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GAME-CHANGING LEARNING: HOW DIGITAL GAMES BOOST LEARNING ENGAGEMENT IN INDONESIAN SECONDARY LEARNING

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Abstract
The research examines how Digital Game-Based Learning (DGBL) offers some advantages for secondary school students' Engagement in the EFL classroom in Indonesia. It also investigates some drawbacks encountered during DGBL implementation and provides refutations to disprove the counterarguments. The methodology undertaken is a synthesis research methodology. Relevant literature was obtained through peer-reviewed articles from reliable journals such as Google Scholar, ERIC, ProQuest Education Journal, and other relevant sources. The findings further reveal that teaching EFL classrooms under the framework of DGBL benefits students in three ways. Firstly, digital games can engage students' emotions in the learning process by promoting a psychological state that is commonly known as a flow condition. It refers to playing a digital game with fun, interest, and deep concentration. Secondly, DGBL can engage students' cognition by providing problem-solving activities that help students think critically to decipher the challenges of the games. Lastly, DGBL can also promote behavioral engagement by situating students in cooperative learning activities, which, with guidance from teachers, encourage students to participate collaboratively as a team during the gameplay. In this study, the investigation only focuses on which aspects of DGBL can significantly leverage students' engagement in the EFL learning classroom. Therefore, further analysis is required to examine how DGBL can be an effective instructional strategy to meet the English standard competencies in the Indonesian national curriculum.

Keywords: digital technology, educational technology, EFL, engagement, game-based learning

Introduction
Integrating digital games as an effective pedagogical tool in various learning classroom settings has been widely examined by many scholars. Unsurprisingly, playing digital games has become a daily entertainment for teenagers who were born and are growing up in the age of digital technology. Consequently, Prensky (2001) categorises this generation as a "digital native" because it uses technology

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regularly in daily life. In response to this situation, in 2013, the Indonesian Ministry of Education made a policy to abolish technology and information subject (TIK) at the senior high school level (Mattarima & Hamdan, 2011). The reason is that to engage students in the classrooms, technology should be inherently incorporated into a pedagogical tool in all subjects, including the EFL classroom (Yawan, 2022). The idea behind this issue is that the majority of Indonesian high school students have low motivation to learn English (Mattarima & Hamdan, 2011). Many of them only come to the classroom to fill the attendance list and express passive participation during the learning process (Suriaman et al., 2022). This is a result of a negative perception of learning English. Students mostly believe that English is the most difficult and uninteresting subject to learn (Mattarima & Hamdan, 2011).

Therefore, this study would like to critically examine the benefits of incorporating Digital Game-Based Learning (DGBL) in EFL learning context, undertaken to develop Indonesian senior high school students' engagement. In particular, this study will seek to discuss how DGBL offers more advantages for students' engagement, present the drawbacks encountered during implementation, and evaluate the solutions to overcome the problems. Hence, we would like to argue that DGBL is effective in fostering Indonesian high school students' engagement in the EFL learning classroom context. The discussion begins with introducing the background of the issue regarding the significance of DGBL implementation in EFL learning, defining any technical terms, and elaborating its benefits for students' engagement. The conclusion will summarise the important points of the investigation and suggest future research recommendations. The incorporation of feedback will be presented in the last part of the study.

Engagement, which motivates students to learn and achieve the learning outcomes, is defined by Trower (2010) as the level of interest, attention and curiosity experienced while involved in the learning process. Trower (2010) further emphasises that engagement brings positive outcomes while participating in an activity which requires behavioural, emotional, and cognitive domains. Behavioural engagement could refer to behavioural norms like participation and involvement. Emotional engagement refers to positive emotional reactions such as excitement, interest and enjoyment. Cognitive engagement embraces an in-depth learning reflection which involves critical thinking (Fredricks, Blumenfeld and Paris, 2004, as cited in Trowler, 2010)

Furthermore, as mentioned earlier that the study will examine the effectiveness of DGBL in engaging students in EFL classroom context. Three main topics in relation to Indonesian high school students will be further discussed deeply. First, DGBL can engage students' emotions by promoting a flow condition. Second, DGBL can engage students' cognition by providing problem-solving activities, which can encourage students to think critically. Lastly, DGBL involves students' behaviour by allowing them to participate collaboratively as a team.

Method

This study applied a synthesis research methodology. The use of synthesis research was based on the research question, the availability of related literature, the relatively small number of scholarly works treating this subject in the form of a literature review, and its application within a limited time frame. This methodology examines, integrates, and synthesises existing conceptual and empirical studies on

the topic of DGBL and its implementation in Indonesia. This methodology was initially pioneered by Onwuegbuzie, Leach, and Collins (2011), who advance that synthesis research is a type of methodology that concludes by synthesising a variety of data from related empirical studies. Furthermore, because this study was based solely on available related literature, it did not address any issues concerning validity, reliability, or ethical issues; this is because this study involved unreactive data, which is harmless to human participants (Gray, 2004; Pole & Morrison, 2003).

In practice, the Monash Education Library was selected as the primary online database to begin the search for related conceptual and empirical investigations. The Monash Library was chosen because of its dependability, the breadth of its journal providers, and the researcher's access to its database. To clarify and focus the search for related journals inside the Monash Education library, three key journal providers were chosen: ERIC (Education Resources Information Centre), A+, and Google Scholar. Among other journal providers, the three are the most reputable and highly qualified publications for educational topics. To begin the search for linked journals, selected keywords such as digital games, EFL, engagement, and Indonesia were typed into the main column of each journal provider. This stage was complemented by the use of Boolean operators (e.g., OR, AND, and NOT) to narrow the search for relevant material. Furthermore, the quality of all the obtained journals was selectively examined. Following the completion of the search for relevant literature, the journals were examined, analysed, and synthesised to conclude, provide new discoveries, and lastly apply the findings to the context of Indonesia.

Findings and Discussion

Improving emotional engagement

Teaching EFL under the framework of DGBL can engage students emotionally in the learning process by promoting a psychological state that is commonly known as the flow condition. The theory of flow was originally introduced by Csikszentmihalyi (1997), and it refers to performing an activity with enjoyment, interest, and deep concentration. Csikszentmihalyi (1997) further stresses that the flow condition will happen if there is a congruence between the skills and the challenges. It means that skills and challenges are both matched and utilised. Additionally, students who experience a flow condition are more engaged in doing their best to perceive the learning outcomes in the EFL classroom (Amini et al., 2016; Egbert, 2003; Guan, 2013). Hence, it is important to note that encountering flow conditions highly depends on how well the elements of the game are integrated into an EFL classroom.

There are several conditions in which DGBL might prompt a flow condition. Firstly, playing digital games is substantially interesting and enjoyable for students. A study conducted by Tham and Tham (2014) investigates the students' perspective in learning English under the framework of DGBL and reports that the majority of them enjoy the learning activity because it is fun and challenging. Similarly, Yip and Kwan (2006) conducted a quasi-experimental study to investigate the effects of digital online games on students' vocabulary improvement and revealed that the experimental group outperformed the control group. More than 70% of students feel the games are an enjoyable, interesting, and relaxing way to learn new vocabulary. Those findings are in line with Jabbar and Felicia's (2016) study that

introduces three main engaging factors of DGBL called "ChaRMinG" standing for "Challenging, Relative/Meaningful and Interesting" (Jabbar & Felicia, 2016, p. 99). For this reason, the players could be entertained while playing the game because it offers several features that attract players to get involved interactively in the game systems, such as "competition, challenge, social interaction, presence, fantasy, and arousal" (Chu et al., 2023; Sherry et al., 2006). For example, Blume (2020) concludes in his study that the players could experience a sense of being immersed in an imaginative world because the players positively enjoy the activity in the virtual world displayed in the game, which cannot be found in reality.

Secondly, a series of interconnected challenges featured in the game can trigger players' curiosity to focus on how to cope with the challenges (Hamari et al., 2016; Yang et al., 2021). For instance, to win the game, the players need to solve the first challenge in order to move to the next phase of the game. Trial and error would be encountered by the players before they understand the complexity of the challenges (Hamari et al., 2016). This activity, therefore, can stimulate players' concentration to use a more in-depth analysis to figure out any possible solutions to overcome the challenges, either as an individual player or a team player.

In some circumstances, however, the implementation of DGBL in the EFL classroom may be fragile. Instead of promoting flow condition in the learning activity, DGBL, on the other hand, can result in disengagement if the teacher fails to provide appropriate challenges of a game which match the students' skill (Chu et al., 2023). Furthermore, the study claims that the success of DGBL implementation to set learners in a flow zone highly relies on the harmony of the challenge and the skill. If one is overmatched by another, the condition may lead to apathy, boredom, and anxiety. For instance, if the difficulty level of the game is beyond players' skill, the game activity will be so overwhelming that it leads to anxiety. On the contrary, if the players' ability in playing the game is higher than the given challenge or both skill and challenge are low, the players may easily get bored and lose a sense of interest (Li et al., 2023; Yawan, 2022). Those constraints, fortunately, can be solved by some strategies as discussed in the following paragraph.

The recommended way to integrate DGBL effectively into an EFL classroom context is to provide a relevant game for learning English with clear learning tasks, goals and immediate feedback. Csikszentmihalyyi (1997) stresses that those game elements are significant to engender a flow experience. Therefore, the teacher is supposed to carefully select a game which has different challenges to accommodate students' skill level and the English learning outcomes. In other words, Csikszentmihalyi (1992 illustrates a clear task as "a zone of tolerance" where the game difficulty is neither too hard nor too easy (Csikszentmihalyi, 1992 as cited in Pavlas, 2010, p.5). Additionally, it is also essential to address appropriate challenges with a wide range of flexibility for players to build an engaging learning activity. As a result, players have various challenges so that they are able to choose suitable challenges with their personal flow experience. Another important factor which should be taken into account is immediate feedback because when it is tightly incorporated into gameplay, the players are promptly aware of the outcome of their progress. They then might respond to it by doing reflection and exploration, which can scaffold their development in playing the game (Lin et al., 2020). Moreover, it is important to note that selecting well-designed digital games with clear learning

tasks and feedback plays a significant role in provoking a flow condition in the game activity.

There are several recommended digital games having immediate feedback, clear tasks and challenges which can be utilised in the English classroom for secondary high school students. One of the innovative English digital games designed by the U.S. State Department is Trace Effect. The game has seven scaffolding chapters dealing with American culture, gender empowerment, community activism, science and innovation (Bado & Franklin, 2014). It is typically an adventure game that can be inherently embedded in teaching English vocabulary and speaking, mainly in giving and responding some English expressions such as asking directions, thanking, compliment, surprise and disbelief (Bado & Franklin, 2014) This is in agreement with the competence standard of teaching EFL in Indonesian senior high school level emphasising short expressions in terms of spoken and written language frequently used in daily life (Mattarima & Hamdan, 2011). To sum up, it is important to draw attention that providing suitable digital games with clear learning goals, tasks, and feedback is mainly pivotal to generate a flow condition for players, and it will further leverage the cognitive domain.

Fostering cognitive engagement

The second benefit of DGBL is that digital games can be a pedagogical tool to engage students' cognition by developing critical thinking in the gameplay. Critical thinking is defined as the capability of individuals to manage their thoughts and apply relevant standards to analyse their thinking in order to solve any possible problems they might have (Elder & Paul, 1994 as cited in Shirkhani & Fahim, 2011). Additionally, critical thinking has a significant correlation with acquiring new languages because language learners can control their own thinking and gauge their style of learning more successfully. They can also extend the learning experience to the other learners and communicate the language more meaningful way for them (Hanafiah et al., 2022). Moreover, the core of DGBL is highly similar to Problem-based Learning (PBL), which merely involves problem-solving and critical thinking (Hmelo-Silver, 2004).

In terms of DGBL implementation, several studies have suggested that the EFL classroom through digital games can leverage students' engagement to think critically dealing with the challenges of the game. Sardone and Devlin (2010) identify the feasibility of integrating eight digital games into the English curriculum by pre-service teachers and point out that most of the games examined in the study have the essential factors in developing critical thinking skills because they situate ill-structured problem-solving environments that need to be deciphered by the players. DGBL can place the learning activity in a deeper cognitive engagement by providing complex-structured challenges that need to be solved, and the players are encouraged to get involved critically in the problem-solving cases. As a result, the players are set to explore their thought to be a decision-maker by figuring out the problems and exploring their abilities to find solutions for the challenges (Mahayanti, Kusuma, & Wibawa, 2020). One of the games that can be taken as a good example is the Ad Decoder Game. As a media literacy game, it presents the tasks associated with hidden meanings in advertisements; the players then must recognise information and decipher the deceptions in ads (Sardone & Devlin, 2010).

Regardless of the benefits of using DGBL to develop students' critical thinking, the difficulty and usability of games, however, may lead to cognitive load when players feel that the games are too hard and unfamiliar to play. Cognitive load theory (CLT) learning spotlights an important point that "*the free exploration of a highly complex environment may generate a heavy cognitive load that is detrimental to learning*" (Paas, Renkl, & Sweller, 2003 as cited in Moreno, 2014, p.100; Sweller 1999). It is of particular importance in the case of novice players, who have insufficient experience to deal with unfamiliar environments featured in the games (Moreno, 2004). This can lead to serious barriers for players to acquire the new information with their prior knowledge. For example, the majority of respondents in Anderson, Reynolds, Yeh, and Huang's (2008) study tend to face difficulties in playing the game, such as understanding the English speech uttered by virtual characters, because they are unfamiliar with the military English words. Thus, perceiving new knowledge will not be easy for students when they are unfamiliar with the game in terms of types, themes, and topics.

To solve the cognitive load, DGBL should be designed as an instructional strategy to assist students' difficulties when playing the games. It can be done if the teachers first figure out the students' prior knowledge regarding a wide range of vocabulary they have already possessed, as well as the usability of the games. In other words, the teacher should provide external scaffolds before playing games to ensure that students indeed become more familiar with the game environments and understand how to play the game. Barzilai and Blau (2014) further highlight the importance of a conceptual scaffold in their experimental study. In their study, the post-assessment game shows that the experimental group, which perceived an external scaffold before gaming, significantly outperformed the control group that did not receive any scaffold from the teacher (Barzilai & Blau, 2014). Scaffolding activities can be additional language supports conducted before the game to familiarise students with the common vocabulary regularly used during the gameplay.

To conclude, DGBL engages the critical thinking domain during gameplay because it provides problem-based activities which involve students in an in-depth analysis to solve the game challenges. In relation to critical thinking engagement, DGBL benefits students' behavioural domain by allowing them to participate in a teamwork activity.

Developing behavioural engagement

In addition to cognitive development, DGBL can also promote cooperative learning (CL), which, with guidance from teachers, lets students participate synergistically as a team during the gameplay. CL is widely referred to as an instructional setting in which small groups of learners work collaboratively to gain a shared learning objective (Johnson, Johnson, & Smith, 1998). Furthermore, DGBL, especially multi-player digital games, is remarkably set to enable students to work together effectively in a group, dealing with the challenges of the game. A well-designed cooperative digital game also allows students to encounter a sense of togetherness by being included in the game environments, practising positive social life skills such as sharing, encouraging as well and contributing with one another (Jong, Lai, Hsia, Lin, & Lu, 2013). Additionally, by incorporating competition into

the games, the players with different skills and responsibilities are encouraged to work together to win the game.

Some scholars have drawn attention to seek the correlation between cooperative DGBL and EFL acquisition. Bado and Franklin (2014) conducted a study to gain in-depth insights into how the cooperative digital game, which is Trace Effect Game, leverages high school students' English language acquisition during gameplay. The study then postulates that interaction between teammates highly influences students' vocabulary (Bado & Franklin, 2014). It is because the players as a team are bound to work together, share ideas, and support one another to achieve the shared goals. For example, if teammates have difficulty understanding the meaning of the conversation spoken by the virtual characters, they will ask for help from the other teammates. Similarly, the finding is consistent with Ranalli's (2008) study, which argues that playing a digital game in pairs can enrich students' vocabulary significantly, as shown in the pre-test and post-test results. The participants can acquire a greater number of English vocabulary words from the game as it features everyday words, actions, situations, as well as elements of the game like animation, character behaviour and images, which are closely related to students' lives. Most importantly, the participants contribute to the game based on their own responsibility and share their knowledge with others. Those twofold studies are in agreement with the principle of cooperative learning, which shows positive interdependence and promotes interpersonal interaction (Peterson et al., 2022).

Nevertheless, the imbalance of students' composition in a group can lead to ineffective learning activity, which can hinder students from perceiving the learning outcomes. Many researchers examining cooperative DGBL activity claim that students cannot be placed into a group without knowing their prior knowledge and skill in playing digital games (Bado & Franklin, 2014). More precisely, dividing students into groups is essential to the effectiveness of cooperative learning (Johnson et al., 1998). Otherwise, randomly forming groups based on interest-based students can lead to a perception of unfairness (Oxford, 1997). For example, if the composition of the group is homogeneous, the players who have higher skill will dominate and take a significant role in the group, whereas low-skilled players are unable to participate properly, becoming passive and not focusing on performing the tasks (Bado & Franklin, 2014). Consequently, the advantages of Cooperative DGBL may not apply to every student. They will not get a significant improvement to achieve the learning goals, even though, as a team, they are able to finish the challenges of the game.

In rebuttal to this problem, the class must be assigned in heterogeneous groups based on language ability, gender, and game proficiency. According to Slavin (1990), the interactions among teammates in mixed groups allow them to apprehend their thoughts and other members' thoughts that can assist them in successfully finishing the challenges. This is also highlighted by Oxford (1997) in her study that the cooperative activity under a heterogeneous group can strengthen relations among students, enhance tolerance, and most importantly, they can support one another to deal with the game's challenges because they have the same level of knowledge. Even though a heterogeneous group might prompt conflict among teammates, it can be anticipated by grouping students in pairs or small groups and every player is also given a different role and responsibility in playing

the game (Bado & Franklin, 2014). For instance, in the Trace Effect Game, there are four different types of characters, and each character has a different role to deal with the game.

Conclusion

To summarise, DGBL plays an essential role in engaging students in teaching English as a Foreign Language (EFL) in the Indonesian high school context. Having examined the issue, this study reveals that the implementation of DGBL would provide an opportunity to foster emotional engagement by promoting flow condition, which refers to playing a game with fun, interest and deep concentration. Once the students experience "flow", the condition might influence the cognitive domain, which enables students to think critically and deal with the problem-solving challenges. Finally, well-designed cooperative DGBL also lets students work together as a team in order to achieve common goals. In this study, the investigation only focuses on which aspects of DGBL can significantly leverage students' engagement in the EFL learning classroom. Therefore, further analysis is required to examine how DGBL can be an effective instructional strategy to meet the English standard requirements of the Indonesian national curriculum.

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