



Design of Digital Learning Tools for Effective Language Development in EFL Context

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Abstract

Learning an additional language without daily exposure to the language may hinder the learners' reasonable level of improvement. Thanks to the growth of digital technology, exposure to learning materials in digitally accessible forms is possible, especially in English language and for English language learning. Digital games, evidently in a wide range of literature, can be one of the effective language-learning supplement to enhance the target language acquisition, support constructivist learning, complement the deep level of cognition, encourage a willingness to communicate, increase social interaction, and at the same time, promote learner autonomy. Nevertheless, its impact on the improvement of language proficiency resulted from informal learning with an educational game remains obscure. This study thus utilised a language-learning digital game (LLDG) as an edutainment supplement for the out-of-class practice of English as a foreign language (EFL) students at a tertiary level for eight weeks in order to answer this question. The comparison of the listening test scores between the control group and the experimental group obtained in the pre-intervention and post-intervention has affirmed its positive impact on learners' proficiency. This is despite that the investigation of the learners' experiences, through questionnaires, shows that the game design influences the learners' behaviour in the learning. The results suggest that a practical design of an LLDG that values learners' needs for self-esteem development along with the language proficiency and simplifies for ease of use without a digital literacy required could contribute to successful pedagogical development for both formal and informal settings.

Keywords: *Digital game-based language learning, Computer-assisted language learning, language-learning digital game, self-directed learning, digital material design, language learning tool*

1. Introduction

The extensive use of the English language across the entire world is undeniable. In particular, beyond serving as a native language of countries like the USA, the UK, Canada, New Zealand, and Australia that have a powerful influence on multi-growths, English is mainly used as an official language in certain Asia countries (i.e. Singapore, Malaysia, India, etc.) where the language is playing significant roles in economic development and higher education. Its broad use can be evidenced by Kachru's (2006) three circles of English utilization across the world, namely (1) inner circle, (2) outer circle, and (3) expanding circle. According to the three-circle concept, English goes beyond its limitation from within the inner circle where the language is originated from and the outer circle where the language has been spread out since the colonial age by mediating regular communication of countries in the 'expanding circle' where English is acceptable as an essential medium to enhance possibilities in all-facet development (Kachru, 2006, pp. 242-243). Beyond social contact function according to the divided circle aspect, the English language is seized as a larger-than-domestic resource by multilateral co-operation to facilitate cooperative interaction within and between organizations. For instance, it is agreed to use at the global level as found in the broadcasting of connected world activities by the International Olympic Committee (IOC) and the United Nations (UN); at the regional level as being assigned to be an official language for the European Union (EU) and the Association of Southeast Asian Nations (ASEAN). Owing to the unrestricted use unbounded to its native speakers, English thus illustrates its lingua franca status precisely on the strength of its potential to break communication barrier among non-native English speakers of first language difference rather than other languages can do. In general surroundings apart from its position in macro-perspectives, the status of English in this era assimilates with basic livings of the East and the West due to its presence as the language of academic writing and education (Swales, 1987); science and technology, entertainment, sports, and the Internet (Crystal, 1997); hospitality, travelling, international business and so forth. Due to its high recognition worldwide, the English language has shifted from a mother tongue of few nations to become the language of the world without a doubt. With this status,

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the English language influences on-going development and worldwide connection, though on different levels, of all countries. Thailand, whose people are also global citizens and influenced by the use of English in one way or another, is no exception.

In this era where knowledge and information become wireless as well as the entire world turns borderless, the English language plays a role as a multinational medium for communication and explicitly has an impact on individuals (i.e. for one's career advancement, limitless business networking, daily communication, etc.). In that matter, providing an option of effective English language learning tools that could benefit learners with less physical contact with the target language worthwhile close attention. The English as a Foreign Language (EFL) teaching and learning perspective that affects the way non-native English speakers overcoming their first language limit will make a great move of the country out of limitation for development. In Thailand, this issue has been discussed and raised for solutions (Baker & Jarunthawatchai, 2017; A. Kirkpatrick, 2012; R. Kirkpatrick, 2012; Trakulkasemsuk, 2018). Thanks to the existence of digital technology, learning English is then not only knowing a foreign language, but it also brings new learning experiences to Thai students through tremendous digital learning resources. That means possibilities to learn English in this present time is everywhere accessible with less geographical and physical barriers. That is to say, being in Thailand has no difference in being elsewhere in terms of digitally learning alternatives. The most important issue to consider before the use is a must to confirm that the selected tool has a positive impact on the learners' outcome in that context and for a learning setting as expected.

To illustrate the current situation in Thailand regarding English language proficiency, the majority of Thai graduates from the undergraduate level cannot communicate properly in English while the enterprise expectation anticipates having graduated from all undergraduate disciplines achieve at least as a competent English user (Hart-Rawung & Li, 2008). To serve the demand of multi-purposed human resources to fight against all externally competitive challenges, like other countries in ASEAN and the rest of the world, Thailand is one of the non-native English speaking countries struggling to push its citizens to reach the 'competent' level of English competency standard. A common acceptable language proficiency level for professional recruitment has been set at the minimum 550 of TOEIC[®] score which values the person as an 'independent user – threshold', equivalent to the Common European Framework of Reference (CEFR) level of B1 (Tannenbaum & Wylie, 2006).

To deal with target language exposure issue and to achieve an anticipated language proficiency level, digital technology has an option. Alternatives to digital learning tools have been recognised as being able to eliminate the problem of the lack of English exposure in terms of input skills obtainable through the ease of digitally accessible platforms. Among a bundle of choices, Digital game-based language learning (DGBLL) is reasonable for the learners in the context because of the nature of digital games that are motivating (e.g. Sykes & Reinhardt, 2013), engaging (e.g. Chik, 2014), and able to minimize EFL learners' barriers for learning English (e.g. Reinders & Wattana, 2015). The literature has also revealed that DGBLL could enhance target language acquisition (Dourda, Bratitsis, Griva & Papadopoulou, 2012, 2014; Gee, 2007; Selwyn, 2011; Squire, 2013); support constructivist learning (Chau et al, 2013); compliment deep level of cognition (Gee, 2007; Hitosugi, Schmidt & Hayashi, 2014); encourage a willingness to communicate (Reinders & Wattana, 2014, 2015; Wattana, 2013); increase social interaction (Peterson, 2011, 2012); and at the same time promote learner autonomy (Chik, 2012, 2014; Karatas, Alci, Yurtseven & Yuksel, 2015; Wu, Richards & Saw, 2014). The evidence of these qualities in the literature indicates its potential to use in the learning setting that aims at promoting self-regulated learning which opens an opportunity for the learners to exercise their lifelong learning skills.

Within a controlled idealism, digital game-based language learning (DGBLL hereafter) is a critical contemporary channel to practice the language communicatively as it was distinctly related to task-based communication in different situations to achieve a target goal. In terms of learning approach concerning its digital form of a language learning tool, DGBLL is thus considered as an alternative model suitable for achievement-oriented learning for self-directed practice. Further to serving learners with themed content and interaction, its goal-directed environments stimulate the learners' engagement in critical thinking while learning through the game tasks and raise awareness of meaning negotiation from the game feedback. This



learning option contributes to a paradigmatic shift in language learning from conventionally serious setting to sophisticated edutainment, which allows learners an opportunity to expose to the target language (L2) input together with an outputting possibility to interact back to advance the game levels at the same time. As discussed in Purushotma, Thorne, and Wheatly (2009), the principles of DGBLL lend themselves to support the socio-cognition of language learners in the way that digital games draw learners into both process- and product-oriented learning condition.

Nevertheless, the learning process itself is abstract and varies with a personal condition, a well-matched resource and learning pedagogy in a particular context is needed for EFL learners' linguistic achievement. This article aims to discuss parts of the results from a research study on an out-of-class practice with a language-learning digital game (LLDG) of a group of English as a foreign language (EFL) learners in the Thai context, regarding its impact on the learners' listening proficiency and the influence of the context of the study on learners' attitudes towards the LLDG.

2. Objectives

This study attempts to evaluate the existing digital learning tools for language learning, emphasizing on a digital game purposefully designed for English language learning. The main objective is to look at the functionality of the material design in relation to support the EFL learners' learning outcome in terms of English language proficiency development through an out-of-class practice setting. The learners' perception towards DGBLL learning is also discussed.

3. Materials and Methods

The data collection consisted of three stages: pre-intervention, intervention, and post-intervention. The participants were grouped into Group A (control group) and Group B (experimental group). At the pre-intervention stage, both groups were invited to an introduction session for information and having a pre-test of English listening proficiency. Listening skill is part of a communicative skill that Thai people lack exposure and, as an input skill, it has the potential to improve within a short period. The listening section with 100 items of a re-designed TOEIC® Test was chosen to test the participants' proficiency before and after the intervention. The decision to use TOEIC® Test was based on two reasons: (1) the requirement of TOEIC® score as a proof of English Proficiency level of employees in workplaces across Thailand; (2) its multiple-choice option among all of the standard English proficiency test so that the test result will not be influenced by other skills i.e. writing. Additionally, all of the participants were asked to complete two sets of questionnaires. One set was about learner autonomy scale. Another set covered the participants' demographic data and information regarding their language background, attitudes on the English language, self-assessment of English proficiency, information and communication technology (ICT) habits and computer-assisted language learning (CALL) experiences, familiarity with a digital game context, and their expectations towards an LLDG. The results of the attitude questionnaires are presenting in this paper.

At the intervention stage of 8 weeks, Group A participants were not assigned any extramural activity while Group B was assigned a language practice outside class schedule with a selected LLDG. Group B participants received a gaming record booklet and we encourage them to note down their practice track. '*Trace Effects*', an adventure role-playing game, was chosen to be used as the main material for the intervention. The game is a single-player game that can be accessed online and offline using CD-Rom. Players will take the role of *Trace*, a university student that is trying to return to his year. Through seven chapters of his adventures across the US, *Trace* must complete sets of missions e.g. gathering information, collecting items, and completing quests using appropriate language prompts to interact with non-player characters (NPCs) in the game as shown in figure 1.

At the post-intervention stage, all participants in both groups were asked to have a post-test on English listening skill and complete another set of a questionnaire for learner autonomy. Study group B was additionally asked to complete a post-intervention questionnaire on the change in attitudes through their experiences on DGBLL. This article focuses on the impact of the LLDG on the learners' language proficiency in terms of listening skills as well as the learners' attitudes towards the LLDG that would later contribute to form an appropriate design of the digital tools within similar categories for the similar contexts of learners.

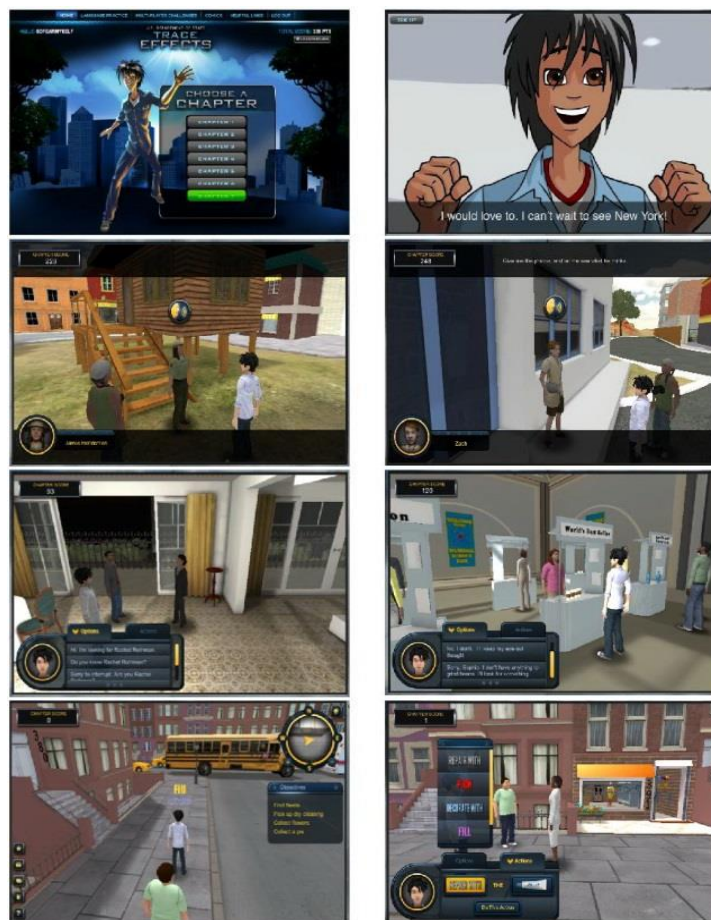


Figure 1 Screenshots of the digital language-learning tool

4. Results and Discussion

The study was conducted at a public university in Bangkok vicinity of Thailand. Due to limits of time and resources, the participants were randomly selected from non-native English-speaking students enrolling in the first year of non-English major at the undergraduate level with an age range of 18 years or over. The first-year students were targeted for the study to guarantee their background of the English language study of the minimum twelve years as regulated by national education policy (Office of the National Education Commission, 2002). The study purposefully targets the Communicative English course that focuses on communication skills to ensure that listening skill practices occur in the formal class setting. Five intact classes of three lecturers who consented to participate in the study met the requirement and we got 212 participants giving consent to participate. Based on students' name lists, the students in the first half of each class were assigned to Group A (control group) and those in the second half were assigned to Group B (experimental group). Therefore, the sample group for the study consisted of 106 students in Group A (85 females and 21 males) and 106 students in Group B (90 females and 16 males). The age pattern of the participants ranged between 19 and 22, the average age was 19.64 (Group A $M=19.76$, and Group B $M=19.56$)

Impact of the language-learning digital game (LLDG) on language proficiency

Background English listening competency levels of the participants reflecting through the TOEIC® scaled score, as presented in Table 1, shows that 100-155 (31.6%) is the score range with the highest numbers of the students, followed by 125-185 (25.5%) and 150-220 (17.9%). The lowest score range is as low as 55-80 (0.5%) and the highest score range is at 315-390 (0.5%). This fact reveals that the English proficiency of



the students is far from the professional requirement of at least 275 scale score (calculated from 50% of 550). After eight weeks of the intervention, students in both groups were asked to have a listening proficiency test again. Interestingly, the students' proficiency levels at the post-test were higher than the pre-test observing from more students got the score range of 175-245 to 255-330. The Group B students mainly scored higher than the Group A student above 200 and lesser numbers of the Group B students obviously scored lower than 100.

Table 1 English listening proficiency level of the participants

Listening Scaled Score of TOEIC® Test (%)	55-80	75- 100	85- 120	100- 155	125- 185	150- 220	175- 245	205- 275	230- 305	315- 390
Pre-test Group A ¹	-	5.7	15.1	30.2	29.2	17	0.9	0.9	-	0.9
Posttest Group A ¹	-	4.7	16	23.6	25.5	17.9	6.6	2.8	0.9	1.9
Pre-test Group B ²	0.9	3.8	13.2	33	21.7	18.9	7.5	0.9	-	-
Posttest Group B ²	-	1.9	6.7	28.8	24	15.4	11.5	8.7	1.9	1

¹ n = 106

² n = 104

The comparison of the listening proficiency levels between Group A and Group B using a Mann-Whitney U Test found a relative result as shown in Table 2. The test result indicated that, after the intervention, the English listening proficiency levels of the Group B students (Mean Rank = 113.72, n = 104) were significantly higher than those of the Group A students (Mean Rank = 97.44, n = 106), U = 4657.500, z = -1.98 (correct for ties), p = .048, two-tailed.

Table 2 Comparison of the English listening proficiency level prior to and after the intervention

	Mean Rank	U	Z	p-value
Pre-test Group B ²	109.62	5287.000	-.763	.445
Pre-test Group A ¹	103.38			
Posttest Group B ²	113.72	4657.500	-1.981	.048*
Posttest Group A ¹	97.44			

¹ n = 106

² n = 104

*α = .05

Even though the students in both groups experienced the same class setting, the Group B students were supposed to have extra practice with the LLDG more or less. We ran a Wilcoxon Signed Rank Test to answer whether the proficiency levels the two groups improved in the post-test have a significant difference. The analysis is summarised in Table 3.

Table 3 Comparison of the English listening proficiency level prior to and after the intervention

		N	Mean Rank	Sum of Ranks	Z	p-value
Group A ¹	Posttest - Pre-test	Negative Ranks	34	35.47	-1.873	.061
		Positive Ranks	45	43.42		
		Ties	27			
Group B ²	Posttest - Pre-test	Negative Ranks	26	29.04	-4.117	.000*
		Positive Ranks	53	45.38		
		Ties	25			

¹ n = 106

² n = 104

*α = .05

The Wilcoxon Signed-Rank Test indicated that English listening proficiency levels of the Group B students were significantly higher after the intervention period of 8 weeks, T=2405.00, z=-4.12 (corrected for ties), N-Ties=79, p=.000, two-tailed. This result reflects that LLDG has the potential to have a positive influence on the learners' proficiency improvement.



The result compiled with the self-rating competency that the students believed their English language skills improved in terms of listening, reading, and writing. With no in-game exercises or missions requiring a writing skill, it suggests that the students have the potential to only rely on the game attributes and apply other resources for additional practice along during gaming. Although the communicative skills that are listening skill (rank 1, 45.2%, $n = 135$) and speaking skill (rank 2, 40.0%, $n = 135$) were highly expected to be improved with the game practice, speaking skill was rated with less improved at the intervention. It is not surprising as the game has not equipped with any utterance features requiring the learners to interact with speaking.

Attitudes of the EFL learners towards the digital game in general

More than half of the students in both groups have a positive attitude on digital games and think it benefits them emotionally (entertaining) and intellectually (critical thinking, problem-solving, and strategic planning). It appears that the students did not consider digital games that much challenging. Instead, they likely consider an LLDG as an edutainment material that could equip them with a range of intellectual skills, within a pleasant learning atmosphere. A majority of the students did not perceive the use of digital games as a negative time-spending. In contrast, several students with an awareness of digital game addition guide a potential of learning engagement when they learn with a well-designed digital game for education.

Attitudes of the EFL learners towards an LLDG design for self-learning support

'Agree' was the highest response from the students in Group B on all items on the properties and capability of the game before the intervention. This clearly illustrated the students' positive expectations on the game quality concerning language learning. This positive expectation can reflect that the students were highly motivated to learn the English language with the selected LLDG. This open-minded perception on an introduction to an alternative learning form of Thai learners compiles with the studies in the context with most of the ICT integrated learning either on blogging (Kitchakarn, 2014), with learning management system or LMS (e.g. Srichanyachon, 2014), or even with digital games for language learning (e.g. Reinders & Wattana, 2015).

At the early stage before the intervention, six evaluated items regarding the LLDG quality asserted in Figure 2, namely (1) senses of entertaining, (2) lexical-added input, (3) culture-related content, (4) target knowledge improvability, (5) language skill improvability, (6) simulating the learner's interaction, gained no negative attitudes. It is likely that the students somewhat believed the language-learning game they were getting involved absolutely could help improve their target English language proficiency through the operation of these affordances. Thus, it suggests that these affordances as presented in Figure 2 possibly contribute as an essential element to effective game design for self-learning support in the local context.

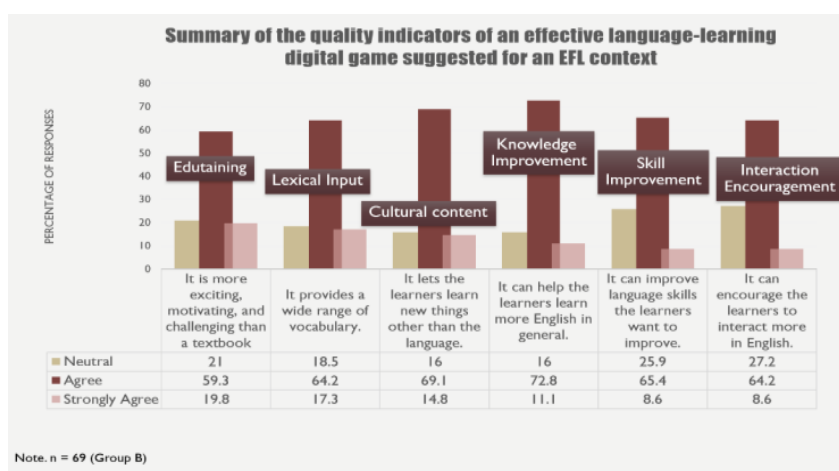


Figure 2 Essential affordances for the effective design of an LLDG

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A Wilcoxon signed-rank test indicated that change of attitudes on some affordances of the LLDG digital game had a significantly greater after the intervention. In other words, a language-learning digital game is likely disappointing to the learners and negatively affects their attitude if the learners find that: (1) It is not playable without game literacy ($p=.002$), (2) It cannot help the learners learn more English in general ($p=.030$), (3) It cannot make the learners feel more positive about learning English ($p=.004$), (4) It cannot make the learners feel more confident in using English ($p=.008$), and (5) It cannot encourage the learners to interact more in English ($p=.001$).

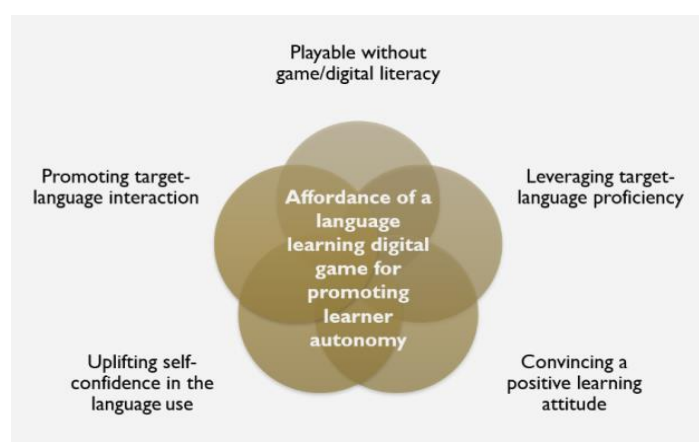


Figure 3 Essential affordances of an LLDG for promoting learner autonomy

These variables seem to negatively influence the students' engagement with the game and probably cause them to cease playing. The further game design that well addresses these unwanted lists are likely to engage learners more with the game and may have a high rate of continuing gaming. The results compile with the basic requirement of the DGBLL principle that suggests good language-learning digital games should not interrupt the learners with difficulty in over-struggling with the content during the play and should require as less gaming literacy as possible. Otherwise, it might make the learners easily give up rather than enjoy the learning. Therefore, these affordances as shown in Figure 3, could influence the learning engagement of the learner and motivation of learning with the tools. In other words, they may result in the learners' behaviours and decision making on their self-learning that in turn has a consequence on the learner autonomy.

The influence of these affordances is likely to impact the learners' motivation to practice with the LLDG to some extent. In the post-intervention questionnaire, more than half (54.3%) of the Group B students ($N = 81$) reported that they practiced with the LLDG only once a week in the past eight weeks. 35.6% of the students ($N = 73$) reportedly spent 1 hour per play and 30.1% of the students ($N = 73$) spent 2 hours per play. The average time the students spent in each time of the practice was 2.03 hours. To strengthen an LLDG to meet the learners' satisfaction, from the study, we found six in-game elements that significantly influence the learners: (1) the agent character, (2) the reaction of NPCs, (3) chapter introduction, (4) the optional audio button, (5) the storyline, (6) and the lesson exercises.

Apart from a sense of agency that gets learners immersed in a game, these in-game elements suggest two main substances for a well-design game for promoting language learning. An LLDG must have 'continuation' referring to its repeatability e.g. the optional audio button before progressing onwards that probably impacts proficiency improvement, and its 'connection' e.g. the storyline, the agent character, the reaction of NPCs, and the lesson exercises that support learner autonomy in the circumstance that learners can stop playing and continue the play again at any time without difficulty to recall.

Overall, 91.3% of Group B students ($N = 80$) reported that they have a positive experience with the LLDG. 80.7% of The Group B students ($N = 83$) prefer to have English language practice equally in both in-class and out-of-class practice settings. Even though they have the potential to like practicing English with a



language-learning software, 83.1% of Group B students ($N = 83$) reported that they prefer learning English with both teachers and a language-learning software if possible.

The positive result of the language proficiency improvement of the experimental group from this study has confirmed that digital-game base language learning can be a promising way to complement learners' language proficiency development at their own pace. This result is aligned with the result from the majority of the researches from 2007 to 2016 in a scoping review regarding DGBLL from different contexts by Hung, Yang, Hwang, Chu, and Wang (2018) and recently in Blume (2019) that found positive outcomes in terms of language acquisition, with a close relation to positive affective or psychological states. The DGBLL strategy to the Thai EFL learners, therefore, may be an alternative to deal with an ongoing communicative problem mainly resulting from the first language inference and lack of English exposure (R. Kirkpatrick, 2012). In a study by Khamkhien (2010), common issues found in Thai learners are mispronunciation, communication breaking down, and failing to produce natural communication. To solve this problem, Thai EFL learners may blend their leisure activities with learning, such as digital game to fulfill the need of more interaction with the language that promotes better language achievement (as also discussed in Teng & Sinwongsuwat, 2015), especially communicative competence like listening and speaking. A well-matching between an LLDG and a learning pedagogy will compliment a possibility to mitigate a few main factors, besides the language proficiency, regarding classroom limitations either unqualified and poorly-trained teachers, poorly-motivated students, learners of mixed abilities, overly large classes, or lack of opportunities to expose to English outside class schedules (Kitchakarn, 2014; Srichanyachon, 2011, 2013; Thongthaw, 2014; Wichien & Aksornjarung, 2014; Wongsurawat, 2011; Wongwanich, Sapsombat, Intanam, Ajpru & Prasertsin, 2012).

The research results from the learners' attitudes and learning behaviour with the digital game also suggests the ways for fostering Thai EFL learners' autonomous learning and integrating an LLDG into EFL pedagogical applications in a context like Thailand and similar. Either the choice of a *singleplayer-typed LLDG* or a *multiplayer-typed LLDG*, it is appropriate for supplementing a classroom activity for a sole learner, pair work, or group work. The learners who are other-regulated, passive learners, and teacher-dependents (Tutwisoot, 2012) tends to spend more time to continue the gaming and increase their learning progress among a collaborative learning environment. In doing so, an offer channel of support is required such as an online forum or an online chat room the learners can ask or share information regarding the tools they are handling with. An in-game chat will be an ideal material for all digital learners. This type of game supplement tends to serve the need of learners at all levels as it will enable learners to have an instant consultation with an online teacher or peers, chat to relax or update information, and compete with other learners anywhere anytime, up to their convenience and satisfaction. Often the learners do the out-of-class gaming and self-direct their learning, more potential for them to develop their autonomous skills (as mentioned by many researchers e.g. Benson, 2013; Blume, 2019; Reinders & Benson, 2017; Tsai & Tsai, 2018). The behaviour furnishes the learners with self-regulation skill and self-directed learning skills for their benefits that would prepare them ready as an active learner for life-long learning.

5. Conclusion

The study confirmed the positive impact of the digital game as a digital learning tool for language learning, under conditions of its particular design, within the implementation in the Thai context. Thai EFL learners open-minded and welcomed alternative ways of English learning with few conditions regarding an LLDG. The conditions to be considered before the use of an LLDG as a promising learning tool are listed here. Firstly, it will be highly convincing if the game offers a communicative interaction affordance and signals the potential of listening and speaking skill improvement. Secondly, new vocabulary is plausibly considered as new knowledge for the learners. More input like a range of vocabulary in a game likely satisfies the learners to a certain level that may engage them with the gameplay. Thirdly, it should be recognized as beneficial to the learners as if they are spending time with a textbook. Thai EFL Learners expect to reach to a linguistic substance with less distraction from a wide scenario in a game structure. At the same time, fourthly, the game should represent a real situation with rich content that learners can exposure to something related to the target language rather than only a language practice e.g. culture and value of the native speakers. Lastly,



game literacy should have less influence on the learners' progression. The learners are not likely to concern about their gaming background. They appear to be ready to practice English skills with positive expectations. Nonetheless, a small technical problem can be the main issue that ceases their enthusiasm and interest.

Reflecting from the data and observation as a decade-of-experienced lecturer within the context, Thai EFL learners also have two obvious aspects that prevent them to have utmost benefit from a self-learning with digital language-learning tools, particularly an LLDG: other-regulated learning style, and lack of learning strategy training. Most of the students in the Thai context are still teacher-dependent and lack of self-regulation. Learning is preferred to take place in a classroom so that they can interact face-to-face with peers and get instant feedback. This behaviour results in a lack of self-determination which is a barrier for learning initiation of the learners in the context. Consequently, they are not likely familiar with determining a suitable material for their learning. Learners in the Thai context are other-regulated, less self-determined, or teacher-dependent because they tend to lack language learning strategies. These characteristics may be a consequence of the teacher-centered learning setting and other insufficient support for being autonomous since their early stages of language learning. Through my observation, Thai students depend on a tutorial class after school rather than reading a book at home and reflecting by themselves. It can be the answer to the issue of the learners' unwillingness to adjust to an active and independent learning environment which is far from what the stakeholders have expected.

With a well-handling strategy, learners have the potential to learn from everything they expose. Due to the different learner preferences, knowing what they want to learn and knowing how to learn from it will make the most benefit to individuals. A teaching or learning pedagogy that can train Thai EFL learners to be familiar with language learning strategies should be embedded into learning support materials or in-class activities. Once the learners equip themselves with the learning strategies, the lack of English language exposure in the Thai context will be only an excuse. Conversely, the Internet will become a classroom for them, and all digital resources will become learning materials for their lifelong learning.

The impact of the LLDG has affirmed its benefits in accelerating a better outcome of the communicative learning principle. The lack of confidence in handling the learner-centered technique along with their deficient English input may be one of the main factors preventing EFL teachers from successful execution in a class setting. Teachers need more endeavor to grasp the basic concept of CLT as well as relevant pedagogy training.

The ideal LLDG design, reflected from the learners in this study, for enhancing the power of support on a self-learning might be used as a guide for academic researchers or professional developers on the development of a digital language learning tool. It can additionally assist teachers' decision to use or not to use a digital language learning tool in their instructional delivery. In the same manner, it provides a checklist for language learners in term of a pedagogical design of digital tools that will help support their learning to the maximum benefit.

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