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Playing games during pandemic, why not? The IDLE upon students' efficacy and vocabulary

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ABSTRACT

Advancements in the current era and challenges during the pandemic have given rise to an urgency for education practitioners and academicians to turn to informal learning outside the classroom. This is also the case with learners of English as a Foreign Language (EFL), who need to practise the language on an ongoing basis. For this purpose, they utilise the activity of digital gaming as a form of Informal Digital Learning of English (IDLE). This research examines the self-efficacy in learning English (as affective domain) and vocabulary mastery (as cognitive domain) of students with digital gaming experience within the IDLE framework. This sequential qualitative dominant mixed-method research involved 10 respondents out of 244 students with digital gaming experience. The data were collected by using a questionnaire, interview sessions, and receptive-productive vocabulary tests. The collected data were analysed according to Bandura's Personal Agency (1989) and Raoofi's (2012) study on self-efficacy, using descriptive statistics for vocabulary mastery, and Kallio et al.'s (2011) InSoGa model for measuring the degree of digital gaming. It was found that students with a medium and heavy degree of playtime or gaming experience had self-efficacy and good receptive-productive vocabulary mastery. The results also showed that efficacy degrees may vary, and students' receptive test scores were always higher than or the same as their productive test scores. The findings showed IDLE-digital gaming could sustain in-class teaching through out-of-class learning. Thus, it implies that this research supports the IDLE-digital gaming application within an academic context.

Keywords: Digital games; informal digital learning; productive vocabulary; receptive vocabulary; self-efficacy

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INTRODUCTION

Current advancements in the Information Age have changed the forms and direction of people's needs for learning English as a universal language. Nowadays, it is not enough to learn English as a foreign language (EFL) only through formal education. There is also a need for further intensification outside of school (Alhaq et al., 2020; Peterson, 2016). However, many of the existing curricula do not consider learning activities that occur outside the walls of the school (Alhaq et al., 2021; Meisani et al., 2020). This is due to the growing notion, especially among parents, that informal education is not as effective as formal education (Ato & Hari, 2020). In fact, according to some educational observers, a good combination of formal and informal education may support students to learn languages more intensively and effectively (Schmitt & Schmitt, 2020). Students also need to practise the language on an ongoing basis and apply it in real life. Hence, English as the primary goal is not only a science but also a communication tool (Peterson, 2016).

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Truthfully, this era of digital information is witnessing the increasing attention and activities of perpetrators of formal and informal education (Murphy, 2020). The same phenomena have also occurred due to the recent COVID-19 pandemic, along with the efforts to slow down its spread. The necessity of school closure has been an essential, 'non-pharmaceutical' effort (Nafisah et al., 2018), and has made academicians switch to using various alternative digital media (De et al., 2020).

The Informal Digital Learning of English (IDLE) can provide an answer to these challenges by bridging the formal-informal gap and helping to overcome some of the limitations of the pandemic through the application of digital media (Lee, 2019a). This study, which focuses on the use of digital media within informal learning, not only answers the relevance of formal and informal learning relationships but also the use of digital technology in accordance with the demands of learning during the pandemic era (Lee, 2019a; Lee, 2019b; Lee & Lee, 2019). IDLE is an independent English learning activity that does not involve any institutional programs, and prioritises the role of implementing digital technology within informal learning (Benson & Reinders, 2011; Lee, 2019a).

This contrasts with the formal approach that takes place in educational institutions, which involves the in-class teaching and learning process, leading to official qualifications (Benson & Reinders, 2011). In this regard, Sundqvist (2011) provides a further description for these activities, referring to them as all kinds of English-related actions outside the classroom walls carried out by students. She uses the term "extramural" to cover any discussion regarding this study. This concept gives the students access to direct exposure of the target language. In order to achieve effective language acquisition, the role of formal learning is also important, to provide a balanced mixture, since it is more systematic and concerned with the process (form-focused instruction) (Benson & Reinders, 2011).

Digital games can be a good option for learning foreign languages during the pandemic. Not only are digital games in line with informal learning (Benson & Reinders, 2011; Reinders, 2012), but by nature they also provide a proper language learning environment without the need for any necessary adjustment or specific implementation system design (Alhaq et al., 2020; Reinhardt & Sykes, 2012) – serving as a flexible and adjustable language learning media (Alexiou & Schippers, 2018). Moreover, they correspondingly reinforce potent effectiveness in learning a language (Peterson, 2016), have the ability to induce cognitive aspects and social intercourse (Cairns et al., 2000; Dalgarno & Lee, 2010), and offer a 'safe-zone' setting for students to discover, carry out trials, practise, and exercise the target language (Peterson, 2016).

Some studies have already shown the significant use of digital information technology, especially digital games, in the proficiency enrichment of English students (Lee, 2019b; Lee & Drajati, 2019; Lee & Dressman, 2018; Lee & Hsieh, 2019; Lee & Lee, 2019); especially the role of digital games in developing the students' English vocabulary mastery (Lee, 2019a); and efficacy (Yang et al., 2016). However, despite these prior studies, the extent of digital games as IDLE on students' vocabulary and self-efficacy is still under-explored. In order to fill this gap, the current study focuses on illustrating the role of informal learning experiences and activities on students' proficiency in EFL. Hence, it is necessary to understand the mutual relationship between students' cognitive and affective domains (McCoach et al., 2013).

The Urgency of Digital Games as IDLE

The need for informal digital learning implementation, especially in English (IDLE), is crucial (Chivonne et al., 2021). The reason for this is primarily the result of the shifting conditions of student technological activity. In the United States, for example, more than 80% of the American college graduate adult population use the internet through mobile connection (Rainie, 2016; Lee, 2019a), while in Indonesia, almost 90% of adults aged between 18 and 29 use the internet by means of their smartphones (Schumacher & Kent, 2020).

Prensky (2001) also confirms this phenomenon, addressing today's students as "digital natives". They are the earliest generation to grow up with technological advances such as personal computers, digital games, music players, video cameras, cell phones, etc. He also refers to them as "native speakers" of computerised technology, digital games, and the internet.

Moreover, since the onset of the pandemic, there has been a new awareness of the importance of an approach to the realm of learning which prioritises the use of technology and digital games (Azubuike et al., 2020; De et al., 2020; Iivari et al., 2020). Some experts and observers believe that stakeholders should instruct the ministries under their jurisdiction to provide digital literacy content related to the national education curriculum and also equip teachers, lecturers, and facilitators with the necessary knowledge to utilise digital technologies efficiently (De et al., 2020).

In response to this, some experts of computer-assisted language learning (CALL) have devoted more attention to the potential of informal digital learning studies (Lee, 2019a). Lee (2019a) himself defines IDLE as a concept of informal English learning using a digital approach that is carried out privately without any formal instruction. The informal approach to learning encompasses

individual activities related to hobbies (professional or amateur) and anything of interest outside of organised learning.

The study of IDLE is still in its early stages but the growing number of studies have revealed various outcomes (Lee, 2019a). On the subject of digital gaming, Delwiche's (2006) study about Massively Multiplayer Online games (MMOs) shows that the implementation of digital games in the classroom is possible and may serve to enhance conventional classroom learning strategies. Ranalli (2008) states that the application of 'commercial off-the-shelf' (COTS) games is possible for English as second language learning (ESL). Hwang et al. (2017) find that the digital game-based language learning (DGBLL) environment provides a positive outcome for students' affective domain and learning achievements. Kallio et al. (2011) also examines the digital gaming variance through formulated gaming mentalities consisting of intensity, sociability, and games. This concept further elaborates the beliefs about digital gaming and its behaviour in a more general and holistic framework.

In the case of IDLE, previous studies seem to have diversified outcomes: Lee and Hsieh (2019) find that second language (L2) anxiety does not appear to have a significant effect on student performance within the digital environment. Lee and Lee (2019) also state that IDLE activities have a positive correlation on the perception of English as an International Language (EIL). On the other hand, according to Lee (2019a), while engagement in diverse IDLE activity has a higher success rate in improving L2 vocabulary acquisition, the frequent assignation of "monotonous" IDLE activity does not have a significant impact – providing the opportunity for this study to explore more about the topic.

Studies on students' efficacy and L2 English vocabulary

The challenges and urgencies of implementing an optimal learning process during the pandemic are felt more by education practitioners and teachers at high/secondary school level, especially for English subjects (Lie et al., 2020). This is because students at this level need to prepare for more complex challenges such as national examinations or higher education admission (Roy & Roy, 2020); or, in the case of students at vocational schools, preparing to enter the work field (Clark & Winch, 2007; Syauqi et al., 2020). Moreover, during the pandemic, high school students have appeared to be very active in using technology and internet platforms (Igor et al., 2021; Radwan et al., 2020). High school students also tend to be more autonomous in learning (Drexler, 2010; León et al., 2018). This is in line with the characteristics of digitised learning (Lie et al., 2020). On this basis, special attention is needed at this level.

There are many studies about the effects of digital game media on L2 English vocabulary learning (Lee, 2019a) and self-efficacy (Yang et al., 2016), both in informal and formal contexts. Sylvén and Sundqvist (2012) believe that digital gaming experience, as a form of extramural English, can help students in acquiring L2 English vocabulary. Thompson and Gillern (2020) find that digital-game based learning is able to greatly stimulate English vocabulary acquisition, and the incorporation of digital games in an academic setting can lead to a significant learning achievement for students. On the other hand, Yang et al. (2020) show mixed findings: not only does the game-based situational vocabulary learning system with a cognitive complexity-based competition strategy (1a) greatly promote the student's learning performance and (1b) lead the student to complete assignments more fluently; but it also (2) increases the student's anxiety level. The last findings indicate that the digital game environment has an impact upon students' affective variables (anxiety, self-efficacy, motivation, etc.). Moreover, Lee (2019a) notes further that in order to be able to relate the findings about IDLE on students' vocabulary, a reciprocal vocabulary test is needed, and in this case, he proposes a receptive and productive vocabulary level test.

With regard to the affective variable, i.e., students' efficacy, there are a number of research studies with a similar theme: Yang et al. (2016) believe that the badge mechanism in the digital game-based English learning (DGBLL) environment has a great positive impact on the improvement of students' efficacy and learning performance; Hopp et al., (2015) find that self-efficacy is a strong predictor of MMORPG community involvement and it may act as a positive predictor of focused and incidental self-reported learning. Moreover, Atwood-Blaine et al. (2019) state that students with higher creative self-efficacy take more pleasure in playing situated mobile games, and games designed to actively promote the respondents' self-efficacy. Raoofi et al. (2012) also believe that within the EFL context, there are several factors that are affected by efficacy, i.e., learning performance and affective domain; as well as a number of factors that affect efficacy: students' strategies, contextual variables, efficacy sources, and learning styles. These findings are in line with Bandura's (1989) statements about the efficacy processes of the human aspect: motivational, affective, cognitive, and selective.

In short, previous researchers conclude that the use of digital games as a form of informal learning (IDLE) has a significant influence on L2 English vocabulary and students' efficacy. However, most of them do not integrate the digital gaming experience as informal learning on the students' cognitive (L2 English vocabulary) and affective

(self-efficacy) domains. This is crucial since nowadays most schools include the mutual relationship between cognitive and affective domains in their statement about the formulation of goals (McCoach et al., 2013).

For the purpose of filling the gaps, the present study examines the existence of self-efficacy in students with digital gaming experience, as a factor of IDLE media, with regard to their affective domain (Bloom, 1976; McCoach et al., 2013). It also observes the extent of the students' vocabulary mastery as the cognitive domain (Wray & Weber-Fox, 2013). This research may provide: (1) a new concept about the importance of learning outside the classroom, especially by playing digital games, so that the effectiveness of EFL learning can be improved; (2) acknowledgment of the importance of the mutual relationship between the cognitive and affective domains on student learning; (3) a sense of awareness for teachers that students with digital gaming experience have potential and need to be treated accordingly.

METHOD

Research design

This study was carried out in the form of a sequential qualitatively driven (QUAL-quan) mixed-method research which used questionnaires, guided interviews, and vocabulary tests (Morse, 2010; Johnson & Christensen, 2019). It addressed two research questions: (Q1) "Does the English efficacy exist in digital gaming students?" and (Q2) "How was their vocabulary mastery at the level of 2000?"

Research respondents and contexts

In the initial pre-survey phase, 244 respondents were gathered. They were considered to be a homogeneous set based on their domicile (residents of Indonesia), and who were familiar with digital platforms (filling digitised questionnaires). The students were from 61 high schools, consisting of 75 males, and 169 females, with an age span of 14 to 19 years old (See Table 1).

Table 1
Respondents' Schools

Senior High School (SHS)		Vocational High School (VHS)		Islamic Senior High School (ISHS)	
State	Private	State	Private	State	Private
25	12	5	7	9	3
37		12		12	

The researcher further categorised the selected respondents into two gamer classifications based on their playtime. The first category was 'Medium-Regular Gamers' who had between 1 hour and 7 hours of playtime per week, and the second class was 'Heavy-Hardcore Gamers' who had more than 7 hours per week (See Table 2). This classification determined the degree of the respondents' digital gaming experience (Kallio et al., 2007; Kallio et al., 2011).

Table 2
Respondents' Degree of Digital Gaming Experience

Playtime per week (in hours)	Frequency	Category	Total
2	3	Medium-regular gamers	4
4	1		
7	1	Heavy-hardcore gamers	6
10	3		
12	2		

Data collection and instruments

The data collection process began with the initial pre-survey phase, in which the researcher distributed the questionnaires (using a Google Forms link). Then, the initial group of respondents (N = 244) underwent further selection (purposive sampling) based on their availability and willingness to participate in the subsequent interview session (qualitative phase) and vocabulary test (quantitative phase). In the final step, the researcher administered the test by distributing another Google Forms link to the selected respondents (N = 10) before interviewing them. All of the responses were saved and recorded with permission, in the form of written statements of consent from the respondents and informed consent from parents/guardians.

The study used an open-ended questionnaire to collect the students' demographic data, efficacy indications, and the degree of their digital gaming experience for use in the subsequent purposive sampling. The questionnaire consisted of 20 questions. It is divided into four sections.

In order to discover the existence of self-efficacy in the students, the data collection implemented guided interview sessions. They consisted of 6 main and 3 optional questions, each lasting 4-10 minutes. The researcher conducted the interviews in the national language (Indonesian) to avoid misinterpretation and misunderstanding.

The vocabulary tests utilised the Receptive and Productive Vocabulary Level Tests (RVLT and PVLT), which were based on the lextutor.ca site

(Goulden et al., 1990; Laufer & Nation, 1999; Lee, 2019a; Nation, 1990; Sundqvist, 2009; Sundqvist & Wikström, 2015; Sylvén & Sundqvist, 2012; Wray & Weber-Fox, 2013). Each test consisted of 18 questions with multiple choice (RVLT) and fill-in-the-blank (PVLT) question formats. The lowest level of 2000 words was chosen since some initial studies (Quinn, 1968 in Nation, 2013; Nurweni & Read, 1999; Bashori et al., 2021) show that Indonesian university applicants commonly know about 1200 English words. This suggests that the vocabulary mastery of high/secondary school students in Indonesia is still relatively low.

Data analysis

In general, this study implemented the multidata-multianalysis of mixed analysis (Johnson & Christensen, 2019). The process began by analysing the initial pre-survey data questionnaires based on Lee et al. (2019) framework for students demographic data, Yang et al.'s (2016) for efficacy, and Kallio et al.'s (2011) for the digital gaming experiences. To analyse it, the researcher specified, categorised, and selected the relevant data. The researcher then used the analytical results as a constituent to choose the respondents for the qualitative and quantitative phases, included: (a) students' demographic data; (b) intensity; (c) sociability; (d) games; (e) fondness of English; and, (f) achievement in English at school.

The analytical procedure for answering Q1: Based on the parameters of Bandura (1989), Raoofi et al. (2012), and Yang et al. (2016), the researcher manually coded and categorised the transcription data. The researcher inspected several indicators of efficacy within the transcriptions. The indicators and their codes were: motivational (A1), affective (A2), cognitive (A3), selective (A4), learning performances (B1), students' strategies (C1), contextual variables (C2), and learning styles (C3). Finally, the observed students' efficacy and degree of digital gaming experience were used to find the triangulation.

The analytical procedure for answering Q2: The researcher used Microsoft Excel 2010 and 365 online to analyse the results (descriptive statistics) of the respondents' vocabulary tests (quantitative data). To triangulate the degree of the students' digital gaming experience and vocabulary mastery, the researcher converted the quantitative data and findings into a qualitative form (qualitising – see Johnson & Christensen, 2019) by transforming the quantitative data and findings into codes, words, categories, themes, etc.

FINDINGS

Initial pre-survey data

The researcher categorised the initial 244 pre-survey responses based on the respondents' affection for digital gaming, whether they liked playing it or not. From here, researcher could determine which respondents were 'active gamers' (Kallio et al., 2007; Kallio et al., 2011), and thus, would be further explored. To categorise the respondents as 'active gamers', the researcher chose the respondents who responded that they liked playing games. There were 158 respondents who said that they liked playing digital games. These respondents consisted of 66 males and 92 females with an age span of 14 to 19 years old.

The researcher then looked at some of the respondents' results and specified a number of aspects: (a) from the respondents' demographic data, it was important to see whether they were high school students or not; (b) their responses regarding fondness for English, which could be seen from their efficacy in learning English. There were several categories in the responses about efficacy, i.e. very incapable (N = 6), incapable (N = 27), adequate (N = 79), capable (N = 36), very capable (N = 9) and other (N = 1). In this case, the researcher only selected a few respondents who stated that they had adequate (N = 3), capable (N = 6), and very capable (N = 1) efficacy in English; (c) their degree of digital gaming experience, by examining aspects of intensity, sociability, and games; (d) playtime of more than one hour per week; and, (e) any achievements/accomplishments related to English. These aspects were important for the purposive sampling selection. There were 17 respondents who met the criteria, but due to availability and willingness issues, only 10 of them proceeded to the quantitative and qualitative phases. This was also confirmed by the statements about their last English examination scores in class/school, which evidently showed high results between 86-100.

The efficacy of students with digital gaming experience

The researcher found that all of the respondents displayed the existence of efficacy, but not all of them had all the indicators. In these cases, half of the respondents were lacking 2-3 indicators: 3 respondents lacked learning performance (B1); 2 respondents lacked contextual variables (C2); 2 respondents lacked learning styles (C3).

Furthermore, the researcher also found that having digital gaming experience did not necessarily indicate the existence of the belief that supported the effectiveness of this experience. A few of the respondents believed that playing digital games did not contribute much to their learning of English (Respondent 3 and Respondent 8). It was also apparent that they were both lacking the most self-efficacy indicators.

For example, respondent 3 (who lacked learning performance {B1} and contextual variables {C2}) believed that even though the digital gaming

experience did contribute to developing her creative thinking and mindset, she did not believe that it helped or motivated her in learning English (especially her in-class performances).

> "*…actually for me, playing game is just for recreational purposes, thus, playing game didn't motivate me (to learn English) nor help me (in learning English) that much… But it (playing game) did develop the mindset to be more creative, I give you that…*" (Respondent 3. Interview. July 12th, 2020)

In contrast, another key example is Respondent 4, who displayed all the indicators. She said that the digital gaming experience might act as a suitable environment for learning and practising English in various contexts. Since nowadays digital games are equipped with online features, she could interact with multiple players around the globe. She also said that some of her interactions in the gamers community had helped her significantly in learning English.

> "*Yes, for example… like simulation games, usually there are lots of conversations. It usually uses complex vocabulary. Now that, because I am used to it, facing those words, somehow I am able to know the word better, although... I don't know what it means. So, if I apply it on a daily basis, it can be used like that. It can expand vocab too. In my opinion... since when you play the game, there is also the community. And also, being in 'Discord' (messaging app)… well, usually you can get into groups that are full of people from various places around the world.*" (Respondent 3. Interview. July 12th, 2020)

Thus, we propose that the degree of the respondents' efficacy might vary from one to another, and that belief may affect it. To summarise, it can be seen from Table 3 that the students who are medium-regular and heavy-hardcore gamers have efficacy.

The extent of 2000 level vocabulary mastery of students with digital gaming experience

From the statistics (see Table 4), the researcher found that the analytical results of respondents' RVLT scores (Mean = 88.5; Median = 95; S.Dev. = 17.65) were extremely skewed to the left (negative skewed) and very peaked (positive kurtosis).

Table 3
Efficacy >< Degree of Digital Gaming Experience

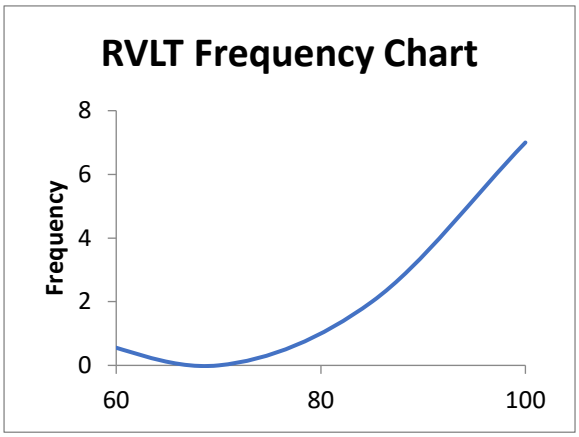
Respondents (code)	Belief in digital gaming	Indicators								Efficacy	Degree of digital gaming experience
		A1	A2	A3	A4	B1	C1	C2	C3		
R1	✓	✓	✓	✓	✓	✓	✓	✓	✓	8 for 8	Medium-Regular
R2	✓	✓	✓	✓	✓	✓	✓	✓	✓	8 for 8	Medium-Regular
R3	X	✓	✓	✓	✓	X	✓	X	✓	6 for 8	Medium-Regular
R4	✓	✓	✓	✓	✓	✓	✓	✓	✓	8 for 8	Heavy-Hardcore
R5	✓	✓	✓	✓	✓	X	✓	✓	✓	7 for 8	Heavy-Hardcore
R6	✓	✓	✓	✓	✓	✓	✓	✓	✓	8 for 8	Heavy-Hardcore
R7	✓	✓	✓	✓	✓	✓	✓	✓	✓	8 for 8	Heavy-Hardcore
R8	X	✓	✓	✓	✓	✓	✓	X	X	6 for 8	Heavy-Hardcore
R9	✓	✓	✓	✓	✓	X	✓	✓	✓	7 for 8	Medium-Regular
R10	✓	✓	✓	✓	✓	✓	✓	✓	X	7 for 8	Heavy-Hardcore

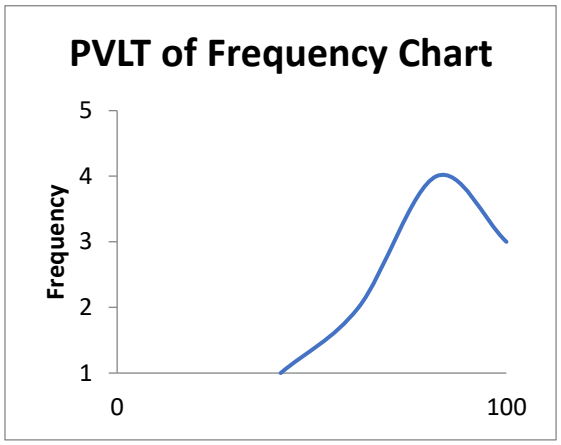
Table 4
Analytical Results of RVLT & PVLT: Most of the Students Performed Well

Descriptive statistics	RVLT	PVLT
Mean	88.5	71.9
Median	95	77.5
Standard Deviation	17.65	21.4
Skewness	-1.87	-0.93
Kurtosis (Excess)	2.36	0.3
Standard of Error Skew	0.7	
Standard of Error Kurtosis	1.33	

In line with this, the results of respondents' PVLT scores (Mean = 71.9; Median = 77.5; S.Dev. = 21.4) were also highly skewed to the left and greatly peaked (positive kurtosis). The frequency charts can be seen in Figures 1 & 2. These results indicate that most of the students performed very well in both tests.

Figures 1 & 2
RVLT & PVLT Frequency Charts: The charts skewed to the left and very peaked, indicating most of the students performed well on the tests.





Thus, from the descriptive statistical results, the medium-regular and heavy-hardcore gamers mostly performed exceedingly well in the RVLT and PVLT tests (see Table 5).

Table 5
Vocabulary Scores >< Degree of Digital Gaming Experience

Respondents (code)	RVLT scores	PVLT scores	Degree of digital gaming experience
R1	100	61	Medium-Regular
R2	75	50	Medium-Regular
R3	95	79	Medium-Regular
R4	100	100	Heavy-Hardcore
R5	84	84	Heavy-Hardcore
R6	41	23	Heavy-Hardcore
R7	100	78	Heavy-Hardcore
R8	100	95	Heavy-Hardcore
R9	95	77	Medium-Regular
R10	95	72	Heavy-Hardcore

DISCUSSION

In general, the study examines the existence of efficacy and the extent of 2000 level vocabulary mastery of Indonesian high-school students with digital gaming experience as part of IDLE. The first primary findings are regarding self-efficacy. Students with a medium-regular and heavy-hardcore degree of gaming experience do indeed have efficacy in learning English. All the students show personal self-efficacy in motivational, affective, cognitive, and selective aspects (Bandura, 1989). However, the overall efficacy levels may vary since not all the students have all the indicators of self-efficacy: learning performance, students' strategies, contextual variables, and learning styles (Raoofi et al., 2012) – which is in line with the findings of previous studies (Atwood-Blaine et al., 2019; Hopp et al., 2015; Yang et al., 2016).

In addition, the researcher does not find any relationship between the degree of digital gaming and the number of efficacy indicators displayed. Moreover, the study finds that a few of the students (20%) believe digital gaming does not contribute much to their English learning, and these students appear to show fewer efficacy indicators. Thus, the study suggests that the existence of belief is significant in determining efficacy. This also correlates strongly with the selective aspect of efficacy since it may affect one's belief (Bandura, 1989). In connection with this, the researcher proposes that one aspect of efficacy might affect the other aspects.

The second primary findings are about the students' vocabulary mastery. Students with a medium-regular and heavy-hardcore degree of gaming experience mostly have good vocabulary mastery. This finding is also in line with some previous studies (Lee, 2019a; Sylvén & Sundqvist, 2012; Thompson & Gillern, 2020; Yang et al., 2020). The researcher also discovered that the students' RVLT scores were always higher than or the same as their PVLT scores, but never lower. This phenomenon also appears to happen in Lee's (2019a) study, where the RVLT scores are higher than the PVLT scores.

The researcher believes that receptive vocabulary skills tend to cover the meaning and context of words, while productive ability is related to word production accomplishment (Schmitt & Schmitt, 2020). Thus, receptive vocabulary mastery may be easier to acquire than productive. Nevertheless, the researcher did not find any relationship between the degree of digital gaming experience and student performance in the vocabulary tests.

The last primary findings are about the relationship between vocabulary mastery and efficacy in students with digital gaming experience. The researcher did not find any relationship between efficacy and vocabulary mastery. This is because the respondents who showed fewer efficacy indicators still performed well in the vocabulary tests. This phenomenon needs to be explored further since students might not be aware of their actual ability – they may not understand that they have the ability to perform certain English tasks well. However, since they do not have much of efficacy, they therefore avoid performing the tasks from the beginning.

These findings appear to be significant for English learners, teachers, parents, and stakeholders. English learners, especially Indonesians, for whom English is a foreign language and a compulsory subject in school, should be aware that the advancement of contemporary digital technology may be beneficial for learning the language. Nowadays, learning English can be carried out anywhere, anytime, and in more fun ways. In fact, all activities that involve English and digital technology, especially digital gaming, can also be regarded as learning.

As a holistic concept, the findings indicate how digital games and gaming activities might beneficially affect individuals, i.e., the students. Therefore, the researcher views this as the hidden potential of digital technology. Playing games by their nature may promote the students' English development incidentally. Thus, parents need to understand that these activities are constructive. But of course, "good medicine will work only when it is given in the right dosage." Teachers and practitioners have the responsibility to facilitate their students to use media that will support them in their teaching and learning activities, especially in the crucial era of the pandemic where conventional ways must be avoided.

The findings of this research may also inform stakeholders that there is an urgent need to integrate formal and informal learning within a single curriculum. The COVID-19 pandemic has taught all of us involved in teaching and learning activities that we must be willing to accept changes and always be creative and innovative in carrying out our professional duties in the future. Conventional beliefs which support the notion that informal learning is not important, or that amusement technologies cannot be used for education, are not justified.

CONCLUSION

The study examines the existence of efficacy and the extent of 2000 level vocabulary mastery in Indonesian high-school students with digital gaming experience as part of IDLE. The students display all the personal efficacy indicators, and some of them also display the indicators of learner efficacy, which suggests that the 'gamer' students have varied levels of efficacy. The students also performed well in both vocabulary tests, which indicates that digital gaming activities tend to be constructive for English learning – also confirmed by the students' statements. Thus, students with a medium-regular and heavy-hardcore degree of gaming experience are proven to have self-efficacy and good vocabulary mastery. From these findings, the study supports the implementation of IDLE, especially digital gaming, within the academic context. English teachers should have more consideration for digital gaming activities as a constructive activity for learning, and be aware that "gamer" students may be superior in English subjects. Today, digital gaming can be found everywhere. English teachers may use it to support their conventional teaching, especially when teaching and learning activities have returned to normal. Moreover, this can be used as the basis for developing a more flexible curriculum, integrating formal and informal learning, and may also be implemented during and after the pandemic era.

The study only focuses on the efficacy and the extent of 2000 level vocabulary of students with digital gaming experience. It does not measure the degree/level of this competency or other vocabulary levels, nor does it test the correlation between these variables. It is recommended that future research explore more about (a) the extent of the level of students' efficacy; (b) the specific relationship between the degree of gaming experience and efficacy; (c) the postulation about the correlation between belief and efficacy; (d) the relationship between the degree of gaming experience and vocabulary mastery, and (e) the depth of the PVLT and RVLT assessment.

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