. 175–205. doi: 10.32890/mjli2018.15.2.7
- Liu, C., Sands-Meyer, S. & Audran, J. (2019) The effectiveness of the student response system (SRS) in English grammar learning in a flipped English as a foreign language (EFL) class. *Interactive Learning Environments*, vol. 27, no. 8, pp. 1178–1191. doi: 10.1080/10494820.2018.1528283
- Liu, T. C. (2003) The features and potential of interactive response system. *Proceedings of International Conference on Computers in Education (ICCE)*, pp. 315–322. 2–5 December. Hong Kong.
- Mache, J., et al., (2017) Pear deck: an interactive classroom response system to encourage student engagement. *Journal of Computing Sciences in Colleges*, vol. 33, no. 1, pp. 156–158.
- Ni, C. K., et al., (2020) Enhancing Malaysian primary pupils' vocabulary skills using pocable game and pear deck. *International Journal of Learning, Teaching and Educational Research*, vol. 19, no. 6, pp. 145–160. doi: 10.26803/IJLTER.19.6.9
- North, B. (2014) *The CEFR in practice*. Cambridge University Press, Cambridge.
- Paul, M. W., et al., (2020) Engaging the control-value theory: a new era of student response systems and formative assessment to improve student achievement. *Research in Learning Technology*, vol. 28, no. 1063519, pp. 1–16. doi: 10.25304/rlt.v28.2454
- Pratiwi, D. I. & Ubaedillah, U. (2021) Digital vocabulary class in english for railway mechanical technology. *Teaching English with Technology*, vol. 21, no. 3, pp. 67–88. Available at: <https://tewtjournal.org/download/digital-vocabulary-class-in-english-for-railway-mechanical-technology-by-damar-isti-pratiwi-and-ubaedillah-ubaedillah/>
- Pratiwi, D. I. & Waluyo, B. (2022) Integrating task and game-based learning into an online TOEFL preparatory course during the COVID-19 outbreak at two Indonesian higher education institutions. *Malaysian Journal of Learning & Instruction*, vol. 19, no. 2, pp. 37–67. doi: 10.32890/mjli2022.19.2.2
- Sengsri, S. & Anggoro, K. J. (2021) Students' perceptions of content and language integrated pedagogy via electronic communication (E-clip). *World Journal on Educational Technology: Current Issues*, vol. 13, no. 1, pp. 54–67. doi: 10.18844/wjet.v13i1.5363
- Shin, I.-S., et al., (2018) Evaluations of interactive learning tools among engineering students: effects of grit and gender. *ASEE IL-IN Section Conference*. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/15636205> <https://docs.lib.purdue.edu/aseeil-insectionconference/2018/assess/3/>
- Sun, J. C.-Y. & Hsieh, P.-H. (2018) Application of a gamified interactive response system to enhance the intrinsic and extrinsic motivation, student engagement, and attention of English learners. *Journal of Educational Technology & Society*, vol. 21, no. 3, pp. 104–116. <http://www.jstor.org/stable/26458511>

- Tucker, R. (2014) Sex does not matter: gender bias and gender differences in peer assessments of contributions to group work. *Assessment & Evaluation in Higher Education*, vol. 39, no. 3, pp. 293–309. doi: 10.1080/02602938.2013.830282
- Turner, D. (2015) Psychosocial aspects of engagement with social media and digital technology – personal thoughts from the frontier. In *Smart Learning: teaching and learning with smartphones and tablets in post-compulsory education*. Media-Enhanced Learning Special Interest Group and Sheffield Hallam University. Available at: <http://melsig.shu.ac.uk>
- Waluyo, B. (2020) Learning outcomes of a general English course implementing multiple e-learning technologies and active learning concepts. *The Journal of Asia TEFL*, vol. 17, no. 1, pp. 160–181. doi: 10.18823/asiatefl.2020.17.1.10.160