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## VOLUME 22, ISSUE 2

# FROM THE EDITORS

by **Christopher Alexander** and **Jarosław Krajka**
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It is important to state that in a world of constant strife, the Journal of *Teaching English with Technology* (TEwT), in contradistinction, has always sought to bring global academics together congenially by disseminating, without any bias, forefront studies aimed at helping us to reimagine the way our world-language 'English' might be *better* taught with vanguard technology use in the ESOL context. To achieve this noble goal however, TEwT has constantly been reviewing the effectiveness of its processes and procedures.

For instance, as TEwT aims to improve its initial article screening and overall review times, it is introducing a new two-year agreement which requires reviewers to complete their reviews between 2-4 weeks from the date of the initial review request. Initial screening times are being speeded up too, and these will also be up to 3 weeks in length.

TEwT, in the future, is also planning reviewer general meetings in which current review approaches will be discussed openly and then developed further. One new idea aimed at ensuring the highest possible publication standards is the introduction of a triple blind review stage: only papers that are accepted by both double-blind reviewers are passed on to the triple-blind review stage where a group of experienced reviewers/editors then discuss the papers suitability for publishing in TEwT.

Another innovation in the review process has been the introduction of various SharePoints, Outlook and other Office 365 services. It is felt that this will lead to more effective communication with authors and more effective management of articles during their review lifecycles. The Editors in Chief would also therefore like to thank Dr Robert Oliwa (Assistant to the Editor) for his indefatigable commitment and outstanding work being done supporting the challenging review process.

All these actions have brought to us the new issue of the Journal, which, as usual, offers a rich mixture of CALL approaches, EFL/ESL viewpoints and countries of origin. Quite expectedly, post-COVID reflections start to appear – hence, **Christine Savvidou** and **Katarzyna Alexander (Cyprus)** offer a deep analysis exploring university students' experiences and perceptions of using breakout rooms, a fundamental features of all online platforms so widely used in the COVID-19 pandemic teaching. As the findings show, students'

personal feelings, attitudes to online learning, sense of connectedness to their peers, expectations of the role and presence of the lecturer and issues relating to the technology, are all considered to be significant factors in their use of breakout rooms.

Tertiary language lecturers' preferences regarding the access of EFL listening materials by Internet resources are the topic of the contribution by **Ferit Kilickaya (Turkey), Joanna Kic-Drgas** and **Marek Krawiec (Poland).** The study demonstrated that the participants used the Internet mainly for preparing extra materials for their learners so that they could also practice listening outside the classroom.

The purpose of the article by **Fruzsina Szabó, Kálmán Abari, Dániel Balajthy** and **Tünde Polony (Hungary)** was to examine the effectiveness of a new, tablet-based digital language course programme (HANNA) in teaching English to socially disadvantaged pupils in grades 5-7. The teachers involved in the study reported that the pupils using HANNA became very focused, deeply involved in the application and more co-operative, which could be clearly attributed to the effects of gamification.

Gamified mobile assessment through familiar tools of Kahoot! and Quizziz were the focus of two contributions: **Baderaddin Yassin** and **Mohammed Abdulgalil Abugohar (Saudi Arabia)** demonstrated that mobile-assisted formative assessment resulted in a statistically-significant positive influence of using mobile apps on students' overall language proficiency; while **Priyatno Ardi** and **Elvira Rianita (Indonesia)** revealed that the Kahoot! platform enhanced student engagement in EFL grammar learning by enabling learners to set goals, helping them focus more on the tasks, triggering enthusiasm and interest in learning, allowing students to experience playful learning activities, facilitating their collaboration with friends, and fulfilling their need of reward and sense of competition.

Finally, on a completely different note, Augmented Reality (AR) in mobile computer-supported collaborative learning has been investigated by **Jose Belda-Medina (Spain)**. As the study revealed, teacher candidates lack practical training in AR content creation and implementation from a technological and pedagogical perspective, but their attitudes towards AR integration as transformative technology were very positive, particularly regarding student attention, collaboration and shared enjoyment.

We wish you good reading!

# IT HAS POTENTIAL BUT…' – EXPLORING UNIVERSITY STUDENTS' EXPERIENCES AND PERCEPTIONS OF BREAKOUT ROOMS DURING THE COVID-19 PANDEMIC

by **Christine Savvidou** and **Katarzyna Alexander**
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**Abstract**

COVID-19 has created a dramatic and rapid transition to emergency remote teaching in higher education (HE) creating both new opportunities and challenges for lecturers and their students. As HE adapts to these new circumstances, there is a need for instructors to design and teach classes that support collaborative learning and increase opportunities for student interactivity. This article reports on an ongoing study exploring university students' experiences and perceptions of using breakout rooms (BRs), a technical feature of many synchronous online platforms, as part of their online classes. Using a mixed methods research approach, 127 students, who were registered on English language courses at a university in Cyprus during Spring 2021, participated in the study.

Findings indicate that students' experiences and perceptions of breakout rooms during this period were impacted in five key areas: (1) emotional/affective, (2) moral/ethical, (3) social, (4) pedagogical and (5) technological. These findings suggest that students' personal feelings, attitudes to online learning, sense of connectedness to their peers, expectations of the role and presence of the lecturer and issues relating to the technology, are all considered to be significant factors in their use of BRs. This study offers initial insights for educators who wish to use, modify and/or adapt synchronous online teaching to incorporate collaborative learning opportunities through breakout rooms.

**Keywords:** higher education; synchronous online teaching; breakout rooms; collaborative learning; student experiences; COVID-19

## 1. Introduction

With the declaration of a global pandemic by the WHO in March 2020, the transition to 'emergency remote teaching' (Hodges *et al*., 2020) led to many challenges for both teachers and students. While teachers were rapidly required to learn and use new digital tools, students

suddenly experienced having such digital tools 'used on them' (Larke, 2021). With backgrounds in TESOL education and research, the authors were curious to explore students' experiences of online learning in relation to Breakout Rooms (henceforth, BRs).

BRs are an integrated feature of synchronous online video conferencing platforms such as Cisco WebEx, Microsoft Teams, Blackboard Collaborate etc. that enable participants to break off into smaller group sessions. In an educational context, BRs function to recreate the physical classroom by creating a virtual social space that enables students to meet and work in groups on an assigned task for a specified period. In these spaces, teachers can set tasks, assign and monitor groups, provide support and allow learners to exercise autonomy within the scope of the task (Coomey & Stephenson, 2018). In this way, BRs create opportunities for learners to self-mediate learning and co-construct knowledge in a 'computer-mediated social constructivist environment' (Stojkovski, 2010).

However, in contrast to face-to-face groupwork, the interface of BRs does not enable instructors to have an overview of learner activity without entering a specific BR space. This means that the student experience of learning in BRs is largely unseen and unheard. In addition, the paucity of literature on the use of BRs during this period of emergency remote teaching means that not much is recorded about student learning in BRs.

Thus, this study sets out to explore university students' experiences and perceptions of learning behind the closed 'digital doors' of BRs. It is hoped that such a study will contribute to an understanding of learners' experiences and perceptions of BRs, thereby enabling educators to create motivating and relevant online learning spaces for their students.

## 2. Background

This study is theoretically positioned within a Community of Inquiry framework (CoI) (Garrison, Anderson & Archer, 1999). This framework proposes a model of online learning based on meaningful interaction that is located in teaching presence (the online interaction of the teacher in facilitating and supporting learning), social presence (the feeling of being with a 'real' person in a virtual reality) (Oh, Bailenson & Welch, 2018), and cognitive presence (the ability to construct meaning through communication (Aslan & Turgut, 2021). Drawing on sociocultural theories (Vygotsky, 1978), learning in a CoI is a social activity in which learners work together in small groups in order to construct new understandings and knowledge, thereby making students active participants in their own learning. By positioning this study within a CoI frame, the study aims to explore the extent to which learners are able to engage in collaborative and constructivist learning experiences.

In addition, this study also draws on the concept of BRs as 'semiotic social spaces' (Gee, 2005). Based on principles of video gaming, such spaces are defined as informal learning spaces that provide a socially safe context, in which learners can participate through different modes of communication (audio, video and/or text). Through this lens, BRs, as semiotic social spaces, can be seen to support and value distributed knowledge, i.e. group knowledge. In short, the knowledge produced as a group is more highly valued and rewarded than individual knowledge, which often typifies traditional classroom spaces. In practice, without the constant presence of the instructor, BRs have the potential to offer students a greater degree of autonomy in learning, participating and accessing resources. Thus, the nature of learning that occurs in the informal and invisible learning spaces of BRs forms the basis of this investigation.

Accordingly, the underlying assumption of this study is that by substituting and transposing traditional classroom and pedagogies into an online setting, the potential of BRs to support online learning remains limited. Moreover, while the theoretical potential of online collaborative learning spaces is recognized, lack of empirical data on students' experiences and perceptions of BRs, highlights the need for further research in this area.

## 3. Literature

The use of technology for online learning is well established and a review of the extant literature reflects what is known of the use of BRs from studies conducted pre-pandemic, as well as those conducted since 2020.

### 3.1. Pre-pandemic research

Pre-pandemic research typically focuses on the implementation of online pedagogical tools and practices that promote interaction and active student learning in higher education (e.g. see Gilmour & Compton, 2020; Law & Lambie, 2020). Such studies typically present educators' perspectives and findings suggest that while university teachers recognize the potential of such BRs, they also report feeling overworked, undertrained and overwhelmed as they attempt to manage these tools during online classes (Baehr, 2021; Fasso, 2013; MacDonald & Campbell, 2012).

Additionally, studies focusing on learners' perspectives of BRs reflect a range of experiences and perceptions. On a positive note, some university students report that peer support in BRs helps them develop content knowledge, student identity, confidence and friendships. In a small scale-study in the UK, a diary method was used to record the student experience of online tutorials using Blackboard Collaborate (Chandler, 2016). Findings

reported that while students felt pressure to confirm their understanding in the main online session, they were more able to express their confusion in BRs. Moreover, while students recorded periods of boredom in the main online session, they also reported that BRs offer opportunities to re-engage with the lesson and each other (Chandler 2016). These findings align with other studies in which university students evaluate their experience of learning in BRs as equal to or exceeding that of face-to-face interaction (Foronda & Lippincott, 2014; Tonsmann, 2014).

However, other studies present diverging findings. For instance, a study at a US public university examined student satisfaction and student success in two sections of a Political Science class (Blackstone & Oldmixon, 2016). Specifically, the study compared a lecture-only class that met twice per week, with one that combined a physical lecture with an online tutorial using BRs. Comparing the lecture-only class with the combined lecture/BRs class, findings indicated that levels of student satisfaction in the former were higher than the combined lecture/BRs class. Moreover, students in the combined lecture/BRs section did not perform better than their lecture-only peers. Indeed, controlling for all other variables, students in the combined classes scored at least 2 grade points lower than their peers. The authors conclude that not only is there no evidence of the positive impact of BRs but that student satisfaction and success is positively related to students' physical attendance. Similarly, another study exploring students' reflective journals from an online graduate programme in online learning environments suggests that participation in BRs is perceived as one of the most challenging parts of their online courses (Yamagata-Lynch, 2014). Learner-to-learner interaction is a key feature of BRs and this study reported student frustration at time-wasting when deciding who would start the conversation, what roles students would take in completing the task and poor communication when not using the camera function etc. Similar findings were reported in a 2012 study (Martin, Parker & Deale, 2012) examining graduate students' interactions in an instructional technology programme in the US. Findings suggest that while students recognized the value of BRs in creating strong personalized interaction using webcams, they also reported disadvantages such as the dislike of working in small groups and audio delays in talking and/or talking at the same time.

On the whole, this pre-pandemic literature suggests that even when purposely integrated into the course design, the use of BRs in tertiary education is not without challenges for both instructors and for students.

### 3.2. The use of BRs during COVID-19

The recent increase in literature since early 2020 predominantly reflects emergency first wave remote teaching for teachers with little training and support of using online tools (Krajka, 2021). These studies focus on the use of BRs in subject-specific courses, student participation and teaching methodologies. To begin, the advantages of BRs in language courses are documented in several studies. Gruber and Bauer (2020) report on the use of BRs in a course teaching German as a Foreign Language to seven international university students. In groups of 2-3, students worked regularly in BRs to complete communicative-type language tasks and findings indicate that the use of BRs not only increased student-speaking time, but also led to greater social interaction and feelings of group cohesion. Moreover, students' anonymized written feedback shows that students considered BRs a 'safe-space' for language learning (Gruber & Bauer, 2020). The use of BRs is also examined in the teaching of other subject areas. For example, Li, Xu, He, He, Pribesh, Watson and Major (2021) report on the use of BRs to teach pair programming online to undergraduate students. The classes included assignments which students completed in pairs in BRs. Student feedback was partially positive highlighting the enjoyment of the task, the responsiveness of the instructor and interaction with their peers. However, students negatively evaluated the unreliable technology and the random selection of pairings for the tasks.

In relation to student participation in BRs, emerging literature challenges the assumption that the use of BRs in online classes inevitably facilitates collaborative behaviour between students who have never met before. Observations from a teacher education course in Hong Kong (Moorehouse, 2020) suggest that, in practice, lecturers reported that their online classes were more teacher-centered than face-to-face sessions, with less student participation, longer silences and shorter responses. Moreover, lack of participation was also carried over into BRs as students failed to turn on their cameras due to privacy concerns. Lack of participation in BRs was also observed during online classes in an introductory data science course at a US university. As a response, Saltz and Heckman (2020) developed a structured-pair methodology for students to use in BRs. Students were assigned roles as 'Driver' or 'Active observer', with each role accompanied by a detailed instructional script (e.g., *Drivers: State the problem in words*; *Active observers: Read what the driver is writing as he or she writes it, evaluate it for accuracy*). Roles were then rotated every 15 minutes. Findings indicate that when scripted structured-pair activities were used, students expressed greater degrees of satisfaction, productivity, motivation and connectedness to other students than in unstructured activities.

Overall, while lecturers often view BRs as an opportunity for community-building, learners may feel threatened by what they consider as 'forced interaction' (McGrath & Wolstencroft, 2021). Indeed, it is observed, anecdotally, that BRs create numerous challenges for students including social anxiety, technological difficulties, awkward interactions due to limited camera and microphone use, lack of participation in the assigned task and a sense that teachers are not really 'teaching' (Whear, 2020). Added to this is the mental health pressure of the pandemic with both teachers and students often reporting 'zoom burnout', i.e. the constant exposure to online meetings, inability to disconnect from work or studies and the general lack of motivation to participate (Martins, 2020).

These studies draw attention to how teachers use BRs in their teaching and also brings into question issues of teacher education. Krajka's (2021) study of grammar and vocabulary teaching in Polish primary and secondary schools during the first wave of remote instruction indicates that teachers' use of BRs during this period was an attempt to mirror group work as used in the physical classroom. Based on the SAMR model of online teaching (Puentedura, 2015), Krajka (2021) suggests this prevailing methodological approach to substitute the physical classroom, highlights the need for teacher education to prepare teachers for online teaching that transforms the online classroom.

Against this background of research literature, there appears a gap between social-constructivist ideals and potentiality of BRs for online learning and the varied experiences of students and teachers since the pandemic began. It is this space that this study sets out to explore.

## 4. Methodology

### 4.1. Context

The study was conducted at a private university in Cyprus between February and May 2021. The sample was selected through a call to participate in a research study sent to all students registered on any English language course that was offered by the Department of Languages during spring semester 2021.

### 4.2. Research design

Using an explanatory sequential mixed methods design (Cresswell & Clarke, 2017), the current study was carried out in two stages involving an online survey (see Appendix) followed by semi-structured interviews. The survey questions focused on participants' self-reported

experiences and perceptions of working in BRs during their online classes. The follow-up interviews were intended to elicit further insights into BRs including participants' general experiences and perceptions of BRs, collaboration with other students, the use of cameras, the role of the lecturer and suggestions for future use of BRs.

### 4.2.1. Online survey

In total, 127 participants responded to the online survey; however, 19 responses were excluded from the data sample as participants stated that they had never used or were unsure whether they had used BRs in their online classes. As a result, the final sample included 108 participants, of whom 35 (32.4%) were men, 69 (63.9%) were women, 3 (2.8%) participants declared as non-binary and 1 (0.9%) participant did not wish to state their gender. The mean age of participants was 21.81 years with ages ranging from 17-56 years (Table 1). Most of the respondents (87%) were undergraduates and a minority (4.6%) were postgraduates. The remaining respondents (8.3%) stated they were studying for a certificate or diploma. Within the sample, 51 students (47.2%) were in the first year of their studies, 33 (30.6%) were in the second year, 12 (11.1%) were in the third year and 11 (10.2%) in the fourth year. In order to preserve anonymity and confidentiality, the online survey was distributed to students via their instructors and not directly through the researchers. Participation was voluntary and no personal identifiable information (email addresses, names, IP addresses) was collected.

Table 1. The age of study participants

| | N | Minimum | Maximum | Mean | Median | St. Deviation |
|---|---|---|---|---|---|---|
| **Men** | 35 | 18 | 56 | 23.69 | 21 | 7.9 |
| **Women** | 69 | 17 | 41 | 20.97 | 20 | 3.9 |
| **Non-binary** | 3 | 19 | 21 | 20 | 20 | 1 |
| **Overall** | 108 | 17 | 56 | 21.81 | 20 | 5.6 |

### 4.2.2. Interview data

In order to gain deeper insights into students' experiences and perceptions of using BRs, semi-structured interviews were conducted with a purposive sample of five full-time undergraduate students (2 females and 3 males) who had completed the survey. Interviewees' ages ranged between 19 and 25 years with the mean age being 20.6 years and all had completed English language courses equivalent to C1 level language proficiency. At the time of the interviews, interviewees had completed between 1 and 2 years of their studies in their respective programmes (Table 2)

Table 2. Background of interview participants

| | Age | Gender | Studies | Year of study |
|---|---|---|---|---|
| **Iliana** | 19 | Female | Marketing | 1st |
| **Ivan** | 19 | Male | Psychology | 1st |
| **David** | 25 | Male | Psychology | 2nd |
| **Georgia** | 19 | Female | English | 2nd |
| **Alexei** | 20 | Male | Computer Science | 1st |

Before taking part in the interviews, interviewees gave informed consent expressing their willingness to participate. All the interviews were conducted in English via WebEx meetings online conferencing software and recorded for later transcription. Interviews were between 15 and 24 minutes in length with the average being 18 minutes. Interview data were managed with qualitative data management and analysis software, Quirkos, and analyzed using thematic analysis (Clarke & Braun, 2018). After several repeated readings of full orthographic and verbatim transcriptions, broad categories started to emerge. Transcripts were then coded into initial themes, which were then reviewed and refined and collated into a hierarchical map. Using quotes from the data, the researchers attempted to preserve students' voices and represent them as accurately as possible. In the presentation of findings, pseudonyms are used to preserve anonymity.

### 4.3. Findings

Themes emerging from the datasets highlight five key dimensions of participants' experiences and perceptions (Table 3). These dimensions are defined by their common characteristics as perceived by participants. As such, they can be seen to be dynamic, interrelated and subjectively perceived between individuals and within the individual experience. In other words, not only are BRs experienced and perceived differently by individual participants, but individual participants also express a range of experiences and perceptions that prevent generalization. However, for the purposes of this discussion, these dimensions are treated discretely in order to highlight their distinct features.

Table 3. Participants' reported experiences and beliefs of BRs

| Dimensions | Definitions | Subthemes |
|---|---|---|
| **Emotional/ Affective** | Attitudes, feelings, beliefs & preferences | - Overall perceptions<br>- Emotional (un)ease |
| **Moral/Ethical** | Fair & equal treatment | - Between students |

| | | |
|---|---|---|
| | | - Right to privacy |
| **Social** | Group cohesion, social interaction & engagement | - Connectedness<br>- Communication<br>- Group norms<br>- Engagement/ motivation |
| **Pedagogical** | The role of the lecturer | - Teaching presence<br>- Supporting learning<br>- Organisation of groups<br>- Task types |
| **Technological** | The role and function of technology | - Use of cameras<br>- Functionality of interface<br>- Connectivity |

### 4.3.1. Emotional/ affective dimensions of BRs

The first dimension of participants' experiences and perceptions of BRs relates to their emotions and affect, i.e. their general attitudes, feelings and beliefs. Firstly, while reflecting on their attitudes and feelings regarding the use of BRs, participants reported both positive and negative aspects of this specific mode of study. Most participants were ambivalent in their enthusiasm for BRs (Figure 1). While a minority (18.5%) of participants agreed with the statement that 'working in BRs bores me', most participants (81.5%) were equally divided between those who had no opinion or disagreed with the statement. Likewise, while 43.5% of participants agreed 'working in BRs motivates me to learn', 32.3% had no opinion and 24.1% disagreed with the statement. Similarly, 50% of participants agreed with the statement that 'time spent in BRs is well spent', while 25% had no opinion and 25% disagreed that it was an effective use of their learning time. This ambivalence was also reflected in interview data comments. One participant, Ivan, perceived BRs positively: 'I definitely think it has potential, umm I can definitely see, for example for a few times first using breakout rooms, I thought it was quite productive. It was quite nice, actually talking to one another'. Similarly, another participant, Georgia, felt that two of her online classes suffered due to the absence of BRs: 'I have five courses this year and two of them did not use them at all because they were like lectures, really long lectures, which were very boring and if they had breakout rooms they would be more interesting'. Despite recognizing the potential of BRs, other participants referred to their challenges. Iliana commented 'so the breakout room could be a really good thing, a successful, umm…principle, but I just feel like it is not used properly'. While David observed 'so while there was potential of creating new ways of communicating there was still low participation'. Similarly, Alexei felt that there were additional challenges for first year students: 'to be honest, it was quite difficult, and I think I know what was the problem, since it was our first year and I didn't know my friends and I didn't know my classmates'.

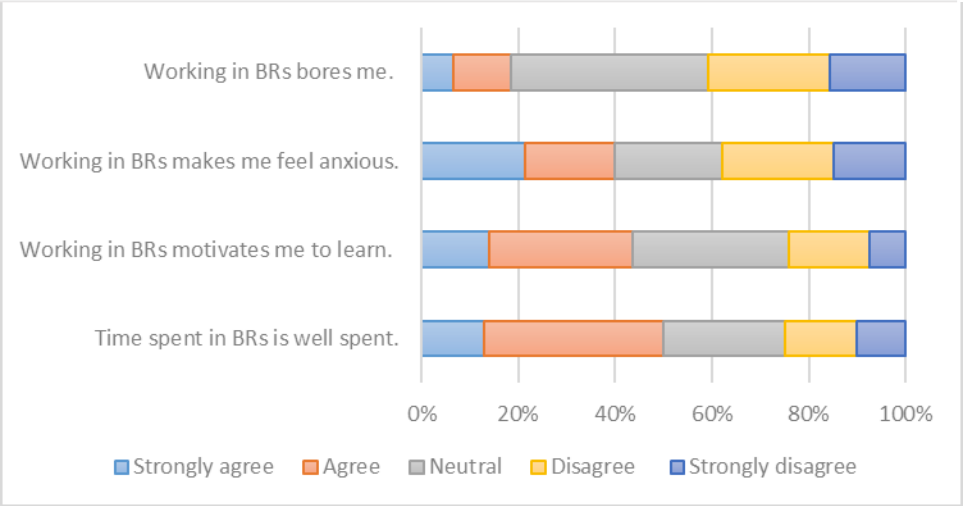


Figure 1. Emotional/affective dimensions of BRs

Another facet of this dimension is the social unease expressed by participants in using BRs. Several participants repeatedly referenced anxiety in relation to the use of BRs. On a general level, David observed that 'people do have social anxiety manifested through the camera… in our age right now with the pandemic' while on a more personal level, Georgia stated: 'I was a bit weirded out when there were more people because I would get uncomfortable'. Iliana tried to expand on her feelings of anxiety commenting: 'I was part of that group that felt awkward and anxious opening the camera, if nobody else was opening it because I felt weird. Like, I was one of the only students opening it … it's a weird feeling to have it open, if no other students have it open. Even if one student has it open and no one else has it open, then it's just really weird. I can't really explain it''.

### 4.3.2. Moral/ ethical dimensions

The second dimension relates to participants' moral and ethical perspective of BRs, i.e. what participants perceive to be fair and equal treatment. Firstly, participants expressed concern about the negative interactions that occur within BRs including negative judgement by peers. For instance, Georgia commented: 'I felt I was being judged sometimes about my questions because like the teachers weren't there so sometimes they [other students] will make fun of me and my opinions that I would say out loud'. Another concern expressed by participants relates to the inequitable distribution of work within BRs. An anonymous participant in the online survey commented: 'because the professor tries to check every group, when she/he is not present a very big percent of the students do not work at all, they let just one or two people to do the work and then they share the credit'. Secondly, participants expressed concerns about

BRs violating their private space and, as such, their right to privacy. As Iliana noted: 'they [students] don't want people to see their private space or maybe they're in bed' and similarly, Georgia commented: 'I could be doing a lesson in the kitchen and I wouldn't want my classmates looking at my family or there might be a lot of things that I might be ashamed of and not want to open the camera or my mic, for example, my mum might be in the background screaming at me…there's a lot of things'.

### 4.3.3. Social dimensions

The third dimension relates to the social dimensions of BRs including participants' sense of group cohesion, social interaction and engagement. Firstly, there is evidence to suggest that BRs foster a sense of connectedness and belonging to a community. For example, just over half (58.3%) of all participants stated that working in BRs made them feel part of a community; likewise, 59.3% of participants viewed relationships between students as a critical factor to the success of BRs. A similar number (56.5%) of participants agreed that BRs allowed them to get to know their classmates and almost half the participants (47.3%) felt they received support from their peers during BRs sessions. These findings are echoed in the interview data (Figure 2). David commented: 'Yes, I got the opportunity to know someone from the breakout rooms, we actually worked on different projects together, we were constant in our breakout rooms for the whole semester', Similarly, Alexei noted: 'I have only one friend from my course and I realized on the first day his name is written in [Alexei's language] and I was like, ok, he's my mate then'.

Secondly, in relation to modes of communication, findings indicate that most participants (43.5%) preferred to communicate using both audio and text, while another 38.9% of participants preferred to communicate solely though speaking. Interview data suggest that despite flexible modes of communication, the extent of communication may have been limited. Ivan noted: 'we would break out into these breakout rooms and nobody would say anything, nobody would write anything, we would wait our ten or fifteen minutes and then go back to class and nothing much would get done'.

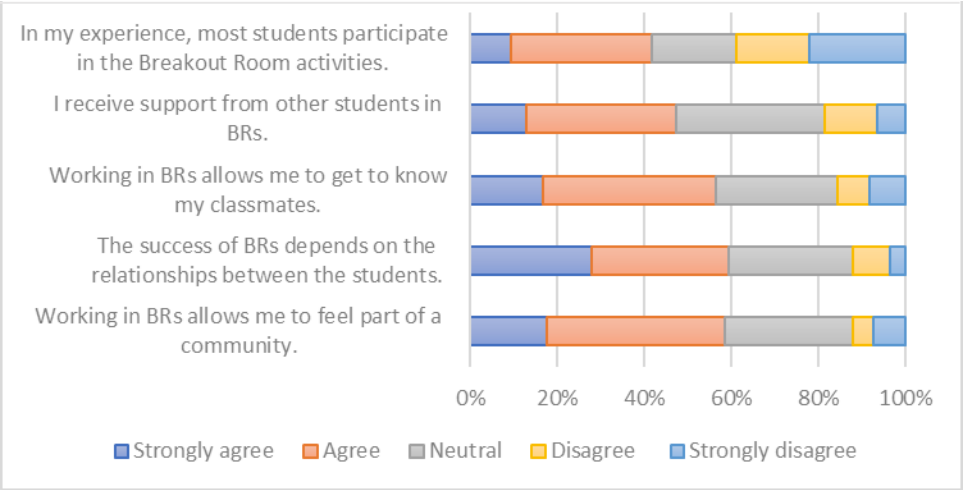


Figure 2. Social dimensions of working in BRs

Thirdly, in relation to group norms, evidence suggests that most participants (67.6%) were aware of and conformed to one specific group behaviour within BRs, i.e. the non-use of cameras. Only a minority of participants (6.5%) said that they regularly used their cameras in BRs. Iliana echoed this finding stating: 'personally I don't feel comfortable opening the camera if other students don't open the camera, it's a group thing'.

Finally, within this social dimension, participants' level of engagement within BRs is also highlighted. Findings suggest that while most participants generally felt motivated to engage with the tasks set for them in BRs, they felt that their classmates were not as motivated. Most participants (77.8%) stated they typically participated in BR activities; however, a significant number of participants (38.9%) felt that their peers typically did not participate (Figure 2). On a positive note, Georgia credited BRs with helping her re-engage with the lesson: 'they should do them more often because they are very fun and they are more interactive because I could wake up in the morning and still be tired and if the teacher says, 'hey, breakout rooms' then I would be like, ok, alright then, I am also going to talk a bit with my classmate, we are going to chat a bit'. For other participants, engagement in BRs started well but over time, it started to decline. Ivan stated: 'and actually, we interacted and collaborated to complete the task so it was really good but then after a little bit it seemed to die down, nobody was engaging with the task as much'. Some participants were more pessimistic citing the impact of the pandemic on education and their levels of motivation. Iliana summed it up thus: 'with COVID we are really unmotivated, we have been sitting at home for a whole year in front of a screen, it's exhausting mentally and physically for students and, at some point, we all just sit here and think 'I don't want to do this anymore'.

### 4.3.4. Pedagogical dimensions

The fourth dimension refers to participants' perceptions of the role of the instructor in setting up and supporting learning. In this theme, four subthemes emerge: teaching presence, supporting learning, organisation of groups and task types.

Firstly, in relation to teaching presence, as discussed in relation to the CoI framework (Garrison, Anderson & Archer, 1999), the online presence of the teacher is considered important for learning. This presence is seen through the presence of the teacher in BRs. Two-thirds of participants (66.6%) agreed that 'the quality of the BR experience depends on the individual lecturer' (Figure 3). Indeed, the regular presence of the lecturer to monitor work and support learners in BRs is reflected in participants' comments. Iliana stated: 'but I feel like it's not a bad thing when a lecturer comes in once in a while to check on us and say 'Hey, is everybody here?' 'How's the assignment going?' Is everything ok?' 'Does anybody have any technical issues? So it's a good thing that the lecturer comes into the breakout room because it helps us monitor, it helps us stay on track and stay focused'. Teaching presence might involve the virtual presence of the teacher joining the specific BR, but it may also be related to learners' being accountable for group work conducted in BRs. David highlighted the consequences of students' lack of external motivation: 'then we understood that no one was checking us so as time went on we had less and less participation'.

Secondly, in relation to supporting learning, 66.7% of participants felt BRs promoted increased opportunities for interaction between peers during online classes. Similarly, 64.8% of participants agreed that BRs allowed them to exchange ideas freely with their peers and almost half of participants (49%) agreed that BRs helped them understand the lesson better (Figure 3). While some participants perceived BRs as more effective in supporting learning than lecture-only classes, others felt the benefits were limited to socializing. As Alexei observed: 'to be honest I would not say there was anything beneficial from using breakout rooms, maybe just to talk about life … if you are chatting with your friends, what happened yesterday, what happened a month ago, but not for learning'.

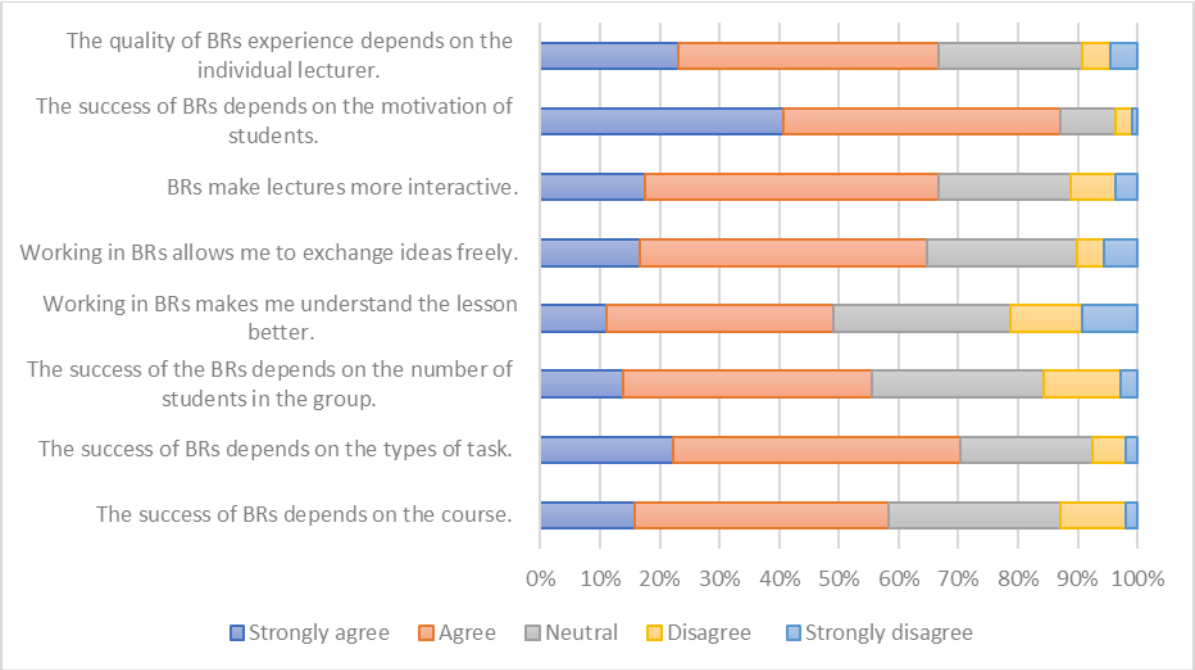


Figure 3. Pedagogical dimensions of working in BRs

Thirdly, in relation to the organisation and use of BRs, most participants stated that their lecturers gave instructions on how to use the BR function. Most participants (84.3%) claimed that on average they used BRs once or twice per week. Many participants (66.7%) also claimed that the average BRs session lasted between 10 to 30 minutes while almost a third of participants (30.6%) said they lasted less than 10 minutes and only a minority (2.8%) said they lasted more than 30 minutes.

Fourthly, more than half of all participant (55.6%) considered group size to be a significant factor in the effectiveness of BRs (Figure 3) and the majority of participants (93.5%) indicated that their last BR session comprised two to five members. Asked about their preferences for group size, Ivan stated: 'so we were in groups of either 4 or 5 students in a breakout room which I think is a perfect amount, you know umm… I would say the perfect range is about 3 to 5 students'. However, a preference for pair work was also expressed. In addition, most participants (78.8%) stated that groups were randomly assigned by the lecturer. Whilst Iliana agreed with this method: 'I feel like organizing them randomly is the best choice to do because you work with different people each time and you get to experience different aspects', others felt that self-selection was preferable. Georgia stated: 'they should let us choose with who to be with because I could be with someone who doesn't like me or someone who has a completely opposite personality with me … but they should let the students choose.'

Finally, most participants (70.3%) expressed the belief that the type of task determined the success of the BR activity. Based on experience, participants reported that the most commonly-used activities were (1) discussing a question or a topic (86 responses), (2) answering questions (67 responses) and (3) generating and sharing ideas (61 responses), with watching a video (3 responses) being the least-used activity (Figure 4). Over half the participants (58.3%) also believed that 'the success of BR depends on the course' which may be interpreted to mean that certain courses were more suited to BRs than others were. This is supported by interview data that indicates that participants believed that BRs were more useful when used with specific, problem-solving tasks in practical and communicative type classes (e.g. Computer Science and English) rather than abstract and more theoretical classes. Alexei illustrates this with the following comment: 'Yes, there were some differences because in Programming there was a specific task that we had to finish – for example, write a small programme and you know how coding works, right? So yes, it's kind of different for different subjects in my other classes, I had Maths classes and I don't think using breakout rooms for Maths would be a smart idea'. Ivan also echoed this sentiment, commenting: 'I think in English it was definitely something that worked very well ..., I mean when we did engage it worked wonderfully because we'd have a few sentences that we would have to correct or find mistakes in or stuff like that'.

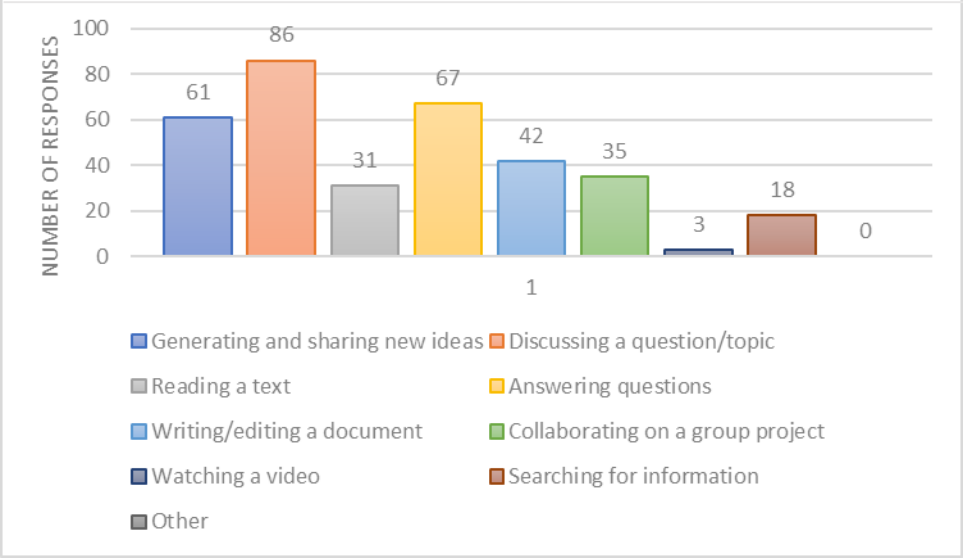


Figure 4. What types of activities have you worked on in Breakout Rooms?

### 4.3.5. Technological dimensions

The fifth dimension refers to participants' perceptions of the role and function of technology in BRs. Evidence suggests that in general, most participants (73.1%) did not experience any

technical difficulties while using BRs. However, the one outstanding technological aspect related to the number of participants (67.6%) who never switched on their cameras due to group norms (see 4.3), lack of necessity or obligation. Ivan explains: 'In most of our courses, I don't turn my camera on and nobody else does and nobody needs to and some of the teachers don't or they turn the camera off during the lecture… I haven't had any course that actually required me to put my camera on and I think that transfers and carries to the breakout room.' Next, in relation to the functionality of BRs, participants added that there were occasional difficulties in accessing course materials and other resources while using BRs. As Ivan explained: 'I remember that on several occasions because we had to access material that is on a course page or elsewhere, so I would often, or other members of the class would send the link in the breakout rooms because there is somebody who does not know where to find it and access it'. Finally, for those who did experience technical difficulties in BRs, these were related to connectivity issues. Participants referred to difficulties in connecting to BRs, which they attributed to their own devices. Georgia stated: 'Well aside from breakout rooms kicking me out of the lessons, they were pretty good… it was probably my laptop, it was my fault, it requires a good laptop, I guess.' Iliana also referred to the use of specific devices explaining: 'There are always technical issues when it comes to using breakout rooms…some students have a hard time connecting. I know a student who couldn't really connect well because they didn't have a computer, they only had a phone and connecting to breakout rooms from a phone can be really complicated.'

## 5. Discussion

This study, set out to explore students' experiences and perceptions of BRs during their synchronous online classes and initial findings are discussed below.

- Emotions and affect shape students' experiences and perceptions of BRs

Firstly, in relation to their emotion, feelings, attitudes and beliefs, participants expressed a degree of ambivalence towards BRs. While acknowledging the potential for interacting with peers, engaging in the lesson and the positive impact on their learning, participants also expressed feelings of boredom, lack of motivation and social anxiety. These findings are also reflected in recent literature with the suggestion that BRs do not 'magically create engagement and higher levels of learning' (Saltz & Heckman, 2020: 230) and indeed, the general lack of structure in BRs can lead to feelings of 'awkwardness', anxiety and boredom (McGrath & Wolstencroft, 2021; Whear, 2020).

- Students' moral and ethical judgements shape their experiences and perceptions of BRs

Findings from both the survey and the interview data reflect students' concerns with issues of fair and equal treatment in BRs, especially when the lecturer was not present. These concerns ranged from a sense of having their views judged negatively by peers to the unequal distribution of work for the group task. Indeed, this latter point aligns with other studies that indicate that while some students like the interactivity of BRs, other students dislike all forms of group work (Martin, Parker & Deale, 2012). Moreover, findings suggest that while participants felt that there was a chance for lecturers to observe the fair distribution of group work in a physical classroom, this was not possible behind the 'closed' virtual doors of BRs. Another related area concerned participants' right to privacy and not wishing to share personal space with unknown group members. Concerns for privacy with the non-use of cameras has also been noted in other studies during the COVID-19 period (Moorehouse, 2020). Additionally, the limited paralinguistic communication which results from the non-use of cameras in BRs has also been observed as a major barrier to effective interaction (Peachey, 2017).

- Social connectedness between students in BRs matters

Findings indicate that BRs have the potential to create a sense of connectedness between students with more than half of all participants stating that they met friends or got to know their classmates in BRs. Students' sense of learning in and through the presence of others offers a perspective of the BRs as a CoI (Garrison, Anderson & Archer, 1999). However, in terms of communication between students, findings suggest that while they could use different modes of communication in BRs (audio, video and text), there was a preference for audio and chat and that communication did not extend much beyond the task. While accessibility to different modes of communication is an important feature in any semiotic social space (Gee, 2005), the literature also suggests that effective interactions in BRs emerge from specific and structured tasks (Saltz & Heckman, 2020). Moreover, communication between students was also impeded by the presence of group norms. Apart from wanting to protect their privacy, participants also stated they did not use their cameras because no one else did. On a positive note, findings also highlight the opportunities BRs offered for re-engagement with learning. Other studies also show that when students record periods of boredom in the main online session, participation in BRs allow them to re-engage with the lesson and each other (Chandler, 2016). However, these findings also reveal for some students there is a general lack of motivation to participate in online teaching during this COVID-19 period. Indeed, the mental health pressures associated with constant exposure to online meetings ('zoom burnout') and the inability to disconnect from work and studying are also documented in recent literature (Martins, 2020).

- Pedagogical strategies and approaches shape students' experience and perceptions of BRs

Findings indicate that for most participants, BRs were a typical feature of online classes and their expectations mostly aligned with their experiences of using BRs, involving small groups of two to five students for periods of 10 to 30 minutes. While many participants expressed the preference for selecting their own group rather than being randomly assigned to groups by their lecturers, this rarely occurred. The impact of group formation in BRs on student satisfaction and learning is just now beginning to be explored (Bamidele, 2021; Wang & Tokiwa, 2021). Students also expressed their belief that BRs worked better for some courses, such as English and Computer Science than for other subjects and the value of using BRs for teaching languages and computers is also emerging in the literature (Gruber & Bauer, 2020; Li *et al.*, 2021). Findings also indicated a preference for practical activities with specific instructions and the literature also reflects learners' preference for scripted structured-pair activities (Saltz & Heckman, 2020). Finally, findings also indicate that students felt the regular presence of the teacher was important as a way to monitor participation, explain the task and offer support; however, the nature and degree of teaching presence in BRs is not investigated in this study and should be further explored.

Similar to previous studies (Chandler, 2016), this study suggests that BRs offered some participants the opportunity to develop their content-knowledge and student identity through peer-to-peer interaction. However, findings also suggest that some participants were ambivalent about the potential for BRs to support their learning, help them understand the lesson better and make the lesson more interactive and it might be that the principles and practices that promote interaction and active student learning in BRs (Gilmour & Compton, 2020; Law & Lambie, 2021) are not well-understood by their lecturers. Indeed, lack of skill and tutor confidence have been identified as major barriers to the effective use of BRs (Chandler, 2016).

- Technological access shapes students' experience and perceptions of BRs

Finally, findings indicate that most participants did not experience technical difficulties. This might be because this was the second semester of online learning and students had gained sufficient experience in the previous months. However, the few issues that were experienced related to students' own devices, their own unstable internet connections and the functionality of the interface (e.g. not having reminders of the task, difficulties navigating, sharing and importing sources). Again, the literature also reflects these challenges and barriers to engagement (Martin, Parker & Deale, 2012).

## 6. Conclusion

To conclude, this study set out to investigate university students' experiences and perceptions of BRs as part of their synchronous online courses during the COVID-19 crisis. Findings indicate that to varying degrees, students' experiences and perceptions of breakout rooms during this period were impacted in five key areas: (1) emotional/affective, (2) moral/ethical, (3) social, (4) pedagogical and (5) technological. These findings suggest that students' personal feelings and attitudes towards online learning and the use of BRs, their sense of connectedness to their peers, their expectations of BRs in relation to the impact on their learning and the role and presence of the lecturer, and issues relating to technology, were all considered to be significant factors in how students experienced and perceived their online learning.

From this ongoing study, several areas for future investigation are highlighted. The first area is the need to develop a multidimensional model of online learning and teaching that extends beyond a narrow model based on the pedagogical, content and procedural knowledge and skills. Such a model has its roots in humanistic learning theories (Johnson, 2014) and highlights the importance of the affective, moral and social dimensions of the student experience in online learning. In relation to this multidimensional model is the new awareness that teaching in crises requires a refocusing of professional knowledge to support student identity, emotional wellbeing and resilience. In addition, this study highlights teachers' use and learners' responses to the use of breakout rooms, a feature of video conference platforms, designed primarily for professional rather than educational contexts. It is hoped that the continuing development of this technology along with professional training and academic research will enable teachers to develop and share best practices.

In considering these initial findings, the limitations of the study should also be acknowledged. This is an exploratory study based on purposive sampling and, as such, these findings are not necessarily representative of the whole university population; nor may these findings be generalizable outside this specific context. However, in this ongoing study, preliminary findings highlight the barriers and challenges, as well as the opportunities of BRs for learning. It also invites teachers using BRs to consider the strategies and approaches they employ (e.g. group size and formation, frequency, duration, subject-specific classes, task choice, role of cameras, strategies for motivation etc.) and their impact on student learning. It is also important that teacher educators consider the role of such tools in online learning not solely as a substitute for the physical classroom, but as a way to redefine it. We hope that this study offers initial insights for educators in higher education who wish to use, modify and/or

adapt synchronous online teaching to incorporate collaborative learning tools such as breakout rooms.

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**Appendix: Online survey**

1. What gender do you identify as?
   - Woman
   - Man
   - Non-binary
   - Prefer not to say

2. How old are you?

3. What level of education are you currently studying?
   - Certificate, Diploma
   - Bachelor's
   - Master's
   - Other

4. What is your registration status?
   - Full-time
   - Part-time

5. What is your current year of studies?
   - Year 1
   - Year 2
   - Year 3
   - Year 4
   - Other

6. This semester, how many of your courses are fully online?
   - 0 courses
   - 1 course
   - 2 courses
   - 3 courses
   - 4 courses
   - 5 courses

7. Have you used Breakout Rooms in any of your online classes?

- Yes
- No
- Not sure

8. Did your lecturer explain how to use Breakout Rooms?
   - Yes
   - No
   - Not sure

9. In a typical week, how often do you use Breakout Rooms as part of your online classes?
   - Never
   - 1-2 times per week
   - 3-4 times per week
   - 5 or more times per week

10. Do you ever have a chance to choose your group members for the Breakout Room?
    - Yes
    - No
    - Sometimes

11. In your last experience of Breakout Rooms, approximately how many students were in your group?
    - 2 - 5
    - 6 - 10
    - More than 10

12. What types of activities have you worked on in Breakout Rooms? (please tick any that apply)
    - Generating and sharing new ideas
    - Discussing a question/ topic
    - Reading a text
    - Answering questions
    - Writing/ editing a document
    - Collaborating on a group project
    - Watching a video
    - Searching for information
    - Other

13. Do you typically turn on your camera in the Breakout Room?
    - Yes
    - No
    - Sometimes

14. If you answered 'No' for question 13, briefly explain why not.

15. Have you ever experienced technical difficulties in the Breakout Rooms?
    - Yes
    - No

16. If you answered 'Yes' for question 16, briefly describe the technical difficulties

17. Approximately, how long do you typically spend in the Breakout Room session?
    - Less than 10 minutes
    - 10 minutes to 30 minutes
    - More than 30 minutes

18. Typically, do you participate in the activities in Breakout Rooms?
    - Yes
    - No
    - Sometimes

19. What is your preferred method of communication with other students in the Breakout Room?

- Speaking
- via Chat (writing)
- Both

20. Describe any other challenges you have experienced in Breakout Rooms

21. Rate your level of agreement with the statements below.

| | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| Working in Breakout Rooms allows me to exchange ideas freely. | | | | | |
| Working in Breakout Rooms allows me to get to know my classmates. | | | | | |
| Working in Breakout Rooms makes me feel part of a student community. | | | | | |
| I receive support from other students in Breakout Rooms. | | | | | |
| Working in Breakout Rooms motivates me to learn. | | | | | |
| Working in Breakout Rooms makes me feel anxious. | | | | | |
| Working in Breakout Rooms bores me. | | | | | |
| Working in Breakout Rooms helps me understand the lesson better. | | | | | |
| The quality of the Breakout Room experience depends on the individual lecturer. | | | | | |
| Breakout Rooms make lectures more interactive. | | | | | |
| In my experience, most students participate in the Breakout Room activities. | | | | | |
| The success of the Breakout Rooms depends on the motivation of students. | | | | | |
| The success of the Breakout Rooms depends on the type of task. | | | | | |
| The success of the Breakout Rooms depends on the course. | | | | | |
| The success of the Breakout Rooms depends on the relationships between the students. | | | | | |
| The success of the Breakout Rooms depends on the number of students in the group. | | | | | |
| In my experience, time spent in Breakout Rooms is well spent. | | | | | |

22. Please add any additional comments that will help lecturers improve the use of Breakout Rooms during online classes.

# TERTIARY LANGUAGE LECTURERS' PREFERENCES AND VIEWS ON THE USE OF INTERNET RESOURCES FOR EFL LISTENING

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**Abstract**
This exploratory study reports on the results of a survey on the tertiary language lecturers' preferences regarding the access of EFL listening materials by Internet resources. A total of 80 EFL lecturers participated in the study. The data were gathered using an online survey that included short-answer questions. Moreover, semi-structured individual interviews were conducted with 10 participants. The study demonstrated that the participants used the Internet mainly for preparing extra materials for their learners so that they could also practice listening outside the classroom. The materials selected were mainly educational videos on a variety of topics, which were spoken by EFL speakers representing different native languages. The participants used these materials outside the class to support their autonomous L2 learning.
**Keywords:** L2 learning, EFL, listening, Internet resources, learner autonomy

## 1. Introduction

The process of globalization has initiated new opportunities in terms of the use of Information and Communication Technology (ICT) in L2 learning. The multimodal solutions have become an efficient alternative to traditional methods and helped language teachers to expand "their views on how to create student-oriented and open-ended learning environments" (Lee *et al*., 2005, pp. 3-4). The use of new technology has also changed teachers' perspective about training listening comprehension skills. It is this perspective which is subjected for presentation and discussion in this paper, and which is related to in the theoretical and empirical parts, as

well as recommendations resulting from the study on EFL teaching practices. The first part of this paper offers a background for the empirical study described in the second part. Listening comprehension and its diversity and meaning in the current world are delineated here. Further, the elements of listening skills (macro- and micro-components) are presented and elucidated. Following this is a description of the listening process and the main difficulties learners face when developing listening comprehension. The subsequent part focuses on the modern teaching approach to the development of listening skills.

Online materials and their impact on the development of listening comprehension skills are also discussed here. In the second part, all the necessary methodological details are provided, including the general background of research, materials used, participants, instruments, procedure, and data analysis. The methodological part is followed by the results section which presents the main research findings and their interpretation. The paper ends with conclusions and suggestions for further research in the chosen area.

## 2. Literature review

### 2.1. Introducing listening

Listening is, alongside reading, a receptive skill that refers to the comprehension of shorter or longer sequences of orally produced texts. The meaning of the skill in everyday life is crucial since it plays an integral part in social interactions (usually consisting of listening and speaking intervals) (Goh, 2002; LeLoup *et al.*, 2007; Vandergrift, 1999, 2002; Woodrow, 2018).

Due to its complex nature, scholars present different viewpoints on listening. This can be seen in the definitions below:

- Listening is the process of receiving, constructing meaning from, and responding to spoken and/or non-verbal messages (Brownell, 2002).
- Listening is an active, purposeful process of making sense of what we hear (Helgesen, 2003).
- Listening comprehension is a highly complex problem-solving activity that can be broken down into a set of distinct sub-skills (Byrnes, 1984).

In the different aspects of listening mentioned above (construction of meaning, problem-solving, the existence of subskills), a crucial feature of each definition is an emphasis on the active side of the process, revealing the presence of at least two interlocutors. Lacey (2013), however, states that in this respect listening is disregarded compared to other skills because it is mistakenly perceived as a passive act. It is nevertheless not so as “the presence of

an active listener introduces the dynamics, the element of intersubjectivity" (Lacey, 2011, p.12).

Moreover, including different kinds of listening is strongly influenced "by the metaphor of concentric circles as one moves out from the role as a participant in interaction towards the one-way role of an overhearer or bystander to being a member of a live audience to being a member of an audience at a distance – via media" (Council of Europe, 2018, p. 55). Therefore, listening can also be related to the understanding of a conversation between other speakers (as an overhearer). With all this in mind, the authors of this paper have formulated their definition of listening. They view it as an active and dynamic process of constructing meaning from the available sound material in an interaction between a listener and a hearer. Such a definition has been developed by them for the purposes of this paper and the research which they conducted.

Having formulated a definition of listening, we shall now take recourse to Richards (2005), who notes that second-language learners use listening for two purposes: firstly, because they want to comprehend incoming messages; secondly, listening is a vital part of foreign language acquisition. Numerous studies have demonstrated that listening can support:

- acquisition of aspects of pronunciation (Trofimovich et al., 2009);
- development of lexical resources (Vidal, 2003);
- extension of syntactic knowledge (De Jong, 2005).

The meaning of the separate skills is crucial for the optimal continuation of the listening process, which consists of three interrelated processes: perceptual processing, parsing, and utilization (Anderson, 1983, 1985). The processes are recursive; they flow one into the other, are recycled, and may be modified based on what occurs in prior or subsequent processes (Figure 1).

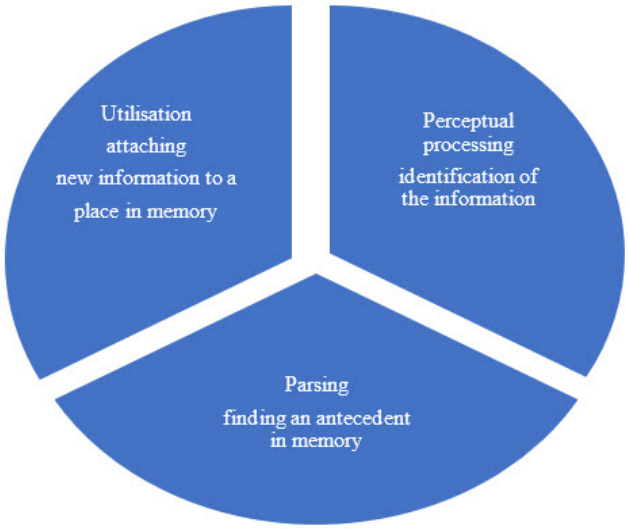


Figure 1. Components of listening comprehension (Authors' own elaboration)

Perceptual processing is the first stage of information processing in listening comprehension. It contains the decoding of an acoustic message (Anderson, 1985). The focus of perceptual processing is mainly on listening materials. The sounds, words, and sentences are stored in short-term memory. During this process, attention is attached to selected special aspects of the task or context (Bao, 2017, p. 196).

The second phase of listening comprehension is parsing, which is a sound-related process. The sounds in the sensory stores are segmented into words or phrases referring to meaningful mental representations. At this stage, the heard words are saved in permanent memory, enabling the meanings of individual words to be identified. The crucial element of parsing is the context that on the one hand limits the amount of mental space corresponding with the right meaning, and on the other one makes certain meanings of words available (Bao, 2017, pp. 196-197). Prior knowledge is understood as knowledge of the topic, familiarity with the discipline, and awareness of the listening context, the text-type, the culture, or some other information usually held in long-term memory. The knowledge is used in the process to recognize and internalize the meaning of the language input.

The ultimate stage of the listening process is utilization. It involves linking the information heard with existing knowledge. The stages forming the listening process are exposed to the influence of external and internal factors that can cause potential difficulties. According to Wilson (2008), the factors can be divided into two main categories: content and delivery. Content refers to the subject of the text that should be interesting for potential listeners and is correlated with their interests. Apart from this, cultural accessibility is also a crucial factor. It supports learners' intercultural competence and provides information about the target countries (Wilson, 2008). The terminological density of the listening text significantly affects its quality. The repetition of key terms, words, and phrases makes the text less demanding for listeners. On top of that, the more complex grammatical structures the text includes, the more demanding it will be for listeners. Delivery refers to the way the text is presented. This includes the length and quality of the material, accent, and method of delivery. The listening text should be delivered in a manner that is suitable for the target group of learners (Rost, 2002; Vandergrift, 2007; Vandergrift & Goh, 2012; Wilson, 2008).

Listening comprehension skills seem to be more difficult to develop than reading skills since the content is dealt with on an intermittent basis because it is available at the moment of speaking and the interlocutor cannot come back to it. Listening comprehension needs more

concentration and quick understanding is also required. Flowerdew and Miller (1996) state that the main reasons for the problems that learners have with listening are:

- lack of effort to understand each word while listening;
- failure or laziness to build up their vocabulary gradually;
- different pronunciation and accents;
- the listener's concentration power or listening stamina influencing listening skills;
- distraction by the physical setting or the environment in which listening is carried out.

Moreover, Wise et al. (2014, p. 186) maintain that ineffective listening tends to occur when the communication takes the form of 'a series of parallel monologues rather than a true discussion'.

### 2.2. The use of technology in todays' L2 listening practice

Despite its significance, scholars agree that the concept of listening has been overlooked and remains undertheorized (e.g., Dobson, 2014; Lacey, 2013). Nevertheless, over the years various approaches to teaching listening skills have been developed. These approaches have influenced the current methods used for developing listening skills. Krashen's Input Hypothesis (1985) was significant for the development of the meaning of listening and the intensity of the research conducted in this area. According to this hypothesis, learners can learn best by exposure to comprehensible input slightly beyond their current level of competence. According to Krashen (1985), learning a second language is similar to the first language acquisition, and listening is the first step on the way to language proficiency. Research in this area contributed to the development of the direct method based on extended contact with native communities. Using this method, questions and tasks cover more knowledge of facts, text translation of ideas, and interpretation of ideas than simply linguistic aspects (Asemota, 2007). Nowadays, the Direct Method has gained newfound popularity due to widespread media access (cable television, the Internet, social media networks).

Another (integrated) approach to the teaching of listening relates to the viewpoint that listening is not an isolated act, but rather an integral part of communication. It consists of the development of listening skills in combination with reading, writing, and speaking skills to better resemble real everyday situations. In the communicative context, these four language skills are taught in an integrated way, allowing each to influence and support the development of the others. Initially, listening is used as a prompter or a first step before productive skills (Solak, 2016, p. 31).

The incidental approach is known as learning to 'listen by listening'. The effort made to listen by itself improves the listening ability. To develop communicative efficiency in pronunciation, learners need to understand how sounds are made and how stress is used. They can practice pronunciation by first reproducing sounds through imitation, a process that leads to the subconscious acquisition of language sounds and patterns (Asemota, 2007). The current standard approach to listening, which Field (2008) refers to as the comprehension approach (CA), has resulted from this commonly accepted viewpoint. Lessons focus on listening to medium-length passages and answering questions checking the learners' comprehension of the text. Field (2008) has outlined a typical CA lesson sequence involving three stages: pre-listening, while-listening, and post-listening.

The current method highlights the significance of teaching listening skills in a practical, communicative, and integrated way. In order to achieve it, teachers are expected to implement authentic materials corresponding to their learners' language level and skills. All the activities suggested by them should provide opportunities not only to train listening skills but also to deepen learners' knowledge of a given subject. This modern listening method involves a student-centered approach, activating learners' engagement, and hindering the teacher's control (Ayu, 2016, p. 154).

A way of developing listening skills is the use of new media (especially freely available online materials). In recent years, researchers have discovered authentic materials as sources for vocabulary learning in listening classes (Aidinlou & Moradinejad, 2016). Renandya and Farrell (2011) note that the practice of extensive listening is useful in exposing learners to real-life input. Technological advancement facilitates the provision of different options for language teaching. Berardo (2006) points out that authentic materials have a positive effect on learners' motivation. The easy availability of materials enables continuity in the training of listening skills. Currently, learners do not have to end their listening training when they leave the classroom. Thanks to the possibilities of autonomous work (through listening training available on websites or authentic materials available online), they can continue the learning process outside the classroom. This has made autonomy an important aspect of the modern approach to the development of listening skills.

In summary, the modern trends in listening development have a rather eclectic character benefiting from some elements of previous approaches. What should be emphasized is the strong influence of new technologies that facilitate integration not only in terms of skill development but also in the use of multimodal authentic materials.

### 2.3. Online materials for learners' L2 listening practice

The Internet contains a vast number of listening resources that can be adjusted to the needs of different groups of learners (Peterson, 2010). Resources of this sort complete the criterion of actuality (raising current issues that are usually interesting for listeners) through the vast abundance of topics available, from literature (audiobooks) to reports (TV, radio) that offer authenticity (increase listeners' motivation through contact with original materials) and multimodality (correlation of sound and picture).

The majority of resources mentioned above represent 'raw material' that requires exact and careful evaluation according to such criteria as learner motivation, authenticity, technology, relevance and interest, appropriateness of the topic, newsworthiness, and length (Banville, 2005). Considering this notion, it is worth relating to Krajka (2007, p. 147) who notes that the selection of online resources increases the flexibility of the material, the possibility of linking online resources with various needs of learners, and the diversification of themes. The technical aspects of online materials (such as audio/video delivery, file formats, and size and audio/video players that support the recording) also play a crucial role (Krajka, 2007, pp. 147-148).

Internet radio and television stations are the sources which present many different types of short and long programs that can be freely adapted to the needs of the target group. The greatest advantage of these programs is that they are related to current issues and are additionally provided with a visualization material (TV). The Internet also offers a wide variety of free access audiobooks (for example, LibriVox), which can be used for listening comprehension. Audiobooks guarantee significant cultural insights (contact with literature written in the target country) and can influence the motivation of learners by referring to perhaps familiar literary works and addressing current issues. They also provide an opportunity for learners to develop their vocabulary. Crucial for the enhancement of listening skills are podcasts which are viewed as audio files delivered off a website via an RSS feed and stored on a computer hard drive or portable player to be listened to at any time (Adamczak-Krysztofowicz, 2014; Constantine, 2007; Trojan, 2012; Aidinlou & Moradinejad, 2016). Podcasts facilitate exposure to the target language. The fact that online materials can be played at a slower or faster pace for better comprehension makes them more learner-friendly and allows them to be used autonomously (Krajka, 2007, p. 149).

Another online medium is YouTube, which in the opinion of scholars can be successfully used in foreign language teaching (Adamczak-Krysztofowicz, 2014; Educause, 2006; Trojan, 2012) and in assessment (Kılıçkaya, 2018, 2020). YouTube videos offer a

valuable material for improving vocabulary, accents, and pronunciation, as well as listening, reading, writing, and speaking skills (Chhabra, 2012). The main advantage of YouTube videos is that they provide authentic examples of the use of language in context and are also usually accessible for free, which makes them easily available (Alwehaibi, 2013; Trojan, 2012).

It is also necessary to point to TED talks which are a special category in the area of online materials (available, for example, on www.ted.com). TED talks are lectures on different topics delivered by speakers from around the world. Each talk is supplemented with a free transcript that can be downloaded and used as an additional support while listening to the lecture (Astika & Kurniawan, 2019). Online materials hosted on various Internet websites for individual and classroom use offer another opportunity to exercise listening skills (www.elllo.org – different listening activities with a wide range of topics; www.esl-lab.com – ready lessons for individual listening and learning; www.eslgold.com/daily_lessons – listening skills for everyday practice; www.engvid.com – videos for English learning). Beneficial to the educational process are MOOCs which are massive open online courses which leverage the use of social networks, modern mobile technologies, broadband Internet, and finally, the globalization of society. The main element that differentiates MOOCs from other sources is the possibility of interaction with other course participants. Learners are free to decide on the necessity and sufficiency of the course and to determine the scope of their interaction (Sir *et al*., 2013).

The influence of modern media on the efficiency of teaching listening skills has become of interest to many scholars, who have devoted their research to analyzing the impact of modern technologies on the development of listening skills (selected areas of expertise are discussed below): According to the study conducted by Alimemaj (2010) with university sophomore students, learners' learning results were much better when they used YouTube not only during regular classes but also individually. Moreover, the learners were able to develop their knowledge because YouTube allowed them to repeat videos and clear up any uncertainties.

Another study described by Liu (2010) referred to the use of social media in teaching listening skills. The study's objective was to determine the tendency to use social media platforms as learning resources. The results of the study indicate that YouTube is used by a large number of learners (70%) who appreciate its ease of access, authenticity, and the abundance of information available on the platform. Mayoral *et al.* (2010) pointed out, based on their research among teachers in primary and secondary schools as well as universities, that YouTube provides visual aids that are crucial for understanding longer passages. A positive

impact of online materials was also confirmed by Abdulrahman *et al.* (2018), who noted that learners who were taught by using podcasts performed better in listening comprehension than those who were not taught in this way. In Pamuji and Setyarini's (2020) recent study which involved a survey among 21 EFL teachers from three countries and additionally an interview with three of them, from Indonesia, YouTube was recognized as the most popular resource for EFL listening, just before WhatsApp and Instagram. The participants in their study also valued the availability, accessibility, and practicality of these resources.

The studies conducted by other researchers and their implications prove the positive impact of the use of online resources on the learning process. Interestingly, the majority of these studies concentrate on how materials from the Internet affect the process of teaching, whereas the way the available materials are technically implemented remains an insufficiently examined field. It is hoped that this paper will fill this missing research gap. The study undertaken by the authors, thus, aims to present tertiary language lecturers' preferences about the use of Internet resources in the preparation of EFL listening materials for their students.

## 3. Methodology

### 3.1. The aim of the study

The main aim of the study was to answer the following research questions:

1. What are tertiary language lecturers' preferences about the use of Internet resources in the preparation of EFL listening materials for learners in preparatory classes?
2. What are tertiary language lecturers' views and suggestions on the use of Internet resources in the preparation of EFL listening materials?

### 3.2. Participants and the context

The participants included 80 EFL lecturers working at foreign language schools at several universities in Turkey. These schools offer various English classes, such as General and Professional English, to the learners whose programs and departments require compulsory preparatory language education. Out of 80 EFL lecturers who responded to the online survey, 10 subjects also decided to participate in semi-structured interviews related to their responses to the survey. 77 lecturers were native speakers of Turkish, whereas 3 other persons had English as their first language. The mean age was 33.4, and the percentage of men was 29.6%, while the percentage of women was 70.4%. The participants were qualified English lecturers with postgraduate degrees. 50 of them had M.A. degrees in English Language Teaching, 20 held

M.A. degrees in English Language and Literature and 10 of them were attendees of the M.A. program in educational sciences.

### 3.3. Data collection instruments

There were two sources of data collection for the study: an online survey and semi-structured interviews. The survey included short-answer questions aimed at investigating which Internet resources lecturers used in their classes, how they used them, and what possible reasons were behind this use. To ensure the validity and reliability of the survey form, the questions were submitted to two experts in the field, and necessary changes and revisions were introduced in them. The interviews were semi-structured and related to the list of questions which were earlier addressed in the survey. The interviewees were asked to analyze and explore the issues and responses more thoroughly than in the questionnaire. They were requested to elaborate on their use of websites and resources for listening activities and to point to the major benefits and limitations of such materials.

### 3.4. Design and procedure

The study was of both qualitative and quantitative character, which allowed the authors to find answers to their research questions. A mixed-method research design was thus adopted. It is necessary to note, however, that the study mainly involved an exploratory qualitative research design which helped to identify tertiary language lecturers' preferences about the use of Internet resources in the preparation of EFL listening materials for learners in preparatory classes. The data was gathered through both an online survey distributed among participants via emails and social networking sites (Facebook and Instagram) as well as semi-structured interviews which helped the authors to gain in-depth information on the subject being studied by them.

The data collection procedure was completed in two steps. In the first step, the survey form was placed on online networking websites such as Facebook and Instagram. Participants willing to contribute to the study were directed to the online survey on *SurveyMonkey.* They had an opportunity to respond to the questions anonymously without being identified. The number of questions was kept to a minimum in order to encourage participants to respond. At the end of the survey, they could share their email addresses or any other contact information if they wanted to be interviewed with regard to their responses.

Out of all the participants who responded to the online survey, 10 agreed to participate in the semi-structured interviews which were carried out through *WhatsApp* or *Skype*. The

interviews had the individual character. Since the participants did not agree to be recorded, the researchers took notes in detail of the responses provided by them. The average length of the interviews was 15 minutes. The interviews were conducted in the participants' native language, which is Turkish, to make sure that they could express themselves and provide detailed responses. The interviews involved the 'why' and 'how' questions which allowed the authors to gain a more detailed picture on the use of Internet resources in language classrooms.

### 3.5. Data analysis

All the data collected through the online survey and semi-structured interviews were subjected to content analysis and analyzed qualitatively. However, some responses to the questions of the survey were also statistically analyzed via descriptive statistical procedures. The analysis of the semi-structured interviews resulted in several themes, codes, and sub-codes. These themes and codes were checked by two raters to ensure inter-coder reliability. Cohen's kappa coefficient was calculated and determined to be .81. Several quotes from the interviews were also provided in the results section to represent the participants' views on the use of the Internet for listening activities.

## 4. Results

*Research Question 1.* What are tertiary language lecturers' preferences about the use of Internet resources in the preparation of EFL listening materials for learners in the preparatory classes?

In order to provide answers to the first research question, the participants' responses to the online survey questions were analyzed (Table 1). The responses suggest that all the participants, in addition to the classroom textbooks and accompanying audio/video materials, used or tried to use Internet resources to encourage their learners to practice listening in their classrooms. The answers varied from 'once a week' to 'whenever I can' to the question of how frequently they utilized resources for practicing listening. A great majority (n=70) indicated that they preferred using in the classroom video-based listening materials to audio-only listening ones.

However, 10 participants noted that, due to storage issues, they sometimes used audio-only listening materials, especially when sharing these materials with their learners for homework or extra practice. The responses also revealed that the subjects benefited from various websites when preparing listening materials for their learners. The majority also indicated that they used listening materials as homework for their learners, as in classroom

conditions they did not have enough time to listen to the materials more than twice and do the comprehension questions and discuss the answers.

As Table 2 demonstrates, the subjects reported the use of various websites for listening activities. YouTube (94%) seems to be the most common one, which may be due to its huge storage capacity and popularity among its users. ESL Video is the second most popular website (80%) which is followed by the English Listening Lesson Library Online (ELLLO) (70%), Randall's Cyber Listening Lab (65%), British Council (60%), TalkEnglish (30%), ESLGold (20), and TED (20%). Apart from these websites, a few participants also recorded their voice or asked their colleagues to record classroom texts for extra practice during listening activities.

Table 1. Participants' preferences about the use of Internet resources for listening materials

| | *n* | | *%* | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Using Internet resources on the Internet to create listening materials* | 80 | | 100 | | | | | |
| | *f* | | | | | | | |
| | never | | Once a week | | More than once a week | | Whenever I can | |
| | n | % | n | % | n | % | n | % |
| *Frequency of using these resources* | 0 | 0 | 50 | 62.5 | 20 | 25 | 10 | 12.5 |
| | Audio-only | | | | Video-based | | | |
| | | n | % | | | n | % | |
| *Using audio-only or video-based listening materials* | | 12 | 15 | | | 70 | 85 | |

Table 2. Listening resources/websites used by the participants

| **Listening Resources** | **Description** | **%** | **URL** |
|---|---|---|---|
| *YouTube* | Website that includes a variety of videos produced by native and non-native speakers of English. | 94 | https://www.youtube.com/ |
| *ESL Video* | Website providing quizzes based on videos for English language learners | 80 | https://www.eslvideo.com/ |
| *English Listening Lesson Library Online (ELLLO)* | Website providing free listening activities through videos with comprehension tests in multiple-choice questions. The videos include various topics and speakers. | 70 | http://www.elllo.org/ |
| *Randall's Cyber Listening Lab* | Website providing short audio files with online multiple-choice quizzes | 65 | https://www.esl-lab.com/ |
| *British Council* | The official website of the British Council. The listening section provides techniques and listening audio files supported with tasks and worksheets based on levels. | 60 | https://learnenglish.britishcouncil.org/skills/listening |
| *TalkEnglish* | Website providing listening exercises with comprehension questions, similar to Randall's Cyber listening lab. | 30 | http://talkenglish.com |
| *ESLGold* | Website including various activities for each language skill in English. DAILY LESSONS section provides listening files with comprehension questions. | 25 | *https://eslgold.com/daily_lessons/* |
| *TED* | Website of non-profit organization which shares videos in the form of powerful talks. Suitable for higher level learners. | 20 | *ted.com* |
| *Teachers/colleagues* | Teachers/colleagues recording their own voice based on classroom texts | 3 | --- |

*Research Question 2.* What are tertiary language lecturers' views and suggestions on the use of Internet resources in the preparation of EFL listening materials?

The responses of 10 lecturers who agreed to participate in the semi-structured interviews were subjected to a thematic analysis based on the framework of Braun and Clarke (2006). Their responses were analyzed and potential themes and codes were generated (Table 3). The first theme *Benefits* included four codes: *various topics*, *World Englishes*, *cost*, *learner interest*, and *nonverbal signals*. The second theme, *Issues*, covered *technical knowledge and sharing*. The final theme, *Suggestions*, included *technical support/training*, *exposure to different accents*, *ignored skill*, and *learner autonomy*.

*Benefits.* This theme includes five categories: various topics, World Englishes (different accents), cost, student interest, and nonverbal signals. 9 participants indicated that it is very easy to access the audio/video-based listening materials about various topics and World Englishes (different accents) on the Internet. One of the participants remarked that:

> There are several benefits of using listening resources on the Internet. However, to me, finding listening materials on various topics and speakers with different accents is the most important benefit. You cannot find easily this feature in the coursebooks accompanied with audio or video files [Participant ID: 08].

Several participants (n=6) noted that using listening materials on the Internet was cost-effective, which means that one can find and apply them for free. It is definitely a benefit which is highlighted, for instance, in the following passage:

> There are several coursebooks providing listening materials for our learners. We use them in class. However, to provide extra practice in listening, we need other materials, and we cannot require learners to buy them as they are often too expensive to buy. However, there are several websites with video-based listening materials free, and our learners can easily access them [Participant ID: 6].

What is more, 6 participants stated that listening resources on the Internet provided them with an opportunity to select materials that suited their learners' interests and levels, which applies the fourth category in the above theme. The participants also stated that due to technical advances and relatively easy access to new tools that enable recording video materials, listening resources now include nonverbal signals such as body language and facial expressions, which help learners during listening comprehension activities. One participant remarked emphasized this aspect in the following way:

> In daily life, while listening, we also benefit from body language. I mean facial expression and the way we stand. The videos that I find on the Internet are great because while they interact with each other, my learners can also benefit from what they see on the video. These gestures and expressions make a huge part of daily communication [Participant ID: 05].

Table 3. The themes and codes that emerged from the responses provided during the interviews

| **Theme** | **Code** | **Sample Response** |
|---|---|---|
| *Benefits* | Various topics | I think the main advantage of the resources on the Internet is that I can find videos on a variety of topics for my learners to practice listening. |
| | World Englishes (different accents) | It is important to expose my learners to various speakers and accents. My learners will interact with people whose native languages will be French, German, Arabic, and others. |
| | Cost | It is very costly to buy books that include listening materials, especially with videos. Most sites on the Internet provide these videos free. |
| | Learner interest | Coursebooks that we use do not always include interesting listening or materials that appeal to my learners. But we can consider their needs and interest and find related listening materials based on their levels. |
| | Nonverbal signals | The video listening materials on the Internet mostly include videos and learners can benefit from body language and facial expressions. |
| *Issues* | Technical knowledge | Sometimes I need to use some part of the listening material or edit it. However, I don't have the knowledge to do it. |
| | Sharing | How to keep and share the file is a real problem. Sharing the listening materials is very difficult as video-based listening materials are sometimes too big to share. |
| *Suggestions* | Technical support/training | Teachers, I think, need to have some sort of training regarding how to edit audio and video files because sometimes it is necessary to use some part of the video, and sharing it as it is is very difficult. |
| | An ignored skill | I and many teachers observe that listening is not practiced as much as it deserves. It is one of the most ignored skills in our classrooms. Also, I do not think we spend enough time for our learners to practice listening. |
| | Exposure to different accents | There are few coursebooks on the market that provide access to different varieties or accents regarding English, and they are very expensive. Teachers, using these videos and listening materials, can encourage their learners to practice listening to people with different language backgrounds. |
| | Learner autonomy | Learners should be informed about these resources and they should be encouraged to select the videos or audio files whose topics they are interested in. They can keep a notebook each week where they can note down the listening activities that they have done that week. |

*Issues.* This theme includes two categories: technical knowledge and sharing. Most participants (n= 8) indicated that they faced some technical problems when using listening

materials on the Internet. These problems seem to be related to downloading and editing these materials. Also, several participants (n= 5) found sharing listening resources troublesome, especially the file size of video-based materials. Two participants expressed their concerns on this issue as follows:

> Sometimes I do not want to use the whole of the listening material and want to share some part of it. However, downloading and editing the material requires some technical knowledge and special software [Participant ID: 05].

> Video-based listening materials are very useful for my learners. However, sometimes it is not easy to share them with my learners. I can share the links for some of them, but sometimes I need to download and share them. Due to large file sizes, it becomes difficult to share them [Participant ID: 01].

*Suggestions.* The last theme comprises four categories: Technical support/training, exposure to different accents, an ignored skill, and learner autonomy. Most participants (n= 8) pointed to the need of technical support/training on how to edit audio/video materials. The majority also underlined that listening was an ignored skill in foreign language classrooms, which was reflected by one of the participants in the following comment:

> Listening is an ignored skill in our country due to several reasons, such as language exams that do not involve listening, and the lack of opportunities to be exposed to people speaking English outside the classroom. Therefore, I believe that teachers can increase the amount of input that learners can be exposed to through assigning listening materials from websites [Participant ID: 02].

Related to the former, exposure to different accents was suggested as the third category. Given that learners of English will often interact with speakers of English as a foreign or second language rather than native speakers, several participants (n= 7) suggested that learners be exposed to different accents and speakers of different languages. One of the participants pointed this out in the way as the passage below shows:

> Many people learn and speak English as a foreign language and these people have different mother tongues. Most of the time our learners will speak English with these people. So, I believe that they must be exposed to different varieties in addition to standard uses of British or American English. The internet provides rich resources to us (Participant ID: 03].

Finally, several participants (n= 5) also suggested learners be informed about the opportunities provided by the Internet and technology and be encouraged to practice listening outside the classroom as listening was not sufficiently practiced in school conditions due to several reasons such as time restrictions and the skills tested in a language class. One of the participants highlights this issue in the following way:

> Our learners should also practice listening outside the classroom and they should be guided about the listening resources available on the Internet. They should be encouraged to do extensive listening by listening to a variety of talks, dialogues on various topics [Participant ID: 10].

## 5. Discussion

*Research Question 1.* What are tertiary language lecturers' preferences about the use of Internet resources in the preparation of EFL listening materials for learners in the preparatory classes?

All the participants indicated that they benefited from listening resources on the Internet. These resources were audio and video-based listening materials freely available on websites. The vast majority of the participants used these listening materials at least once a week, in and/or outside the classroom, which means that they benefited from technology and available resources whenever they wished to help their learners improve their listening skills. Another important finding of the study is the participants' preference of video-based listening materials which allow learners to see also body language and physical behaviors, and thus to obtain more information about the whole situation featured in a class. As Mayoral *et al.* (2010) and Renandya and Jacobs (2016) point out, visual elements help listeners comprehend messages by providing contextual support.

Apart from the above findings the authors identified the resources which the participants use when preparing listening materials. In spite of a variety of available resources such as *(Internet) Radios, TVs,* and *podcasts, YouTube* is placed at the top of their list. It is so because the respondents enumerated it most frequently. This finding is in line with the results obtained by Adamczak-Krysztofowicz (2014), Trojan (2012), Chhabra (2012), and Pamuji and Setyarini (2020). There are two main reasons why YouTube and other similar websites are popular among teachers. The first one is its huge storage capacity and the second one an easy and free access to them via a share of links (Alwehaibi, 2013; Krajka, 2007; Trojan, 2012). Since listening materials are not easy to be downloaded from and/or accessed and shared from other resources such as (Internet) Radios and TVs (Krajka, 2007), these resources were not reported to have been used in the participants' classes.

Other websites recognized in this study as popular listening resources are ESL Video, English Listening Lesson Library Online (ELLLO), Randall's Cyber Listening Lab, British Council, TalkEnglish, ESLGold, and TED. As highlighted by interviewees, most of these websites share audio and video materials specially created or produced for English language learners, which might be another reason why the participants pointed to them as their main listening resources. Besides, some participants indicated that they recorded classroom texts

using their own or colleagues' voices for extra practice. This might compensate for the lack of listening activities for low-resource contexts where teachers and learners cannot benefit from these resources.

*Research Question 2.* What are tertiary language lecturers' views and suggestions on the use of Internet resources in the preparation of EFL listening materials?

The interviews, held with 10 participants, yielded several views and suggestions on using listening resources in the language classroom. There are several benefits voiced by the participants, one of which is that listening resources on the Internet provide learners with various topics. Other benefits stressed by them are recognized within the categories of World Englishes (different accents), cost, learner interest, and nonverbal signals. As indicated by Flowerdew and Miller (1996), learners have a difficulty in understanding different pronunciation and accents, and this often results from a lack of practice and exposure to input. During the interviews, the participants acknowledged that they used coursebooks accompanied with listening materials whose content included a variety of topics and different accents which students could be exposed to and familiarized with. This must be seen as a factor which contributes to the use of listening materials on the Internet, a factor highlighted also by Pamuji and Setyarini (2020).

Another noteworthy characteristic of listening materials identified by the participants is that video-based listening materials include nonverbal signals and rich visual elements, which make up a huge part of human communication. These materials which feature everyday interactions help learners to experience real life situations, leading to the enhancement of their motivation and an arousal of interest in the specific content (Wise *et al.,* 2014). Bearing these characteristics in mind, given easy access and no or low cost of these materials, the participants presumably were encouraged to use them in class.

Although using audio and video-based listening materials available on various topics and issues seems to be beneficial, it is not without drawbacks. Editing or using part of the material rather than the whole of it, and sharing materials appear to be two, leading problems pointed by the participants. While it might be possible to share a link to the listening material with learners who might listen/view it on their mobile devices without dealing with the huge file size, as is the case with video-based materials, editing requires some technical knowledge and special software. This implies that teachers need to be trained in editing if they want their learners to work with the materials they prepare.

The participants in the study also indicate that that they are well aware of listening being an ignored skill in language classrooms due to several reasons, such as the lack of its inclusion in local language tests and examinations. Being aware of this fact, the participants suggest that listening resources should be used to encourage learners to practice extensive listening outside the classroom. The participants state that they offer their students extra practice in listening that is related to the readings and other activities done in the classroom, and in this way help them to benefit from prior knowledge (Bao, 2017) and the content of the listening.

The surveyed lecturers believe that extensive listening contributes to the exposure of learners to various topics and speakers of different accents and native languages. They maintain that it also helps students to become responsible for the learning process and to be more autonomous in their educational work. In this way, learners would be informed about other listening resources and would also be responsible for their learning and do extra practice by benefiting from resources in addition to the activities in the coursebooks and other materials, which is believed to contribute to their autonomy. In other words, compared to practices in the past, due to certain technical restrictions, such as the lack of equipment like audio players, learners need not limit their listening practice to the classroom. By using listening resources available on the Internet, they can do intensive and extensive listening outside the classroom, which can also improve their attitudes towards listening and improve their skills (Metruk, 2018; Renandya & Jacobs, 2016).

With these implications in mind, it is worth relating to Renandya and Jacobs (2016) who also emphasize the importance of extensive listening. They indicate that fluency in listening can only be achieved by listening to a variety of materials in large quantities. By doing so can learners recognize words and meanings quickly and effortlessly. Similarly, as indicated by the study conducted by Metruk (2018), upper-intermediate and advanced EFL learners were surveyed regarding their habit of watching English videos and doing extensive listening and it was determined that they enhanced their listening skills by viewing videos on social networking websites, which contributed to learner autonomy. Extensive listening can further be practiced by quality listening materials and resources, task design, and learner characteristics which are intertwined with technology, and in this way, young people can become more motivated and engaged in listening activities (Berardo, 2006; Gruba, 2018).

## 6. Conclusion

The study aimed at identifying tertiary language lecturers' preferences about the use of Internet resources in the preparation of EFL listening materials for learners in preparatory classes. The participants of the study were 80 tertiary English language lecturers working at various language schools in Turkey. Necessary data was collected from them through an online survey that included short-answer questions, and additionally through semi-structured interviews conducted with only 10 volunteer participants who decided to provide more detailed information on the issues in question.

The results of the study indicate that the participants mainly benefited from websites that hosted audio and video-based listening materials and used these materials as extra practice for their learners outside the classroom. Video-based materials were preferred by the participants who by means of them provided learners with rich visual content that supported their listening comprehension. Another reason for choosing video-based materials by the subjects was their better reflection of daily communication and interactions carried out between interlocutors. The participants used listening materials from such websites as ESL Video, English Listening Lesson Library Online (ELLLO), Randall's Cyber Listening Lab, British Council, TalkEnglish, ESLGold, and TED. Listening resources on these websites were highly valued by the subjects who found them beneficial for practicing extensive listening and improving learners' knowledge and skills.

Considering the findings of the study and the pedagogical implications, the following suggestions can be offered. Using various listening materials and exposing learners to these resources can be a way of helping learners do extensive listening and improving their listening skills. As the current study indicates, EFL lecturers use a variety of audio and video-based listening materials to benefit their students from a variety of accents, topics, and interactions. However, it is necessary to note that there are certain limitations to this study and certain suggestions for further research need to be made. The findings of the current study might not be generalized due to the limited number and selection of the participants. However, these findings might be transferred to similar teaching and learning contexts. The data was collected based on the responses obtained from the participants through an online survey and semi-structured interviews. Therefore, the data and the results were based on the participants' perceptions and reports, rather than observations and other data collection tools. Further research is needed on several aspects, such as triangulation of data with other collection instruments and research methods, using respondents from a variety of universities and countries. Further research can also investigate other aspects of using websites in teaching and

practicing listening. For example, subsequent research can also focus on how these listening resources are/can be utilized in language assessment practices.

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# HANNA – A GAMIFIED DIGITAL SUPPLEMENTARY COURSE MATERIAL DEVELOPED TO HELP SOCIALLY DISADVANTAGED PUPILS LEARN ENGLISH

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**Abstract**

When it comes to language learning and teaching, one of the major issues that needs to be tackled is the large differences between students in terms of school performance, especially socially disadvantaged children who tend to lag behind their peers. Research on language teaching tends to focus on the average learner, thus leaving little room for students living and learning in low socio-economic regions (low SES). Central Europe, and particularly Hungary, displays one of the most considerate gaps in education, where disadvantaged regions and schools often underperform on the national curriculum tests. Innovation, alternative pedagogical methodologies and different mindset in teaching can bring about enhanced motivation, especially by employing digital devices and the elements of gamification.

The purpose of our study is to introduce a new, tablet-based digital language course programme (HANNA), developed specifically for socially disadvantaged pupils in grades 5-7, which draws upon the teacher's role as a facilitator. The paper explains and describes the factors that contributed to designing the structure of HANNA, along with the organisation of the programme and the gamified elements that are meant to motivate students, thus providing an insight into material development specifically for disadvantaged pupils.

**Keywords:** gamification; motivation in language learning; self-regulated learning; digital course programme

## 1. Introduction

National curriculum requires that pupils in Hungary learn a foreign language from 4th grade, attending a minimum of two classes per week, while in grades 5-8 they have three classes per week. Unfortunately, research has failed to demonstrate that language learning in school could be fun, not to mention the large differences across primary schools in terms of children (Nikolov 2011). Language proficiency tests show that schools in bigger towns have usually better results, which is a peculiar side-effect of Hungarian public education (in the following

order: capital, county capital, town, and village). Nikolov (2009) claims that in terms of foreign language teaching Hungary lags behind other European countries, which can be explained by the quality of language learning, rather than by quantitative factors, like the number of classes per week. Foreign language lessons in Hungary are dominated by a frontal, grammar-translation- and drill-based methodology style, and typically apply less favoured and less motivating practices, including activities that prove to be less supportive of cooperation, autonomy and target-language communication, like reading texts out loud, translation and grammar practice. As a result, it becomes difficult to motivate students and keep them motivated, which can easily make classes less engaging. The development of learner's autonomy is often neglected, even though current research puts the emphasis on promoting it (Little 2007). Furthermore, the role of collaborative student work is downplayed despite studies proving its significance in tackling social differences, segregation and academic gaps (Foster & Skehan 1999).

The fact that classwork fails to motivate children may have the dire consequences for socially disadvantaged students, as they are the least likely to receive positive feedback or any motivation relating to language learning at home, e.g. reward for good marks, access to interesting contents in the target language, a supporting and motivating environment, or travelling (Iwaniec 2020). But what is actually meant by socially disadvantaged pupils, low socio-economic statues (low SES), neglected children or children at risk? These terms all refer to children living in a household under the average national income (Staff 2012). Research usually differentiates 5 aspects of low socio-economic status, where all of them interact:

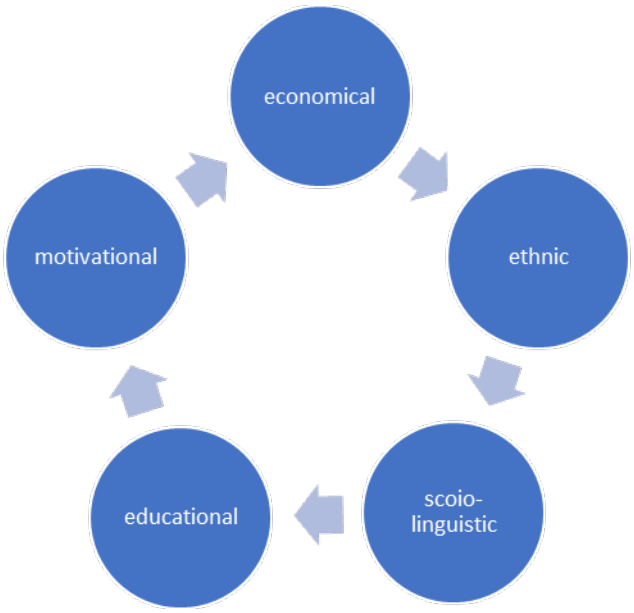


Figure 1. Aspects of socioeconomic status (Furcsa, 2012)

Teaching pupils in low SES backgrounds requires significantly innovative and creative methodologies to engage them in their own learning processes, while establishing a perspective for the pupils to comprehend the importance of their own schooling and to accept responsibility for it (Szabó, 2021). How can this highly complex pedagogical task be achieved? Over the past decade the concept of gamification has received increased attention and interest in academia and practice as it demonstrates potential to promote motivation and learner engagement. The central idea is to take the 'building blocks' of games, and to implement these in real-world situations, often with the goal of motivating specific behaviours within the gamified situation. Based on previous research (among others, Sailer & Homner, 2020) we believe that gamification can be an innovative and promising tool to help socially disadvantaged students overcome the their motivational difficulties.

This paper introduces a gamified supplementary programme for English language learners optimized for tablets and for the classroom environment, which may contribute to the academic improvement of socially disadvantaged students. First, we will describe the aspects and theories considered when designing the programme. Then motivation to learn languages as well as the theory of gamification will be discussed in detail.

## 2. Literature review

### 2.1. Motivation and socio-economic status

It is widely believed that the reason behind socially disadvantaged children's low performance and negative attitude towards school is the lack of motivation and often biased motivation stemming from their home environment (Polonyi *et al*., 2021; Lacour & Tissington, 2011; Peter & Mullis, 1997). However, studies do not unequivocally support this assumption (Howse *et al*., 2003; Stipek-Ryan, 1997). In the case of Hungarian students, too, there is only a weak correlation between the educational level of parents and the motivation of children, although the academic motivation of socially disadvantaged students is somewhat less developed compared to their peers (Kovács, 2019; Józsa, 2000; Józsa & Fejes, 2010).

During the developmental phase of our programme we conducted a study to explore the disadvantaged students' motivation and attitude to learning (Polonyi *et al*., 2021). Irrespective of social background, intrinsic motivation generally plays a key role, and group learning has also proved to be important. This means that a higher level of student engagement and stronger learning motivation can be achieved by using methodology that draws on students' attention, personal development and group learning. Social background hardly affects the motivational

profile. The research of Polonyi *et al*. suggests that socially disadvantaged students do not have a specific motivational profile, meaning that being 'disadvantaged' alone does not determine their attitude to learning. Apparently, the same motivational tools should be used in teaching socially disadvantaged students as with other children. The motivational profiles of different student groups are dominated by intrinsic motivation and group aspects, which means that it is crucial to support involvement and cooperation, as well as to eliminate alienation and the resulting boredom.

### 2.2 Language learning motivation

The motivational factors behind a child's desire and willingness to learn languages may entirely determine learning success and indicate problems and difficulties that may arise later. Thanks to its crucial role in second language learning, much research has been conducted to better understand motivation over past decades (Dörnyei, 2014; Dörnyei *et al*., 2015; Gardner, 1985; Noels *et al*., 2019). Within the historical evolution of language learning motivation, a number of theories and perspectives (for reviews, see Dörnyei *et al*., 2015) have been applied by studies.

Second-generation motivation researchers place more emphasis on cohesion in student groups and classes (Dörnyei & Murphey, 2003). In these studies, they started to focus on the personality, autonomy and learning style of students, and on their position within their learning groups. The other clear trend is that much of this research has emphasized the importance of the self and identity in language learning motivation.

Self-determination theory (SDT; Deci & Ryan, 1985, 2018; for an extended description of SDT in the language learning context, see Noels et al., 2019) is a theoretical framework which outlines the role of the self in motivational processes. SDT originates from humanistic psychology and emphasizes a first-person perspective on motivation and personality. It postulates that the person, supported by the social environment, naturally moves toward growth through the satisfaction of basic psychological needs for *autonomy* (the desire to feel volitional rather than controlled and to establish inner coherence), *competence* (the need to engage optimal challenges and feel effective), and *relatedness* (the need to feel valued and connected with others), which are innate and universal. When these needs are satisfied by the individual's social milieu, the individual becomes more motivated to act and shows greater positive outcomes in the education setting (Deci & Ryan, 1985; 2000; 2017).

Language learning motivation has been further explored along the lines of social background, and current research has revealed that parental education plays a pivotal role in children's academic performance and the level of motivation to learn (Szabó *et al*., 2021).

### 2.3. Gamification

The origin of the concept of gamification, as well as its most accepted definition, can be dated back to 2011: "Gamification is the application of game-design elements and game principles in non-game contexts" (Deterding *et al*., 2011, p. 10). Out of the numerous other definitions, Kapp's version (2012) is worth mentioning here, as it specifically refers to education: "Gamification is the careful and considered integration of game characteristics, aesthetics and mechanics into a non-game context to promote change in behaviour. It is most often used to motivate and engage people" (p. 15). Applying gamification in the field of education has four important benefits for the teaching/learning process (Boller & Kapp, 2017; Cruaud, 2018). First and foremost, it enhances the motivation and engagement of students, as gamification makes the fulfilment and evaluation of tasks more enjoyable, which in turn results in better performance. Gamified systems are often designed so that they allow repeated access to contents. Repetition supports learning – the more frequently students encounter some content, the more rapidly their knowledge and skills will develop. With a view to enhancing control of the learning situation, students can take different learning paths in gamified systems. The learning environment is generally tailored to the individual's needs, allowing students to walk their unique paths, while being motivated to explore the system itself. Gamification inspires students to reflect: they receive instant feedback, and if they have given a wrong answer, next time they will spend more time figuring out the right one (they want to win), thus learning takes place. To sum up, in an efficient gamified learning environment the combination of engagement, repetition, bespoke solutions and reflection facilitates learning.

A common issue among most studies that have applied gamification in educational context is that they lack any theoretical foundation (Seaborn & Fels, 2015), although some researchers tried to explain the relationship between gamification and learning outcomes. One of the most promising one is Landers' (2014) theory of gamified learning, which defines four components: instructional content, behaviours/attitudes, game characteristics, and learning outcomes. The theory states that the instructional content has a direct influence on the learning outcomes, while gamification has a positive, indirect effect on learning outcomes. Since most of the time gamification is not aimed to replace instruction, in order to be successful gamification requires effective instructional content. The goal of gamification is to influence

behaviours and attitudes associated with learning. In turn, these behaviours and attitudes are hypothesized to influence the relationship between the instructional content and learning outcomes via either moderation or mediation, depending on the nature of the behaviours and attitudes targeted by gamification (Landers, 2014; Sailer & Homner, 2020; Pham *et al*., 2021).

On the other hand, it is important to note that Landers' theory does not try to provide information about how game elements trigger effective learning mechanism (Sailer & Homner, 2020). In order to understand such a mechanism, we need to turn to other well-established psychological theories such as self-determination theory (Ryan & Deci, 2000). The satisfaction of the needs for competence, autonomy, and social relatedness is central for intrinsic motivation and for high-quality learning. That is why SDT emphasizes the importance of the environment in fostering motivation (Ryan & Deci, 2018). Enriching the environment with game design elements, as gamification does by definition, directly modifies that environment, thereby potentially affecting the learners motivational and psychological experiences (Sailer *et al*., 2017).

Gamification can be implemented using one of the two approaches: *structural gamification* and *content gamification* (Kapp 2012). The former refers to the gamification of the structure of the programme without modifying the content, in order to motivate children to learn the content. Content modification covers the gamification of content, and the application of game elements and a game-design approach (e.g. story, challenges, mysterious elements and characters, interactivity, feedback, room for mistakes). In gamified systems students are supposed to achieve 'flow state' and absorption, just like when playing with computer games. We can arouse the interest of children and maintain their level of motivation only if we are able to bring about these outcomes in a learning environment as well. Naturally, the primary aim of gamification is not to entertain students (and teachers) in this setting, either, instead it is an approach that aims to increase the efficiency of teaching and learning.

The key benefit of the application of gamification in language learning is that it allows differentiation: students can progress at their own pace, their performance is assessed based on their individual characteristics, their motivation is strongly affected by their opportunity and willingness to catch up and cooperate with their peers, and the requirements regarding when they are supposed to complete a level are also tailored to their abilities. As Prievara (2015) highlights, the testing of students' level of knowledge may be adapted to their abilities.

To sum up, in the framework of gamified education students can achieve their learning goals through a process that is enjoyable and entertaining both for them and their teachers. This is the reason why we decided to employ gamification in our programme. The supplementary

digital and playful programme for teaching English called HANNA (Fehér *et al*., 2018) was designed considering the above aspects.

## 3. HANNA – A Gamified Course Programme

HANNA, the digital course programme described in this section was developed with the support of the Hungarian Academy of Sciences and the University of Debrecen. The objective of the research group was to create a supplementary English language course programme for 5th, 6th and 7th graders, which is suitable for classroom use on tablets, and can contribute to reducing the gap for under-performing socially disadvantaged students.

### 3.1 The concept of HANNA

The idea was to develop 20-25-minute long lessons, which are long enough to engage students in meaningful work, while short enough to be added to the standard class programme. Our basic concepts were as follows:

1. General language pedagogy methods will be used in creating the programme.
2. We will compensate for the effects of a non-motivating home environment with motivation in the classroom and with enjoyable, gamified education.
3. The programme will be developed for tablets to allow students to move around in the classroom when fulfilling tasks and to help underachievement to catch up.
4. The programme will be broken down into micro contents, which enables students to have an instant sense of achievement and makes it more likely that the tasks will be completed in time.
5. Students will be allowed to choose from 3 exercises to ensure that all of them find a task that arouses their attention and motivates them.
6. We will provide teachers with everything they need (Teachers' Manual, teachers' interface, and further training) to ensure that they can implement the programme with ease.

### 3.2. Implementing gamification in HANNA

From the very beginning, we intended to design the programme in a gamified environment, using the elements of both structural and content gamification. Serious gaming elements were integrated in the course programme (Boller & Kapp, 2017). The programme encompasses 11 topics with 2-3 modules in each topic. Each module comprises 3 lessons which are more or less connected in terms of content, vocabulary and grammar. The 3 lessons within a given module

should be delivered in 3 consecutive classes. However, the modules are independent of one another and can be completed in any order. In this regard, no one can fall behind, as students who missed a module due to absence or for other reasons can start the next module like any other students.

All modules have the same structure (Table 1). *Introduction of wordcards 1* contains the basic vocabulary of the given topic, typically involving 9-14 words and expressions (written form, audio and images). *Playing with wordcards 1* helps students to familiarise themselves with the vocabulary, and tests their knowledge using simple exercises (e.g. multiple-choice questions, assembling words, assembling sentences). *Practice games* are proprietary mini-games for practicing the vocabulary, sentence forms and grammatical structures indicated on the word card in an enjoyable and playful manner. Besides language skills, they involve other skills and elements like rapid decision making, luck and humour. The 2nd lesson includes a cooperative skills exercise, which mainly introduces the creative exercise of the 3rd lesson. *Preparatory skills exercises* are completed by students in groups (or pairs). Students watch videos and fulfil comprehension tasks. These tasks and the contents covered are complex, bespoke and varied, and are displayed through a series of instructions and related contents. Sections in *Introduction of wordcards 2* and *Playing with wordcards 2* in Lesson 2 teach students the words of the skills exercise. Lesson 3 comprises a single section, *Creative exercises*, which focuses on oracy and activities. Here students complete the creative exercise introduced in Lesson 2, working typically in groups or pairs. They communicate with each other in the target language, and in addition to language skills they also rely on other skills and fields of interest like singing, dance, arts and crafts, drawing, subject matter knowledge and drama.

Table 1. General structure of modules in HANNA. The 3 lessons should be delivered in 3 consecutive classes. For each lesson we indicated the number of exercises that students can choose from (V-*), the maximum points for each exercise (P-*), and whether the given part includes content gamification or a serious game.

| **Lesson 1** | **Lesson 2** | **Lesson 3** |
|---|---|---|
| ***Introduction of wordcards 1*** | *Introduction of wordcards 2* | |
| **V-2; P-19; P-38** | V-2; P-19; P-38 | |
| **Serious game - teaching** | Serious game – teaching | *Creative exercises* |
| ***Playing with wordcards 1*** | *Playing with wordcards 2* | V-3; P-600; P-600; P-600 |
| **V-4; P-15; P-30; P-45; P-60** | V-4; P-15; P-30; P-45; P-60 | Content gamification |
| **Serious game – testing** | Serious game – testing | |

| ***Practice games*** | *Preparatory skills exercises* |
|---|---|
| **V-3; P-130; P-150; P-170** | V-3; P-450; P-450; P-450 |
| **Serious game - testing** | Content gamification |

Table 1 shows the number of exercises students can choose from in the individual sections of a given lesson (V-*). The maximum points for each exercise are also indicated (P-*). Exercises include either serious games for teaching or testing purposes, or content gamification.

In our gamified course programme, exercises will be completed in a playful way and can be repeated multiple times, either in the framework of classroom activities or at home. Naturally only *Introduction of wordcards, Playing with wordcards* and *Practice games* can be considered for home practice, because they require independent work. In the case of *Preparatory skills exercises* and *Creative exercises,* which require group or pair work, there is no need for learning at home as these sections are usually dealt with only once in a session.

The course programme offers the opportunity to choose from options at several points. However, the use of different learning paths in the system is restricted. Basically, teachers decide which modules of which topic are discussed in the classroom, and they also select the sections within modules to deal with. However, when it comes to individual sections, choices are available for students (Table 1, V-*). In the case of *Preparatory skills exercises, Creative exercises* and *Practice games,* students can choose from 3 exercises, while they can follow their individual paths in the games played with wordcards, which means that they can complete the exercises in the order of their choice, and they can repeat or skip exercises.

All exercises with one correct solution are evaluated instantly: students receive immediate feedback on whether they have given a right or a wrong answer. Questions with wrong answers will appear again.

In Werbach's system *Dynamics* (restrictions, emotions, narrative, progress and relation) are the highest-level conceptual elements, which make the game experience coherent (Werbach & Hunter, 2012). *Restrictions* define what students can and cannot do. The course programme offers more freedom: all modules of the lessons are directly available, but in a classroom environment the order of exercises is basically defined by the teacher. Another restriction is that in wordcard exercises students have three attempts to find the right answer, while in preparatory and creative exercises pages are only accessible in a fixed order. The aim of the course programme is to generate as many positive *feelings* as possible, since happiness, a sense of achievement and positive feedback all encourage students to continue playing and, consequently, learning. *Narrative* is a structure that makes pieces of the game a coherent whole.

We discarded the idea of using an explicit story line in a classroom environment, but the regular appearance of certain graphic and other elements (like Hanna, the baby elephant) connects the pieces and results in a coherent whole in the players' head. The element of *Relations* appears in the framework of group and pair work, through the preparatory and creative exercises.

The second level in Werbach's system is *Mechanics*, which allows progress in the course programme. Here the most important elements are *Feedback,* which accounts for efficient progress, and *Turns*, which refer to the exercises following each other in a given lesson. A further important element is *Reward*, which is the primary guarantee for positive experience, as it provides immediate feedback.

The third level includes *Game components,* which are elements that appear on the surface and are responsible for providing higher-level dynamics and mechanics. Considering that we are working with a classroom environment and socially disadvantaged children, we left out several components including *Avatar,* which might disturb classroom work, and *Rank list*, which may demotivate students or even trigger a feeling of shame. However, *Points* and *Badges,* which are associated with feedback, progress and reward, are included in the programme. Our evaluation system was designed to strengthen intrinsic motivation, and we also put great emphasis on the development of the social competencies, social skills, co-operation and communication skills of students.

Students are aware of the maximum number of points available in the individual exercises of the modules. While working on the exercises, they continuously receive feedback (on whether or not their answers were correct). They are given maximum points only if they have provided a correct answer to each exercise at the first attempt, therefore the number of points collected truly reflects their performance. The number of points achieved is displayed when the exercise is completed, along with the student's performance (in percentages). Students can review their previous results as well, which enables them to monitor their progress. This means that they receive continuous feedback on their strengths and the areas to improve. As a result, they know exactly how they are doing. Stored scores are also available to the teacher, allowing them to keep track of students' progress and development.

## 4. Methodology

### 4.1. The aim of the study

The aim of our study was to examine the long-term effects of HANNA on English language academic achievement in primary school. We expected that the introduction of the tablet-based,

gamified course material would increase pupils' English academic performance. During the design process of HANNA the main motivation was to create an application that focuses on the needs of disadvantaged students. Thus we also aimed to examine how the socioeconomic status (SES) of students effects their langue learning during the intervention period.

### 4.2. Participants and the context

HANNA was introduced in primary schools as a pilot program in Hajdú-Bihar County, which is located in the Eastern part of Hungary between 2018 and 2021. The region is characterized by profound poverty and the unemployment rate is significantly higher than the national average. Three of the micro regions of the county are considered extremely disadvantaged.

Three teachers involved in the intervention attended a 30-hour-workshop on how to use HANNA. They were financially compensated for their efforts. Consent to participate was granted by teachers, who were in charge of distributing and collecting parental permission forms. All parents completed a written consent form allowing their children to participate in the research. During the intervention period, the classes in the experimental group used HANNA on average for two out of their four English lessons per week. The classes in the control group followed only the state-defined curriculum.

The data collection took place at the schools, in person, between September 2018 and March 2020. The study used a pre/post-test design, the first assessment was carried out at the beginning of the school year before the introduction of HANNA, while the second measurement took place six months later. A total of 112 students from four schools participated in the intervention group and the control group consisted of 119 students from five different schools. The SES was measured by identifying the mother's school qualification. The ratio of low-SES students in the classes participating in the study varied between 52 and 68 %. Most of the students were from Roma ethnicity.

Unfortunately, our research was interrupted by the national lockdown and the closure of schools due to COVID-19. Because of that we were not able to gather post-intervention data from five schools and they were eventually excluded from our sample. The final sample consisted of 101 students, 60 of whom were in the HANNA group (age: M=11.4 years, SD=0.66, 28 girls) and 41 in the control group (M=11.7 years, SD=0.56, 23 girls). Details of the sample are given in Table 2.

Table 2. Number of students, their age, sex, maternal education

| | N | Age | Sex | | Maternal education | | | |
|---|---|---|---|---|---|---|---|---|
| | | (means) | Boy | Girl | Primary | Vocation. | GCSE | Higher |
| **HANNA group Intervention** | **60** | **11.4** | **32 (53.3%)** | **28 (46.7%)** | **20 (33.3%)** | **16 (26.7%)** | **16 (26.7%)** | **8 (13.3%)** |
| Esztár (village 1) | 45 | 11.4 | 26 (57.8%) | 19 (42.2%) | 20 (44.4%) | 10 (22.2%) | 11 (24.4%) | 4 (8.9%) |
| Hosszúpályi (village 2) | 15 | 11.3 | 6 (40.0%) | 9 (60.0%) | 0 ( 0.0%) | 6 (40.0%) | 5 (33.3%) | 4 (26.7%) |
| **Control group** | **41** | **11.7** | **18 (43.9%)** | **23 (56.1%)** | **3 ( 7.3%)** | **18 (43.9%)** | **16 (39.0%)** | **4 (9.8%)** |
| Nagyhegyes (village 3) | 19 | 11.7 | 9 (40.9%) | 13 (59.1%) | 3 (15.8%) | 7 (36.8%) | 8 (42.1%) | 1 (5.3%) |
| Kaba (village 4) | 22 | 11.7 | 9 (47.4%) | 10 (52.6%) | 0 ( 0.0%) | 11 (50.0%) | 8 (36.4%) | 3 (13.6%) |

### 4.2. Data collection instruments

#### 4.2.1. Demographic questionnaire

In addition to the personal data of the students (gender, age, academic results), the questionnaire we created also included items relating to the educational qualifications of the parents, as well as the composition and the economic background of the family.

#### 4.2.2. Language skills assessment test

To assess language skills, one member of the research team (teacher trainer and foreign language educator) created a test consisting of 10 items, which covers the most important skill areas, with the exception of listening. The test consisted of tasks in the following areas, (a) Understanding texts (reading comprehension); (b) Recognition of lexical units (vocabulary); (c) Grammar tasks (grammar). The test was based on Project Fourth Edition Teacher's Site (https://elt.oup.com/teachers/project) as well as on the National Curriculum. The test was two versions, one for assessing language skills at the beginning and one at the end of the measurement period. The tasks were by and large the same, only their order was changed. This was due to the fact that intensive development cannot be expected in the groups of our study after 6 months.

### 4.3. Statistical analysis

To analyse our data we used the statistical software called R (R Core Team, 2020). We performed 2×2×4 mixed model analyses of variance (ANOVA) where the dependent variable was the result of the language skill assessment test and the independent variables are *TIME* (with "pre-test" and "post-test" values) as a within-subject factor, *CONDITION* ("HANNA" and "control") and mother's educational attainment *MEA* ("primary ed.", "vocational ed.", "GCSE" and "higher ed.") as between-subject factors.

### 4.4. Results

The descriptive statistics of the language skill assessment test in relation to each target group by maternal status are shown in Table 3.

Table 3. Descriptive statistics of the language skill assessment test in relation to each target group by maternal status

| **Scale** | **Time** | **Condition** | **Mean (SD)** | | | |
|---|---|---|---|---|---|---|
| | | | **Mother's educational attainment** | | | |
| | | | **Pri.** | **Voc.** | **GCSE** | **Higher** |
| **Language skill [0,100]%** | **Pre-test** | HANNA | 74.39 (11.51) | 66.87 (20.10) | 71.70 (16.39) | 72.41 (8.08) |
| | | Control | 82.25 (12.27) | 80.30 (15.99) | 67.78 (18.92) | 82.47 (12.48) |
| | **Post-test** | HANNA | 61.25 (22.47) | 76.93 (11.68) | 79.14 (18.46) | 83.46 (4.89) |
| | | Control | 64.71 (25.09) | 71.32 (20.06) | 81.62 (20.67) | 92.28 (4.55) |

The significant interaction of MEA×TIME ($F(3, 93) = 5.74$, $p = .001$, $\eta_p^2 = .16$) indicated that pre-tests and post-tests were affected differently by mother's educational attainment. Running a new model (2×2 mixed ANOVA: TIME, CONDITION) on each level of maternal education (Figure 2), students in the most disadvantaged group (primary ed.) achieved a lower result in both HANNA and control condition (significant main effect of TIME: $F(1, 21) = 5.34$, $p = .031$, $\eta_p^2 = .20$), while students where the maternal education was the highest (GCSE and higher education) improved their language skills between pre-test and post-test (significant main effect of TIME, GCSE: $F(1, 30) = 6.54$, $p = .016$, $\eta_p^2 = .18$; higher education: $F(1, 10) = 20.46$, $p = .001$, $\eta_p^2 = .67$). In vocational education group, the gamified HANNA course material improved students' language skills, while the results in the control group proved to be lower (significant interaction of CONDITION×TIME,: $F(1, 32) = 5.31$, $p = .028$, $\eta_p^2 = .14$).

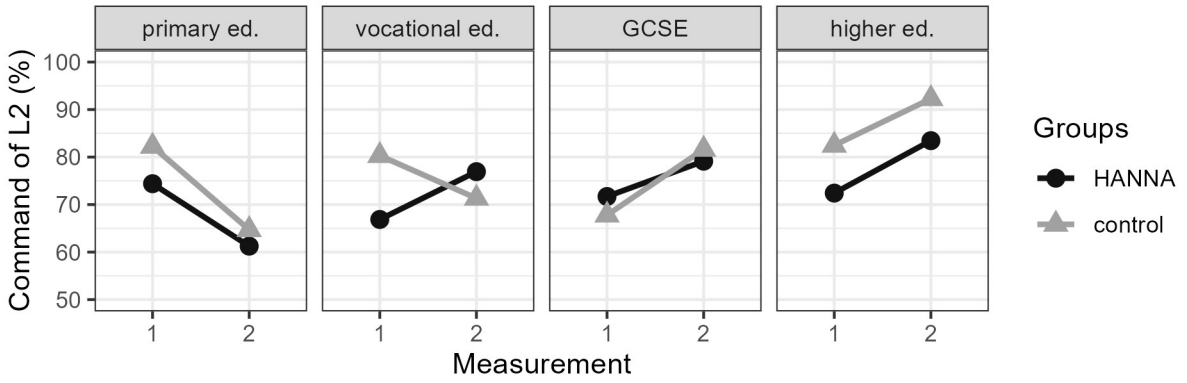


Figure 2. The results of the English progress test in our two groups (intervention – HANNA and the control group)

## 5. Discussion

Following the implementation of the course material into the school curriculum, both the academic performance and motivation of the pupils in low SES witnessed a significant shift in improvement. To assess development in language skills, we created a test consisting of 10 items covering the most important skill areas, with the exception of listening. The test was applied at the beginning as well as at the end of the measurement period. It was clearly visible that improvement was noticeable, however, due to the fact that intensive development cannot be expected in the groups of our study after 6 months, we assumed that the increase in language skills and motivation would be slower yet noticeable. The application of the digital course material clearly and successfully brought about positive changes in the pupils' motivation, which was also a set aim at the beginning of the project. It must be highlighted that when it comes to teaching pupils in low socio-economic regions, one of the key issues is to increase engagement and motivation in their learning processes. Our gamified digital course material has accomplished this goal, however, expecting a fast academic development seemed to be rather unrealistic. The impact of maternal education is also significant. As expected, children of mothers with a college/university degree performed best in all tasks, which confirmed our hypothesis. At the same time, surprisingly, children of mothers with a secondary vocational qualification performed better in more tasks than children of mothers with a high school certificate (A-level exam). We assume that this may be due to a specific socio-cultural difference, as parents with a secondary vocational certificate are often blue-collar workers, so learning and work are much more present in their lives. Based on this, the results of the language aptitude test show a tendency that maternal education has a strong impact on the academic achievement of the pupils. The results of the children of mothers who have a high

school certificate and those with a secondary vocational qualification were very similar, which can also be explained by the fact that the school-leaving examination has no value in the country areas, especially in the disadvantaged regions. Based on the language learned, it can be said that, in general, the difference between English and German learners is small regarding language aptitude. However, English learners performed better in all dimensions. We assume that the language choice is realised as a result of a subjective selection by the teachers based on the achievement of the pupils. In addition, there is a fundamental tendency to place children studying in disadvantaged regions, especially those with learning difficulties, in German-learning groups when choosing a foreign language.

The teachers involved in the study reported that the pupils using HANNA became very focused, deeply involved in the application and more co-operative. This result can clearly be put down to the effects of gamification. The research also revealed how the principles of gamification can be realised and implemented in developing material for disadvantaged pupils. The various types of tasks and the elements of the program all followed Werbach's system of gamification, which underline the fact that it does increase participants' motivation and engagement not only in games, but in strictly limited educational setting as well. The findings may pave the way for future studies and research shedding the light on the interrelationship between gamification, learning and low socio-economic backgrounds. HANNA embraces all these aspects, and as a pioneer in the regional context with its specification with socio-economic involvement can benefit governmental decision-makers and actors of education.

However, it needs to be emphasized that achieving academic development is seemingly a slower process than in higher socio-economic backgrounds. Its reasons are complex and several influencing factors were uncovered in our research: maternal education, facilities at the home of the pupil, family background, language choice at school etc. HANNA enables teachers to follow the improvement of the pupils regularly, but most importantly, the entry to increased language knowledge and skills is through enhancing motivation by gamification. It is inevitable that pupils in low SES background need course materials that revert their attention and engagement into learning, that raise their own interest into school subjects and that implicitly push them towards embracing their own learning. HANNA has proven to achieve this, even with existing limitations in the programme and in the circumstances.

## 6. Conclusion

When it comes to language learning and teaching, one of the major issues that needs to be tackled is the large differences between students in terms of school performance, especially

socially disadvantaged children. Research on language teaching tends to focus on the average learner, thus leaving little room for students living and learning in low socio-economic regions (low SES). Our study tackles this particular social segment in education. PISA results reveal that Hungary displays one of the most considerate gaps in education, where disadvantaged regions and schools often underperform on the national curriculum tests. Innovation, alternative pedagogical methodologies and different mindset in teaching can bring about enhanced motivation, especially by employing digital devices and the elements of gamification. The aim of our study was to introduce a new, tablet-based digital language course programme (HANNA), developed specifically for socially disadvantaged pupils in grades 5-7, which promotes improvement in motivation and engagement.

In our next step, we would like to extend the research to conduct the survey in a representative sample. Also, we believe that the teachers and directors of schools can provide a more in-depth picture of language teaching, thus we would like to conduct semi-structured interviews with teachers teaching in schools in disadvantaged regions and their headmasters, considering the following factors: the decreasing number of children in disadvantaged schools, the low turnover of teachers, the division of classes according to the language learned, the choice of foreign language, the use of ICT in teaching, teaching methods, and evaluation in these classes.

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# GAMIFIED MOBILE-ASSISTED FORMATIVE ASSESSMENT FOR REVIVING UNDERGRADUATE LEARNERS' OVERALL LANGUAGE PROFICIENCY: A QUASI-EXPERIMENTAL STUDY

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**Abstract**

The lack of opportunities to practice the English language outside the English as a Foreign Language (EFL) classroom can prevent English language learners (ELLs) from promoting their language proficiency to high standards. This lack makes the progress from one level of English to the next one a hard mission for Arab students. Subsequently, students' mastery of the English language is often not expected to occur without frequent practice and organized formative assessment. To enrich such methods of assessment, a mobile-assisted language learning (MALL) technique was adopted in a classroom formative assessment for holistic language proficiency of listening, vocabulary, and grammar to determine whether it would make a difference in results. For fourteen weeks, this quasi-experiment consisting of a pre-post-test one group design was carried out over two cycles of seven weeks each, with 598 participants. During the experiment, students practiced formative assessment conventionally during the first cycle, while this assessment was done with the medium of two mobile apps: Kahoot and Quizizz during the second cycle. The results of the Oxford Placement Test (OPT), replicated as the pre-test and post-test, indicated that mobile-assisted formative assessment resulted in a statistically-significant positive influence of using mobile apps on students' overall language proficiency.

**Keywords:** English Language Learners (ELLs); Mobile-Assisted Language Learning (MALL); Formative Assessment; Oxford Placement Test (OPT); Adult Learning

## 1. Introduction

There is a vital need for learning the English language in the Arab Gulf countries. These countries are like a melting pot where a common language is essential, and that language is often English. The Arab Gulf countries include a large number of people from different parts of the world. Foreign experts, workers and expatriates from various nationalities come to Arab Gulf countries to work for financial reasons or various other reasons. There is a need for

communication and interaction in the society and working environment; however, the native language that is used in Arab Gulf countries is Arabic, which is not an easy language to learn. Therefore, many international people struggle with the language barrier that prevents them from communicating professionally in the national language. To overcome this language barrier, many foreign nationals use the English language since most visitors and expatriates speak English or at least have some background knowledge of the language. Furthermore, English is the most widely spoken language in the world, with 1.5 billion speakers. As we become increasingly interconnected, English has assumed a position as the dominant language of global communication, notably on the Internet.

Most universities in Saudi Arabia (an Arab Gulf country) teach curricula in English. Therefore, Saudi students are required to learn the English language to succeed in their university studies. Applied Medical colleges follow the same path and learning English for medical purposes (EMP) is compulsory in the first year of study in Saudi medical colleges. Students are required to attend intensive English language classes during the first and the second semester of the first year. The courses that are taught in the first year concentrate on English for medical purposes in addition to practicing other English language skills. Although students are required to successfully pass the first year to proceed with their majors, they often struggle to convey messages in English accurately. Based on these facts, many teachers have attempted to help students by using MALL teaching strategies in their classes. This increased use of MALL has led many English language teachers to wonder if students will be more motivated to learn English using such strategies and if their overall language proficiency will be improved as a result.

The lack of English practice opportunities has its impact on every English language learner in the Arab Gulf countries. Still, technology-based tools can motivate learners and give them the drive to effectively utilize the opportunities that exist and create practice opportunities as well. Assessing whether and to what extent learning techniques and teaching strategies employed in certain contexts influence student engagement is essential to delivering effective language courses. In other words, if English language learners receive appropriate and updated techniques of feedback covering instant and delayed error corrections in a motivating, engaging environment, their language awareness and skills are expected to be improved. Consequently, mobile-assisted formative assessment, which is one of the offered solutions, was empirically examined in this study.

## 2. Literature review

### 2.1. Gamification

In recent years, educators have invested considerable efforts in incorporating digital technologies into English as a Foreign Language (EFL) pedagogy to motivate students in new ways (Jalili, Khalaji & Ahmadi, 2020). Over the past two decades, many scholars have investigated the influence of technology on EFL learners. Researchers have also scrutinized the effects of using technological development on learners' proficiency, performance, attitudes and motivation. The integration of technology in EFL learning is of great importance because English is the language of technology and most of the new generation of students are frequent users of technology, especially mobile applications (AbRashid et al., 2021). The use of technology as a means of delivering EFL learning includes various applications, some designed for the sole aim of EFL learning, while others utilized for social networking with potential use in the classroom.

The reviewed literature in this section can be divided into two domains – exploring and investigating attitudes and perceptions and examining actual implementation. Each domain seeks to clarify the position of the current study in the literature.

In terms of investigating attitudes and/or perceptions, Jebur (2020) discussed the attitudes of Iraqi English as Foreign Language learners towards mobile-assisted language learning (MALL) usage. The study concluded that Iraqi students showed positive attitudes and were engaged users of MALL applications. This suggests that learners integrated MALL in the process of learning English to improve their learning. The study recommended including mobile applications in the learning-teaching process to enhance written and oral skills as it could increase the learners' motivation.

In a similar vein but with a different objective, Abugohar, Yunus and Rashid (2019) investigated EFL teachers' perceptions and their current actual practices of utilizing a package of three categories of smartphone applications in language classrooms for fostering Saudi tertiary students' speaking skills. Applying a mixed-mode approach, the research findings revealed that most participants had high, inspiring positive perceptions of using smartphone applications in teaching speaking. However, classroom practices also revealed weaknesses and insufficient real-world experiences.

Zou and Li (2015) investigated how mobile apps could be integrated into the teaching-learning of the English language and what can be utilized to support the process of learning for EFL learners. They found that most of the participants had a positive attitude. The majority of

the students would conduct a variety of practices for learning on their devices and most participants enjoyed the learning process using apps. The authors noted that this created an impact on student motivation to learn English.

Moreno and Vermeulen (2015) highlighted the availability of mobile-assisted language learning (MALL) apps and their role in practicing English oral skills. The population sample selected for the research study was a group of Spanish and Belgian students. The study concluded that a pedagogical standard must be established for MALL apps as these need to be linked to a setting of blended learning and to only used as a form of support. There were signs of enhancements for the Spanish students in terms of motivation and curiosity, and the Belgian students obtained good learning outcomes as well.

Nowbattula, Devi, and Nimmala (2016) shed new light on the use of social media and mobile applications to improve students' language skills. Their study concluded that learners' motivation and confidence was enhanced through the use of applications. They noted that these apps can be flexible, personalized, and customized to each individual according to his/her preference. Another factor noted in the study was the accessibility of these apps and the possibility to choose a suitable time and place to carry out the learning process. They also noted that these apps seemed to encourage learners to create life-long habits of learning.

Regarding actual practices and experimenting with the effectiveness of MALL, Trust (2020) reviewed the top five trends in educational technology (EdTech) during the ISTE 2017 Conference. These top five trends were identified as Google, Tools and apps, Global education, Making technology, and 3D. Among the tools and apps she listed were Kahoot, Popplet, Padlet, Quizziz, Google Street View, Screencast-O-Matic, and Adobe Spark.

Chen and Yeh (2019) explored the implications of student-generated questioning (SGQ) using Kahoot for facilitating English learning in the flipped Foreign Language classroom. In a flipped classroom, the out-of-class instructional videos familiarized learners with what they would be asked to do when they were assigned in-class collaborative or individual work to perform (Noroozi, Rezvani, & Ameri-Golestan, 2021). During Chen and Yeh's (2019) study, seventy-seven university students were subdivided into an experimental group labeled SGQ_FL and a control group determined by teacher-generated questioning (TGQ), labeled TGQ_FL. The results demonstrated that the SGQ was effective in enhancing students' English performance. However, there was no significant difference in the mental load between groups, yet SGQ induced a higher mental effort than TGQ.

Meanwhile, Nurhalim, Saputra, and Pujasari (2019) explained the importance of speaking English as a means of communication with the world and how mobile apps such as

Opentalk can motivate speaking for EFL students. The results illustrated that the app gave made students more confident, especially those who had anxiety and fear of making mistakes. The app also motivated students to speak and improve their performance. Another factor noted was the acquisition improvement that the students gained from the Opentalk app.

Hidayati and Diana (2019) investigated the use of Duolingo and Hello English apps in motivating students' learning of the English language. The researchers found that students were using both apps actively, and enjoyed the flexibility of the apps. The researchers concluded that the mobile application could assist learners and allowed students to learn independently using such apps due to their particularity and flexibility. The authors also noted that the variety of resources using mobile technology provides an additional teaching resource in the classroom beyond the teacher.

Similarly, Hamad, Metwally, and Alfaruque (2019) investigated the impact of using YATI (YouTube videos and Listening Audio Tracks Imitation) on enhancing the speaking skills of EFL learners. They claimed that the problem of the non-native speakers and their teachers is related to the learners' inability to pick the right tone and intonation and their weaknesses in vocabulary, which can be easily gained by practicing listening and speaking. They concluded that the imitation has a slow but steady enhancement in listening and speaking skills. In contrast to earlier research which suggested that using imitation limits the talents of students (e.g., Finke, Ward, & Smith, 1992; Jansson & Smith, 1991; Lowenfeld, 1957), the researchers proved that using such methods improved students' competence and helped them discover their abilities.

Meanwhile, Al-Garawi (2019) shed light upon the usage of Instagram social networking application as a MALL tool. Due to the popularity of this application, it can work as a means of language acquisition through linking the learners to native speakers. The study concluded that using the Instagram application has many benefits, such as providing learners with an enjoyable experience while enhancing their oral skills, improving writing, reading and listening skills, and developing learners' vocabulary storage.

Mustafa (2018) investigated the improvement of speaking skills for EFL learners through Skype, YouTube, and WhatsApp. He concluded that the English spoken language could be improved by using these apps as teaching tools. Each of the apps had its proof-based benefits. He noted that YouTube improved listening while WhatsApp enhanced speaking. On the other hand, Mustafa observed that Skype enhanced both as it led to improvement of speaking and listening skills via real conversations. The study recommended that teachers

should consider utilizing apps to provide learners with a means of communication with native speakers.

Similarly, Ramos and Valderruten (2017) studied the use of mobile applications to develop listening skills and other linguistic skills. For the aim of the study, the researchers designed an app to carry out their investigation. Their results demonstrated that the use of the mobile app influenced the development of listening skills and the linguistic competence of English learners. The authers suggested that this was due to the apps being popular with younger generations, which allowed them to practice more.

Mindog (2016) studied the use of smartphone apps and their role in learning English as a Foreign Language (EFL). The apps included social networking apps and others. The sample used for this study was a group of university students in Japan. The study findings showed that intermediate learners use apps to participate in social networking. The study supported that these apps can be used for learning. The large number of apps also helped learners enjoy the freedom of choice and the frequency of usage as it allowed learners to enjoy learning without worrying about tests or any other type of pressure.

In a 2016 study, Moghaddas and Bashirnezhad studied MALL (Mobile-assisted Language Learning) apps in enhancing the EFL (English as a Foreign Language) of Iranian learners' oral skills. The study results showed applying mobile apps to be effective for improving learners' performance in speaking skills. The study also concluded that mobile applications motivated practitioners and had a great impact on the fluency of language learners.

Meanwhile, Read and Kukulska-Hulme (2015) shed light on the importance of the audio recordings of the Audio News Trainer (ANT) app in listening comprehension and the use of social media to reflect on the news. They indicated that two factors must be available in the MALL (Mobile Assisted Language Learning) apps: the domain and the possible interaction. ANT appeared to be effective for listening practice; however, the students' reactions were typically limited for various reasons, such as the naturalness of social media apps and the topic.

Baniabdelrahman (2013) studied the speaking proficiency of Saudi university students mediating online diaries in the context of EFL. The study results showed that the students' motivation and participation increased, and they showed motivation towards learning. The study recommended that teachers utilize various techniques, including oral diaries, in teaching the English language as it can be used by students outside classrooms because it is available for mobile devices.

From the literature briefed in the previous section, it can be said that theories such as behaviourism, constructivism and situated learning theories have been applied to mobile-

assisted language learning (MALL) strategies. MALL strategies deal with the practices that deal with developmental process by simultaneously interlinking learners and social level of learning. Learning can be effectively achieved when learning is reinforced with particular response and stimulus (Smith and Ragan, 2005). The same theoretical approach functions as a tool in the process of analysing the benefit of integrating MALL strategies in EFL classrooms. Thus, this study was designed to examine the effectiveness of formative assessment in language classrooms with the intervention of MALL with a large sample of participants to provide comprehensive conclusions about the effectiveness of MALL in the teaching of EFL.

The intervention was the medium of formative assessment, which is the type of treatment implemented using mobile apps in formative assessment through which researchers thought proposed that it would create changes in participants' results on the post-test. However, the gender effect was also examined at a later stage of the study. This study's findings were expected to expose the experience using mobile-mediated techniques implemented in classroom formative assessment. One more objective included in the study was the training of respective teachers on using mobile-assisted formative assessment to promote learners' overall language proficiency.

## 3. The study

Although current literature proved the idea that game-based mobile applications could motivate EFL learners and provide flexible, accessible means for acquiring and learning second and foreign languages, it is still not clear whether MALL-assisted learning strategies should play a primary role in educating EFL learners or should remain as a secondary supportive educational tool. In this research paper, the authors tried to unveil the promising potential of mobile-assisted formative assessment that make incorporating MALL teaching strategies a must for educators and curriculum planners.

Most study findings so far were either surveying attitudes and/or perception of teachers and/or students or experimenting with a small number of participants. Consequently, this research was aimed at either supporting or contradicting the findings of previous studies on one hand, and, on the other, hoped to be of a distinguished value with its large number of participants while experimenting mediating mobile apps in language formative assessment. This study was also in response to those who claimed the lack of actual practices of MALL in the EFL context.

### 3.1. The aim of the study

This study aimed to examine the effect of using mobile apps in classroom formative assessments on Saudi First Year learners' overall language proficiency compared to the traditional methods of formative assessment. The study addressed the following questions:

1) Are there significant improvements in the students' mean scores in the post-test due to the employment of mobile apps in formative assessment?
2) Are the proficiency scores obtained by participants affected by gender?

### 3.2. Participants

The study's target population were university students enrolled in their first semester in a higher learning medical institution in Saudi Arabia. After being admitted by the institution, students were required to join the Preparatory Year Program (PYP) for one academic year of two semesters. They were required to successfully complete the foundation program which includes English and additional science courses. The population number reached 658 (male = 303, female = 355) enrolled in their first semester.

The research was first intended to be a census studying the entire population since all students enrolled had to sit for the tests. However, after collecting the data of the post-test, it was found that some students missed the post-test. Consequently, the final number of participants to complete the study were 598 (N= 598; male = 299, female = 299). This large sample size was aimed to guarantee comprehensive conclusive findings.

### 3.3. Design and procedure

Researchers generally opt for the hypothesis-testing experimental design (Kothari, 2004) to determine the cause-effect outcomes of the treatment (Mackey & Gass, 2005). This study was designed to test the effect of using mobile apps in formative assessments on the university learners' overall English language proficiency. This study was a quasi-experiment with only one group of students, in other words, a one group pre-test/post-test experimental design. All participants were treated as one group with two sets of scores prior to and after the treatment. Participants' overall language proficiency was assessed before and after the intervention of gamified mobile-assisted formative assessment, which lasted 14 weeks. However, no control group made this experiment quasi, which in return limits the generalization of the findings.

The study's main independent variable was the assessment method, which was mobile-assisted formative assessment, while the dependent variable was the students' scores in the proficiency post-test. However, any proficiency level differences due to gender were examined

at a later stage when gender was tested as a moderator categorical variable to determine whether participants' gender influenced the scores obtained.

The study was carried out in two cycles. During each cycle, a different type of assessment was implemented. Moreover, each cycle was followed by a language proficiency test. More details are given below:

**Cycle One**

Language instructors deliver part of the syllabus to the target population using the conventional teaching kit provided by the English Language Center and utilizing traditional methods of assessment and using paper-based quizzes on the video clips attached to the course kit for the listening skill, as well as paper quizzes and worksheets for assessing learners' awareness of meaning and forms. This cycle covered a period of seven weeks. Then, the online pre-test assessed students' overall language proficiency was implemented to determine how the regular ways of formative assessment reflect teaching-learning process outcomes.

**Cycle Two**

At the end of the first cycle, all ESL instructors were trained intensively by a Pearson Middle East team on using the Kahoot! and Quizziz mobile apps. Both their attitudes and perceptions and their hands-on implementation have been regularly evaluated. After the training was completed, the teachers started using the apps as the media of formative assessment for seven weeks. Teachers' and learners' classroom practices were rigorously followed, and unannounced visits were performed to ensure the application of the target apps. Once again, students' overall language proficiency was assessed using the post-test after the treatment time had expired.

### 3.4. Instruments

#### 3.4.1. Characteristics of the mobile apps set

There are several websites and mobile apps that are devoted to assessment. These can be used for summative or formative assessment (Edwards, 2020). For the purpose of this research, available mobile apps' properties were first previewed to determine which ones can work for classroom formative assessment. The initial list included Slido, Socrative, Flipgrid, Quizizz, Polleverywhere, Canva, Adobe Spark, Kahoot, Edpuzzle, Peergrade, Gimkit, Sutori, and Trello.

Then out of the listed apps, some were selected on the basis of a set of inclusion criteria of convenience to use, attractiveness, and availability on both Google Play and Apple Store for

smartphone users. The Pearson team, assigned by the general administration for the teaching staff coaching and drilling programs, trained ESL instructors in the use of the recommended apps, provided motivation for the teachers to use them, and then coordinated with the English Language Center to prepare them for actual classroom implementation. After the training was completed, the final list of mobile apps was closely tested, and after a constructive debate, two apps were selected to utilize for the research: Kahoot and Quizizz.

### 3.4.2. Pre-test and post-test

Oxford Placement Test (OPT) was used for both the pre-test and the post-test in this research. No interference was allowed in the selection of the test items; it is 100% online and the sole decision regarding the selected test question falls to the Oxford English Testing services at Oxford University Press, English Language Teaching (ELT). The test format is presented in Table 1, as it exists on the Oxford University Press (OUP) ELT Website (2020).

Table 1. Oxford Online Placement Test Format (OUP, 2020)

| SECTION | | Part 1 | Part 2 | Part 3 |
|---|---|---|---|---|
| Use of English | **Description** | Complete a short dialogue with the appropriate grammatical form or lexical item | Read a short dialogue and identify what a speaker means | Type the meaning word in gapped text with the appropriate grammar or lexis |
| | **Testing focus** | Grammatical form, lexical precision | Pragmatics: understanding explicit and implied meaning | Grammatical form, lexical precision |
| | **Response type** | Four-option multiple choice | Three-option multiple choice | Gapped text. For A1–C2, test takers type their answers. For Pre–A1, test takers select their answers. |
| | **Questions** | Ten tasks | Ten tasks, each with one or two questions | One task, seven questions |
| Listening | **Description** | Listen to a short dialogue and identify what the speaker means | Listen to a longer dialogue and identify what the speaker means | Listen to a monologue and identify what the speaker means |
| | **Testing focus** | Pragmatics: understanding explicit and implied meaning | | |
| | **Response type** | Four-option multiple choice | | |

| | | |
|---|---|---|
| | **Questions** | Five tasks per part, each with one or two questions |

As shown in Table 1, the test consists of two sections that identify test takers' use of English in terms of grammatical forms and meaning, as well as their listening skill. The two sections are used in this paper for overall language proficiency. The items test either language systems or listening comprehension, either explicitly or implicitly.

After taking the test, scores appeared to the organizer on the website and could be downloaded. Moreover, information about what a learner that achieved a particular CEFR level could perform was listed. Scores out of 120 were recorded and reported in light of CEFR by Oxford University Press ELT (2020) on a continuous numerical scale as follows:

Table 2. Test results reference (OUP, 2020)

| **Level** | **Score range** |
|---|---|
| Pre-A1 | 0.1 – 0.9 |
| A1 | 1 – 20 |
| A2 | 21 – 40 |
| B1 | 41 – 60 |
| B2 | 61 – 80 |
| C1 | 81 – 100 |
| C2 | 101 – 120 |

Table 2 tabulates the reference of the scores based on CEFR. There are seven sets of scores with a level category referred to for each. In this paper, the standardized scores were used and tabulated as a CEFR level for the test as a whole to find overall proficiency.

### 3.5. Data analysis

This experimental research aims to investigate the impact of mediating mobile apps in formative assessment on participants' proficiency. The scores for both the pre-test and the post-test were recorded automatically on the respective part of Oxford website. All data were quantitatively analyzed and then statistically interpreted. The collected data were inserted and manipulated using SPSS (V 24.0).

Criterion validity was ensured since the assessor was an external party, Oxford English Testing Domain. Moreover, the reliability of the results recorded was tested by calculating Cronbach's alpha. Using SPSS, the result of internal stability was found at 0.841, which is considered a very good indicator of the results reliability, as shown in Table 3.

Table 3. Reliability Statistics

| Cronbach's Alpha | N of Items |
|---|---|
| .841 | 2 |

## 4. Results and findings

### 4.1. Change in students' level

Data obtained during the first cycle were obtained from the pre-test scores. The participants' CEFR levels varied, as shown in Table 4.

Table 4. Pretest CEFR

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Level | Pre-A1 | 112 | 18.7 | 18.7 | 18.7 |
| | A1 | 337 | 56.4 | 56.4 | 75.1 |
| | A2 | 112 | 18.7 | 18.7 | 93.8 |
| | B1 | 32 | 5.4 | 5.4 | 99.2 |
| | B2 | 4 | .7 | .7 | 99.8 |
| | C1 | 1 | .2 | .2 | 100.0 |
| | Total | 598 | 100.0 | 100.0 | |

The pre-test results showed that the students (N=598) who sat for the test scored varied results, but mainly left-shifted. As illustrated in Table 4, 112 students (18.7%) were at the Pre-A1 level, 337 participants (56.4%) were within the A1 range, and 112 (18.7%) were computed to have the features of A2 reference, while a few participants, (32 – 5.4%), could reach level B1. Even fewer ones (only 4 students – 0.7%) were seated in level B2, and only one participant (0.2%) could score higher to be placed at the C1 level. No participant (0%) was placed at the C2 level.

Data obtained during the first cycle were obtained from the pre-test scores. The participants' CEFR levels varied, as shown in Table 5.

Table 5. Posttest CEFR

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Level | Pre-A1 | 89 | 14.9 | 14.9 | 14.9 |
| | A1 | 307 | 51.3 | 51.3 | 66.2 |
| | A2 | 157 | 26.3 | 26.3 | 92.5 |
| | B1 | 40 | 6.7 | 6.7 | 99.2 |
| | B2 | 4 | .7 | .7 | 99.8 |
| | C1 | 1 | .2 | .2 | 100.0 |
| | Total | 598 | 100.0 | 100.0 | |

The post-test results showed that the students (N=598) who sat for the test scored varied results. As illustrated in Table 5, 89 (14.9%) were placed at the Pre-A1 level, 307 (51.3%) were within the A1 range, 157 (26.3%) were computed to have the features of A2 reference, and 40 (6.7%) could reach the B1 level. Very few participants (4 – 0.7%) proved to be at B2 level B2, only one participant (0.2%) could score higher at C1; whereas none (0%) was placed at the C2 level.

To deeply analyze the results obtained for the pre-test and the post-test, the paired-samples *t*-test was run using SPSS (V 24.0). The statistics can be seen in Table 6.

Table 6. Paired Samples Statistics

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | PRETEST | 15.2916 | 598 | 13.12613 | .53677 |
| | POSTTEST | 21.3329 | 598 | 15.21680 | .62226 |

As depicted in Table 6, the mean scores (*N*=598) obtained for the pre-test was around 15.3 (*M* = 15.29, *SD*= 13.13), while the post-test mean score (*N*=598) was 21.33 (*M* = 21.33, *SD*= 15.22). The mean score of the posttest (*M*= 21.33) is higher than that of the pretest (*M*= 15.29). To check this finding statistically, Table 7 presents the calculation done.

Table 7. Paired Samples *t*-Test

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | PRE-TEST – POST-TEST | -6.04130- | 6.36541 | .26030 | -6.55252- | -5.53009- | -23.209- | 597 | .002 |

It has been stated earlier that all participants were treated as one group at the onset of data collection and analysis. Table 7 shows the result of running the paired-samples *t*-test to compare the pre-test's mean score to the post-test. As shown, it was found statistically significant ($T$=23.209, $DF$=597, $p$=0.002).

These calculations conclude that the participants' mean scores are not similar in the two tests. There is a significant difference between the participants' results in the pretest and their results after the posttest. The paired-samples *t*-test, as in Table 7, reveals that 95 percent of the students' proficiency scores in the post-test are better than their scores on the pre-test.

### 4.2. Gender influence

At this stage, the participants and their scores were divided into two groups based on gender (N=598, Male=299, Female=299). Then, their proficiency in the pre-test and the post-test were compared to see if there was an effect of the gender variable on the results recorded in each test.

The true difference between the mean scores of the two groups according to the variable of gender (Male & Female) was determined by running the independent samples *t*-test in SPSS (V 24.0) for both the pre-test and the post-test. The summary of each gender group elements is tabulated in Table 8.

Table 8. Group statistics

| | Gender | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pretest | Male | 299 | 15.6291 | 13.37160 | .77330 |
| | Female | 299 | 14.9542 | 12.88954 | .74542 |
| Posttest | Male | 299 | 21.1967 | 16.23306 | .93878 |
| | Female | 299 | 21.4692 | 14.15377 | .81853 |

Table 8 compares the data obtained for the two groups according to gender. In the two sets of scores, males represented half of the total number (*N*=598) of the samples; (Males: *N*= 299, 50%), and the females were the other half; (Females: *N*= 299, 50%). In the pre-test scores, the mean score for male students was 15.62 and 14.95 for females. For the post-test, the mean score was 21.19 for the male and 21.46 for the female participants. It can be elicited from Table 8 that the mean scores are close to each other for male and female groups. Table 9 explores the difference statistically.

Table 9. Independent samples *t*-test

| Test | Variable | Levene's Test | | t-test | |
|---|---|---|---|---|---|
| | | F | *Sig.* | df | *Sig.* (2-tailed) |
| Pretest | Gender Male / Female | 1.790 | .181 | 596 | .530 |
| Posttest | Gender Male / Female | 2.744 | .098 | 596 | .827 |

The data depicted in Table 9 shows the outcomes of the independent samples *t*-test for the two sets of scores for each gender. First, the Levene's Test for the equality of variances (Levene, 1960) of the variable for the pretest (*F*= 1.790, *Sig*.= 0.181), and the posttest (*F*=2.744, *Sig*.= 0.098) concluded that it is safe to report the *t*-test result.

The *t*-test is run to check for the equality of means. For the pre-test, the *t*-test was not significant (*DF*=569, *p*= 0.530); thus, this reveals no significant difference between the mean scores of males and females in the pre-test scores. Moreover, the *t*-test for the post-test scores states that there is again no significant difference between the two sets of scores based on the variable of gender (*DF*=569, *p*= 0.827). These calculations justify rejecting the hypothesis that there is an effect of gender on proficiency scores in either the pre-test or the post-test.

## 5. Discussion

In this quasi-experiment of a pre-test/post-test design, researchers experimentally investigated the influence of mobile-assisted formative assessment on university students' overall language proficiency. Students' holistic proficiency was assessed in two cycles; once after using conventional classroom formative assessment, and the other after utilizing mobile apps using the two target apps: Kahoot and Quizizz, during which Kahoot was used for assessing the

listening comprehension by formulating quizzes based on listening while watching through YouTube links, whilst Quizizz was used for checking language systems awareness; meaning and forms. Despite this classification, the two apps were treated as one package used for overall language proficiency, and all participants were examined as one group. Figure 1 visualizes a summary of the two sets of results by comparing the scores recorded in the two cycles.

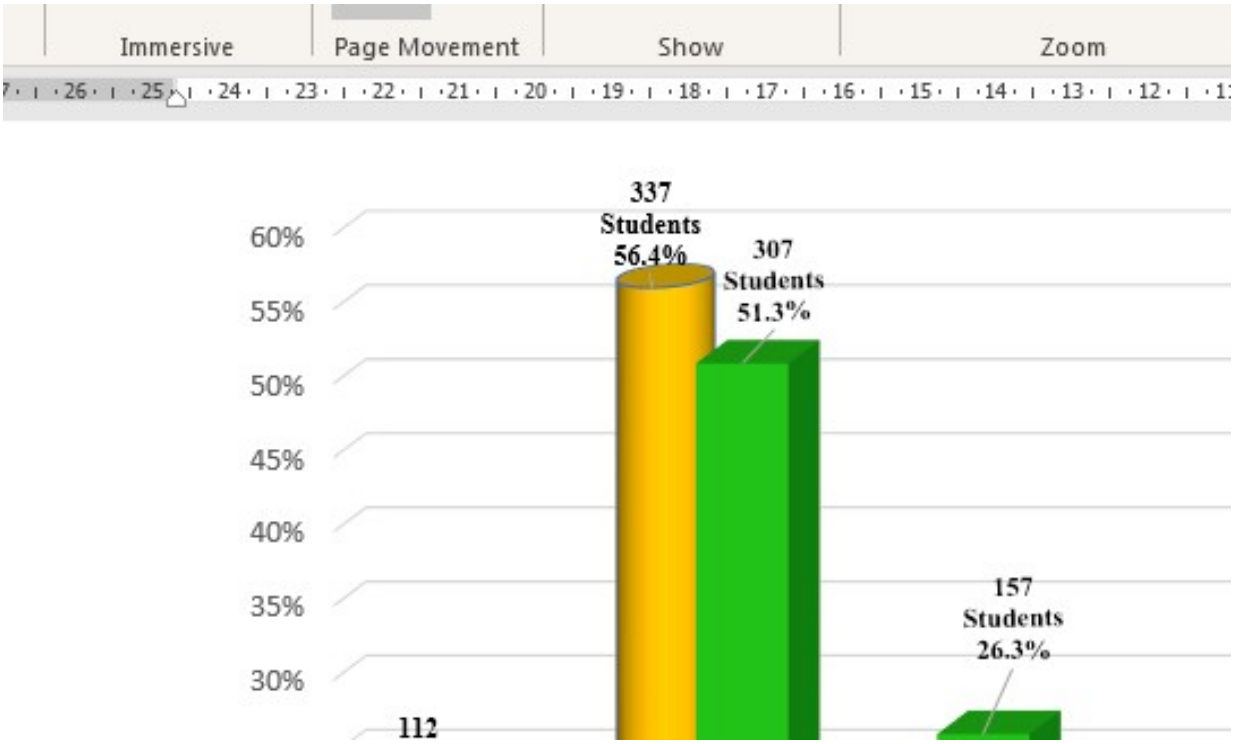


Figure 1. Summary of results

Based on the data presented in Figure 1, aided by those in Tables 4 and 5, it can be said that the number of students with Pre-A1 level decreased by 23 students (3.8%), and A1 dramatically dropped by 30 participants (5.1%). The reduction that occurred in the levels of Pre-A and A1 was mainly in favour of the A2 level, which went up by 45 students (7.6%), while B1 had a small share of that increase by 8 students (1.3%). On the other hand, levels B2 and C1 did not witness any change in number. However, when referring to the detailed scores of males and females, it was determined that a female was the one who scored C1 in the pre-test, whereas it was a male who scored C1 in the post-test.

Furthermore, the calculation of the paired-samples t-test, as presented in Tables 6 and 7 showed that there was a statistically significant difference ($p$=0.002) between the participants' proficiency scores in the pre-test and theirs in the post-test in favor of the post-test which was

administered after the treatment. This conclusion indicates a significantly positive impact of mediating the mobile apps used in formative assessment; Kahoot and Quizziz.

These apps helped students effectively practice language, complete homework, and participate in the classroom for on-the-go assessment while the course was in progress. The mobile-assisted formative assessment could also encourage a motivating learning environment evident in their post-test results compared to the pre-test scores. MALL shows the potential to encourage learners to become more engaged in the target language and evoke less test anxiety among participants. Moreover, the challenging and competitive gamified formative assessment helped to reinforce learning experiences and transition those experiences to long-term memories since they are not only about answering or ticking but also communicating, competing, and racing. This conclusion aligned with findings from Balchin and Wild (2020), Baniabdelrahman (2013), Chen and Yeh (2019), Nurhalim, Saputra, and Pujasari (2019), Ramos and Valderruten (2017), and Mindog (2016), among others. This agreement may have resulted from appealing mobile apps to language learners who already accustomed to utilizing apps in their daily lives.

Referring to the hypothesis of having gender interference, the independent samples *t*-test excluded that expectation. The non-significant effect of gender between participants was also supported by Baniabdelrahman (2013), which can be justified by having a similar study context, that of Saudi university students. However, this finding contrasted with a considerable amount of literature which concluded that females learn and acquire a second language better and faster than males due to biological growth in favour of females (Al-Saadi, 2020; Bermúdez & Prater, 1994; Medina, 1993; Wyk & Mostert, 2016). This inconsistency between this study and previous studies in terms of gender influence might be due to some observed assumed cultural properties of most Arab countries and Muslims' cultures where female students have fewer opportunities to be in contact with foreigners and native speakers before they join the university than male students often have. In return, this situation might have enabled male participants to bridge that gap and strike a mean score similar to that for females.

In brief, mobile devices facilitate anytime-anywhere learning and offer entirely new ways for students to learn. In higher education, mobile learning is a way to add innovation in learning strategies. Benefits of mobile learning include providing flexible, accessible, authentic, personalized, ubiquitous, and seamless language proficiency. Nonetheless, some mobile learning issues can also add technical problems, cognitive load issues, distraction, equity, and safety issues as well (Bower, 2017).

## 6. Conclusion

In conclusion, teachers are highly encouraged to infuse modern technology in the respective areas (Edwards, 2020), especially language teachers who can, aided by mobile apps, help students promote their second and foreign languages proficiency. Gamified formative assessment can help students become more engaged in the lesson materials, provide in-the-moment feedback, promote autonomy, and facilitate interactive assessment methods. Despite the obstacles that might be encountered, this research proves that it may be worth the extra effort. Language teachers need to spotlight the outcomes and attempt to overcome the shortcomings of apps in language learning. Moreover, curriculum designers are urged to incorporate various types of assessment activities with game-based utilities that reduce foreign language learners' anxiety. Finally, further studies are invited to examine the same apps or different ones in various learning contexts.

Although MALL techniques help EFL students enhance their English language proficiency and motivate them to study in classrooms and outside classrooms, it is desirable to implement MALL teaching techniques according to students' needs, and to deliver multiple language skills in real learning environments. In addition, since the present study has been carried out in a private higher educational institution, the results may vary in a public university setting, thus, further future research is urged in different contexts.

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# LEVERAGING GAMIFICATION INTO EFL GRAMMAR CLASS TO BOOST STUDENT ENGAGEMENT

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**Abstract**

Student engagement is paramount for the success of EFL learning. This paper explores how the leverage of a game-based learning platform, Kahoot!, into EFL grammar learning and teaching boosted student engagement. One grammar lecturer and 22 English-major students participated in this qualitative case study. Data were obtained through observations, reflective journals, and interviews. The results revealed that the platform enhanced student engagement in EFL grammar learning in six ways, namely enabling students to set goals, helping students focus more on the tasks, facilitating students to build enthusiasm and interest in learning, allowing students to experience playful learning activities, facilitating students to collaborate with their friends, and fulfilling students' need of reward and sense of competition. The students were also reported to exhibit behavioral, cognitive, and emotional dimensions of engagement during the implementation of Kahoot!. The findings have important implications for EFL grammar learning and teaching. In addition to the affordances of Kahoot!, teachers are still central to the implementation of the platform to engage the students in EFL grammar learning.

**Keywords**: student engagement; EFL grammar learning; gamification; Kahoot!

## 1. Introduction

In terms of successful learning, student engagement is frequently considered paramount. According to Chavan (2015), engaging students in learning processes can lead to transformational and meaningful learning that instigates fundamental changes in students. Engaged students consequently focus more on learning activities and acquire greater knowledge than less-engaged ones (Goss & Sonnemann, 2017). As it involves active and collaborative learning (see Zepke & Leach, 2010), student engagement fosters students' ability to take more responsibility in learning and creating mutually-beneficial learning communities. Students who are engaged in learning eventually perform better and have better desired learning outcomes than those who are not (Martin & Torres, 2016) because they are more likely to finish their tasks (Gebre, Saroyan & Bracewell, 2014).

As regards the significance of student engagement in language learning and teaching, EFL teachers are encouraged to boost student engagement. One of the ways to enhance student engagement is by incorporating technologies into teaching practices. Eady and Lockyer (2013, p. 6) argue that "the important role that technology plays in education allows teachers to design meaningful learning experiences." Fun and interesting technology-enhanced learning environments can hence enhance student engagement levels (Aston, 2016; Pasaribu & Wulandari, 2021; Prasetyawati & Ardi, 2020). In a nutshell, technology plays a prominent role in fostering student engagement levels in classrooms because it is "a powerful contributor to learning if it is used to deepen students' engagement in the meaningful and intellectually authentic curriculum" (Costley, 2014, p. 4).

The recent proliferation of technologies in the field of language learning and teaching is often associated with gamification (Azman & Yunus, 2019; Zhang & Yu, 2021). Gamification-enhanced language learning has proved to empower student motivation and engagement (Reinhardt, 2019; Tan, Ganapathy, & Singh, 2018; Turan & Meral, 2018). Alsawaier (2018, p. 56) defined gamification as "the application of game features, mainly video game elements, into non-game context to promote motivation and engagement in learning." It is worth noting, however, that game-based learning platforms are created for academic purposes. Although they are play-oriented, the platforms include the elements of learning and their outcomes are still in line with the teaching and learning processes. Their prominent principles allow students to experience more engagement and fun during the learning processes (Tan *et al*., 2018)

Among recent popular game-based learning platforms is Kahoot!, a game-based learning platform that provides teachers with tools to make a quiz or exercise using computer devices. Its affordances enable the teachers to create more interesting quizzes. In terms of its ease of use, the tool is so simple that teachers and students can easily use it. The fun aspects of the tool also give positive energy to help students feel engaged and excited (Plump & LaRosa, 2017; Zhang & Yu, 2021). As Kahoot! is growing popular among language teachers and learners, its implementation will provide more leisurely and relaxing learning experiences and build an engaging classroom atmosphere.

Many studies have been devoted to investigating the classroom use of Kahoot! to engage students in learning. Smith and Braurer (2018) found that well-designed quizzes in Kahoot! led to better student engagement, motivation, and learning. The study also revealed that the ability of the instructors to choose appropriate levels of difficulties and to set time limits made the quizzes more engaging. Another study, conducted by Turan and Meral (2018), found that the fun learning atmosphere and competitive environment created by Kahoot!

encouraged students to learn more effectively. The results showed that the group of students using game-based learning achieved a higher level of engagement than the one using non-game learning. Moreover, the game-based learning created a fun learning atmosphere and drew the students' attention. Göksün and Gürsoy (2019) asserted that Kahoot! brought about an engagement-increasing effect, in which Kahoot!-based instructional activities resulted in higher academic achievement and student engagement than non-game-based instructional activities did. Other studies (Azman & Yunus, 2019; Dehghanzadeh, Fardanesh, Hatami, Talaee, & Noroozi, 2021; Ding & Orey, 2018; Hou, 2018; Quiroz, Gutiérrez, Rocha, Valenzuela, & Vilches, 2021; Turan & Meral, 2018; Wang & Tahir, 2020; Zainuddin, Shujahat, Haruna, & Chu, 2020; Zhang & Yu, 2021) also reported that the integration of gamification in learning activities had positive effects on students' motivation, achievement, learning outcomes, and engagement.

Driven by previous studies, the implementation of Kahoot! potentially attracts students and makes them more engaged in EFL grammar learning and teaching in Indonesia. Student engagement has become a crucial issue in the field of grammar learning and teaching in non-English speaking countries, where learning English grammar is considered difficult and boring. Most students tend to be less engaged because "grammar is equated with meaningless and decontextualized forms which were isolated from uses" (Saeedi, 2016, p. 18). Al-Mekhlafi and Nagaratman (2011) even stated that "any mention of grammar causes the students moments of discomfort and sometimes even terror" (p. 69). This paper reports on the findings that shed light on how the implementation of Kahoot! boosted student engagement in EFL grammar learning and teaching in the Indonesian context.

## 2. Literature review

### 2.1. Student engagement

Student engagement has played a crucial role in successful language learning. It is generally defined as "the extent of a student's active and productive involvement in a learning activity" (Reeve *et al.,* 2020, p. 5). Student involvement could be identified from their cognitive contributions, active behavioral participations and emotional reactions to their learning (Zepke & Leach, 2010). It also covers students' positive and participative endeavors during the learning process, which indicate their interests and curiosity about learning (Krutka, Carpenter, & Trust, 2016) and encourage them to have a commitment and take responsibility for their

learning (Chavan, 2015). As a result, engaged students are more likely to achieve learning outcomes.

Given the aforementioned, engagement is a multidimensional construct that constitutes interrelated components. The widely accepted model of engagement encompasses the combination of behaviors, cognition, and emotion as intertwined factors to the intended learning outcomes (Fredricks, Blumenfeld, and Paris, 2004; Trowler, 2010). However, the model has not addressed the social cognitive theory, viewing students as agents of their learning, who own and control their learning. For this reason, agency is included as an additional component in the previous model (Oga-Baldwin, 2019; Reeve, Hyeon-Cheon, & Jang, 2020; Wang & Lee, 2021). Students' initiations and contributions to their learning environment and quality of instruction could improve their learning. In this regard, agentic learners tend to be more engaged and invested in their language learning (Larsen-Freeman, Driver, Gao, & Mercer, 2021)

Students' behaviors in the classroom are observable indicators to identify whether they engage or disengage in their learning processes. Behavioral engagement refers to "the involvement in learning and academic tasks and includes behaviors, such as effort, persistence, concentration, attention, asking questions, and contributing to the class discussion" (Fredricks *et al*., 2004, p. 62). This engagement is shown in the classroom when the students participate actively in learning activities, implying that it is also the key to a lively classroom atmosphere. Oga-Baldwin (2019) argued that behavioral engagement serves as a paramount starting point that accelerates the other components of engagement, namely emotion, cognition, and agency.

Learning activities that foster students' behavioral engagement are likely to instigate emotional engagement (Oga-Baldwin, 2019). As the students who are behaviorally engaged in the learning activities express their happiness or enjoyment, emotions can be observed in the classroom. Emotional engagement encompasses all kinds of students' affective involvements in the classroom. Lawson and Lawson (2013) described emotional engagement as social, emotional, and psychological immersions towards any activities in the classroom, which deals with "levels of interest, enjoyment, happiness, boredom, and anxiety during academic activity" (p. 435). It ranges from positive emotions that enhance learning to negative emotions that may frustrate learning (Oga-Baldwin, 2019). The emotional engagement has also to do with students' feelings towards their friends, instructors, and school environments. In a nutshell, it is about how students emotionally perceive anything that happens in school and how they interact with their surroundings (Carpenter & Krutka, 2015).

Even though cognition is hardly observed and measured, it can be seen through what the students produce (Oga-Baldwin, 2019). Cognitive engagement thus deals with students' investment in academic works, which includes material understanding, skill shaping, and knowledge mastery. The quality of students' works can reflect their cognitive engagement as they intentionally put their thoughts into the works. As this engagement focuses on students' pedagogical persistence in schools, it includes students' efforts to accomplish tasks and achieve greater ideas in their learning (Fredricks *et al*., 2004). In this regard, this engagement encompasses students' extra efforts to learn (Lester, 2013). Therefore, if the students are cognitively engaged, they will perform well in the class.

According to Reeve *et al.* (2020), students are behaviorally, emotionally, and cognitively engaged due to their responses to teacher-provided activities. Nevertheless, the students can proactively contribute to the development of their own learning. Such agentic students have a growth mindset and take initiatives to learn (Larsen-Freeman *et al*., 2021). For that reason, an agentic perspective on engagement is included to accommodate the view that students are agents of their own learning. Agentic engagement is defined as "the proactive, constructive, and reciprocal action students initiate to catalyze their academic progress and to create a more supportive learning environment for themselves" (Reeve *et al.*, 2020, p. 7). It has to do with "how learners contribute to the learning environment and the quality of instruction" (Oga-Baldwin, 2019, p. 5). It can be manifested in students' efforts to clarify learning materials, express ideas and opinions, and ask for meaningful inputs. While Oga-Baldwin (2019) viewed behavioral engagement as a central step among the other forms of engagement, Wang and Lee (2021) argued that agentic engagement should be placed at the core of engagement processes. Hence, as agency supports the other three components, "students' emotional, cognitive and behavioral engagement may vary at different agentive levels" (Wang & Lee, 2021, p. 4).

### 2.2. Technology in language learning

The proliferation of technology has affected EFL learning (Kukulska-Hulme & Shield, 2008). Eady and Lockyer (2013) stated that many teachers have started to integrate technology in their classrooms to facilitate their students to learn a foreign language. One of the reasons why they use technology in foreign language teaching and learning is because it helps learners get connected across time and space and facilitates the development of learner autonomy (Ardi, 2017; Pasaribu, 2020). Sharples and Pea (2014) even explicated that modern technology has

provided people with many sophisticated language learning media, which could help them develop more creative and extraordinary learning experiences.

The implementation of technology in language learning has benefitted both teachers and students. First, technology increases student motivation and interest (Gilakjani, Sabouri, & Zabihniaemran, 2015; Prasetyawati & Ardi, 2020) since learners have access to a wider variety of information on mobile devices rather than in textbooks. Traiserra (2018) stated that "students become more motivated when they work on computers and use modern devices than when they are working with textbooks" (p. 10). Second, technology boosts language learner autonomy (Ardi, 2017; Pasaribu, 2020; Riasati, Allahyar, & Tan, 2012). Trasierra (2018) asserted that "technology offers many (more) opportunities for learning a language than traditional methodologies" (p. 10). Therefore, students are not limited to learn and find the knowledge and information that they need. The use of technology has helped teachers to change their roles from teaching to facilitating the students to learn (Gilakjani *et al*., 2015). Third, adopting technology in the classroom improves students' language skills (Trasierra, 2018). Technology provides people with "a variety of language context-learning opportunities and interactive activities" (p. 10). Therefore, language learners can get unlimited access to improve their skills by using technology (Riasati *et al*., 2012).

Even though the previous studies have indicated that technology influences students' motivation, autonomy, and language skills, it is not technology *per se* that increases those issues. The technological tools should be integrated with the pedagogies of teaching contents. In this regard, teachers' technological pedagogical content knowledge is central to the implementation so as to enormously enhance students' motivation, autonomy, and language skills.

### 2.3. Gamification in language learning

The rapid development of technology in language learning has been recently associated with gamification. According to Zarzycka-Piskorz (2016, p. 21), gamification is "the use of game elements and game design techniques in non-game contexts." Gamification is used in many different contexts for various purposes, including language learning. Alsawaier (2018, p. 56) argued that "the application of gamification in a pedagogical context provides some remedies for many students who find themselves alienated by traditional methods of instruction." However, prior to the incorporation of gamification, teachers should consider the purpose for using it in the classroom. Without clear pedagogical purposes, the use of gamified educational

tools will be undirected. Hence, the teachers need to understand the principles and elements of gamification and how they help to achieve the intended learning outcomes.

According to Rego (2015), gamification has seven elements that can improve students' language learning experiences. The first element is goals, which means that gamification enables students to set goals. As the main goal of playing games is to become the winner, it can motivate students to get ahead and face challenges. The second element is mechanics, which entails that the games' clear and systematic rules will make students more engaged to work on them. The third one is aesthetics, which includes appropriate and aligned visuals, attention to details, simple contrasts, or colorful backdrops. The great visual designs are of importance in participants' engagement. The next one is game thinking, which refers to "a way to use all available resources to create an engaging experience that motivates the desired behaviors" (Rego, 2015, p. 5). One more element is collaboration, which facilitates collective knowledge building. "Through the exchange of experiences and mutual help among peers, students have the opportunity to become more engaged with the challenge" (Rego, 2015, p. 6). It means that gamification facilitates students to work with peers and experience group discussion. The sixth element is reward and competition. Although the reward is virtual, it can still motivate students to play the game and reach a higher level of achievement. Competition could be exploited through rankings, where players can see their positions to motivate them to get a higher rank. The last element is feedback. Games provide the participants with feedback, which is designed to "evoke the correct behavior, thoughts, or actions" (Rego, 2015, p. 6). Accordingly, the comprehensive understanding of the game elements can help teachers to design playful learning activities that meet the learning objective of the language course.

Several studies have investigated gamification in language learning and teaching. Two systematic reviews conducted by Dehghanzadeh *et al*. (2021) and Zhang and Yu (2021) revealed that gamification positively affected students' learning experiences and outcomes due to enjoyable, engaging, motivating and fun environments. However, the reviews focused only on the positive effects of gamification on learning outcomes so that pitfalls and challenges were not revealed in the studies. Figueroa (2015) found that gamification opened the door for language learners to enhance their language learning experiences and at the same time acquire the skills to solve any task or challenge that the class, unit, or topic presented. Moreover, gamification offered learners an opportunity to interact with one another as if they had played a social game. Indeed, this study sheds light on why gamification is now commonly used in language learning due to its benefits in improving language learners' experiences. Hou (2018) conducted a study on the integration of gamification into three classes of literacy reading-

related courses for one semester. In Hou's (2018) study, Kahoot! was employed to increase students' motivation and reading comprehension since the students experienced difficulties and demotivation in those literacy classes. It was found that the students exhibited a positive reaction to the implementation of the platform. Furthermore, learners' motivation to acquire English was enhanced after the implementation. In this regard, integrating interactive response systems into the learning process could improve students' motivation and lead to more satisfactory learning outcomes.

Gamification has also been incorporated into the teaching of grammar. As grammar instruction in EFL contexts is considered boring and still rooted in the memorization of grammatical rules, the integration of gamification in EFL grammar learning thus creates a playful learning atmosphere. Zarzicka-Piskorz (2016) found that gamification could be effectively used to promote students' motivation and engagement in grammar learning. She argued that "making learning (playing) stimulating and enjoyable are the goals of a game" (p. 21). Therefore, if students enjoy learning (playing), they will experience less anxiety while learning grammar and gain more knowledge. Games allow students to experiment with concepts with no fear of failure (Poole, Clarke-Midura, Sun, & Lam, 2019). Furthermore, game-based grammar learning can increase motivation and engagement because the concept of gamification can bring about persistence and motivation to win and learn. The competitive atmosphere among students can encourage them to learn more grammar in the class. Finally, games provide students with an enjoyable experience of learning grammar. According to Azman and Yunus (2019), the implementation of Kahoot!, as one of the forms of gamification in the grammar class, enabled grammar learning to be more enjoyable and permanent because the games provided learners with a meaningful context for practicing grammar communicatively. The platform encouraged younger learners to grasp the concept of irregular verbs, which is normally achieved through rote learning. This proves that gamification has great potentials to instigate grammar learning. Luo (2017) argued that Kahoot! enabled teachers to identify students' problems by looking at the prompt results of the quiz. He also added that it was effective for grammar learning because teachers did not need to walk around the class to check their students' works one by one.

### 2.4. Kahoot! and other game-based learning platforms

Kahoot! is one of today's most popular game-based learning platforms, which was released in 2013 (Wang & Tahir, 2020; Zhang & Yu, 2021). It is an online multiplayer real-time quiz game that can be used to reinforce and explore course concepts (Cameron & Bizo, 2019; Smith &

Braurer, 2018; Wang & Tahir, 2020). The platform can be accessed using computers or mobile phones for free at https://kahoot.it. Students can go straight to the website and join the quiz-style games without having to create an account. However, instructors need to first sign up to create the games by accessing https://create.kahoot.it. After registering new accounts, the instructors have free access to a million adaptable public games, or they can create new games. The process of registering a new account is simple and straightforward (Plump & LaRosa, 2017). After the instructor shows the entry-pin on the main screen, the students input the game pin into their mobile devices. Once the instructor creates multiple-choice questions that can be seen on the main screen in the classroom, the students can answer them using their mobile phones.

After all of the registered players finish answering the questions or the time provided is up, students can directly see the correct answers so that the teacher and students can review the answers together. Since this game keeps track of students' answers (Plump & LaRosa, 2017), the teachers can use Kahoot! for student assessment, the data of which are recorded in Ms. Excel and can be downloaded later. The timely feedback provided by Kahoot! could also motivate students to reach further learning goals (Zhang & Yu, 2021).

Considering the positive effects of gamification on students' learning outcomes, in addition to Kahoot!, English teachers have also implemented other similar game-based learning platforms in their teaching and used them for formative assessment tools. Among popular game-based learning tools are Quizizz, Socrative, and Quizlet. First, Quizizz is basically similar to Kahoot! but they are different in the presentation of questions, feedback, progression speed and method of the questions, technical requirements, length of questions, and development of questions and choices (Göksün & Gürsoy, 2019). Second, Socrative shares common characteristics with Kahoot! as it provides "a real-time formative assessment to collect data from the students through forms and offers the game Space Race, where teams of students answer questions to move their rocket as fast as possible across the screen" (Wang & Tahir, 2020, p. 3). Lastly, Quizlet is a collaborative mobile and web game platform that uses digital flashcards (Dizon, 2016). This tool is usually implemented in the classroom to facilitate vocabulary acquisition because it provides the correct spelling and definition of words.

## 3. Method

### 3.1. The aim of the study

This study aims to investigate the leverage of Kahoot!, a popular game-based learning platform, to engage students in EFL grammar learning. To guide this research, a research question is formulated as follows: "How does the implementation of Kahoot! in EFL grammar learning boost student engagement?"

### 3.2. Research design

To answer the research question, the researchers employed the principles of qualitative case study method. Qualitative case study is an empirical study that aims to discover phenomena in real-life contexts, which are then to be analyzed and described intensively (Duff, 2008). It is popular among qualitative researchers because it offers a framework for analysis of the entity and context in which social action occurs (Hood, 2009). In this study, the entity refers to a grammar class, consisting of a lecturer and 22 students. In this regard, case study is appropriate for this research because it aims to investigate a particular case, namely the implementation of Kahoot! in the EFL grammar classroom, which was intended to improve student engagement. Three forms of data collection, namely observation, interview, and reflective journal, were used in this study.

### 3.3. Participants and context of the study

This study took place in the English Language Education Study Program (ELESP) of Sanata Dharma University, Yogyakarta, Indonesia, in the fall semester of the 2018/2019 academic year, prior to the outbreak of COVID-19. Twenty-two pre-service EFL teachers who enrolled in Grammar III class and one lecturer took part in this study. The students were in the second year of study in the teacher education program. Grammar III was a 2-credit hour course, which aimed to equip them with the knowledge of basic English sentence patterns, phrases, and passive sentences. Kahoot! was incorporated by the lecturer into the classroom as a formative assessment tool to display the exercises related to the topics. Prior to taking the class, the students had taken previous grammar courses in their first year of study, which focused on tenses, gerund, infinitives, modals, and comparison.

### 3.4. Data collection and analysis

Data were gathered through classroom observations, students' reflective journals, and interviews. First, the observations were carried out during the semester to cater to Kahoot!-assisted classroom activities. One of the researchers took a role as a non-participant observer to gain unbiased data and to minimize the observer's influence on the setting. The observations focused on students' activities in the classroom. The results of the observations were then narrated in a piece of descriptive writing. Second, at the end of the class, the participants (coded as P1, P2, P3….and P22) wrote reflective journals about their experiences of playing Kahoot!, including their feelings, interests, activities, and challenges. According to Hood (2009), students' reflections are needed to understand how they perceive learning experiences from their perspectives. The researchers provided guiding questions for students to reflect on how they felt engaged in grammar learning using Kahoot!. Lastly, semi-structured interviews were carried out with the lecturer and six students (coded as P1, P2, P3, P4, P5, and P6). They aimed to dig into the experiences of the participants and lasted for around 25-30 minutes each. To ensure the trustworthiness, the interview transcripts were returned to the participants.

The data from the observations, reflective journals, and interviews were coded to find emerging categories. After the coding processes, the researchers triangulated the data. According to Hoyo and Allen (2006), triangulation is used to validate and confirm a variety of data from more than one source of which the results support one another. As a result, it enriched the researchers' knowledge about a certain phenomenon from a variety of methods and reduced biases.

## 4. Findings and discussion

Kahoot! was implemented to engage students in the EFL grammar class. The findings revealed that the leverage of the platform boosted student engagement in grammar learning in six ways, namely enabling students to set goals, helping students to focus more on the task, facilitating students to build enthusiasm and interest in learning, allowing students to experience a playful learning activity, facilitating their collaboration with friends, and fulfilling students' need of reward and sense of competition.

### 4.1. Enabling students to set goals

The use of Kahoot! encouraged the students to set goals to win each game session in EFL grammar learning. Its technological affordance that provided timely feedback fostered them to reach learning goals (Zhang & Yu, 2021). At the end of each session, the platform displayed

the three best players as the winners, i.e., those who got the highest scores. The students put forth great efforts into winning the game by mastering the material before they played Kahoot!. In this regard, as the students set their own learning goals, they performed cognitive engagement (Rego, 2015). In the interview, two students said:

> To win the game, I studied and asked for my friends' explanations if I didn't understand the materials. Or, if I still had time, I would check the materials first. (P2, Interview)
>
> To be able to answer correctly, I usually did the grammar exercises in the book. Or, I asked the lecturer to explain and listened to his explanation. (P3, Interview)

The excerpts showed that the use of Kahoot! was able to raise students' sense of urgency to understand and master the materials before answering questions. The students exerted more efforts in understanding the materials, mastering the knowledge, and having rehearsal (Fredricks *et al*., 2004; Lester, 2013). They also made efforts to implement the knowledge they gained in the exercises on Kahoot!. Two students admitted in their journals that:

> Before playing Kahoot!, I prepared the materials well, studied the materials that would be discussed/tested in Kahoot!. (P3, Journal)
>
> I reviewed and memorized all the materials before we started playing Kahoot!. (P9, Journal)

Based on the observation, the students also tried so hard to win the game. For example, one female student whose phone was running out of battery even ran to the electric plug so that she did not lose the game. Some of them who did not have an internet connection asked the teacher to give them a tether to continue playing the game. This showed that students who put a lot of effort into finishing the game and becoming the winner had a high cognitive engagement (Lester, 2013; Rego, 2015).

After setting their goals, the students absorbed the knowledge and demonstrated it in the quiz. The students learned the materials first before the quiz, either with the help of the lecturer or by themselves. Based on the observation, the students were able to implement the knowledge about grammar that they had learned before in the quiz. Most of the students got more correct answers. Accordingly, the general results of the Kahoot! quizzes in the class were satisfying. The average score was around eighty. In the interview, the lecturer said:

> In general, when I used Kahoot!, especially the first one in the first mid-semester, their scores were pretty good. I used Kahoot! in the progress test. Their average score was around 84 or 80. It was very nice. Most of them got 80, some got 90. Those who got low scores were, maybe, because they did not focus on the materials. If they had followed the class and played Kahoot! seriously, the scores would have been good. (Lecturer, Interview)

The lecturer's statement indicated that the students exhibited cognitive engagement. Cognitive engagement refers to the students' cognitive investment, which is related to their

work, their skills, and the strategies they employ to master their works (Metallidou & Vlachou, 2007). Fredricks *et al*. (2004) stated that cognitively engaged students are self-regulated, which means they use strategies to maintain their cognition in finishing tasks. Besides, they manage their efforts on tasks by doing rehearsal, memorizing, organizing, and understanding materials.

Based on the observation, the students who successfully won the game expressed happiness, which could be seen in their facial expressions. In the interview section, some of the participants said they felt happy and satisfied if they could win the game. Two students said:

> I always want to win the game because when I win, my name is displayed on the screen and it belongs to the top three. (P1, Interview)
>
> I always try hard to be the winner. It's simply because I want to reach the top three. I want my name to be written at least on the top three best players. I feel so happy and proud. (P6, Interview)

The statements indicated that the students felt satisfied and proud when their names came out as the top three players shown at the end of the game session. This made the students attain more meaningful learning experiences. The students who experienced meaningful learning expressed happiness, which was the manifestation of emotional engagement (Trowler, 2010). Therefore, the desire to be the winner could also promote student emotional engagement because it could make the students feel happy.

### 4.2. Helping students focus more on tasks

The use of Kahoot! helped students focus more on finishing the tasks because the system is set to reveal one question at a time for every section. As a result, the students could focus more on working on only one question in each section. In this sense, the integration of Kahoot! in EFL grammar learning resulted in students' positive involvement in accomplishing the task. The students who focused on accomplishing the task were cognitively engaged (Fredricks *et al*., 2004).

It is important to note that the maximum time allotment for each section was 90 seconds. Besides having correct answers, the ability to answer quickly could also influence the scores. Thus, if a student had answered the questions correctly and quickly, he/she would have got high points. The students learned to be more careful and not to rush in answering the questions. In the interview, the lecturer said:

> Kahoot! provides scores, based on the time, how fast and precise the students answer the question. They were encouraged to think and answer correctly. They knew that they had to be fast. However, if they answered too quickly, they could sometimes get wrong. They also learned

> to be careful. Therefore, this is one of the things which in my opinion makes them more engaged.

The time limitation for the quiz encouraged the students to manage themselves to do the task quickly but carefully. The implementation of Kahoot! reinforced the students not only to choose the correct answer but also to answer the questions quickly. The time limitation no longer became a distraction because the students were able to suppress the distraction and take it as a challenge (Fredricks *et al*., 2004). The sense of pressure in a positive way could motivate them to accomplish the tasks within a limited time. In the reflective journal, one student said:

> It is fun, because it's like playing a game for me, and it makes me nervous and excited at the same time because the time is limited. (P2, Journal)

Even though gadgets are considered the biggest disruption for students nowadays, the students were not tempted to use gadgets for non-academic purposes. They were able to focus on finishing the game-based quiz. However, the students concentrated and focused on answering one question only for every section because Kahoot!'s system was not set to reveal all the questions at the same moment. The questions were shown one by one on the screen. The lecturer said:

> Kahoot! is an online platform that, in my opinion, can engage students, especially because it can draw students' attention to the main LCD screen. So, it's good to see that the students can focus on the screen.

The students also consistently paid more attention to the lecturer. Based on the observation, the lecturer always explained every answer to each question. When the lecturer explained to the students, they consistently listened attentively to the explanation given by the lecturer. The students who chose the wrong answers were very attentive to get clarifications and further explanations about the answers. In the interview, two participants said:

> I pay more attention to the explanation from the lecturer after playing Kahoot! because the explanation from the lecturer also gives the reason for the correct answer. Well, it must also be considered so that in the future I can be better and I will not repeat the wrong answer. (P1, Interview)

> I pay more attention to the lecturer when he explains the answer to each question in Kahoot! game because we (the students) will be able to recognize our mistakes when we get wrong answers. (P2, Interview)

Based on the observation, the students focused on answering the questions. They concentrated intently on the task and read the questions carefully before answering them. They did not even dare to talk to their friends when they were doing the quiz on Kahoot! because they were afraid of running out of time. They also created a serious atmosphere when they were thinking about the answer. In this regard, the students performed behavioral engagement since

they focused on accomplishing the task with minimum disruption (Ding & Orey, 2018; Fredricks *et al*., 2004; Oga-Baldwin, 2019).

### 4.3. Facilitating students to build enthusiasm and interest in grammar learning

The use of Kahoot! boosted students' enthusiasm and interest in learning English grammar. As the visual design of the platform was quite appropriate, well-organized, colorful, but simple, the students found it very aesthetic and eye-catching. In the class, they exhibited the body language of having high interest and enthusiasm. In the interview, two students also said:

> For me, the visual is good. It means that it can attract our attention because of the colors and shapes. The lecturer can insert images/videos too. (P3, Interview)
>
> I like the design of Kahoot!, maybe because it's colorful. And the options are not A, B, C but shapes. For me, it's unique. (P4, Interview)

Hence, the statements showed the visual design of Kahoot! could make the students more interested in doing the quiz. They felt more encouraged to do the task because they found the visual design was attractive. As P4 said in his statement, the students also found out that the shapes, such as triangle, square, round, and diamond for the options, instead of using A, B, C, D, were very attractive. For the students, the symbols of the options were unique and appealing. Therefore, the immersive design of Kahoot! could make the students feel satisfied and enthusiastic. This resonates with Trowler's (2010) argument that the students who performed positive behavior and showed affection in the learning process were engaged. When students had high enthusiasm and interest in learning, they had positive reactions and emotions towards the learning process.

The musical background of Kahoot! was one of the important elements of the system to engage the students. The results of the observation showed that the music was quite effective in boosting students' vigor when they were accomplishing the quiz. Students' facial expressions showed that they were energetic and excited to choose the correct answers. In this regard, the students exhibited their positive emotions. In their reflective journals, two students also asserted:

> I feel happy and also excited because of the music of the game. It also makes me want to answer as quickly as possible. (P7, Journal)
>
> I was also excited by the music so that it gave me the spirit of competition to be the first winner. (P10, Journal)

The lecturer admitted:

> The music is very, very challenging for their adrenaline. For some reasons, music really can make our adrenaline run. And in my opinion, they can compete with one another.

As evidenced by the three statements, the students enjoyed the music because it could trigger them to answer the questions as fast as they could. For example, P10 found out that the music could evoke a sense of competition in the class so that the students were encouraged to do their best. Hence, the music was effective in creating a competitive environment that made students perform well while doing the tasks (Trowler, 2010; Zainuddin *et al*., 2020; Zhang & Yu, 2021). In this sense, Kahoot! could influence students' behavioral and emotional engagement while learning grammar because it had a very interesting visual and musical design (Ding & Orey, 2018; Fredricks *et al*., 2004; Oga-Baldwin, 2019).

### 4.4. Allowing students to experience playful learning activities

The implementation of Kahoot! allowed the students to experience playful EFL grammar learning activities. The integration of Kahoot! brought about a new conceptual way of grammar learning because the platform was able to convert educational experiences into more playful and exciting activities (Dehghanzadeh *et al*., 2021; Hou, 2018; Zhang & Yu, 2021). The students were allowed to play a game while still thinking about the materials. The extraordinary thrill from the game-based learning activities could create an enjoyable atmosphere that increased student engagement. According to Tan *et al*. (2018), the game elements in a game-based learning platform facilitated learners to be totally involved and fully pay attention because of its 'play nature'. Moreover, the students felt that learning grammar using Kahoot! made them more relaxed, which means that the pressure of learning grammar had decreased because of the playful learning activities. In the reflective journal, the students wrote:

> Through Kahoot! in Grammar III class, we can learn while playing. (P1, Journal)
>
> Playing Kahoot! also makes us more relaxed in learning grammar. (P4, Journal)
>
> I feel that the use of Kahoot! in grammar class is quite helpful for me to learn more about grammar because we can play games and it makes learning grammar less tense. (P14, Journal)

Accordingly, the students enjoyed learning when the lecturer implemented Kahoot!. They felt more relaxed because playing was less tense than traditional learning via textbooks or any other way of learning. This echoes Poole *et al*.'s (2019) findings that games allowed the students to experiment with the concept without fear of failure. Based on the observation, some students who happened to choose the correct answer quickly also exhibited a positive reaction. They would shout happily because their names were shown on the main screen. The students were encouraged to be active because those who answered wrong would automatically raise their hands and ask for an explanation from the teachers. They experienced a sense of

enjoyment because of the playful nature, which resulted in high behavioral engagement (Ding & Orey, 2018; Fredricks *et al.,* 2004). In the interview, three students said:

> Kahoot! is very fun. Maybe it's because I like playing games, so Kahoot! is like a game, right? and when we are given exercise, the lecturer gave allotted time and we need to answer questions. So, it's not too tense. (P2, Interview)
>
> I like playing Kahoot! because it's fun, I don't feel that it's like real exercises but yeah, the thrill is like a game. (P3, Interview)
>
> So from Kahoot!, we play, right? I mean, after learning the materials, we play. Those who have difficulties can understand the materials. It's just like rising a spirit of learning difficult materials. So, we know the things we don't understand yet and we can explore more. (P4, Interview)

The excerpts showed that the students admitted that it was fun and exciting to learn grammar using Kahoot!. They became more enthusiastic in learning and brave enough to take the challenge (Fredricks *et al*., 2004). They also felt that the pressure of learning grammar decreased. Moreover, as what P2 said, the students were able to realize that playing Kahoot! was relaxing and they could do the tasks enjoyably. As a result, the students could vigorously finish the tasks and they no longer thought that grammar exercises were boring and tiring. The lecturer added in the interview:

> I feel they are very enthusiastic, more enthusiastic than when just listening to my explanation. And I changed the concept of a scary and serious quiz into something more fun like just a game. This is what I want to bring. Another reason that I might also add is to change the mindset that learning grammar is not that scary. It can be made as fun as this.

In the class, the students followed the lessons with enthusiasm. Some students sometimes over-reacted by screaming whenever they got the right answers, showing they were very excited. In the interview, the lecturer said:

> In my opinion, one form of engagement can also be seen from the words the students say when doing a quiz in Kahoot!. Especially, when they got wrong answers, they would express their disappointment by saying 'oh' or when they got the right answers, they would express their feeling by shouting or saying other things like 'yes'.

Moreover, in their journals, two participants wrote:

> Kahoot! makes me more interested in learning grammar because the learning method is not boring. (P3, Journal)
>
> Yes. So it's not tensed and we learn grammar at another level that we always think grammar is boring. Because of Kahoot!, we have the motivation to learn more than just fulfilling grades. (P12, Journal)

When playing Kahoot!, the students expressed their happiness by showing frequent smiles and laughter. Some students also frequently used a positive sense of humor with their

lecturer and friends, such as putting an artist's surname into their first name (e.g. Susilowati Spears) when they inputted their names on Kahoot!. In the interview, the lecturer explained:

> I saw the participants very happy when they knew their answers were correct. It could be seen from their expressions and that was what I wanted to see in my students.

In the reflective journals, two participants wrote:

> Using Kahoot! in grammar is a new experience for me. I am happy because there are many interesting and not boring ways to learn grammar. (P5, Journal)
>
> I love Kahoot! because for me, it is the best game for learning. (P13, Jurnal).

Based on the statements, the lecturer tangibly wanted to create a new conceptual way of learning English grammar. By implementing Kahoot!, he wanted to change students' mindset about English grammar since it was often associated with meaningless and isolated forms, which resulted in students' learning discomfort (Al-Mekhlafi & Nagaratman, 2011; Saeedi, 2016). Learning grammar could be a fun and exciting experience, which finally led the students and lecturer to build a positive learning atmosphere and create high involvement in the lesson. The students who showed involvement were fully engaged and got a chance to enrich their educational experiences (Trowler, 2010).

### 4.5. Facilitating students to collaborate with their friends

The affordance of Kahoot! allowed the instructor to choose the game mode. There were two modes, namely single-mode and team mode. The former required the students to work individually while the latter required the students to work in a team. In this regard, the use of Kahoot! facilitated students to collaborate with others by providing a team-mode in the game. In team mode, the students had to collaborate and work together with their friends as a team. According to Fredricks *et al*. (2004), students' positive contribution towards any activities in the classroom, including collaborating with friends, indicated behavioral engagement. They were allowed to discuss the question to get the correct answer. Regarding their preference for single-mode or team-mode, three students shared in the interview:

> The interesting part of team mode is we answer questions in teams, together. And that's where we are trained to give each other arguments and know which answer is correct and which is not. I think the team mode is also helpful in the learning process. (P1, Interview)
>
> I like the team mode more because if I cannot answer the question, someone will help. Also, it will not be too tense because we have friends to discuss. (P2, Interview)
>
> I like team mode better because it's just more fun. You can discuss this with your friends. The single-mode is tenser. If you can't answer, you just surrender. We can collaborate with the team in team mode. Also, friends will help you if you can't answer the questions. (P3, Interview)

In the reflective journal, two students also wrote:

> It's nice to use Kahoot! in groups because if there is something I don't' understand, I can ask (my friends). (P20, Journal)
>
> If something goes wrong, for example, the internet connection is lost, I will ask my friend to tether me or I will join another group. (P19, Journal)

Based on the observation, the students were busy having discussions whenever they were about to answer the questions. This indicated that the students showed behavioral engagement as they got mutual help from their peers when they did not understand or had problems or difficulties answering the questions (see Rego, 2015). Some students even asked for answers from the other groups because they found difficulties. In this regard, the students were so engaged that they created a mutually-beneficial learning community in the classroom (Zepke & Leach, 2010).

Since the lecturer always discussed the answer to each question displayed in Kahoot!, the students also actively participated in the class discussion by asking questions. The students often asked questions related to the exercises discussed. Several students were also brave enough to speak up when they had different ideas or opinions about the answers. The learning experiences resulted in vivid interaction between the students and the lecturer which made the class discussion more dynamic. The findings support Zepke and Leach's (2010) idea that teachers are central to creating an engaging atmosphere in the classroom. In the interview, two students said:

> When we were having a discussion, I sometimes asked the lecturer about the materials/the answers of the quiz that I had not understood yet. (P6, Interview)
>
> Before the lecturer explained, I asked him first because I needed to know immediately the reasonable explanation about (for example) why my answer was incorrect. (P7, Interview)

### 4.6. Fulfilling students' needs of reward and sense of competition

The use of Kahoot! enabled the students to fulfill the needs for reward and a sense of competition. Like a game in common, Kahoot! provided the players with rewards. The rewards were in the form of points. The students who answered correctly and quickly got high scores and became the winners. At the end of the game, the names of the three players with the highest scores were displayed for all the students to see. The thrill of achieving recognition for the best players could encourage the students to do their best to get the intended outcomes (Rego, 2015; Zhang & Yu, 2021). Since everyone wanted to be the winner, they competed to get the best results. They tried to win by learning and understanding the grammar materials before playing the game. In the interview, the lecturer said:

> The concept of Kahoot! is competition, once again. Uhm..we want to be the best and that's what Kahoot!'s team knew very well! They give scores not only for those who answer correctly but also quickly. And I don't know how their logic uses that score. And, in my opinion, it is very successful in getting students to seriously work on it.

It was also apparent in the observation that the students were competitive. Each student was making a great effort to get the first position. They exhibited the attitude of thinking hard to get the correct answer. As a result, some students succeeded in maintaining their position. Thus, the competitive atmosphere in the classroom encouraged the students to finish the tasks well and seriously. Kahoot! allowed the students to feel the competition which was manifested in simple game elements, such as virtual ranks. Although the reward was virtual, the possibility of winning the game could motivate the players to continue playing and improve their performance (Rego, 2015). It allowed the students to monitor their performance. Self-monitoring activities were considered as the manifestation of cognitive engagement (Ding & Orey, 2018; Fredricks *et al*., 2004; Oga-Baldwin, 2019). Eventually, the students exerted great efforts to get a higher rank. The findings also supported Hew, Huang, Chu, and Chiu (2016), who found that game mechanics acted as powerful incentives in gamification.

Regarding the rewards and competition, the students stated:

> It's good. For example, if it is lost, maybe losing a few important points, how about it? So, if there is a ranking like that (make it), the other ones are more interested, how can I answer quickly and correctly. The competition is more real. (P2, Interview)
>
> I like the ranking system. It makes us more challenged to win the game. (P5, Interview)
>
> It's fun because we can compete with classmates, being able to learn while playing also isn't stressful. (P6, Journal)

Hence, the rewards and a sense of competition offered by Kahoot! fostered the students' desire to study harder (Turan & Meral, 2018; Zhang & Yu, 2021). They competed positively with their friends and ended up being more diligent and willing to learn more to achieve their goals. This is in line with Göksün & Gürsoy (2019) and Zainuddin *et al*. (2020), who revealed that competitions in gamification instigated the improvement in students' achievement.

## 5. Conclusions and pedagogical implications

This paper reports on how the implementation of *Kahoot!* boosted student engagement in English grammar learning in Indonesia. The results revealed that the platform enhanced student engagement in six ways, namely enabling students to set goals, helping students focus more on tasks, enabling students to build enthusiasm and interest in learning, allowing students to experience playful learning activities, facilitating students' collaboration with their friends, and

fulfilling students' need of reward and sense of competition. Its affordances enabled the students to enjoy learning English grammar. During the implementation of the platform, the students also exhibited behavioral, cognitive, and emotional engagement. The behavioral engagement was shown when students paid attention to the lecturer's explanation, focused on doing the task, followed the lecturer's rules and instructions, showed willingness to accomplish the task, and participated in class discussions. Meanwhile, the cognitive engagement was triggered when the students absorbed and demonstrated the knowledge, they were motivated to take challenges, and showed confidence to finish the task. The emotional dimension was tapped into when the students exhibited interest and enthusiasm, were happy to play the game, and enjoyed the learning very much. However, agentic engagement, encompassing students' initiatives and contribution to the flow of teaching and learning, was not obviously performed by the students. This might be due to the influence of the power structure in the classroom (see Ardi, 2017).

The researchers recommend that English teachers incorporate Kahoot! into grammar instruction to engage EFL students. However, teachers are central to the implementation of the platform. As not all of the materials of English grammar are suitable for the platform, EFL teachers should think about materials that can be delivered using Kahoot!. Moreover, due to the time limitation, questions on Kahoot! must not be too difficult and long; otherwise, the students will get bored and less engaged. To enhance students' collaboration and interaction, setting the platform into a team-mode is indispensable, which requires students to interact and discuss the answers in English with their peers. As a result, students engage in meaningful and communicative exchanges to accomplish the game task (Poole *et al*., 2019).

However, the current study was limited by the nature of case study. Hence, the results of this study cannot be generalized to a larger population. For that reason, future studies may include a greater number of participants and employ mixed-methods to unveil the influence of gamification on student engagement. EFL student engagement inventory also needs to be developed to devise students' involvement in the English classroom. In addition, this study did not mainly focus on the types of student engagement so that they are not thoroughly discussed in the findings. Future researchers are then called to investigate more deeply the types of engagement that the students exhibit during the implementation of gamification and how the engagement influences their learning achievements.

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# USING AUGMENTED REALITY (AR) AS AN AUTHORING TOOL IN EFL THROUGH MOBILE COMPUTER-SUPPORTED COLLABORATIVE LEARNING

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**Abstract**

Several studies have been published to date about the use of Augmented Reality (AR) as a breakthrough technology in education, but most of them focused on the impact of using prepackaged information on student motivation and engagement. This paper analyzes the affordances and limitations of AR in second language learning, emphasizing its potential as transformative rather than delivery technology in teacher training programs. The novelty of this research is that it examines the attitudes and creative skills of pre-service teachers to meaningfully integrate AR-based projects aimed at teaching English from a Computer-Supported Collaborative Learning model. The sample size was 229 Education students from the University of Alicante (Spain), who created 47 vision-based and location-based projects through different authoring tools, and utilized them to teach English to children. Quantitative and qualitative data were gathered through a pre-post-test, teaching experience videos and class debates.

The research findings revealed that the teacher candidates lack practical training in AR content creation and implementation from a technological and pedagogical perspective, but their attitudes towards AR integration as transformative technology were very positive, particularly regarding student attention, collaboration and shared enjoyment. Spearman's Rho correlation coefficient also demonstrated a relationship between positive attitudes towards AR integration in EFL and the level of difficulty perceived by participants.

**Keywords:** Augmented Reality; attitudes; creative skills; collaboration; language learning

## 1. Introduction

The implementation of Augmented Reality (AR) has been steadily growing in different areas such as business, architecture or entertainment over the last two decades, thanks to the emergence of free or low-cost web-based programs and mobile applications. AR appeared in 1968 when it was first used by Ivan Sutherland in his development of the first head-mounted display system, but the term, originally associated with the aerospace and military industries, was not coined until 1990 by Boeing researcher Tom Caudell. Three decades later, as a result of AR software advances and the worldwide penetration of smartphones, this cutting-edge

technology has been integrated in several fields such as sports, marketing or education since it provides a digital interactive experience based on a real-world environment. The myriad of AR development tools available today, such as Augment, Blippar, Layar SDK, Metaverse, Roar or ZapWorks, to name but a few, have facilitated the increasing use of this technology. In fact, a good amount of international companies such as Google, Microsoft, HP, Pokémon or IKEA have launched different gadgets and AR wearables, for example smart glasses and jackets, head-worn and wrist-worn devices, while others such as Facebook are currently developing their own AR products.

Although the adoption of AR in education is still in its infancy, several research works have come out to light over the last ten years, but most of them focused on examining the impact of using prepackaged information through AR tools on student motivation and engagement. The novelty of this study is that it evaluates the digital skills and attitudes of teacher candidates to develop their own AR-based projects and use them in the EFL classroom from a Mobile Computer Supported Collaborative Learning model.

## 2. Literature review

### 2.1. AR definition

Following Azuma's original definition (1997, 2016), AR is conventionally described as a system including three key elements: a combination of real and virtual content, the interaction in real time and the registration in 3D. Traditionally, AR has been closely associated with Virtual Reality (VR) as part of a mixed reality continuum, but AR uses the real world to provide digital information, enhancing the user immersive experience, while VR is an artificial "environment created by a computer system that simulates a real situation" (Fernández, 2017, p. 2). In other words, VR provides a fully simulated experience whereas AR is closer to the real environment.

Depending on the AR technology, there are different categorizations. Wojciechowski and Cellary (2013) identified three main types: first, marker-based AR, using a static image to trigger a visual overlay as superimposed additional content (3D, video, animation, etc.); second, markerless AR, allowing real objects to be used as triggers by scanning the surrounding environment; third, location-based AR, also known as GPS-based AR, in which interactive digital content is attached to a geographical location. Nevertheless, some authors include location-based AR within the markerless type, thus reducing the categories to just two, markerless and marker-based (Khoshnevisan & Len, 2018; Khoshnevisan, 2019), while others

refer to them as location-aware and vision-based (Dunleavy & Dede, 2014). Alternatively, Azuma et al. (2001) provided a different AR typology based on delivery technology used for viewing the virtual and real environments: head-worn displays, handheld displays such as smartphones, and projection displays. Today AR is considered a state-of-the-art technology that no longer requires any specialized equipment to be used in the classroom, apart from a portable electronic device such as a tablet or a smartphone.

AR technology has been recently integrated at all levels of education, from preschool to college, as illustrated in several systematic reviews (Chen et al., 2017; Li et al., 2017; Sirakaya & Alsancak Sirakaya, 2018; Garzón et al., 2019). Although AR can be used in a wide range of scenarios, Yuen et al. (2011) summarized them into five: discovery-based learning, object modeling, skills training, AR books and AR gaming. The last two have been particularly prolific (Vate-U-Lan, 2012; Hockly, 2019), for example, 3D pop-up books have become quite popular among children, as they include printed triggers (e.g., images or QR codes) that activate a virtual overlay in the form of text, image, audio, or video, thus offering a more immersive experience to young learners. However, AR gaming is probably the area with more significant advances due to its global expansion and economic potential, as demonstrated by the constant emergence of new games such as ARSoccer, Live Butterflies, Alien Attack or the worldwide successful Pokémon Go.

### 2.2. AR in education

The studies about the educational use of AR have been mostly framed within two theoretical models (Dunleavy & Dede, 2014): the Constructivist approach and the Situated Learning theory. On the one hand, the Constructivist approach implies that learners assimilate new knowledge and information thanks to an active process based on learning by doing and performing authentic tasks through the interaction with each other and the surrounding environment. On the other, the Situated Learning theory postulates that all learning takes place within a community of practice, and it is the result of the interaction between the learner and the elements of the environment in which they live (context, content, communication and participation). In this sense, AR fits into both theoretical models, as it provides a student-centered immersive experience based on experiential learning and building on understanding.

However, most learning theories used today by in-service teachers were created before the digital age. Thus, some authors stressed the need to update and (re)design new theoretical approaches and pedagogical methods, in which technology is used in a transformative manner, and to (re)educate pre- and in-service teachers in the meaningful integration of AR through new

models such as mobile Computer-Supported Collaborative Learning (Song, 2014) or Connectivism (Zhang et al., 2020). MCSCL, short for mobile Computer-Supported Collaborative Learning, is a pedagogical method concerned with how students can learn together through mobile devices and shared spaces by combining different principles such as mobility, context, interaction and collaborative learning. This is all possible thanks to the adoption of mobile devices and other wirelessly networked handheld computers, which can be used by teachers and students in the classroom without losing face-to-face contact. In contrast with cooperative work, where students work separately in common assignments, collaborative work involves "joint and symmetrical engagement of participants toward shared learning and problem-solving goals" (Jeong & Hmelo-Silver, 2016, p. 247). Different authors highlighted the positive impact of MCSCL on student communication, engagement and motivation as it enhances context-rich learning, collaboration and mobility (Yaslam & Iahad, 2013; Hsu & Ching, 2013).

Regarding the benefits of integrating AR in education, some authors emphasized that it promotes critical thinking, enhanced spatial learning, decreased cognitive load, increased motivation, better representation of abstract concepts and higher achievement (Dunleavy et al., 2009; Norlund et al., 2016; Sirakaya & Alsancak Sirakaya, 2018). All these affordances can be summarized in four key concepts: immersion, representation, problem-solving and gamification.

However, the challenges for a meaningful integration of AR in the classroom can be twofold: technological and pedagogical (Alkhattabi, 2017; Khoshnevisan & Le, 2018; Hockly, 2019). Among the technical constraints, authors usually refer to the small number of AR apps or connected devices available in real-life classroom settings, the cost of its implementation in most cases, and the technical problems experienced about GPS and marker-based AR technology (image recognition, limited processing power, storage capacity, connectivity, etc.). In relation to the pedagogical drawbacks, some studies indicated the lack of IT skills and AR preparation among in- and pre-service teachers, inappropriate technological pedagogical models, and a certain concern about the usability of AR technology among educators. Other reported limitations were lack of privacy, information overload and student distraction. Figure 1 summarizes the main affordances and limitations of AR integration as described in different studies.

| | | |
|---|---|---|
| Affordances | Immersion | context interaction, experiential learning, building on understanding. |
| | Representation | reduced cognitive load (spatial and abstract concepts), multitasking & ubiquituous learning |
| | Problem-solving | enhanced cognitive and higher-order thinking skills, self-learning capabilities & confidence |
| | Gamification | increased interest and enjoyment, engagement & motivation, satisfaction |
| Limitations | Technical | lack of availability of AR educational tools (free or low-cost) |
| | | lack of electronic devices in some educational settings |
| | | technological problems (connectivity, image recognition, etc) |
| | Pedagogical | lack of digital skills and adequate training of educators (concern, negative attitude, etc.) |
| | | lack of adequate pedagogical models for AR integration in the classroom |
| | | lack of academic and tecnical support |

Figure 1. Summary of AR affordances and limitations in education

### 2.3. AR in language learning

The implementation of AR in language learning is constantly increasing, as attested by the number of works published over the last five years (Khoshnevisan & Le, 2018; Parmaxi & Demetriou, 2020). Although most of them concentrated on adult learners, some articles explored the impact of using AR with children in the EFL classroom (Dalim et al., 2016), and a few studies focused specifically on certain language areas and skills, for example, learning vocabulary through place-based mobile games (Godwin-Jones, 2016), or learning case grammar by dynamically creating quizzes based on real-life objects (Draxler et al., 2020).

Using mobile AR gaming in language learning has lately created great interest (Taksiran, 2019; Wu, 2019). In fact, new areas have emerged such as location-based mobile games for language learning (LBMGs), which "combine place-based experiences with multimedia content and make use of game-design principles and scenarios to create real-world contexts for learning" (Richardson, 2016, p. 36). The idea underlying these studies is that AR

can provide an immersive real-time gaming environment with a focus on language, thus promoting ubiquitous, formal and informal learning.

Although the integration of AR in language learning is emerging, and has been sometimes criticized for lacking "strong theoretical support such as frameworks and models" (Zhang et al., 2020, p. 217), different authors have demonstrated that its implementation may be well grounded in the theoretical foundation of Constructivism and Situated language learning, since "all learning takes place within a specific context and the quality of the learning is a result of interactions among the people, places, objects, processes, and culture within and relative to that given context" (Dunleavy & Dede, 2014, p. 736). Based on these perspectives, the reader response theory emphasizes the role of meaning created by readers. This approach is then considered applicable in language learning, particularly in engaging students to read (Gonzales & Courtland, 2009; Mizuno, 2015). By using a reader response theory, students do not only analyze the writers' purposes in creating the text, but also create meaning by using their background knowledge when interacting with the text (Rosenblatt, 1990). In this case, through reader-response based activities, readers are encouraged to play an active role in interpreting the meaning of the texts.

Studies have elaborated some benefits of the reader response theory in the classroom. Carlisle (2000) found out that the implementation of the reader response theory does not only help students learn the semantic domains of the texts, but it also encourages them to explore the text and give critical responses. In line with the previous findings, Gonzales and Courtland's study (2009) highlights the link among reader response, readers' interests and critical thinking. Mizuno (2015) strengthens this argument by proposing that responding to reading materials gives "a positive impact on the cognitive process of reading" (p. 18). Laboid (2016) suggests that the implementation of reader response journals in class helps students know themselves and gain "a sense of ownership of their learning experiences and to gain confidence and self-efficacy which are likely to affect positively their reading and writing attainments" (p. 111). He further suggests some reader-response activities that are in line with the teaching of reading strategies, such as outlining, paraphrasing, referential questioning and applying ideas to the real world. However, a recent study by Biglari (2017) shows that although there is no straightforward relationship between reader responses and students' comprehension, classroom practice based on reader responses decreases learners' anxiety.

Considering the positive relationship between reader-response approach and language learning, this research focuses on elaborating the implementation of digital reader response theory in technology-enhanced EFL reading class.

### 2.4. AR in teacher training programs

Teacher training programs have incorporated AR with different levels of success, the first problem being that in-service teachers are mostly unfamiliar with this breakthrough technology (Khoshnevisan, 2019). For this reason, Yang (2018) developed a model to assess pre-service EFL teachers' attitudes toward AR integration, due to the paucity of empirical research in this area, while Osuna et al. (2019) reported some obstacles at the university level, such as lack of proper teacher training and lack of conceptual foundation.

The second problem is that these training programs usually focus on learners merely as AR recipients rather than content designers and creators, which puts them in a passive position. Ke and Hsu (2015) pointed out that studies of vision-based mobile AR are relatively few and mostly based on learners' use of already existing lessons in which learning content is simply delivered. However, AR may also be used to enhance higher-order thinking skills among teacher candidates (Bower et al., 2014). In fact, using technology in a transformative manner would help future educators build their own confidence and competence, "yet teacher training often does not help future or current teachers develop these skills" (Stickler et al., 2020, p. 137).

In a pioneer study, Ke & Hsu (2015) investigated the effectiveness of smartphone-based, AR artifact creation in reinforcing the technological pedagogical content knowledge (TPACK) of teacher candidates, concluding that "mobile AR artifact design tend to better promote integrative competencies that connect technology, pedagogy, and/or content knowledge" (p. 22). Similarly, Sirakaya & Alsancak Sirakaya (2018) emphasized the need to include teachers as the implementers of the AR system while Sáez-López et al. (2020) advocated for initial teacher training in order to be able to design and apply AR-based practices in the classroom. In this sense, Zhang et al. (2020) reinforced the idea of instructors playing a dual role as a teacher and AR designer so that they "can better evaluate their students' needs and customize the technology in their teaching" (p. 230).

## 3. The study

### 3.1. Objectives

This study seeks to analyze the digital skills of teacher candidates in order to develop AR-based projects aimed at teaching English to children and young learners, and to assess the impact on their attitudes towards AR integration. Specifically, the three research questions are as follows:

- Can teacher candidates develop their own AR-based projects from a MCSCL model?

- Can teacher candidates meaningfully implement their own AR projects with children in a real language classroom setting?
- What are the participants' attitudes towards AR integration in the EFL classroom at the end of the experiment?

A mixed-method research design was adopted, in which participants were provided with a set of instructions as summarized in Figure 2.

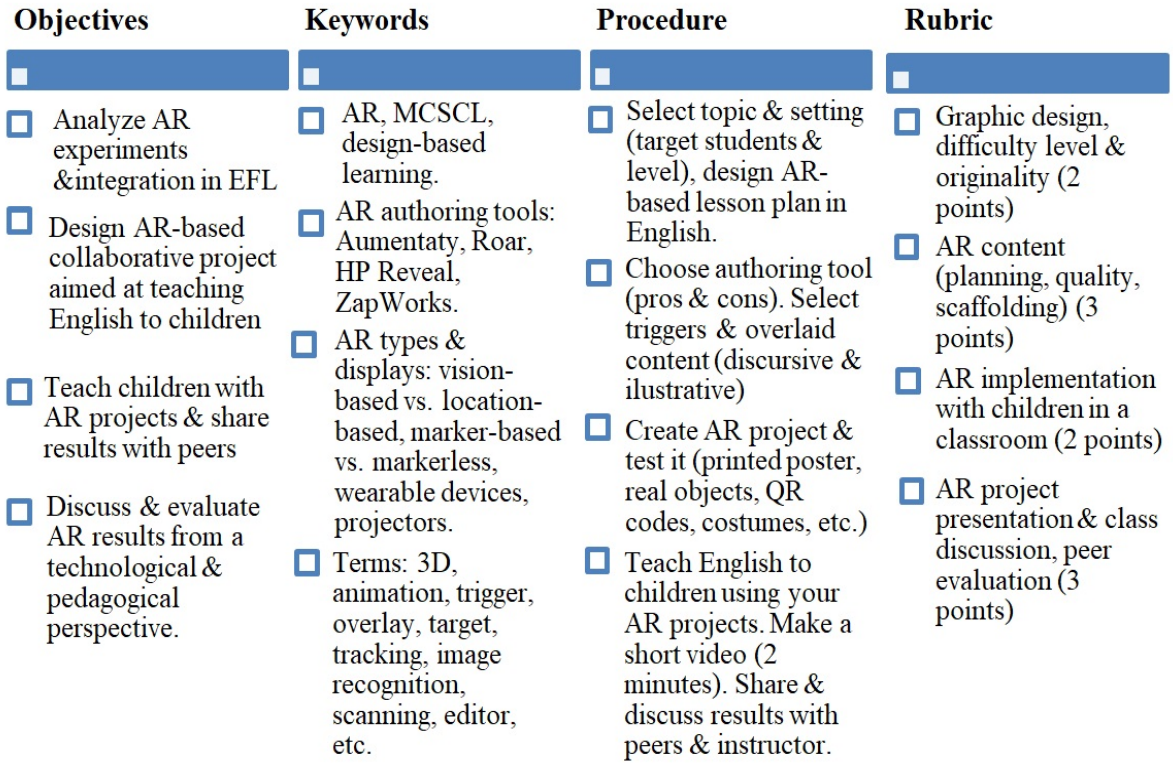


Figure 2. Summary of AR instructions provided to participants

### 3.2.. Participants and study context

A total of 229 teacher candidates from the College of Education took part in this experiment, with 84% being female students and 21 years old on average. All participants were enrolled in the subject 'Integrating Skills in English' at the University of Alicante, a medium-sized university located on the southeastern coast of Spain. This is an elective class offered daily throughout two consecutive months to third-year Education students who are willing to become preschool and elementary teachers, where they learn how to use effectively different methods and resources to teach English to children. The methodology is based on a combination of MCSCL and project-based learning, in which in-class activities are strategically reserved to project development and student interaction through face-to-face exercises and the use of

personal electronic devices. Thus, wireless interconnected handhelds such as laptops, tablets and smartphones are used to promote collaborative learning and peer evaluation. The two-hour daily lessons take place in large classrooms where students can easily move around in order to collaborate, share and discuss the results with their peers and instructors. For the project implementation in a real classroom setting, the Education students obtained informed consent from school administrators and in-service teachers located in the area to utilize their AR-based projects to teach English to children.

### 3.3. Procedure and instruments

The AR experiment was carried out during twelve two-hour sessions, comprising seven different stages as shown in Figure 3. First, teacher candidates were provided with an overview of the AR project and became introduced to different AR types (location-aware and vision-based). Next, all participants were randomly assigned to teams of four to five members in order to plan an English lesson on a topic they selected, including target students, language level and types of activities. The third and fourth stages consisted of three training sessions on different authoring tools, requiring each team to select one based on their learning goals and project needs. Then, they had to create or find different images or objects (triggers) and multimedia content (overlays) for their educational projects, including discursive and illustrative representations, and organize them in a scaffold manner. The development stage comprised three two-hour sessions, in which the instructor had to assist participants in some technical as well as pedagogical issues such as content creation and format, tool limitations and possible obstacles. In the following stage, each team had to implement their AR project with children in a real classroom, and prepare a two-minute video about their teaching experience. In the last stage, all participants presented simultaneously the AR projects to their peers in 10-minute rotations and evaluated them through clickers, after discussing their results and teaching experience.

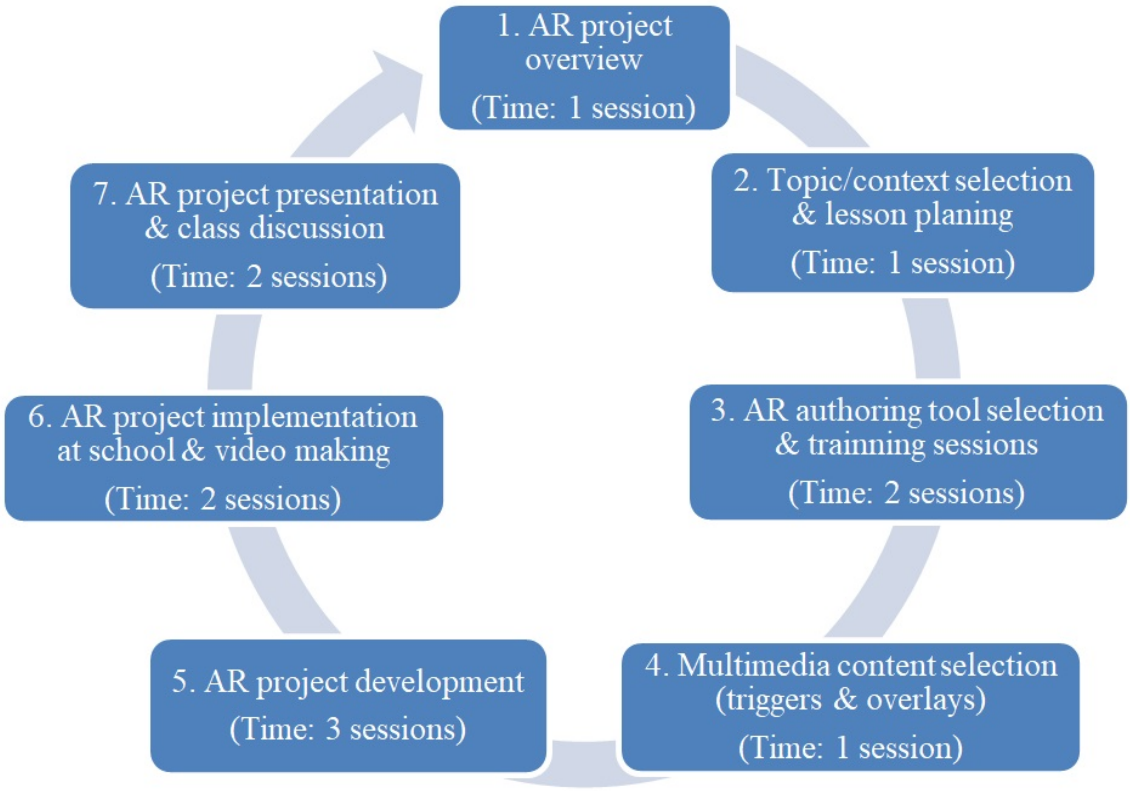


Figure 3. Stages of the AR project experiment (12 two-hour sessions)

Quantitative and qualitative data were gathered through different research instruments: a pre-post-test, AR projects, teaching videos and class discussion. The pre-post-test administered on-line included different sections, one specifically aimed at measuring the participants' attitudes towards AR, which was partly based on Küçük et al. (2014), on completion of the experiment. For the AR projects, students were free to choose any authoring tool that best fitted their technical and pedagogical needs, but the corresponding images and video links needed to be posted in their blogs. The class discussion consisted of semi-structured debates, in which students were asked about their teaching experience with children as well as their self-perceived learning outcomes.

## 4. Findings and discussion

### 4.1. AR project samples

A total of 47 AR projects addressed to different educational levels were created on a wide range of topics such as the human body, the solar system, colors and shapes, musical instruments, feelings and emotions, recycling, etc. The number of vision-based projects was

considerably higher than the location-based ones since most teams planned to implement their projects with children inside the classroom. As regards the authoring tools, the three most widely used were Aumentaty, Roar and HP Reveal, all of them offering free sign-up options with limitations. Aumentaty provides free access to educators, who can publish their projects at no cost and enjoy certain options such as (re)editing and analytics capabilities, but the AR projects created expire after a certain period of time, and this tool requires participants to download the Creator program to develop their projects and the Scope app to view them. Roar is a business-oriented tool with different pricing options, but users can sign up for free with a limitation of 20 views and 4 ARs. HP Reveal, formerly known as Aurasma, was initially a very popular tool among participants for its intuitive interface, free access, unlimited scans and social networking options, but it was discontinued for a while and later redesigned and renamed as LinkReader with different features.

The AR projects developed by the teacher candidates used three types of trigger elements, which needed to be closely related with the main topic of their English lesson: posters or murals, costumes and real-world objects, as illustrated in Figure 4.


Figure 4. AR projects. From top left to bottom right: Art and museums (poster), The Digestive System (costume), AR project presentations (Ocean poster), AR project implementation with children (Farm animals mural).

Each project was required to include a minimum of ten multimedia activities, which needed to be diverse and sequentially organized for the target students, depending on their time to completion and difficulty level. These activities could be based on information and exercises previously created by the participants or linked to already existing web-based materials. Following Ke and Hsu (2015), the overlaid content included was classified into discursive representations, such as text-based and voiceover explanations, and illustrative representations, for example 3D images, songs, short video lessons, etc. The activities were aimed at strentghening different language and reasoning skills among children, such as listening and reading comprehension or vocabulary retention, and they were linked to a wide range of on-line games, for example painting, flash cards, crosswords, word match or jigsaw puzzles, as shown in Figure 5.

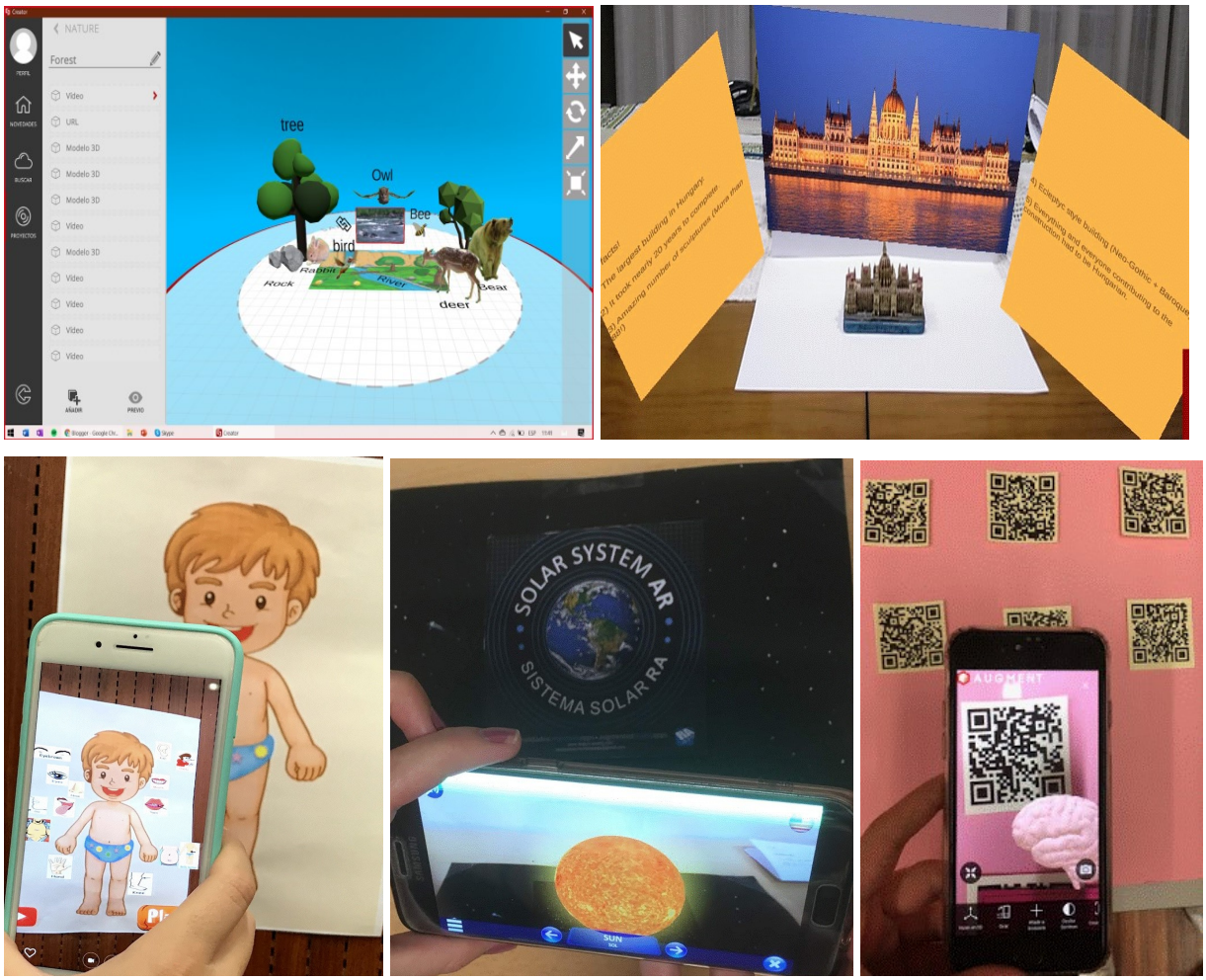


Figure 5. AR multimedia activities. From top left to bottom right: Creating a project on wild animals (Aumentaty), Reading activity on European monuments, On-line game about the Human body, Solar system 3D image, QR codes and games related with the Human brain.

### 4.2. Data results and discussion

According to the pretest results, nearly all the teacher candidates had previously received theoretical instruction about AR in education, but only 48% of them had actually experienced it as real users and just 11% had created an AR project in the past. In the section about AR-related terminology, only three terms were widely recognized by participants (3D, scan, link), while the other seven (marker, trigger, overlay, tracking, extended tracking, hotspots, image target) were unknown before the experiment.

The post-test results indicated that the technical aspects (Items 3-7) were perceived as more difficult than the pedagogical ones (1, 2 & 8), as shown in Table 1. Due to the lack of expertise in AR creation, selecting an authoring tool and learning how to use it became a complex task since they had previously to reflect on issues such as mobile availability, software compatibility, interface design, user-friendly implementation and pricing options. Some hindrances reported in the development stage were limitations to content creation and number of views as well as project editing and publishing options. Regarding the implementation in a real classroom, costumes and real-world objects were highly praised, as they were said to provide a more engaging and immersive experience. Similarly, tablets were preferred over smartphones thanks to their enlarged field of view (FOV).

Participants were trained in different AR software development kits (SDK) in the third stage of the experiment, but they were encouraged to explore and watch some video tutorials before selecting the authoring tool that best fitted their own needs. The three most popular were HP Reveal, Aumentaty and Roar. HP Reveal, formerly known as Aurasma, was a free extended reality platform, which allowed them to easily create AR content or new Auras through the HP Reveal studio website, but the platform was shut down in 2020, and was later renamed as Linkreader, with different and somewhat limited options. Aumentaty is a free AR development tool for Windows, specifically designed for education. The teacher candidates needed to download the Creator software from the website to develop the project, and the Scope app to view it on their tablets and smartphones (Android and iOS). It was praised because of its intuitive interface (see first image in Figure 5) and its 3D image gallery, but some participants experienced technical problems when importing 3D objects. The Roar Augmented Reality platform enabled users to overlay real world objects with digital content through image markers and other forms such as detecting surfaces, offering 20 views and 4 AR for free. This tool was praised for its design options and functionalities, though some teacher candidates complained about the very limited number of scans in its free version. Other free or freemium tools used,

some with watermarks, were Augment (see Figure 5), ARkit, Metaverse, Vuforia and Wikitude.

Pedagogically, the most common problems observed were lack of proper planning and poor quality of some multimedia content included in the AR projects. Although the instructions provided clearly indicated that the projects should be organized to facilitate scaffolded learning, a few teams prioritized design over content, therefore, some projects became a collection of unconnected activities. However, most of them integrated meaningfully the digital content in a sequential manner by using arrows.

Table 1. Level of difficulty in the AR project development (from very easy (1) to very difficult (5))

| **Descriptive statistics (N=229) Cronbach's Alpha: .829** | **M** | **SD** |
|---|---|---|
| #1. Selecting the topic and learning objectives of the AR project | 2.34 | .809 |
| #2. Selecting the key vocabulary and designing the English language lesson | 2.57 | .795 |
| #3. Selecting the authoring tool (interface, software compatibility, pricing, etc.) | 3.46 | .939 |
| #4. Learning how to properly use the selected authoring tool | 3.58 | .927 |
| #5. Selecting/creating the triggers for the AR project (markers, images, location) | 2.67 | .961 |
| #6. Selecting/creating the overlaid virtual content (discursive and illustrative) | 3.21 | .806 |
| #7. Creating the whole AR project | 3.44 | .860 |
| #8. Using the AR-based project to teach children | 2.82 | .898 |

The post-test included a section aimed at measuring the participants' attitudes towards AR, which included negatively-worded statements to avoid the acquiescence bias (Küçük et al., 2014). As Table 2 illustrates, statistical data binning revealed that 93.45% of respondents agreed with the positively worded statements included in items 1-6, 13 & 14 and that 69.44% disagreed with the negatively worded statements in items 7-12 (reverse coding). Consequently, these scores evidenced the positive attitudes towards AR integration in the EFL classroom among participants, particularly regarding the fun factor (M=4.34) and the willingness to learn more about AR programs (M=4.30) and to use them in the future (M=4.30). The lower yet positive values corresponded to self-perceived learning gains (M=3.78) and better concentration (M=3.55). These results clearly indicated that the teacher candidates are open to adopting AR as a transformative technology in their role as students as well as future educators.

Table 2. Participants' attitudes towards AR integration (from (1) completely disagree to (5) completely agree)

| **Descriptive statistics (N=229) Cronbach's Alpha: .860** | **M** | **SD** |
|---|---|---|
| #1. I enjoyed all AR-based projects presented and discussed in class. | 4.10 | .688 |
| #2. Demonstrations of AR lessons in English increased my curiosity. | 4.07 | .763 |
| #3. I think English classes will be more fun if teachers use sometimes AR lessons. | 4.34 | .693 |
| #4. AR lessons give a sense of reality in the environment. | 4.00 | .775 |
| #5. I think I learned more in English thanks to the AR lessons. | 3.78 | .922 |
| #6. I can concentrate better when a lesson is explained with AR. | 3.55 | .905 |
| #7. AR lessons do not attract my attention. | 1.94 | 1.247 |
| #8. AR lessons make my learning difficult because I find them confusing. | 1.80 | 1.049 |
| #9. There is no need to use AR in the classroom. | 1.84 | 1.064 |
| #10. Using AR in the classroom causes waste of time. | 1.62 | .991 |
| #11. It is difficult to use AR programs in English lessons. | 2.23 | 1.053 |
| #12. I get bored while I am using AR applications in class. | 1.60 | 1.066 |
| #13. I want to use AR lessons in the future with my students. | 4.27 | .921 |
| #14. I want to learn more about AR programs and how to use them in the classroom. | 4.30 | .927 |

Additionally, Spearman's Rho correlation coefficient revealed a certain relationship between the level of difficulty perceived by the participants when creating their projects and the attitudes towards AR integration in the classroom. This correlation was weak in the case of negative attitudes ($p=.000 < .01$), and more moderate as regards positive attitudes ($p=.042 < .05$). Therefore, it seems that the participants with positive attitudes found the AR creation project less complex, although some other factors should be taken into account, such as previous experience and motivation. Similarly, a positive correlation was observed between the level of difficulty and the time needed to develop the AR project, as shown in Table 3. Nearly 45% of the teams finished the project in less than 5 hours and 38% did so in 5-10 hours, as opposed to the remaining 17% who needed more than 10 hours to create it.

Table 3. Spearman's rho correlation coefficient between different rank variables.

| | | Positive Attitudes | Negative attitudes | Time creating AR |
|---|---|---|---|---|
| Difficulty level | Correlation coefficient | -.134* | .239** | .175** |
| | Sig. (2-tailed) | .042 | .000 | .008 |
| | N | 229 | 229 | 229 |

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

In a semi-structured debate, following the project presentations in the classroom, the teacher candidates shared their thoughts and beliefs about utilizing AR technology to teach children. Nearly all of them agreed that AR seemed to enhance children's motivation and engagement, thanks to visual interactive games which helped them make connections more easily. In fact, children were observed as exploring, pointing, painting, reading, writing or singing while having fun, so the participants believed AR could effectively provide an immersive experience and a lifelike environment, particularly when using costumes and real-world objects as triggers. They also stressed the fact that AR technology helped children better associate and understand some abstract and spatial concepts, and it was safer to experiment with certain topics in order to avoid harmful consequences given in real life. Furthermore, some in-service teachers who monitored the experience showed a strong interest in such a breakthrough technology while acknowledging the positive impact it had on their students' attention and motivation.

However, some of the obstacles reported were related with usability difficulties, particularly limitations with multiuser interaction since most AR programs are single-user oriented. As the teams were made up of 4-5 members, the teacher candidates could simultaneously utilize their project with several children but class management could become a problem depending on the teacher-student ratio and technological resources available in the classroom. Moreover, the teacher candidates were concerned about how to deal with some learner differences and AR implementation. Regarding technological problems, a few participants complained about feeling frustrated during the teaching experience because of low image sensitivity and recognition, scan limitations, limited hardware and poor connectivity in some spaces. Furthermore, some in-service teachers expressed their concern about the impact of using AR on children, for example, decreased peer-interaction and the socially isolating factor, also known as attention tunneling.

The post-test results revealed that the overall satisfaction with the AR experiment in the EFL classroom was high among the teacher candidates, as 45% of them indicated they were completely satisfied and 38% very satisfied, in contrast with 11% who took a moderate position and the remaining 6% who were not satisfied.

## 5. Conclusions

This study demonstrated that AR technology can be meaningfully integrated to train teacher candidates in the EFL classroom from a MCSCL model. As suggested by Bower et al. (2014), there is nowadays an overemphasis on lower-order thinking skills in the curriculum, which "constrains the amount of time that can be dedicated to having students think critically and utilize knowledge in creative ways" (p. 12). Although most of the research previously done about AR has focused on the impact of using prepackaged information on student motivation and engagement, the results of this paper show the effectiveness of adopting authoring tools in teacher training programs in order to enhance higher-order thinking skills and create collaborative projects aimed at teaching English to children. The results confirm the first two research objectives related with the participants' skills to create and utilize AR-based projects to teach English to children. Consequently, there is a need to make teacher candidates assume a more active role in transformative technology as content designers and creators, not just recipients.

The novelty of this experiment is that it analyzed the impact of AR implementation on the participants' attitudes by covering all the different stages in the AR development process: from pre-production by teacher candidates to implementation with children in a real classroom setting. Most of the 47 projects created were vision-based, and those using real-world objects and costumes as trigger elements were highly valued since they provided a more immersive experience and feeling of presence. According to the participants' comments, the overlaid content of the AR projects enhanced learning in a real-life context, as it comprised a wide range of interactive multimedia activities, including both discursive and illustrative representations. In line with Sáez-López et al. (2020), the affordances of the integration of AR as a design-based learning tool were increased participation, creativity and greater enthusiasm. As a result, the participants' attitudes towards AR were very positive, particularly regarding shared enjoyment, attention, and willingness to learn more about this technology.

However, several hindrances were observed at different stages of the experiment. Technologically speaking, certain limitations were reported about content creation and publishing options, poor connectivity, low image sensitivity and shortage of resources.

Pedagogically, some projects lacked adequate lesson planning or scaffolding and included poor quality learning activities since they were image- rather than content-oriented, thus they were not purposeful. In this sense, the teacher candidates require better training in both technological as well as pedagogical models in order to know how to meaningfully effectively AR into the EFL classroom. In line with Whyte & Schmid (2019), "clear principles for material design and examples of good practice are needed to help teachers develop an increased awareness of the different types and levels of interactivity and language interaction supported by technology" (p. 351). Furthermore, in-service teachers who monitored the experience were interested in learning more about this cutting-edge technology but expressed some concern about the impact on peer-interaction among children.

From a CSCML model, AR can be effectively employed as a transformative technology with multiple educational purposes, such as facilitating mobility and an immersive environment to young learners, as well as promoting collaborative learning and creative skills among future educators. However, more technological advances are necessary in relation to the availability and affordability of AR applications and authoring tools, and better adaptation to real classroom settings in terms of software adaptability and multiuser interaction. Further research is needed due to the constant emergence of AR apps and wearables and their implementation in different educational areas. Future studies need to delve more deeply into content creation and classroom implementation, and future educators need to be properly trained to integrate AR in and outside the classroom.

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