



# A Review of Studies on Virtual and Blended Environments in English Language Education

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## Abstract

Integrating technology into the classroom has become more and more popular recently, while at the same time blended learning has also engaged researchers' attention. This paper investigates the differences among virtual environments in the English as a Foreign Language (EFL) classroom by making reference to various studies conducted for this reason and the author's opinion, given in the conclusions. Specifically, the focus is on the diverse ways in which language skills are acquired in particular educational settings. There is also a reference made to the combination of the studied learning environments and a comparison of them altogether. The results indicate the positive and negative characteristics of virtual, traditional and blended EFL learning environments. The data demonstrate that virtual environments are stress-free, so they can improve students' skills as long as they are familiar with technology and they do not face poor internet connectivity, as well as the fact that blended learning leads to better acquisition since students have the chance to practise more broadly on what they have learnt. Some of the characteristics that contribute to these results are the flexible and convenient environment they offer, the chance to experience long-term learning, as well as the huge source of information that students have the chance to encounter.

**Keywords:** acquisition, combination, conventional, language, technology

## 1. Introduction

We are all witnesses of the Artificial Intelligence (AI) dominance in all domains of human life, as well as its rapid rise in education recently (AIED) (Huang et al., 2020). According to a growing body of literature, AI can contribute to language teaching and learning (Gao, 2021; Klimova et al., 2022), as well as upgrade the quality of online EFL learning (Zitouni, 2022).

One of the ways in which technology has penetrated the field of education is **blended learning** which, according to Tomlison and Whittaker (2013), intends to combine the merits of both online and offline course delivery, so as to offer the most valuable language learning outcomes. It is a transformational concept that promotes collaborative learning and social interaction through virtual discussion rooms (Siregar et al., 2019). Simultaneously, its tools are utilized by teachers to create content, schedule classes, record lessons via various kinds of platforms. Another definition of blended learning that Leakey and Ranchoux (2006) suggested is the union

of Computer Assisted Language Learning (CALL) and non-CALL teaching methods into a structured program of language teaching and learning to create an optimized mix that meets the unique needs and demands of that context. As far as EFLT is concerned, most studies have revealed the beneficial results of blended learning on English achievement (Vymetalkova & Milkova, 2019; Qindah, 2018; Liu, 2013; Tawil, 2018).

One more technology-based educational tool is **Virtual Reality (VR)**, which has drawn the attention of Second Language and Foreign Language (L2/FL) scholars, as it is capable of introducing a whole new scope to the realm of language education (Alizadeh, 2019; Fransson et al., 2020; Lan, 2020). VR covers multiple practices such as gaming, simulation technologies and education, and although it was not considered to be affordable in the past, today VR applications are much more approachable. VR has nothing to do with thaumaturgy, but the fact that learners are offered a virtual learning environment which advances their interest and motivation is what makes it fascinating. VR learning environments aim to facilitate, encourage and provide learning experiences that go beyond the schoolroom, as pupils have the chance to get involved in numerous constructive learning activities and to communicate with each other through embodied avatars in a meaningful simulated environment to take part in authentic practices (Schiller, 2009).

Furthermore, **digital games** have been considered by tutors as potential learning tools, so experts started to investigate the associations between learning and games straightaway (Reinhardt, 2019). One of their main beneficial features is the fact that they are extremely motivating and they can be used effectively for group learning, according to Reinhardt (2019). **Gamification** is regarded as a tremendously entertaining and potent method that stimulates the process of language learning for digital-native language learners (Munday, 2016; Sundqvist & Wikstrom, 2015). As stated by Plass et al. (2019), gamification is defined as the incorporation of certain game qualities, like reward systems and narrative structures, into a non-game context to turn it into a more provoking process. They also indicate that gamification presupposes the inclusion of motivating principles, such as achievements, stars, rankings or points to encourage students to attempt more to achieve a certain task, which could otherwise be dull and unappealing.

**Mobile phones** are one of the means through which gamification can be applied. Their portability and the potential to learn anywhere and anytime is what makes them a valuable learning tool. EFL instructors are searching for ways to attract students' attention via new approaches for vocabulary learning, as it is an essential element of language teaching. Nam (2010, p.127) claimed that "not only vocabulary supports the four language skills of listening, speaking, reading, and writing, but also mediates between EFL students and content-area classes in that these students often find that lack of vocabulary knowledge is an obstacle to learning". Therefore, students need to adopt functional strategies for learning new words, so as not to feel frustrated and lose their self-esteem (Nation, 2001), e.g. by playing educational games on their mobile phones, which is an entertaining and at the same time constructive activity.

On the other hand, what should be taken into consideration is that online learning is not always effective. Language learners sometimes struggle with communication apprehension, while interacting in a foreign language for various reasons (Li & Dewaele, 2021). Foreign Language Anxiety (FLA) has been regarded as a central feature influencing learners' motivation, willingness to communicate, and self-esteem (Horwitz, 2017). Valizadeh (2021) examined FLA in online lectures and the results showed that the virtual environment caused feelings of isolation and suffocation to a considerable number of participants. By comparison, Jia (2004) stated that traditional or offline learning is an enterprising context, and that engaging

experiences can be developed within it, while students are given the chance to experience face-to-face interaction with their classmates and educators, which helps them build rapport. There is no doubt that virtual environments offer multiple opportunities, direct feedback, flexibility and teamwork, according to Hsu et al. (2012); nevertheless, online learning environments can generate mental and emotional issues to educators and learners (Guri-Rosenblit, 2018).

## 2. Review of relevant literature

Many studies have testified to the positive aspects of **Virtual Reality Environments**. Specifically, Alfadil (2020) conducted research on the ways in which VR affects EFL vocabulary learning and the outcomes revealed that the experimental group performed better than the control group which regarded VR-assisted language learning quite positively. Tai et al. (2020) also found that VR affects beneficially learners, as this environment offers motivation, which facilitates the process of vocabulary learning. Similarly, Xie et al. (2019) demonstrated through their investigation on Chinese L2 students, who role-played tour guides using Google Cardboard and Expeditions, that both their vocabulary and their oral skills were highly strengthened due to the use of VR tools. Additionally, plausibility is a VR feature which can boost incentive for learners, according to many researchers (e.g., Bailey et al., 2016; Huang et al., 2020), including Liao's (2018) study. The findings revealed that the deeply engaging VR context made the listening lesson quite entertaining and prepared learners for real-world communication, while at the same time listening comprehension had improved. Other characteristics of VR environments that influence players positively and improve learning outcomes are the sense of involvement, presence, interactivity, amusement, ease of use, user friendly interface and flexibility, and this is especially true for students who live in distant areas (Cheng et al., 2017; Huang et al., 2020). Most EFL courses lack access to authentic English learning environments and contextualized learning, therefore these features are quite significant as VR simulates real-life learning environments and sets up emotion arousing tasks, which would be unfeasible in traditional classroom contexts, and which makes the learning process actually economical. For instance, meeting a native speaker in London or visiting a museum in New York are experiences that cannot be easily afforded, so using the VR context offers most of the benefits of communicating and interacting in such situations. In the same vein, Shih (2015) carried out a survey with the intention of improving cultural aspects acquisition, facilitated by VR technology. In her research, learners wandered in the streets of London with an English guide who introduced them to architecture, history and virtual objects and they had the chance to communicate with the guide using the chat and voice functions. The process of learning languages is enhanced when students get involved in the foreign language culture (Chen & Huang, 2020), and when they are provided with chances to implement their knowledge in authentic situations. Therefore, VR optimizes students' enlightenment without geographical limitations. Likewise, VR is a visual experience that can reproduce impracticable and hazardous settings in the classroom, such as visiting an arctic cave, which offers thrilling moments (Williams-Bell, et al., 2015), and in this way, students' responses and skills development can be assessed, while at the same time collaborative learning is promoted, as students have the chance to interact in a more vivid way. One more advantageous aspect of Virtual environments is the fact that they promote differentiated instruction, that is, the possibility for "teachers to proactively modify curricula, teaching methods, resources, learning activities, and student products to address the diverse needs of individual students and small groups of students to maximize the learning opportunity for each student in a classroom" (Tomlinson, 1999, p. 121). Various studies have shown that learners improved with respect to class participation and they revealed a tendency to associate background with new knowledge. Also, the fact that they had a 24/7 access to all the technological resources and activities, as

well as the potential for students to get immediate feedback made VR contexts even more attractive to them. Building autonomous learning and efficient teacher-student interaction contributes to a less stressful learning environment, which results in boosted self-confidence and responsibility (Skinner & Austin, 1999). Virtual classes also offer learners the opportunity to interact constantly through audio or video calls, therefore their participation and sense of community are enhanced (Berry, 2019). These features of virtual classrooms lead to improvement of their oral skills, as claimed by Danesh, Bailey and Whisenand (2015) since there are students who may feel too shy to take part in classroom discussions. A case study by Abu Baker, Latiff and Hamat (2013) revealed that most of the students preferred communicating in virtual classrooms than in face-to-face settings because they felt more relaxed and self-assured. The fear of being judged by their classmates while speaking English, as well as the lack of vocabulary and confidence were the main reasons why they felt more comfortable in online settings which facilitated them express their views with more freedom (Cheekeong et al., 2014).

On the other hand, VR environments include some downsides that should also be taken into consideration. Cognitive and physical overload can be generated because of the extensive effort some VR experiences require, and as a consequence, the learning outcomes could be influenced negatively. What is more, the feeling of presence and the different stimuli sometimes capture students' attention and this fact could also restrict the learning process, as they miss significant details because of turning and looking around all the time (Hwang et al., 2020). Many students also reported that a sense of uneasiness, or cybersickness can be generated due to the goggles they had to wear, their personal fears (e.g. fear of height), or system lags because of the weak Internet connection that resulted in frustration. There have also been identified practical issues with respect to VR contexts, such as lack of equipment, high costs and the need for additional training (Kavanagh et al., 2017). Another factor that constitutes an obstacle to VR platforms use is the fact that, as Walker & White (2013) stated, some educators may be afraid to demonstrate their technological deficiency in the presence of learners who might be more digitally savvy. Of course, there have been noticed cases when learners also felt unwillingness and fear towards the use of CALL, and when asked during a survey which mode they prefer, the majority answered traditional teaching instead of computer-based one for this reason (Ayres, 2002, p. 246-247).

In order to restrict the negative aspects of CALL, **blended learning** has been applied, which actually combines various learning styles and integrates the best qualities of online and face-to-face teaching (The University of Western Sydney, 2013). According to Abdelhak (2015), both learners and educators are benefited, bearing in mind that Tucker et al. (2016) defined blended learning as a hybrid contemporary way of teaching that facilitates students manage their time, space and pace, while at the same time educators are provided with the opportunity to create contexts that encourage learners to communicate while monitoring their progress. There has been observed that students' retention, grades, independence and commitment have been enhanced after the implementation of blended learning, according to Bowyer (2017, p.16). The fact that learners have the chance to learn whenever and wherever they desire is a significant factor (Department of Education and Early Childhood Development Victoria, 2012), while simultaneously this environment aims to make students the main stakeholders who control their education, as claimed by Tucker (2019, p.5). Studies show that blended learning influences positively learners' collaboration, motivation, language skills and retention and they also illustrate deeper understanding in problem-solving situations (Hancock et al., 2010). Albiladi & Khlod (2019) from Saudi Arabia conducted a study according to which, blended learning is able to scaffold the language learning environment, as well as cultivate learners' incentive to acquire the language. The most significant benefits in terms of hybrid

learning are its effective tools that do not appear in a traditional classroom and can make the courses entertaining, flexible and convenient, as well as the fact that feedback and grading can be instantly delivered (Wang et al., 2019; Wright, 2017). Additionally, learners develop their self-regulation and confidence and have the chance to experience long-term learning since they can record sessions in order to review and clarify them as often as they want and any time they can (Poon, 2012; Smyth et al., 2012). Most studies have indicated the beneficial contribution of blended learning on English achievement, as this context provides accurate learning instructions in order for the learners to follow them easily (Vymetalkova & Milkova, 2019; Liu, 2013; Tawil, 2018). Other studies also revealed that face-to-face activities in blended classes can reinforce peer learning and handle the issues under discussion (Fleck, 2012; McCarthy, 2010; Smyth et al., 2012). According to Şahin - Kızıllı (2014), Moodle facilitated learners to improve their grammar and vocabulary and increase their level of participation, while the huge source of information, provided by the Internet led to students' expansion of their general knowledge (Chan, 2014). Ferreria, Salinas, and Morales (2014) reported that students upgraded their language proficiency and reading skills when exposed to the blended learning model. Another survey illustrated that learners were enabled to address their reading difficulties, while talking with their peers, and received individual feedback from them, which enhanced their social interaction (Yang, 2012). Last but not least, Ferreira, Salinas and Morales (2014) argued that integrating technology when preparing the teaching materials was substantial, as it allowed for the creation of tasks targeting the improvement of all skills. According to the above research inquiries and surveys, 70% of the studies found positive outcomes in terms of blended learning.

There have also been noticed some deficiencies with respect to blended learning that should be taken into consideration. To begin with, teachers' temporary physical absence leads to various issues, such as: a) difficulty in concentrating due to the absence of the warm climate of face-to-face courses; b) misunderstandings due to the lack of instructors' body language and non-verbal signals; c) easiness to cheat during exams; and d) social isolation. Furthermore, online environments did not give the chance to the students to interact straightaway with faculty members and receive the support and guidance they needed directly (Castle & McGuire, 2010). Also, many learners stated that they struggled with using online components, which led to their frustration. Even if the majority of the students, as mentioned before, confirmed the benefits of online learning, they also highlighted some weak points, especially technical ones. Specifically, insufficient training and inexperience towards CALL result in a low level of readiness to adjust to the blended learning system and its environment as well as in a minor sense of community building (Yang, 2014).

One of the most noteworthy features of CALL is **gamification** which is applied in order to alleviate the process of language acquisition since it transforms it into an entertaining and effective one (Munday, 2016; Sundqvist & Wikstrom, 2015). What makes an environment more game-like and stimulating at the same time is the attachment of certain game features, such as reward systems and narrative frameworks, as well as certain motivating characteristics, like rewards (rankings, points, stars, achievements) to urge learners to make a greater effort in achieving their tasks (Plass et al., 2019). According to Xu et al. (2020), digital language games as well as the integration of specific targets, results, fun, communication, challenge, and competitiveness are related to the incorporation of Information and Communication Technology (ICT) (Prensky, 2007). What Israel and Alexander (2017) highlighted was that game-based learning differs from gamification, as the first process involves learners in actual games, while the second one implements game-based traits into a non-game task in order for the learners' engagement and incentive to get enhanced. In terms of the theories related to gamification, the most significant ones are self-efficacy, behaviorism, zone of proximal development (ZPD), flow theory, intrinsic and extrinsic motivation, cognitivism, self-

determination theory (SDT), and constructivism (Zainuddin et al., 2020). Particularly, gamification is associated with behaviorism as the envisaged aim is to alter learners' learning behavior (Oliveira & Bittencourt, 2019), while according to Reinhardt (2019), being frequently exposed to specific vocabulary and receiving rewards or penalties facilitates players to acquire the target language more easily. What is more, Oliveira and Bittencourt (year of publication missing) also argue that Piaget's cognitivism and constructivism are actually the key concepts of gamification since, through this environment, learners are motivated to build knowledge via their experience and become responsible of their own learning. Also, Rachels and Rockinson-Szapkiw (2018) support that ICT and gamification promote scaffolding, while the instant feedback and constant challenge make the learning process even more entertaining. It is also argued that gamification facilitates learners to boost their self-confidence, as they are given the opportunity to acquire experiences and become better at persuading others (Rachels & Rockinson-Szapkiw, 2018).

A survey conducted by Li et al. (2021) indicated that gamification can have a positive effect on learning collocations which is considered to be a significant component of EFL **vocabulary** acquisition, and that students' fulfillment, grasped knowledge and flow experience could be increased in the specific environment. Also, students acquired both receptive and productive knowledge more effectively since they were involved both intellectually and emotionally, a finding which agrees with previous studies supporting the use of gamification and game-based learning for collocations (Rasti-Behbahani & Shahbazi, 2020) or vocabulary (Chen et al., 2019; Li et al., 2021). Gamification motivates learners to put effort without being pressed since they are encouraged inherently through the various rewards, and their aim is to do their best for themselves and their teams and not to just pass a final exam. Vocabulary teaching is regarded as one of the most substantial aspects of language learning by many EFL educators (e.g., Cheung & Slavin, 2005; Lee & Muncie, 2006). According to Nam (2010, p. 127), "not only vocabulary supports the four language skills of listening, speaking, reading, and writing, but also mediates between EFL students and content-area classes in that these students often find that lack of vocabulary knowledge is an obstacle to learning". Besides, the more vocabulary an EFL student obtains, the better communication he/she will achieve. Breadth is the number of lexical items a learner has obtained and it involves the identification and production of them, while depth is related to the extent a learner knows a word, so EFL educators should take into consideration these two attributes, while designing game-based activities (Qian, 2002; Wesche & Paribakht, 1996). Mobile phones is another effective ICT medium. "The advent of hand-held computer-based devices gave rise to mobile-assisted language learning (MALL) as we know it today" (Burston, 2013, p. 157), therefore teachers should bring into play both the technological proficiency and the enthusiasm that learners bear, so as to attach ICT to their pedagogy (Walker & White, 2013). **Mobile game-based** English vocabulary learning leads to better comprehension and positive results (Chen et al., 2019), as there is a beneficial influence of a digital game-based context towards obtaining collocations (Rasti-Behbahani & Shahbazi, 2020). This statement is in line with Amer's (2014) findings which indicated that students have a positive view regarding mobile technology in developing their vocabulary since gamification consists of ingredients that promote flow (Rachels & Rockinson-Szapkiw, 2018). Additionally, Li et al. (2021) discovered that elements like precise aims, playability, and harmony between abilities and challenge can be found in a digital game-based learning environment and they can advance concentration. Furthermore, mobile learning contributes to the conveyance of learning to the "right person, at the right time and in the right place while using electronic devices" (Ally et al., 2007, p. 2).

### **3. Conclusions**

The aim of this paper was to investigate how Virtual and Blended environments implemented in an EFL classroom differ, based on previous studies, as well as to examine the most effective ways in which language skills are acquired in the specific settings. The assets of Virtual reality environments have to do firstly with the learners' positive view towards them, as they have a game-like character which motivates them to dedicate more time and thus learn more. Additionally, the simulation of authentic situations, they are involved in, strengthen their vocabulary learning as well as their listening and speaking skills, since they feel as if they were actually present, so they interact more willingly and they become flexible and ready to deal with real-world communication. What is more, students have the chance to get exposed to the foreign language culture, which makes the process of learning even more effective. Another advantage of Virtual classrooms is that educators are given the opportunity to focus on each student's weaknesses through different methods and material. Lastly, the fact that pupils can interact in a more realistic way with their classmates enhances collaborative learning. The negative aspects of the mentioned specific environments should also be taken into consideration. More precisely, VR experiences can be demanding, so intellectual and physical overload could lead to students' negative results. Additionally, virtual environments sometimes include a lot of information that cannot be handled by the learners who end up getting confused or even cyber-sick. The lack of equipment, stable internet connection and training have also been reported among the reasons why VR environments cannot generate positive learning outcomes. On this ground, Blended learning has been introduced, which is actually a combination of the benefits offered by traditional and contemporary ways of teaching. Specifically, this method encourages learners to control their education, while at the same time their motivation, problem-solving and language skills are enhanced. A Virtual environment can be embedded in Blended learning, so all its advantages can be added up. Teachers' presence and the direct feedback provided by them contribute to a better handling of the issues under discussion, while face-to-face activities increase peer learning. Conversely, technical issues, such as inadequate training and educators' inexperience are obstacles that prevent Blended learning systems from being adopted appropriately. While this review provides some insights into the current characteristics of Virtual and Blended learning environments, the field is rapidly evolving. Future research should focus on the ways in which we could eliminate the mentioned drawbacks through the collaboration between computer scientists and pedagogues so as to harness the full potential of ICT in education.

#### **3.1 Suggestions**

The conclusions drawn, based on the above studies, are related to what could be done better in order to make the most out of educational technology in EFL. First of all, cautious planning and setting of precise objectives (e.g., connection to the real world) are necessary. An important factor, according to Kobayashi and Little (2011), is also the training and support provided to instructors and students. Specifically, educators are supposed to realize that many different factors influence students' performance and self-confidence, such as students' level of competence, the amount of time they dedicate to the program, the limitations of each program, as well as their level of computer literacy. Therefore, as Yang (2014) stated, teacher training workshops should be well-ordered to prepare them adequately. What is more, school support is substantial, according to Hong and Samimy (2010), as it assists both teachers and students who should be encouraged to use CALL modes in order to obtain the expected results. Financial support is quite significant as well, since without investments enabling the implementation and updating of ICT, the educational institutions will not get benefited by technology. For instance, the lack of a stable and fast broadband Internet connection cannot guarantee an effective Virtual

learning environment (Manegre & Sabiri, 2020). Another significant suggestion for educators is not to depend solely on ICT, but instead, while preparing their lesson-plans they should keep in mind that “wherever you use technology you should always have a back-up plan in place. There might be times when the websites are down, the computers crash, or worse, the electricity goes off. So be prepared” (Duderstadt et al., 2002, p. 42). In this way, the obstacles caused by technology can be eliminated. What is more, listening and speaking skills are not developed sufficiently in traditional classrooms, so they should be emphasized by educators in online classes where different types of activities are available thanks to multimedia products which offer learners the opportunity to “read, speak, listen, think deeply, write, and apply their knowledge to solve problems and complete authentic projects” (Berge, 2011, p. 91). Game features (e.g., points, bonus cards, etc.) can also be applied in order to make some boring activities much more entertaining, competitive and interesting. Additionally, individual feedback is considered to be an essential aspect of online courses since they give learners the chance to become flawless and can be delivered instantly by both educators and their peers. Finally, teachers’ and students’ roles should be defined precisely in online courses, namely, educators should function as facilitators who motivate learners to get involved in Virtual classrooms by enhancing their grittiness to cultivate L2 learning experiences. Particularly, they can decrease learners’ anxiety by offering warm-up activities, relevant contexts and communication strategies. For instance, the projection of Technology, Entertainment and Design (TED) videos promoting inspiring individuals’ strategies and persistence in overcoming the obstacles and challenges they met could inform learners how these people have managed to succeed in their efforts, thus acting as role-models for the learners, who can adopt some of their techniques and strategies and become successful in their turn.

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