

Minecraft as a Learning Tool for Classroom Activities and Extramural English Learning

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Abstract

Over the years, digitalization has provided diverse opportunities for new ways of language learning. These opportunities include learning English outside the school boundaries through a variety of activities (e.g., gaming), or participating in a gamified learning experience. In an era where learners use technology to their advantage when it comes to learning, Minecraft, a sandbox-adventure game, provides potential in enhancing these types of learning experiences further.

This thesis investigates Minecraft and discusses its affordances for English learning. Previous studies and ethnography are used to introduce and discuss about the game and its central features on a general level. Example activities are introduced, explored, and examined with the backdrop of Extramural English and Gamification, while Krashen's Input Hypothesis is used to examine how learning in Minecraft could potentially happen. The findings of the thesis suggest that Minecraft is a versatile, accessible game that facilitates the creation of flexible activities. Furthermore, these findings also indicate that gamification of the activities may also provide additional opportunities for learners to engage in a fun, meaningful and collaborative learning experiences. By having an environment where learners can interact with visual inputs, the findings also suggest that Minecraft can provide opportunities for language learning. Minecraft may thus pave ways for interesting methods of learning English by providing a platform that the educators and learners can take advantage of for their activities.

Tiivistelmä

Digitalisaatio on vuosien aikana tarjonnut monipuolisia mahdollisuuksia oppia kieltä uusilla tavoin. Näihin mahdollisuuksiin lukeutuvat muun muassa Englannin kielen oppiminen koulun rajojen ulkopuolella tapahtuvien aktiviteettien kautta (esim. pelaamisen kautta) tai osallistuminen pelillistettyyn kielenoppimiskokemukseen. Nykyaikana, kun oppijat hyödyntävät teknologiaa oppimisessa, hiekkalaatikko-seikkailupeli Minecraft tarjoaa mahdollisuuksia edistää näitä oppimiskokemuksia entisestään.

Tämä kandidatuksellinen kielmä käsittelee Minecraftia ja sen käyttömahdollisuuksia Englannin kielen oppimisen kannalta. Aiempia tutkimuksia ja etnografiaa on hyödynnetty keskustellakseen pelistä ja sen keskeisistä ominaisuuksista yleisellä tasolla. Peliin liittyviä esimerkkiaktiviteetteja esitellään, tutkitaan ja käsitellään koulun ulkopuolella tapahtuvan Englannin oppimisen (Extramural English) ja pelillistäminen (Gamification) pohjalta, ja Minecraftissa mahdollisesti tapahtuvaa oppimista käsitellään Krashenin Input Hypothesis -teorian avulla. Tutkielmassa tehdyt tulokset osoittavat, että Minecraft on monipuolinen ja helppokäyttöinen peli, joka helpottaa joustavien tehtävien luomista. Tämän lisäksi tulokset tuovat esille, että aktiviteettien pelillistäminen voi tarjota oppijoille lisämahdollisuuksia osallistua hauskoihin, merkityksellisiin sekä yhteistyöhön perustuviin oppimiskokemuksiin. Tutkielman löydökset myös osoittavat, että Minecraft tuo mahdollisuuksia oppia kieltä tarjoamalla ympäristön, jossa oppijat voivat olla vuorovaikutuksessa visuaalisten virikkeiden kanssa. Näin ollen Minecraft voi tarjota mielenkiintoisia mahdollisuuksia oppia Englantia tarjoamalla alustan, jota opettajat ja oppijat voivat käyttää hyödyksi aktiviteeteissaan.

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1. Introduction

This study investigates whether a popular game Minecraft can be used as a language learning tool in classrooms and as an extramural English activity through the backdrop of Extramural English, Krashen's Input Hypothesis and Gamification. By using previous studies and ethnography, this thesis introduces and reviews Minecraft, while its affordances are also examined and discussed. Examples of possible Minecraft activities are then presented to also explore what learning possibilities can the game provide for Extramural English activities and classroom learning activities.

In everyday life, where technology and internet are nearly ubiquitous, digitalization has created diverse opportunities for daily and professional use. For education, for example, digital materials, ranging from videos to exercises, not only aid learning but also help ease teachers' and students' workload with the help of pre-made materials. To put it briefly, digitalization enhances learning and teaching and provides compact school materials that are accessible on any personal computers and mobile devices.

Over the decades, English has expanded from merely being a foreign language becoming a "part of the working and social lives of many EU citizens" (De Wilde & Eyckmans, 2017, p. 674). Furthermore, digitalization has also contributed to the widespread nature of English, as with the help of technology and internet, it has now become easier to access English-language content and engage with other people around the globe in English, for example. According to De Wilde and Eyckmans (2017), the presence of English in contemporary media causes children to be exposed to the language and they are thus able to use it even before they receive formal English education. This type of informal learning constitutes to the learners' Extramural English (EE). Coined by Sundqvist, Extramural English is an umbrella term referring to different forms of activities learners engage or come to contact with outside of school which involves English (Sundqvist, 2009; Sundqvist & Wikström, 2015; Jensen, 2016). In EE research, entertaining media, such as gaming, watching movies and TV, and listening to music were commonly encountered activities that had significantly positive effects on English learning (Jensen, 2016; Sundqvist, 2009; De Wilde & Eyckmans, 2017). In this study, the primary focus in examining Extramural English activities will be on gaming, although other activities, which are presented in the Section 2.1, will be briefly examined.

In gaming, learning is an integral part of the activity, as it involves progressing further in the game through understanding the content the game provides and increasing the player's proficiency through that understanding. This learning process, in turn, resembles one from Krashen's Input

Hypothesis, in which language acquisitions happens through understanding the ‘comprehensible input’ that is slightly above the learner’s current level of knowledge (Liu, 2015; Payne, 2011). By understanding the input, the learner advances from their current level of competence to the next one: the $i + 1$.

While learning in games is not solely about language learning, the content, however, and the use of language in the media functions as one part of the gaming experience. To support English in formal contexts, gamified learning environments enhance motivation and provide interactive platforms to engage with the language and with other learners. Gamification refers to the use of different game elements and mechanics that are applied to non-game contexts, such as in classrooms, to engage learners and motivate them to achieve tasks (Dehghanzadeh et al., 2021; Figureoa, 2015; Ongoro & Mwangoka, 2019; Redjeki & Muhajir, 2021). In games, English is the main language for interaction and playing them requires understanding L2 input, which in turn enhances their proficiency in the language, which is one motivating factor in learning English (Sylvén & Sundqvist, 2012). Another factor for gaming is that the students can share their experiences with each other (Cohen, 2014, as cited in Callaghan, 2016). Furthermore, gamification takes advantage of these experiences to provide a fun, engaging environment where learners can interact with the surroundings and with each other.

One of the examples of a game with immense potential for gamification of classroom activities and extramural learning is Minecraft: a survival-adventure-sandbox game that focuses on crafting and creating while surviving from mobs. However, the game also provides a ‘creative’ mode that focuses more on the user’s limitless creativity. Minecraft: Education Edition, on the other hand, is an edition of Minecraft which focuses on the educational aspect of the game. The game is known for its lack of set rules, providing more of a creative platform rather than a game for the player. Thus, it is for the player to decide what they want to do in the game (Callaghan, 2016). Overall, the game, alongside its educational edition with classroom features, creates major opportunities for unique and fascinating ideas for implementing language learning tasks. In addition, through its multiplayer mode, it also provides a creative environment for language learning, too, allowing for immersive, collaborative, and creative digital interaction between the students and teachers while also providing fun gameplay experiences. Minecraft, when implemented properly, provides limitless opportunities for learning and linguistic production (Alawajee, 2021; Egbert & Borysenko, 2018).

2. Theoretical Background

In this section, three concepts are investigated: Extramural English, Krashen's Input Hypothesis, and Gamification. These concepts will build the foundation for examining Minecraft, its mechanics, and possibilities for language learning.

2.1 Extramural English

With the technological advancements and possibilities, language learning is slowly becoming more than memorization of grammar, vocabulary, and structures. Formerly, language learning was closely related to formal instruction. However, informal learning outside of school settings has become more common in both real-life situations and in research (Sundqvist & Wikström, 2015).

Extramural English (EE) refers to ways of informally learning English outside of school, such as through watching movies with or without subtitles, listening to music, reading English-language newspapers, for example. In other words, learners come to contact with the target language by interacting with an environment that exists outside of instructional boundaries and creating actions or situations that expose them to the linguistic content that is presented in one form or another. Sundqvist (2009) states that this type of "contact or involvement may be due to the learner's deliberate (thus conscious) intent to create situations for learning English, but it may equally well be due to any other reason the learner may have" (p. 25). Thus, it could be said that this type of informal learning, caused by the subconscious desire to create learning situation is also intentional to some degree. However, Jensen (2016) argues that it is not that learners are unaware of the learning processes that happen in EE activities, but rather that learning is not the primary focus in these kinds of activities (p.2). Therefore, it could be said that learning in EE might also be unintentional. Incidental language learning, a concept closely related to EE, is defined as learning without the primary intention to learn (Jensen, 2016). According to De Wilde and Eyckmans (2017), the young are constantly exposed to English way before they learn it as an L2 language, allowing for incidental interaction with the semantic and syntactic information "that can be processed and acquired" (p. 674). Coincidentally, Sundqvist (2009) states that the learners might not even "have a reason for coming in contact with or becoming involved in Extramural English" (p.25). As such, learning in EE appears to depend on the level of linguistic exposure the learner receives, while it may also depend on how the learner processes the information.

Previous studies in this field indicate that there is a significant connection between Extramural English and L2 proficiency, with digital media being the most consumed activities in this regard (Sundqvist, 2009; Jensen, 2016). For example, Sundqvist (2009) conducted a longitudinal study with 80 Swedish 9th-grade students from different schools to examine whether EE was related to oral proficiency and vocabulary knowledge. In the questionnaire and language diaries that measured participants' Extramural English, it was found that the participants spent an average of 18.4 hours per week on EE activities, with boys spending almost 21h/week and girls 16.4h/week. Activities that contributed to oral proficiency were listening to music, watching TV and films, exploring the internet, and gaming (2009). However, it was found that gaming, internet, and watching contributed the most on vocabulary knowledge (ibid. 2009). Overall, Sundqvist notes that Extramural English activities, especially ones that require the learners to be active such as gaming or surfing the internet, had greater impact on learners' language skills than passive activities, such as watching TV and listening to music (2009). In addition, boys spent much more time with EE activities than girls, which contributed to their significantly higher scores in oral proficiency tests and vocabulary tests presented in the study (ibid. 2009). Furthermore, it appears that even when time spent on EE activities is low, a slight increase in the activity may have a major impact on learners' oral proficiency (Sundqvist, 2009, p. 204).

In a Danish study conducted by Jensen (2016), the results found were similar to Sundqvist's study. Jensen (2016) investigated 107 young English language learners' Extramural English activities and as a separate entity, the relation between gaming and learners' vocabulary scores in a vocabulary test. Overall, girls enjoyed listening to music the most, followed by watching TV and gaming. On the other hand, boys preferred gaming, followed by watching TV and listening to music (2016). Regarding other activities such as reading and writing, Jensen found them to be negligible as she argued that most young learners "are probably still not able to engage fully in cognitively demanding activities in an L2 as they are still learning to do so in their first language [...]" (2016, p. 13). Significant relation was found between gaming and vocabulary scores, which Jensen deemed not surprising, as the learner is motivated to progress in the game through paying attention to the language in it (2016, p. 13). The connection was most pronounced with learners who learned English early, as those who learned English at later age appeared to almost reach a ceiling effect due to the natural limitation that the games generate at that point (2016). In addition, boys achieved higher scores than girls, presumably due to them engaging with EE activities more than girls (2016).

Regarding gaming as an Extramural English activity, it is perhaps not surprising to see such positive effects from a form of interactive entertainment. To gain the benefits, games require active participation and engagement, whether it would be understanding the story, learning something, or expanding one's imagination further, for example. According to Sylven and Sundqvist, "playing digital games entails entering unknown territories, taking on new roles and, for many players, doing all the above in a second or foreign language" (2012, p. 303).

To put it briefly, learning from games is based on immersion and the inputs and cues that the player receives from the activity, which are in form of text or spoken dialogue. An example of this example would be incidentally learning vocabulary while trying to understand how the game works (Sundqvist & Wikström, 2015). This is considered by Ellis (2009) as a 'representative sample', an authentic input relevant to the players' needs, which is repeated multiple times and is of great importance to learners (as cited in Jensen, 2016, p. 14). However, the input may vary depending on the game, as there are games that range from having relatively small language input to being rich in language input (Jensen, 2016). In addition, there may be individual differences in receiving the input, as some users "will make affordances of the input – driven, among other factors, by their motivation", while some may experience a cognitive overload instead (Jensen, 2016, p. 14).

In addition to Jensen's study, other studies have also shown positive relations between gaming and learners' language proficiency. In Sylven and Sundqvist, a positive relation was found between gaming and L2 proficiency, as there was a correlation between learners' vocabulary and the amount of time spent on gaming (2012). The latter finding sees similarity with the statement made by Sundqvist (2009), in which more time spent on EE activities also increased learner's proficiency in the language. In Sylven and Sundqvist's study, frequent gamers achieved highest scores in a vocabulary test conducted in the study (2012). In another study, Sundqvist and Wikström found that gamers achieved the highest vocabulary, highest score in an essay assignment, and highest final grade (2015). Correlation was found between gaming and vocabulary, but it was not much evident for girls. Similarly, boys outperformed girls in vocabulary tests in other studies (Sylven & Sundqvist, 2012; Jensen, 2016). As seen in Jensen (2016), the reason for gender differences would be that the boys engaged more with EE activities than girls. In addition, Sylven and Sundqvist (2012) hypothesize that while boys engaged with games more than girls, it could also be explained based on the type of the game. The researchers explain that while girls engaged primarily with single-player games, boys preferred multiplayer games, which provide "learners with opportunities for engagement with rich target language input as well as for scaffolded interaction" (2012, p. 315).

In line with Extramural English, research on Incidental Learning has presented similar results. In De Wilde and Eyckmans (2017), 30 Flemish children with no formal experience with English were examined with a variant of Cambridge English Test for Young Learners designed for the study. The results revealed that the children achieved high scores on the test and were able to communicate in English at a basic level without formal education (ibid., 2017). Gaming, using of the computer, listening to music, and watching TV with home language subtitles were reported to be common activities that children spent time with for over 30 minutes a day (ibid., 2017). In addition, it was found that gaming and computer use were significantly related to positive test scores while watching TV with subtitles or listening to music did not have any relation. On the other hand, there were no significant differences between girls and boys, as both groups engaged equally in similar activities (ibid., 2017).

Overall, both Extramural English and Incidental Learning activities have significant positive effects on learners' L2 proficiency, especially in terms of vocabulary. With learners' active and subconscious participation in learning English outside the classroom boundaries, it is no wonder that the language is becoming more and more ubiquitous in terms of its usage. This is more evident in gaming, where the learner engages within the interactive environment, which enables the interaction with the language. Furthermore, while the learner engages with the activity, they might sometimes unintentionally create situations where learning, for example, vocabulary might be possible. While learning a language might not be the primary aim of gaming, it could be stated that through audiovisual cues and inputs, the learner indirectly performs a learning process while playing the game, thus advancing further in the game while expanding their linguistic knowledge.

2.2 Krashen's Input Hypothesis

As mentioned in Section 2.1, gaming involves receiving input that the player attempts to understand, which is then used to progress further in the game. However, it is still unclear how the learning happens through different inputs that the learner receives. This section examines inputs in games in view of Krashen's Input Hypothesis, a part of Krashen's renowned but also controversial Monitor Model (more in Liu, 2015). In addition, the criticism towards the hypothesis is explored to determine the key functions of the concept for further chapters.

In Input Hypothesis, learning happens with the help of receiving 'comprehensible input' as called by Krashen (Liu, 2015; Payne, 2011). It should be noted that this type of 'learning' is more akin to acquisition, a more subconscious process, which contrasts with the actual learning, that is, acquiring

the language as a conscious process (Krashen, 1987, as cited in Payne, 2011). The learners advance in their acquisition ‘in a natural order’ through understanding inputs, which contain structures that are slightly beyond the learners’ current level of competence (Liu, 2015; Payne, 2011). According to Krashen (1987), learners advance to the next level of competence “with the help of context or extra-linguistic information” along with the knowledge of the world (as cited in Payne, 2011, p. 420). The acquisition is referred by Krashen as $i + 1$, where the i indicates the current level of competence and $+ 1$ the next level of information the learner advances to from their current level. When the input has enough structures for the learners to advance from their current level and the input is understood, the learner will automatically achieve the $i + 1$ (Payne, 2011).

As it was established in the previous section, in EE, the learners engage themselves in situations where learning a language is possible alongside the fun. However, compared to other EE activities, gaming requires constant interaction with the material to gain beneficial effects from it and to advance in the game. When comparing the input these games incorporate (textual and oral content) to what Krashen had established with the concept of ‘input’ (structures slightly above the learner’s current competence), some similarities arise. According to Ellis (2009), the frequency of an input affects how likely the learner benefits from it (as cited in Jensen, 2016). In other words, the more the learner is exposed to, for example, certain category of vocabulary or grammar structure in the game, the more proficient the learner becomes with it. Additionally, Jensen remarks that sufficient amount and quality of interaction with EE activities may provide relevant input that motivate the learners to seek to understand it (Jensen, 2016). This emphasizes Krashen’s notion regarding the help created by the context or other linguistic information to achieve the next level of competence. For example, racing games may use terms and words that are exclusively used in motorsport, and because of the relevant context (that is, the racing game itself), the learner is thus able to associate the vocabulary with this context, therefore achieving $i + 1$ through this connection.

On the other hand, as established by Jensen based on the results of his study, one reason the connection between gaming and positive test scores were more pronounced with the early learners of English would have perhaps been due to how learners paid attention to the language of the games while also watching videos of clips related to the games (2016, p. 14). Gameplay, coupled with videos and clips, is deemed by Jensen (2016) as very appropriate input. This might be due to how different videos and clips related to the games tie with the context, with the audience immersing with the media and the content creator while also undergoing the same experience as the content creator does. Therefore, videos and clips can provide help and add more information on the input

provided by the game, thus strengthening the possibility of attaining the $i + 1$, especially if the learner also plays the game as well.

Overall, the connection between learning language from games and the input could be established as receiving content that is necessary for the player to progress in the game while also increasing the linguistic proficiency both in-game and in real life. However, this analysis was more related to how learning in game may hypothetically happen, as criticism to Krashen's Monitor Model is related to its applicability, validity, and lack of evidence (Liu, 2015). As such, Input Hypothesis has also been subjected to similar criticism like other hypotheses in the Monitor Model. In Liu (2015), three major arguments related to the Input Hypothesis were examined: the vagueness of the hypothesis, the simplification of the input, and overclaims related to the hypothesis.

In terms of the vagueness, it has been argued that both 'comprehensible input' and $i + 1$ were not properly defined by Krashen, with Liu (2015) adding that Krashen was not consistent in explaining the latter concept. This, in turn, has caused different interpretations to be made by multiple researchers. In addition, the acquisition process has also seen similar problems, as the 'natural order' of the acquisition has "not been determined yet" and the interaction between the learners' current level of competence and input and the transition process is uncertain (Liu, 2015, p. 142).

Regarding the simplification process, Krashen claims that by simplifying the input to the level of caretaker speech, the input can become more comprehensible this way (Liu, 2015). However, Liu (2015) questions the effect of caretaker speech, stating that 'comprehensible' does not mean 'structural simplicity', adding that the former "has more to do with the learner's knowledge framework or cognitive ability" (p. 143). Furthermore, Liu (2015) also argues that there are more conventional methods, such as repetition and relexicalization, that provides the same outcomes as Krashen claims with the simplification. Thus, the claim is not convincing enough (Liu, 2015).

On the other hand, based on overclaims made by Krashen, Liu (2015) examines the issues both through internal and external factors. Regarding the internal factors, Liu (2015) objects the idea of comprehensible input being the only causal factor, arguing that "the acquisition of structures can happen even without input" (p. 144). He thus adds that the acquisition of the structure can also happen through learners' internal systems (2015). In a similar manner, regarding the external factors, Liu argues that the acquisition "cannot be attributed to comprehensible input alone" (p. 144). In other words, while 'comprehensible input' is indeed functional on its own right, it is still not sufficient for explaining acquisition and as such, other theories should be examined alongside the Input Hypothesis (Liu, 2015, pp. 144-145).

Regarding the practicality of the Input Hypothesis, Payne (2011) investigated ways teachers could use to introduce new languages, following the principles of the ‘ $i + 1$ ’ in the hypothesis. In his study, 25 young students were introduced to French through exposing them to phrases or expressions. The students’ comprehension of the language, as well as their ability to reproduce the language either orally or in a written form, were assessed. The results indicate that most of the students were able to comprehend and reproduce the expressions and phrases, with teacher’s oral input having more effect than written input (2011, p. 427). However, Payne (2011) was unsure whether the student acquired the exact $i + 1$, as students who found the instructions challenging may have experienced the input as many levels higher, which Payne cites from Krashen as $i + 2$ or $i + 3$. In addition to this, few other problems also arise. On one hand, Payne (2011) wonders whether the $i + 1$ in a classroom setting means the individual’s level of competence or whether it is a collective one. On the other hand, like in Liu (2015), there are also other factors affecting the acquisition such as individual differences and as such, they also must be considered (Payne, 2011).

Krashen’s Input Hypothesis paves ways for an interesting insight on learning through understanding the content that is slightly above the current knowledge. While it could be stated that learning the language in games or somewhere else could happen this way, the validity and usefulness of the hypothesis are the main concerns in examining the language learning games from a practical standpoint. As with the hypothesis, learning and acquisition are multifaceted in a way that the results cannot be definite without adding other theories or concepts for examination. Furthermore, the vagueness of the concept introduces different interpretations to the issue, which in turn adds to the complexity on its use in practice. Thus, in this study, only the fundamentals of the hypothesis, such as $i + 1$ and the difficulty of the input are further explored in the upcoming chapters that examine Minecraft. The variable i will be used to refer to the individual’s level of competence, while the level of difficulty will be indicated as $i + x$, with x meaning 1, 2, and so on. As for the ‘comprehensible input’, while it has not been properly defined by Krashen, it could be interpreted as input that is sufficient (in terms of the quantity and quality of the structure) and properly understood so that the learner is able to advance from their current level of competence.

2.3 Gamification

In the 21st century, with all the digital advancements and the high usage of media, even classrooms have been optimized to integrate digital media and provide fun and engaging environments that benefit learners. Ongoro and Mwangoka refer to this century as “an era where the children are

growing up with computers and video games” (2019, p. 326). Commonly described as Digital Natives, these learners, as the term suggests, have grown accustomed to having a piece of technology readily available nearby, and as such, they also assume different learning methods that involve technology (Kiryakova, 2014, as cited in Redjeki & Muhajir, 2021).

With technology now being commonplace, one of the methods, gamification, has also risen in trend in the past decades. As previously mentioned, it refers to the implementation of game mechanics and principles in a non-game context to elevate the learning experience. According to Ongoro and Mwangoka, gamification has been used in different areas of interest, such as in businesses, and for improving engagement among users (2019). On the other hand, according to Redjeki and Muhajir, gamification “can encourage and motivate students to accomplish the goals of their English learning since it exhibits an innovative and captivating learning activity” (p. 69). On the other hand, according to Dehghanzadeh et al. (2021), the elements present in gamified environments also increase the interest in learning a language, reduce anxiety regarding speaking the language, and encourage students with positive learning behavior (2021). The main idea behind gamification is surrounded by active participation and feedback, similar to how the players would otherwise engage with the material outside of learning boundaries. For example, there may be goals that the student can complete or achievements that students can unlock by following the instructions. Gamification may also include social elements where the learners may also compete for the highest test score, which could be measured with a leaderboard, for example. In a sense, Figureoa (2015) implies that game elements and mechanics create a sense of empowerment and engagement as the students complete the tasks.

As a side note, it is important to separate gamification from other game-related terms. For example, Dehghanzadeh et al. compare gamification with serious games and educational games, in which they state that gamification is a relatively new term (2021). Briefly explained, serious games and educational games refer to games primarily designed for learning (in this case, language learning, for example) (2021). While both appear similar, Johnson, Vilhjalmsson, and Marsella (2005) state that educational content can be shown implicitly (e.g., through the story, content) in serious games, and explicitly (e.g., through instructions, etc.) in educational games (in Dehghanzadeh et al., 2021). Gamification, however, is neither of them, but more of a general framework with different elements and mechanics that guide the learner with the tasks while also maintaining the traditional elements present in classrooms. It is thus not fully related to actual game activities, such as solving puzzles to advance from the current level to the next one, for example (Dehghanzadeh, 2021, p. 936).

Previous research suggests that gamification creates positive learning experiences. In a review conducted by Dehghanzadeh et al., some studies reported gamification as enjoyable, fun, attractive, interactive, and interesting, while 13 studies reported that learners' experiences with gamification were positive (2021, p. 945). As with Extramural English, the common positive learning outcome in gamification studies was seen with vocabulary (2021).

In a Tanzanian study, conducted by Ongoro and Mwangoka, the researchers created an early gamified version of the Tanzanian Alphabetical Sound Quiz, with elements optimized for Tanzanian preschoolers (2019). Ongoro and Mwangoka (2019) state that Tanzanian preschoolers experience difficulties with alphabetical sound articulation, as in the country, there is no standard for pronouncing alphabets in English (p. 326). Furthermore, games are usually not practical for Tanzanian preschoolers' curriculum, which makes them more of a side activity than a tool for learning (2019). The study was conducted in 12 Tanzanian preschools, in which the children were observed using the gamified environment, and the teachers were surveyed. Overall, the results indicate that most of the teachers commented positively on gamification, with 79% agreeing to its suitability for the curriculum (2019). Regarding the preschoolers, it was reported that the children were excited about the activity and "preferred using the early literacy program developed on the alphabetical quiz" (p. 339). An experimental study was also conducted, revealing that gamification was effective, although cartoons would have made the gamification more "operational" (p. 341). In addition, it was also found that Tanzanian preschoolers already knew how to handle digital media (Ongoro & Mwangoka, 2019). In other words, they were already digital natives, and as such, it was the matter of implementation that made learning fun.

Lastly, a study conducted by Redjeki and Muhajir (2021) used a popular language learning app called Duolingo to explore gamification. Utilizing an action research layout featuring survey, observation, and documentation, Duolingo was examined through 15 university students. Duolingo was utilized in grammar learning exercises (ibid., 2021). Overall, the study deemed Duolingo to be accessible, fun, simple, and enjoyable. Duolingo also boosted students' motivation and self-directed learning (ibid., 2021). In addition, the students expressed that Duolingo could improve students' English due to its versatile amounts of exercises and topic that enabled practicing writing, reading, listening, translating, and speaking (ibid., 2021, p. 77). However, according to Redjeki and Muhajir, some students expressed that Duolingo would work as additional homework and not as a replacement, as the focus on learning might shift away (2021).

In conclusion, gamification appears to be an effective method to engage learners in fun and motivating activities. Although it shares elements with games, gamification is a different concept,

and instead uses the elements from the games in an otherwise non-game context, creating ‘interactive and engaging but not too game-like environments. In an era where learners are referred to as Digital Natives, gamification appears as an interesting concept, especially with the emergence of alternative learning and teaching methods involving technology. As one of the ways to connect technology-based learning and traditional learning, gamification paves way for exploring language learning in an engaging and fun way.

In the following sections, Minecraft and its features will be introduced on a general level. In addition, Previous findings related to the game and its practicality are then examined and discussed. With the help of what has been discussed earlier, Minecraft’s affordances and limitations are then investigated in Section 4 through example activities.

3. What is Minecraft?

Minecraft is a survival-adventure-sandbox video game developed and originally released by Mojang in 2011, featuring a characteristic, blocky 3D world (Alawajee, 2021). The game, by nature, does not have strict rules and it is thus quite literally a virtual playground for the players. The responsibility is thus transferred to the player, who creates their own personal goals in the game (Callaghan, 2016) Minecraft has also been called “a virtual LEGO set” among researchers (Egbert & Borysenko, 2018, p. 108). In Minecraft, the contents and modes vary throughout its editions, which are called Java Edition, Bedrock Edition, and Education Edition.

The common modes in all Minecraft editions are ‘Survival’ and ‘Creative’. ‘Survival’ focuses on exploring the game world, building structures and crafting items from harvested materials, and surviving from different types of mobs.

‘Creative’, on the other hand, emphasizes the sandbox aspect of the game and encourages the players to create whatever they want. In addition to crafting and building, Egbert and Borysenko (2018) state that “the availability of a wide range



Pic.1. An example of a Minecraft world in 'Flat' world type.

of blocks enables users to create almost any type of structure, including working factories, self-opening doors, farms, and much more” (p. 108). For the game world, there are three types of worlds the player can create: ‘Infinite’, which provides a large world with an unlimited distance, ‘Old’, an

older version of Infinite with limited distance, and 'Flat', a flat surface for creative projects, for example. Players can also manipulate the world's behavior, with different commands, settings, and cheats available for configuring weather, adjusting the amount of interactivity in the world, and setting day/night cycle, for example. Minecraft also provides a multiplayer mode in which other users can join and interact with each other's worlds and collaborate.

Over the years, the game has achieved a huge and consistent success, with countless user modifications, creations and forums being available for players of all skill levels. In general, Minecraft provides numerous possibilities for individual players and communities to achieve their aims in the game.

3.1 Previous Studies on Minecraft

Minecraft provides limitless opportunities, as users can create whatever they want without constraints. Therefore, educators can also implement the game for many interactive and engaging purposes (Egbert & Borysenko, 2018). However, despite this, research information surrounding Minecraft and language learning has been scarce (Alawajee, 2021; Egbert & Borysenko, 2018). With the current knowledge, studies on Minecraft suggest that the game boosts motivation and helps students create and explore stories and narratives while encouraging collaboration for asking advice or for learning with other students (Alawajee, 2021; Egbert & Borysenko, 2018).

In Callaghan (2016), the Education Edition of the game was examined. The study aimed to investigate the use of the then-older version, Minecraft Edu, in secondary school classrooms. The results showed that collaboration between the students was the key that enabled them to work together (2016). In addition, students were more engaged with Minecraft Edu and in some cases, enhanced some of the students' self-directed learning (2016). Moreover, the teacher's influence was deemed to have an impact on student engagement (Callaghan, 2016). Overall, it appears that Minecraft enhances students' engagement to the point that no major assistance would be needed, as students become keen on setting their goals in learning.

In Alawajee (2021), 49 articles related to the game were examined. The reviewed studies showed positive outcomes to students' motivation, engagement, social skills, and academic skills, with the majority demonstrating "how Minecraft can be a useful tool [...] if it was used effectively with well-designed lesson (p. 25). Alawajee (2021) illustrates that the open nature of Minecraft allows

the learners to be enthusiastic about learning, while also allowing for educational activities and collaborative practices in the game, deeming this as “a cornerstone in education” (p. 50).

Egbert and Borysenko (2018), on the other hand, evaluated Minecraft and provided examples with the backdrop of task engagement guidelines for *interest*, *applicability*, *challenge*, *social interaction*, *scaffolding*, and *autonomy*, while also examining how the game would meet these guidelines to make learners motivated to achieve the learning tasks. The study determined Minecraft to be useful for meeting the guidelines, with the researchers stating that the game was commonly described as engaging in previous studies (2018). For example, regarding *interest* and *challenge*, Egbert and Borysenko (2018) cite the fun and open nature of the game as the reasons why Minecraft would be interesting for learners, with its open nature allowing the teacher to create activities and tasks based on what the learners are interested in, while for *challenge*, the game is accessible and easy-to-use for users of all skill levels, and the game’s open nature allows for language tasks that can be “as challenging as the teacher and students want it to be” (p. 113).

However, despite the positive effects and the interesting insights of the game, Alawajee (2021) argues that research regarding Minecraft’s effects on mental or physical health is necessary to further understand Minecraft, its potential, and possible limitations. For younger learners, this is necessary, as Minecraft, at its core, is still an entertaining game. This adds to the issue of its implementation, as too fun of an activity will distract the student, which, in turn, may show stronger negative effects. Thus, to add to the researcher’s statements, it is essential to examine how the implementation of the game affects the presence of the limitations and the balance between the positive and negative effects.

Despite the concerns regarding the game and the lack of research, Minecraft provides an interesting platform with positive effects that facilitate learning in general. In addition, some uses by other researchers have been documented by Alawajee (2021) and by Egbert and Borysenko (2018) that allow for versatile use of the game. In conclusion, based on the studies, Minecraft could be deemed as a tool with a high potential for language learning. However, whether Minecraft is truly practical without limitations is still in question.

3.2 Is Minecraft Practical for Language Learning?

Minecraft is versatile both as a game and as a tool. According to Egbert and Borysenko (2018), it is slowly becoming popular among students and teachers. While it is not designed for language

learning, the game could be used for assisting learners through practical activities (Alawajee, 2021). Minecraft also provides social collaboration through its multiplayer functions and different social hubs, such as forums. Alawajee (2021) states that the game “merges the conceptual ideas of collaborative learning with a serious game” (p. 22). In other words, Minecraft could be considered a game with entertaining features and simple graphics, while also being a tool with educational properties that enhance collaboration, teamwork, creativity, and social interaction. Through its simple but open and limitless framework, the game could be used for many tasks for problem-solving, conversation-based exercises, or as a social hub for interaction, for example.

However, as previously mentioned, research on Minecraft and language learning has been scarce. In addition, some researchers have also expressed fears that games like Minecraft “may render children more passive and isolated” (as cited in Alawajee, 2021, p. 22). Furthermore, Alawajee summarizes that some of the studies expressed concerns, such as its generalizability, addiction, age appropriateness, and health concerns (2021).

While Minecraft could be generalized for language learning, it is worth mentioning that even when implemented, the game might sometimes emphasize itself more as entertainment than an educational tool. The balancing of both aspects may play a key part in enhancing language learning without being too entertaining to be distracting or too educational to be frustrating. As previously mentioned, the balance between positive effects and negative effects may change depending on how the game is implemented. Alawajee (2021) argues that digital games like Minecraft have a lot of distractions that may cause students to lose focus on the task, which the users need to be aware of. Another limitation, age appropriateness, might also affect Minecraft’s practicality. Some researchers have argued that age-appropriateness might be a limitation as Minecraft might contain some violence (as cited in Alawajee, 2021). It could be stated that Minecraft does indeed have weapons and items which the player can craft and use against enemies. However, they could also be used against the animals or non-playable characters (called ‘villagers’ in-game) that are present in the game. Alawajee (2021) questions the validity of Minecraft’s violence, stating that the ‘Creative’ mode could also be used, therefore reducing the amount of hunting and combat elements in the game. However, players are still able to hurt animals that are still present in the ‘Creative’ mode, further raising the question of age-appropriateness. Despite this, the priority to teach the students is necessary regardless of the educational methods used (Alawajee, 2021). As such, like with other materials, the instructors should delve deeper into the game, examine its contents and features, and apply suitable measures such as monitoring the learner’s behavior to ensure its safe usability. However, despite some of the limitations of the game, Minecraft is attractive for both learners and

educators. Alawajee (2021) thus argues that whether Minecraft has definite positive or negative influences is near impossible to determine, and its efficacy should be examined based on its usage context (p. 49).

Despite its long lifespan, Minecraft as a research subject is still quite new, especially in terms of its effects on language learning. Further research on its potential and limitations are thus needed to improve not only Minecraft but also other digital games that could be used in language learning in the future.

4. The Use of Minecraft in Extramural and Classroom Contexts

In this section, Minecraft is explored further by providing examples of activities that could potentially be used for:

- a) extramural activities
- b) classroom contexts

In this study, Minecraft: Education Edition will be prominently used for examination, as it is the most affordable and accessible out of the three editions and provides all the necessary tools and features for learning activities. Education Edition is free and instantly available for qualified institutions that use Office 365 (Minecraft: Education Edition, n.d.). For other organizations or teachers, Education Edition is available as a license-based annual subscription (Minecraft: Education Edition, n.d.).

A brief overview of each example will be showcased and discussed in terms of how the examples could aid the learners in language learning. Furthermore, possible limitations of each example are also examined in the following sections.

4.1 The Features of Minecraft: Education Edition

In Minecraft: Education Edition, there are several new features not available in other editions, such as additional settings and items curated for classroom use. Such features include View Library, which hosts a collection of pre-made worlds that provide additional activities for students, and Join World, a simplified multiplayer framework that allows other teachers, players, and students to easily join each other's worlds.

When creating a new world, there are two different settings: ‘Game’ settings and ‘Classroom’ settings. In the ‘Game’ setting, users can, for instance, modify the default game mode and difficulty, set how other users can interact with the world, and set additional parameters that further change the behavior and nature of the world. On the other hand, ‘Classroom’ settings provide parameters that can be used to quickly modify the classroom according to the host’s needs. In addition, there is also a ‘Resource Button’, which allows for creating links to websites or tools.

In-game, there are new items that are specifically designed for classroom and learning contexts. These include blackboards, a camera, a portfolio, and a notebook, to name a few. In addition, users can access Code Builder, an extension that allows users to create or code additional items, features, elements, and behaviors into the world.

With these features in mind, the following sections provide examples of Minecraft activities, where some of these features can be used by the learner or educators.

4.2 Minecraft for Extramural English

Minecraft: Education Edition, when used as an extramural activity, could bear interesting insights, as the game provides creative freedom for both educators in terms of designing activities and students when it comes to how they want to learn in the game. However, as noted by Sylvén and Sundqvist (2012), spare time activities are mostly chosen by learners themselves, and as such, the motivation for their favorite activities is most likely higher compared to other activities. This also applies to Minecraft regarding what the learners want to achieve with the activities and how learners want to complete the tasks in the game.

One possible way to use Minecraft: Education Edition for extramural learning is by creating activities that are part of homework or assignment. Beginning with the first example, a weekly challenge can be incorporated as homework, in which the educator provides the theme of the week. The students can then be asked to find appropriate vocabulary based on the theme and tasked to create visual representations of the words based on their meanings and connections to the theme. The students can decide how to visualize the selected words in the Creative mode in the game: for example, by building a structure based on a word, by doing a reenactment of its meaning using the tools available in the game, or even by using the game as a tool to create a slideshow with the help of the camera and portfolio items found in the inventory of the game, for example. This activity sees some similarity with another EE activity suggested by Sundqvist and Sylvén (2016), in which

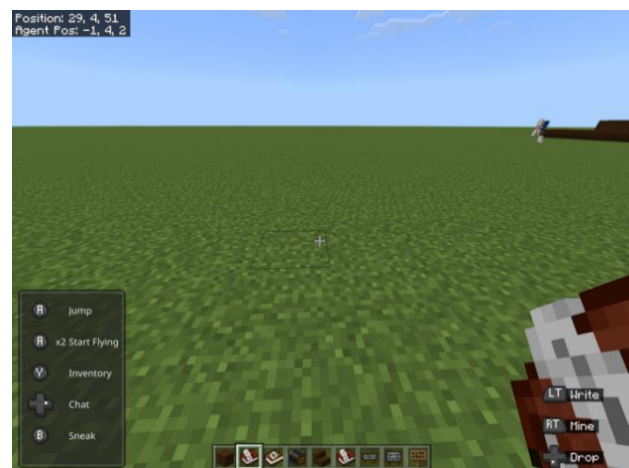
the students can be asked to make a list of words that are used in a game, and then further asked to examine their use in the game and possibly in general contexts. However, the most prominent similarity with the researchers' suggestion underlies in the fact that the example Minecraft activity could also promote the use of dictionaries, as they "usually supply ample information about how and when to use a word" (ibid., 2016, p. 172).

A language diary has been proven to be useful for collecting information about students' preferred learning methods and designing activities suitable to each student's needs (Sylvén & Sundqvist, 2012; Sundqvist & Sylvén, 2016; Sundqvist & Wikström, 2015). Analyzing the learning diaries also allows for understanding the students' lives better regarding EE (Sundqvist & Sylvén, 2016). Therefore, more activities, whether they are related to Minecraft or not, can be mapped out and created based on the feedback received from language diary entries. On one hand, activities can also be combined as a challenge, as it was documented in Sundqvist and Sylvén (2016), in which an English teacher suggested a 30-day challenge, where students were encouraged to engage in "one new EE activity a day for 30 days in a row" (p. 172). As a result, a Minecraft activity, such as the first example activity, could be added as one part of the challenge. On the other hand, it may also be possible to combine activities with Minecraft and optimize them to "put the students in the kinds of true-life situations that they could not do in classroom but want to or need to learn more about" (Egbert & Borysenko, 2018, p. 113). For example, students can be instructed to watch and follow a simple Minecraft building instruction video and then tasked to replicate or expand the structure based on the instructions. Similar to how Duolingo corrected students' errors with the help of repetition in Redjeki and Muhajir (2021), said Minecraft tutorial videos could be used to enhance learners' listening comprehension skills through instructions, feedback, and repetition.

Overall, repetition and context are relevant to the learning processes that are happening in these activities. When examined in view of the Input Hypothesis, the possible explanation is that learners are constantly exposed to similar types of input throughout the process of doing the task. In the first example activity, for example, the learner is constantly exposed to a type of input through weekly themes (e.g. Agriculture). This prompts the learner to seek an understanding of the input (the concept of the theme) with the help of the relevant context (that is, the vocabulary relevant to the theme), which could eventually lead to $i + 1$ the student completes the activity. On the other hand, it can also be assumed that the vocabulary functions as another type of input, with visual representations of each word in the vocabulary providing both linguistic information and repetition to this type of input, especially when the vocabulary chosen by the learner is new, or as the hypothesis suggests, slightly above their current knowledge. On the other hand, as it was previously

discussed in Section 2.2, videos related to the games are tied to the context of immersion, which can also be experienced while gaming. In the tutorial example activity, when the learner is tasked to build a structure (e.g., a summer cottage) in Minecraft, the video provides additional information on the input (the concept of a summer cottage) by, for example, explaining what items are related to building the cottage and how they are used. Thus, by providing additional information (the items and the related vocabulary) for the context (the cottage that the learner is building), it can be assumed that the acquisition of $i + I$ in this example task can be thus strengthened with the help of tutorial videos.

Both example activities also emphasize the notion of self-directed learning and collaboration. In Redjeki and Muhajir (2021), the participants reported that the accessibility and ease of use of Duolingo allowed for independent learning “anywhere and anytime” (p. 76). Based on this finding, it could be assumed that the user experience can also contribute to the overall learning experience. As an example of the ease of use in Minecraft: Education Edition, the game provides instructions that are easily accessible, such as controls (in Picture 2) and instructions on the basics of the game (Picture 3). With the help of these features, the game enables the learners to solely focus on creating and interacting while also allowing them to quickly check the instructions, therefore decreasing the number of distractions while making the experience accessible for novice players. In addition, with the combination of EE and Minecraft’s ease of use and accessibility, the learners are encouraged to set their own goals and experiences within the game, further enhancing the personalized language learning experience. Good accessibility also allows for more fluent collaboration between the students. In Callaghan (2016), it was found that while the students did not assist each other with developing a specific set of skills, the students still helped each other and collaborated with peers, a behavior similarly seen in traditional activities.



Picture 2. An example of the instructions showing the controls of the game.



Picture 3. An example of the ‘How to Play’ section found in the game’s menu.

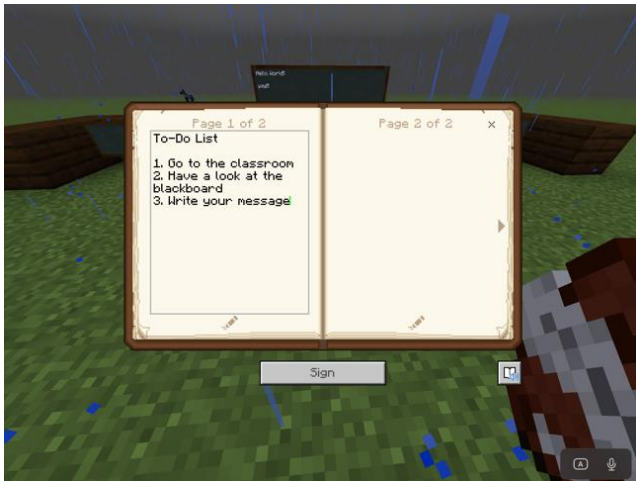
However, there are also limitations to the examples, namely with the effectiveness of the activities and the amount of intervention allowed for extramural-based activities. As the students are allowed to freely set their goals, it is difficult to determine whether the learner truly achieves $i + 1$ or whether the learner experiences difficulties such as $i + 2$ or $i + 3$ with each activity, a similar dilemma that Payne (2011) encountered in his study. For some learners, this may appear as, for example, setting personal goals that match their current level of competence, thus making the task easier but with diminishing results. Therefore, motivating elements, such as gamification, may be implemented. Motivating elements in gamification may include badges, points, quests, or a reward system. For example, quests, described by Figureoa (2015) as “some of the tasks players have to fulfill in a game”, could provide challenges that encourage the learners to set higher goals by including uncommon words in the vocabulary or by using a dictionary to find the words, for example (p. 39). By completing the quest, the learner may be rewarded with points or other rewards determined by the educator. According to Figureoa (2015), educational objectives such as these may be seen by the learners as challenges that need to be completed to advance further in their learning, in which he considers the challenge and advancement as part of the learning outcome in gamification (p. 43). As a result, gamification can thus function as an incentive for learning, as it motivates the learners and enables them to engage with the content and with their learning processes or to progress towards a goal (Redjeki & Muhajir, 2021; Dehghanzadeh *et al.*, 2021).

As these activities are primarily extramural, it is important to balance between prioritizing the learner’s personal goals and the amount of intervention by external factors, as too much priority on extramural activities makes learning too distracting, while too much intervention reduces the amount of self-direction the learner is allowed to do with their personal goals. Gamification, on one hand, may balance this limitation by providing fun and engaging elements to the learning that motivate the learners in optimizing learning achievements and creating experiences suitable for their needs, while also encouraging them to set higher personal goals. On the other hand, the limitation may also depend on the overall design of the activities. Regarding their results, Sylvén and Sundqvist (2012) observe that EE creates opportunities “to build on young learners’ extramural language experiences and from there move on to other language domains that are perhaps not as easily acquired extramurally”, adding that schools are responsible for bridging the gap between extramural language activities and language learning in, for example, classrooms (p. 317). In other words, this unification of activities could provide new opportunities for learners to engage in meaningful activities.

4.3 Minecraft in Classrooms

Alongside extramural activities, Minecraft: Education Edition's nature in emphasizing creative freedom also expands to classroom activities. In general, according to Williamson (2009), games implemented in classrooms allow "students to construct knowledge, engage in authentic practices, enhance literacy skills, and learn how to create 'big ideas'" (as cited in Callaghan, 2016, p. 248). In one of the studies, it was also found that Minecraft helped learners collaborate and engage with each other and allowed learners with varying experiences with the game to request assistance from each other, which in turn formed an engaging and collaborative environment in the process (Marcon and Faulkner, as cited in Alawajee, 2021). Games are thus helpful in connecting out-of-school experiences with classroom activities, as they enable the learners to use their skills to achieve tasks and help each other, for example. Regarding this statement, the following examples can be implemented as part of an assignment or they can be used to expand on the extramural activities, for example.

According to Alawajee (2021), Minecraft can be used to improve learners' literacy skills by encouraging them "to become skilled in creating narrative scenarios by using language proficiency to optimize scenarios", with previous studies using the game to help visualize aspects of literary texts or concepts, for example (p. 28). Ellison and Evans (2016), on the other hand, suggest that Minecraft can enhance reading comprehension and visualization skills by allowing visual predictions of what happens next in the texts they are reading, which "can help students integrate information in multimedia formats and better understand topics and issues" (p. 34). With the help of visual creations, Minecraft: Education Edition could be used as a device to visualize aspects of, for example, texts, concepts (e.g., grammar), or vocabulary or to aid readers with visual cues. To expand further, educators could use elements from the first extramural activity example to create visually engaging structures or reenactments to aid with the educator's explanation of difficult concepts, for example. In another example, especially for creative writing assignments, learners can also create interactive environments alongside their essays to aid the readers in exploring the writer's story. For example, in the Minecraft environment, gamified tasks (Picture 4.) could be provided for readers to explore the visual environment, with the writer's assignment serving as the script. Some cues, such as additional text (Picture 5.) can also be used to expand on the script.



Picture 4.



Picture 5.

Another example involves presentations, in which Minecraft: Education Edition could be used to expand on the presentation or to enable the audience to visually explore the topic. According to Hausrath (2012), Minecraft could be used “for multi-disciplinary project-based learning along with language learning”, suggesting a project in which learners could study a topic and build structures based on the information, which is described by him as an “alternative to traditional group presentations” (as cited in Egbert & Borysenko, 2018, p. 112). Like the essay activity, elements from the first extramural activity example can also be used to design presentations. As such, small presentations can be created from the built structures. In addition, some of the gamification elements, which were discussed in the previous section, such as extra points or rewarding quests, can be implemented to encourage students to challenge themselves by presenting uncommon topics or by creating a larger-scale presentation, for instance. Furthermore, the structures can be used as interactive environments (see Pictures 6. and 7.), providing other learners an opportunity to explore the structures and presentation through the information provided by in-game books and signs (Hausrath, 2012, as cited in Egbert & Borysenko, 2018).



Picture 6.



Picture 7.

In these examples, the possible explanation for learning is that the understanding of the ‘comprehensible input’ (e.g., concepts or texts) is aided by visual information that Minecraft provides.

By visually recreating some of the structures of the input in the game, Minecraft: Education Edition could potentially help the learners advance from their current level of competence in an engaging form that provides easier-to-understand information, such as clues, which in turn could help some learners to understand the overall input better and achieve the $i + 1$. However, visualizing these structures could also be considered as simplifying the input, as they provide concrete ways and patterns that make the input more comprehensible. Again, as Liu (2015) argued with Krashen's notion of caretaker speech, having 'a comprehensible input' does not mean that it is structurally simplified to the learner's level of competence but is more related to the learner's knowledge (p. 143). As with this case, visualizing structures may not even mean adjusting the input to match the learner's level of understanding. Instead, it could be assumed that visualization functions as an aid, that is, by providing additional information to the input, but not necessarily simplifying it, which is in line with how alternative methods such as repetition or relexicalization can help make the input in conversations comprehensible while also keeping the conversation going (Liu, 2015).

In addition to visual aids, Gamification in these activities may help create situations where the learner engages in meaningful interactions with other learners. These may include social elements, which Figureoa (2015) defines as "relationships with other user[s] through the game" (p. 39). For social interaction, Egbert and Borysenko (2018) suggest that teachers can assign students to work in groups and interact around a computer, adding that they can also interact with each other in the game with the help of signs, books, maps, and other objects "to guide and interact with their peers" (p. 114). For example, by utilizing the features of Minecraft: Education Edition (such as resource buttons and camera), which were discussed in Section 4.1, along with incorporating multiplayer and interactivity to the example activities, learners can engage and interact with each other in many ways, which may include:

- creating engaging presentations in Minecraft: Education Edition where the presenter(s) and the audience may interact with the topic and with each other as if it was a virtual museum,
- using the visualizations to discuss and engage with the subject matter with the educator or with the other learners, or
- providing and receiving feedback in the essay activity by allowing other learners or the educator to interact with the student-created Minecraft world

Interactions with other learners allow for a more versatile workload, as in Callaghan (2016), it was observed that the students collaborated both in the classroom and in Minecraft Edu by planning and creating their work, which resembled a typical classroom activity. Minecraft may thus help facilitate English learning, as Callaghan (2016) reports in her results that the combination of the

learning experience, the amount of collaboration allowed, and the role of the teacher “contributed to a learning environment where students can be more engaged and more committed to their own learning whilst attaining learning outcomes” (p. 258).

In summary, Minecraft is an attractive and accessible game that offers itself as a platform for different applications, whether as entertainment or as a learning tool. As such, Minecraft provides affordances for versatile language learning in extramural and educational domains and can be used to promote positive learning outcomes and collaboration, and to attain a sense of achievement and self-direction in learner’s goals.

5. Concluding remarks, limitations of the study, and considerations for future research

In this thesis, Minecraft was introduced and its potential regarding English learning was explored. Previous research on Minecraft and its practicality were also discussed and reviewed. Using the theoretical background of Extramural English, Krashen’s Input Hypothesis, and Gamification, some examples of possible Minecraft activities were suggested to explore the game further, and its affordances related to language learning were investigated through the examples.

With English being nearly ubiquitous in everyday lives, Extramural English or informally learning the language outside of school boundaries has become more common through everyday activities. These activities include reading a book, watching movies, listening to music, and gaming, for example. Out of many EE activities, gaming is especially interesting, since it involves actively engaging with the material and paying attention to its inputs provided by various factors (such as the game’s linguistic content) to gain benefits from it (e.g., learning new vocabulary or increasing linguistic proficiency), as it was previously discussed. This, in turn, resembles Krashen’s Input hypothesis, in which language acquisition happens by receiving ‘comprehensible input’ and by understanding its structures that are slightly above the learner’s current level of competence, thereby achieving what Krashen calls the $i + 1$ (Liu, 2015; Payne, 2011). For learning purposes, gamified language learning activities allow for fun and engaging activities, as elements and mechanics are borrowed from games and then implemented in non-gaming contexts to elevate the learning experience and motivate the students (Figureoa, 2015; Ongoro & Mwangoka, 2019; Dehghanzadeh et al., 2019; Redjeki & Muhajir, 2021). For these reasons, Minecraft, which is a simple but fruitful adventure game, can be seen as one of the potential candidates for a language learning tool, as it allows for possibilities that provide educators and learners a platform to use to their liking, which is useful for creating a variety of tasks for language learning. Furthermore,

Minecraft also provides fun and engaging aspects of the game, which may enhance the learning experience further.

Like in some of the studies such as in Alawajee (2021), the most commonly occurring affordances in this thesis regarding Minecraft: Education Edition were its versatile and creative nature, accessible features, and multiplayer capabilities. Despite being a game with basically no rules, Minecraft facilitates the creation of flexible activities, as it was suggested when the example activities were examined. With the help of gamification, Minecraft allows for an engaging environment where the learners can collaborate by, for example, discussing topics of presentations, with Alawajee (2021) stating that Minecraft “can facilitate communication and interaction between the learner players and learning content” (p. 49). In addition, as it was previously discussed in Section 4.1, gamification may also encourage the student to set higher learning goals by providing rewarding game-like challenges that the students must go through to advance to other learning opportunities. From the view of the Input Hypothesis, Minecraft provides interesting insights into how learning may possibly happen. By having a visual environment that can also be interacted with, these affordances in Minecraft can be utilized to support the understanding of the inputs provided by the activity and further support learning or language acquisition. Thus, Minecraft tasks “can support authentic and applicable language learning” by providing alternative methods to language learning (Hausrath, 2012, as cited in Egbert & Borysenko, 2018, p. 112).

This thesis presents a few limitations, namely with its scope and subjective approach to the topic. While this thesis provides insights into Minecraft’s affordances and possible applications of the game, this thesis explored only English learning through Minecraft, which contributes to the overall narrow viewpoints of the discussions. Furthermore, the findings found in this thesis cannot be generalized due to the hypothetical and interpretative nature of the example activities. Additionally, other learning theories could have been examined in conjunction with Minecraft, and as it was discussed by Liu (2015), the Input Hypothesis alone is not sufficient to explain how learners acquire language. Thus, these limitations might have affected the quality of analyses and examinations presented in this study, which in turn may have influenced how this thesis could be approached.

Considering the lack of research regarding Minecraft and language learning (Alawajee, 2021; Egbert & Borysenko, 2018), future research may provide a detailed exploration of the use of Minecraft in specific linguistic contexts such as by examining the benefits of Minecraft in learning grammar or in facilitating authentic interactions in any other target language aside from English. In addition, comparative studies may provide answers to questions concerning the game’s effects on

different age groups or offer insights into Minecraft and other games' general affordances, for example.

Even with the limitations of this thesis considered, Minecraft has been generally established as a learning tool with a lot of potential. However, as it was previously discussed, the use of Minecraft in language learning is quite recent, but as interest in alternative learning methods and technologies may increase, future studies may pave the way for practical uses of Minecraft in learning English in fascinating ways.

References

- Alawajee, O. (2021). Minecraft in Education Benefits Learning and Social Engagement. *International Journal of Game-Based Learning*, 11(4).
- Callaghan, N. (2016). Investigating the Role of Minecraft in Educational Learning Environments. *Educational media international*, 53(4), pp. 244-260.
<https://doi.org/10.1080/09523987.2016.1254877>
- Cohen, E. L. (2014). What Makes Good Games Go Viral? The Role of Technology Use, Efficacy, Emotion, and Enjoyment in Players' Decision to Share a Prosocial Digital Game. *Computers in Human Behavior*, 33, pp. 321-329.
- Dehghanzadeh, H., Fardanesh, H., Hatami, J., Talaei, E. & Noroozi, O. (2021). Using gamification to support learning English as a second language: A systematic review. *Computer assisted language learning*, 34(7), pp. 934-957. <https://doi.org/10.1080/09588221.2019.1648298>
- De Wilde, V. & Eyckmans, J. (2017). Game on! Young Learners' Incidental Language Learning of English Prior to Instruction. *Studies in second language learning and teaching*, 7(4), pp. 673-694.
<https://doi.org/10.14746/ssllt.2017.7.4.6>
- Egbert, J. & Borysenko, N. (2018). Virtual Learning Environments in CALL Classrooms: Engaging English Language Learners with Minecraft. *European Journal of Applied Linguistics and TEFL*. 7(2), pp. 103-120.
- Ellis, N. C. (2009). Optimizing the Input: Frequency and Sampling in Usage-Based and Form-Focused Learning. In M. H. Long & C. J. Doughty (Eds.), *The handbook of language teaching*. Oxford: John Wiley and Sons. <https://doi.org/10.1002/9781444315783>.
- Ellison, T. L., & Evans, J. N. (2016). Minecraft, Teachers, Parents, and Learning: What they need to Know and Understand. *School Community Journal*, 26(2), pp. 25-43.
- Figuerola Flores, J. F. (2015). Using Gamification to Enhance Second Language Learning. *Digital Education Review*, 27, pp. 32-54.
- Hausrath, Z. (2012). Minecraft. *Electronic Journal for English as a Second Language (TESL-EJ)*, 15(4), pp. 1-10.

- Kiryakova, G., Angelova, N., & Yordanova, L. (2014). Gamification in Education. *Proceedings of 9th International Balkan Education and Science Conference*. <https://doi.org/10.4018/978-1-5225-5198-0>
- Krashen, S. D. (1987). *Principles and Practice in Second Language Acquisition*. Hemel Hempstead: Prentice-Hall International
- Jensen, S. H. (2017). Gaming as an English Language Learning Resource among Young Children in Denmark. *CALICO journal*, 34(1), pp. 1-19. <https://doi.org/10.1558/cj.29519>
- Johnson, W. L., Vilhjalmsson, H., & Marsella, S. (2005). Serious Games for Language Learning: How Much Game, How Much AI?. In *2005 Conference on Artificial Intelligence in Education: Supporting Learning through Intelligent and Socially Informed Technology* (pp. 306–313). IOS Press, Amsterdam, The Netherlands.
- Liu, D. (2015). A Critical Review of Krashen’s Input Hypothesis: Three Major Arguments. *Journal of Education and Human Development*, 4(4), pp. 139-146.
- Marcon, N., & Faulkner, J. (2016). Exploring Minecraft as a Pedagogy to Motivate Girls’ Literacy Practices in the Secondary English Classroom. *Engineers Australia*, 51(1), 63.
- Minecraft: Education Edition (n.d.). *How to Purchase*. Accessed 28.6.2022
<https://education.minecraft.net/en-us/licensing>
- Ongoro, C. A. & Mwangoka, J. W. (2019). Effects of Digital Games on Enhancing Language Learning in Tanzanian Preschools. *Knowledge Management & E-Learning*, 11(3), pp. 325-344.
- Payne, M. (2011). Exploring Stephen Krashen’s ‘i + 1’ Acquisition Model in the Classroom. *Linguistics and Education*, 22, pp. 419-429.
- Redjeki, I. S. & Muhajir, R. (2021). Gamification in EFL Classroom to Support Teaching and Learning in 21st Century. *Journal of English Educators Society*, 6(1), pp. 68-78.
<https://doi.org/10.21070/jees.v6i1.882>
- Sundqvist, P. (2009). Extramural English Matters: Out-of-School English and its Impact on Swedish Ninth Graders' Oral Proficiency and Vocabulary [Dissertation, Karlstads University]. Karlstads University, Faculty of Arts and Education, English.
- Sundqvist, P. & Wikström, P. (2015). Out-of-School Digital Gameplay and In-School L2 English Vocabulary Outcomes. *System*, 51, pp. 65-76. <https://doi.org/10.1016/j.system.2015.04.001>

Sylvén, L. K. & Sundqvist, P. (2012). Gaming as Extramural English L2 Learning and L2 Proficiency Among Young Learners. *ReCALL*, 24(3), pp. 302-321.

<https://doi.org/10.1017/S095834401200016X>

Sundqvist, P. & Sylvén, L. K. (2016). Extramural English in Teaching and Learning: From Theory and Research to Practice. <https://doi.org/10.1057/978-1-137-46048-6>

Williamson, B. (2009). Computer Games, Schools, and Young People: *A report for educators on using games for learning*. Bristol: Futurelab.