Verifying EFL Autonomous Learning by Digital Gaming: Definitions and Concepts

Liqaa Habeb Al-Obaydi[1], Marcel Pikhart[2(✉)], Blanka Klimova[2]
[1]English Department, College of Education for Human Sciences, University of Diyala, Baqubah, Iraq
[2]Department of Applied Linguistics, Faculty of Informatics and Management, University of Hradec Kralove, Czechia, Czech Republic
`marcel.pikhart@uhk.cz`

Abstract—Currently, basically everyone is surrounded by digital media and they are used for various human activities, including learning. The aim of this study is to verify how much digital gaming can be used for unintentional language acquisition within the concept of autonomous learning. A few young participants took part in the research in which they were observed how much digital gaming in their free time can influence autonomy in their learning of a foreign language. Several definitions from authoritative sources were chosen and applied in the given context. The final results of the study demonstrate that no real language leaning and no real autonomous learning is found in such an accidental learning environment as digital gaming. It does not provide any stimulation for the participants and these findings could be important for those who are responsible for the design of various digital tools available so that they could make them more stimulating in the area of autonomy as there is a vast potential in it.

Keywords—digital learning, eLearning, digital media in education

1 Introduction

1.1 The rationale of the study

Digital learning has gained a lot of popularity in the past few years due to the massive implementation of various kinds of eLearning in all areas of education speeded up by the COVID-19 pandemic. Autonomous learning means that the students lean on their own by utilizing various kinds of technological and non-technological tools. English as a foreign language (EFL) is the area that seems to be ideal for autonomous learning and this research focuses on how one aspect of digitization, particularly, computer games can or cannot enhance second language acquisition.

Though educational researchers have been focusing on learner autonomy and most of their research occurred in a school context, [1] noted that it has become clear that additional in-depth studies on autonomy are urgently needed. Furthermore, there is considerable number of investigations that do not incorporate students in research. [2] discovered that in order for English learners to improve their learning efficiency, they

must develop their ability to learn independently. They looked into the perspectives of 529 college students on English autonomous learning to see if they were autonomous enough in their English learning. According to the findings of the survey, college students use technology to engage in meaningful and autonomous language learning in online English classes.

Real language acquisition, autonomous learning, and English self-efficacy all complement each other, according to the structural equation model. [3] Hong (2018) looked at the autonomy and word usage of English learners as if there was a link between autonomy and word usage. He analysed the records of 198 college students and finally, found out that college students' ability to learn English independently is quite robust. The most crucial aspects to succeed in autonomous learning are compensation, social and metacognitive techniques. He proposed that teachers help students gain autonomy by providing strategic direction.

[4] made a three-month long longitudinal observational study looked at how young learners' leisure time use of digital games at home affected their unintentional acquisition of English as a second language. The study was carried out in 2021 during the Covid-19 epidemic. The research results showed that participants' vocabulary growth was highly influenced by digital gaming, and that playing games helped them learn L2. Additionally, it was discovered that the players had a high level of vocabulary retention; nevertheless, there were two issues in this regard, namely the prolonged screen time and vocabulary items directly tied to a certain game's setting. Results also show some degree of autonomy in learning as the games and the time spent were related to participants' choice.

[5] shed light on the role of artificial intelligence (AI) stating that it is a new field of technology that researches and develops ideas, methods, technologies, and application systems for simulating, extending, and expanding human intelligence; a definition that can be applied with digital games that were analysed in this study. The investigations conducted by [6] clarify the effect of the explanation of the efficiency of online self-study English on little learners' consciousness and behavior. The experimental approach is separated into three steps: first, it is usually more useful to employ English keywords when browsing the Internet rather than explaining to learners that only Japanese keywords are used. Second, learners are limited to using English materials while implementing self-study programs. Finally, kids are only allowed to use textbooks this time to achieve various self-learning. The subjects' consciousness and behavior were also tested during the experiment revealing that, while students are aware of the advantages, they are still hesitant to use this way of learning.

The current study underlines the importance of strengthening the integration of artificial intelligence technology represented by digital gaming with English language learning in order to see the degree of autonomy the learners can show during the time of playing. The context of the current study is the participants' homes as it occurs during the period of the COVID-19 pandemic where the children were obliged to stay at home. It is worth mentioning that the present study is not for college students, but for children, it is not inside a school, and it occurs during playing digital games.

The definition of autonomy used in this study is the feeling of responsibility the participants' feeling toward their own learning of the English language through playing digital games in their homes. The present study attempts to test different definitions and

conceptions of autonomous learning in relation to the accidental learning caused by digital gaming, out of a school context. More specifically, it tries to determine whether the learning provided by digital gaming, in relation to the English language, represents a kind of autonomous learning or not.

Autonomy in language learning, which is very much supported by digital technologies, has recently gained importance and momentum, and therefore, it should be given undivided attention to investigate its potential.

1.2 Research problem

Although there has been a lot of research on language learning in the classroom, there has been relatively little research on language learning outside the classroom with the use of technology, particularly gaming. High levels of foreign language competency are rarely attained just by classroom training, and acquisition is most likely accelerated through a combination of education and experience [7]. In relation to that, [8] noted that the chance of autonomous learning in typical textbook learning is 35 per cent and the chance of autonomous learning in artificial intelligence technology systems is 53 per cent, which is 18 per cent greater than traditional learning.

Experimental results also demonstrate that the artificial intelligence-based learning system has increased students' ability to learn independently (autonomous learning) notably. Based on the above, this study tries to deal with students' learning of the language out of school depending on using digital gaming. The context of the current study is the participants' homes where they play digital gaming in their spare time. It is worth mentioning that the present study is not about university students, but analyses children, it is not inside a school, and it occurs during playing digital games at home.

The concepts and definitions that will be tested are in Table 1 as follows in the methodology section.

2 Methodology

2.1 Participants

The studied participants were chosen based on their accessibility, as the researchers needed to see them on a daily basis. As a result, they were all relatives of one of the researchers (their own children, nephews, and neighbors). There is a continuous follow up for the participants by the researchers whether directly or indirectly in order to gain a full vision of their situation. At the beginning of the experiment, the researchers told the participants about the possibility of gaining a good knowledge of English language and they can learn all that is related to it. The parents gave their agreement to participate in the study orally, and all required ethical issues were taken into account. The researchers had daily access to all of them and could conduct this close-up observation. The number of participants was eight and their ages varied between 8 and 14.

The researchers observed the children on a daily basis, frequently asking them some questions and occasionally playing with them in order to obtain useful data and assess how their language development progressed. The experiment lasted a

month with direct observation of the participants by the researchers. The participants chose to play two popular digital games that were played by them repeatedly, namely Free Fire and Minecraft. These games are popular in children of this age and it was their choice, therefore, it was their natural environment and nothing special was imposed on them.

2.2   Data collection

The present study focused on noticing the participants playing two digital games: Free Fire and Minecraft. The researchers then used a list of definitions and conceptions of autonomous learning to be compared to the context of digital gaming utilized in this study. The definitions and the conceptions were divided to be focused on many things in relation to autonomy; the first related to the learners' ability, others dealt with autonomy as an act, and the third related to the learning environment. All these definitions will be compared and evaluated in the context of digital gaming by direct observation in order to reach the final decision. The researchers turned these definitions into questions in order to find suitable answers for them. The definitions and the concepts listed in Table 1 below will be used by the researchers as a starting point to be tested and verified in the real-time learning process if they are valid or applicable.

Table 1. The definitions and concepts used in this study

Reference	Definition
[9, p. 3]	"the ability to take charge of one's own learning"
[10, p. 4]	"a capacity for detachment, critical reflection, decision-making, and independent action".
[11, p. 145]	"Learners who have reached a point where they are able to define their own goals and create their own learning opportunities have, by definition, become autonomous"
[12]	"Autonomous learners set their own goals, select their resources, decide on their own methods, location, time, and pace for study, monitor their studies, and make suitable evaluations to demonstrate their readiness to take responsibility for their own learning".
[13]	Learners' autonomy is defined as their ability of individuals to direct their own learning.

3   Results and discussion

After the observation of the research participants, the following results were yielded. The first definition of autonomy stated that it is "the ability to take charge of one's own learning", therefore, it was studied how much this aspect will be implemented. The research question was whether the participants of digital games take charge of their own language learning. After the conducted observation it seemed that, apparently, they were more engaged in their plying rather than their intentional, which is not surprising and counterintuitive.

In the comparison of the kind of learning the participants gained, it seems that the participants were busy by their playing and winning more than their learning. The games used by the participants were not educational and the context was not related

to school or class so it is difficult to see real learning context within the atmosphere of competition though the researchers told the participants to concentrate on the items that were or could be related to language learning. Thus, the answer to this research question is negative, i.e., the participant did not take charge of their digital learning.

The second definition of autonomy that was used for the purpose of the research was "a capacity for detachment, critical reflection, decision-making, and independent action". The related research question was whether the participants of digital games have the capacity for detachment, critical reflection, decision-making, and independent action in language learning.

The answer to this question required more focus on the behavior of the participants. It is essential to mention that the participants were all children so some of these capacities may not appear clearly in their playing. If they concentrated first and foremost on language acquisition, then we could see a kind of detachment in their playing but unfortunately not existing in their learning. Critical reflection was also missing in their playing as there is no systematic process of learning. The matter of learning a language is accidental, not intentional, so there is no kind of reflection of any type. The third capacity is a decision making which is very clear in playing competitively among participants but since no real situations of learning were present there, the capacity of decision making is also extremely weak in the learning context. The last item in the definition is the independent action which is also demonstrated in their playing but as their learning is implicit, there were no real independent actions noticed. Thus, the answer to this question is also negative.

The third definition that was used and tested was "Learners who have reached a point where they are able to define their own goals and create their own learning opportunities have, by definition, become autonomous". The following research question was formulated: Can the participants define their goals and create their own learning opportunities in relation to learning the English language via digital games out of school time? In short, no goals were defined by the participants as they were playing outside of school time. As far as creating their learning opportunities, some of them, specifically the bigger of them with 14 years old, try to remember the new English words in the games by repeating the new words and asking her colleagues about some of them. This may not consider a kind of autonomy in learning English but it may show the impact of age on the learning process. All in all, there is no clear autonomy in this way.

The fourth definition stated that autonomous learners set their own goals, select their resources, decide on their own methods, location, time, and pace for study, monitor their studies, and make suitable evaluations to demonstrate their readiness to take responsibility for their own learning. The corresponding research question was formulated as follows: Can the participants in digital games set their own goals, select their resources, decide on their own methods, location, time, and pace for study, monitor their studies, and make suitable evaluations to demonstrate their readiness to take responsibility for their own learning? The answer to this question can be summarized in the following sub-items:

1. Can the participants in digital games set their own goals? No specific learning goals were mentioned.
2. Can they select their resources? No resources were used.

3. Decide on their own methods, location, time, and pace for study? All these items were decided by the participants in relation to playing and competition but not for learning.
4. Monitor their studies? No monitoring in relation to the English language was mentioned.
5. Make suitable evaluations to demonstrate their readiness to take responsibility for their own learning? Not existed at all.

It is worth remembering that just a few participants played the mentioned digital games in their spare time at home so the focus is not on learning but on playing. On the other hand, all the things mentioned in this definition are related to a systematic process of learning which educational digital games may be.

The fifth definition that was used for this evaluation was if the learners' autonomy is defined as the ability of individuals to direct their own learning. In this context, the following research question was formulated: Do the learners of digital games, out of school time, have the ability to direct their own learning? The answer to this question is also negative. Therefore, no systematic process of learning was mentioned so the participants are not autonomous in this way.

From all the above discussion, it is clear that autonomous learning, specifically for young learners is difficult to be defined outside of school walls and with the lack of guidance from the teacher. In addition, digital games that are played for competition and joy, which are not designed for educational aims, are difficult to lead to real learning of a language. So, what is mentioned by [8], that the chance of autonomous learning in typical textbook learning is less than the chance of autonomous learning in artificial intelligence technology systems, which may only be applied in a systematic learning environment like schools and colleges with educational digital games and a professional guidance.

[14] investigated the correlation between autonomy and classroom interaction. The study's main findings revealed that students' autonomy and classroom interaction were positively associated and that also supports the existence of autonomy in schools. On the other hand, this study comes in agreement with [15] who made a study about out-of-class language activities and concluded that the most common activities in which English is used are enjoyable activities such as watching movies, videos, and surfing the Internet, and that students' involvement in English language activities outside of the classroom is required a kind of language proficiency. This result is justifiable specifically if it is related to young learners. Most studies that related to the use of technology with autonomy [2, 3, 6] gained positive results as they were all related to the application of technology in schools or colleges and under the guidance of their teachers which is in contrary to the present study that dealt with little children and out of their school time to measure their autonomy and the accidental learning of English an idea that can bridge the gap in the literature. The final results of the study demonstrate that no real language leaning and no real autonomous learning is found in such an accidental learning environment.

4 Conclusion

After the research was conducted, despite a small sample of participants, it can be concluded that playing digital games does not present much challenge and stimulation for the pupils and if there is any unintentional learning of new vocabulary, it is rather limited and cannot be considered as significant or relevant. Moreover, applying autonomous learning for little learners is difficult unless it is related to a systematic learning process that contains suitable educational technology and guidance, a teacher most of the time. Thus, according to the definition of autonomy that this study depends on, which is the feeling of responsibility the participants' feel toward their own learning for English language through playing digital games in their homes, no autonomous learning was obviously visible in any participants' behavior.

This research was very minimal regarding the number of participants; therefore, it would be interesting to verify its findings on a much larger scale and using other techniques, but it can still be claimed that this is a pilot study that could bring some impetus for further research into the topic and then generate more impactful findings.

Similar research that focuses on digital media and their implementation in various human activities and their impact throughout the life course, i.e., starting from very young age to old age, seems very relevant and needed as we are all emerged in this technology that is omnipresent and used by nearly everyone every day, and this trend will very probably continue and be even stronger. The momentum that digital learning has gained cannot be neglected and therefore more research is needed also to be provided to the ICT specialists who are coding and designing various soft wares used by everyone. The findings of similar research can be useful for everyone who is responsible for various kinds of digital learning and its design.

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6 References

[1] Jamila and Zubairi (2022). A systematic review of autonomous learning in ESL/EFL in L. Lee, "Autonomous learning through task-based instruction in fully online language courses," *Language Learning & Technology*, vol. 20, pp. 81–97, 2016.

[2] Lian, J., Chai, C. S., Zheng, C. and J. C. Liang. (2021). "Modelling the relationship between Chinese university students' authentic language learning and their English self-efficacy during the COVID-19 pandemic," *9e Asia-Pacific Education Researcher*, vol. 30, no. 3, pp. 217–228. https://doi.org/10.1007/s40299-021-00571-z

[3] Hong, S. (2018). "English language learners' strategy use and selfefficacy beliefs in English language learning," *Journal of International Students*, vol. 8, no. 2, pp. 724–741. https://doi.org/10.32674/jis.v8i2.101

[4] Al-Obaydi, L. H., Pikhart, M. and Shakki, F. (2023). Digital gaming as a panacea for inci-dental L2 acquisition in an EFL context. *Applied Research on English Language*, vol. 12, no. 1. https://doi.org/10.22108/ARE.2022.135344.2001

[5] Qiao, L., Li, Y., Chen, D., Serikawa, S., Guizani, M. and Lv, Z. (2021). "A survey on 5G/6G, AI, and Robotics," *Computers & Electrical Engineering*, vol. 95, Article ID 107372. https://doi.org/10.1016/j.compeleceng.2021.107372

[6] Sakamoto, J. and Tsuruta, Y. (2017). "A study on the impact of explanation of effective-ness of self-learning in English through the Internet on learner's awareness and behavior," *Journal of Jsee*, vol. 65, no. 3, pp. 349–353, 2017. https://doi.org/10.4307/jsee.65.3_49

[7] Ellis, R. (1994). *The study of second language acquisition.* Oxford: Oxford University

[8] Zhang, Y. (2022). Construction of English language autonomous learning center system based on Artificial Intelligence technology. *Mathematical Problems in Engineering*, 2022 (7900493), 12 pages. https://doi.org/10.1155/2022/7900493

[9] Holec, H. (1981). *Autonomy in foreign language learning.* Oxford: Pergamon.

[10] Little, D. (1991). *Learning autonomy 1: Definition, Issues and Problems*. Dublin: Authentic.

[11] Nunan, D. (1995). Closing the gap between learning and instruction. *TESOL Quarterly*, 29(2), 133–158. https://doi.org/10.2307/3587808

[12] Dickinson, L. (1995). Autonomy and motivation: A literature review, *System*, vol. 23, no. 2, 165–174. https://doi.org/10.1016/0346-251X(95)00005-5

[13] Lee, L. (2016). "Autonomous learning through task-based instruction in fully online lan-guage courses," *Language Learning & Technology,* vol. 20, pp. 81–97, 2016.

[14] Al Obaydi, L. H. (2015). The correlation between Iraqi EFL college students' autonomy and their classroom interaction and academic performance. *ADRRI Journal of Arts and Social Sciences*, 13, vol. 3, no. 2, pp. 25–38.

[15] Bala, E. (2020). The impact of out-of-class language activities on English as a foreign language proficiency of private university students – (A case of Erbil). *Journal of Education in Black Sea Region*, vol. 6, no. 1. https://doi.org/10.31578/jebs.v6i1.217

7 Authors

Liqaa Habeb Al-Obaydi, English Department, College of Education for Human Sciences, University of Diyala, Baqubah, Iraq. E-mail: liqaa.en.hum@uodiyala.edu.iq

Marcel Pikhart, Department of Applied Linguistics, Faculty of Informatics and Management, University of Hradec Kralove, Czechia Czech Republic.

Blanka Klimova, Department of Applied Linguistics, Faculty of Informatics and Management, University of Hradec Kralove, Czechia Czech Republic.