Team breakout in higher education: Communication tools and experience of undergraduate students

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Abstract

The situation generated by COVID-19 last March 2020 led us to stop face-to-face educative activity so as to continue in a virtual mode. As an innovative adaptation to new circumstances, we proposed a final evaluation by means of an educative breakout to carry out in groups in a virtual environment. For the group-gamification practice, the students used a variety of digital tools in order to establish an effective synchronous and asynchronous communication. A sample of 389 students from the Degree of Primary Education at the University of Málaga was collected from two academic years (2019-2020 and 2020-2021). They were administered an online survey, and they were inquired about the tools used for the development of the team breakout, as well as their impressions towards the work with their teams. Instant messaging tools and apps (text and voice) and videoconferencing platforms were among the most frequent answers. However, a tendency to come back to face-to-face meetings during 2020-2021 was observed in the responses of the participants, since that academic year a bi-modal teaching was allowed. This last outcome threw interesting conclusions of participants' behavior, as, despite being most of them digital natives, they tended to prefer human contact after the unexpected virtual period of the previous academic year.

Palabras clave: Gamification; COVID-19; Higher education; Student experiences; Communication tools.

Introduction

The coronavirus (COVID-19) outbreak which caused global pandemic led society into a harsh situation. Governments declared subsequent lockdowns in different phases to control the virus. The whole education system suspended in-person classes. Consequently, universities were critically affected, since they are centres of social gathering, and their lockdown continued longer. Students and faculty members were forced to stay at home. As the pandemic expanded, there was a pedagogical shift from a traditional teaching-learning modality to a modern procedure (Mishra et al., 2020).

In other words, there was a move from face-to-face education system towards online education modality —or e-learning— fostered by the pandemic circumstances. According to Rosenberg (2001), e-learning is defined as "a networked phenomenon allowing for instant revisions and distributions of information and tools to improve learning" (p. 4). This educational modality combines both training and knowledge management, whose key feature is that it occurs entirely in a virtual environment by means of an interaction between teacher and student and scholar's learning material (Rosenberg, 2001). Also, e-learning is a complex method in terms of design, analysis and time spent to evolve and implement courses. So, it needs detailed planning, implementation, and evaluation (Bawa, 2020). Some relevant benefits can be attributed to e-learning: flexible accessibility of faculty members' tuition; improvement of the students' self-learning; greater interaction between teacher-student; flexibility in instruction times and spaces; availability to class material at any time and place; collaborative learning (Area & Adell, 2009).

Thanks to the implementation of e-learning, classes were held entirely in a virtual environment without any physical presence in the classroom during the 2019-2020 academic year. Students were connected to the Internet with their computers, tablets, or mobiles to follow their classes from their homes. Theory and practice of lessons, as well as seminars were developed synchronously using different videoconferencing platforms —Big Blue Button, Blackboard Collaborate, Teams or even Google Meet— or asynchronously, with illustrative videos or audios about the content or practice of the subject.

The subsequent academic year (2020-2021), classes were carried out according to the blended learning educational methodology that comprises both the virtual modality and the face-to-face modality. The blended learning model —also called b-learning or hybrid learning— is not a new concept, as it appeared some time ago with the revolution of the Internet and the explosion of emergent technologies. B-learning refers to a combined modality of teaching with presence both in the physical classroom and in the virtual class (Area & Adell, 2009). In this educational mode, the virtual class is a space in which the educator implements different teaching actions: asking questions, opening debates, proposing tasks, etc. And, in fact, the blended model has the valuable features of the two educational modalities. Also, we should take into account that students, today, are considered digital

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natives (Prensky, 2001); therefore, they are used to employing technologies in their daily lives.

Despite being digital natives, some studies concluded that most students do not like receiving online tuition (Altunay, 2019; Gunes; 2019). Moreover, Johnson et al. (2000) carried out an investigation of the students' preference about educational modalities, which discovered that they selected to be instructed face-to-face instead than online. The reasons they presented for the face-to-face modality were basically because they considered that it was simpler for the following actions: talking to the teacher and the rest of the class; receiving different samples from the teacher, which were reduced in the online context; working in groups in projects or tasks; solving disagreements; and making friends. As a result, it appears that the leading position of face-to-face modality cannot be replaced owing to the teacher-taught direct intervention. Regarding online assessment, Sarrayrih and Ilyas (2013) examined some challenges and they concluded that they might be favourable for rapid, well-timed, and responsive evaluation. Baleni (2015) analysed some disadvantages too, but highlighted some advantages of online assessment as development in student's commitment or quicker feedback, among other positive aspects. Besides, Khahn and Khan (2019) investigated the students' viewpoint about virtual assessment and discovered that technological inability of students and distrust in technology infrastructure were the key aspects.

During COVID-19 pandemic, students seemed to have preferred the face-to-face settings for teaching and learning, despite the potential benefits of the technologies during online tuition (Blackley et al., 2021). Also, one of the difficult aspect's teachers were concerned of was how to achieve a correct evaluation of students' skills and knowledge. To this respect, and for succeeding with the evaluation process, Gonzalez et al. (2020) advised the educators to modify the content of the subjects that earlier were taught face-to-face and to redesign their assessments to meet online evaluation requirements. García-Peñalvo et al. (2021) described the positive aspects of educational technologies for assessing undergraduate students in a Spanish university with a great impact on the students' satisfaction.

On the other hand, the implementation of gamification or microgamification in the classroom demonstrated to have a great impact on the students' satisfaction. Negre (2017), on the basis of what Galanis and Duckworth discovered with their breakouts, concluded that the use of breakout promotes significant learning. An educative breakout is a type of microgamification, similar to escape-room games, whose main purpose is to open a locked box by solving different clues and challenges. Therefore, a breakout i) is suitable to be adapted to any content; ii) fosters collaboration and team work; iii) develops critical thinking and the ability to solve problems; iv) improves linguistic competence; v) contributes to building deductive thinking; vi) follows student-centre approach; vii) promotes students' satisfaction; viii) fosters participation; and ix) motivates students (Gómez-Urquiza et al., 2019; Moreno-Fuentes, 2019; Negre, 2017). Besides, the implementation of gamification in the classroom (escape rooms or breakout) as an assessment tool for teachers was also studied in the literature (Darby et al., 2020; Martín-Caraballo et al., 2018).

Keeping in view with this new context of teaching and learning, we decided to conduct an online examination based on an educative breakout to carry out in groups. The undergraduate students were offered a list of digital tools to promote an efficient synchronous and asynchronous communication. They were proposed i) instant messaging tools, such as: WhatsApp (text, voice, and video), FaceTime (call and video), Discord (call and video), Google Meet, and Hangouts; ii) videoconferencing platforms as Skype, Teams, and Zoom; and finally, iii) other services as a Cloud-service platform (Google Drive) and a Networking messaging (Facebook). Also, the students were provided with an online survey in which they were required to indicate the type of communication tool they applied most often for the execution of the breakout and their impressions of this new assessment experience carried out in groups. As indicated before, the educational modalities were online learning, which spanned from the 2019-2020 academic year, and a hybrid or blended model (online plus face-to face), from the 2020-2021 academic year. Fifteen hours were given to the students for submitting both the team breakout and the survey.

Objective and Method

The main aim of this paper was to examine the tools used by the students, enrolled in an English Didactics subject from the Degree of Primary Education, for their communication in a team breakout. Besides, we aimed at checking if the tools used by the students during 2019-2020 with totally online teaching differed from the participants during the academic year 2020-2021 with hybrid or blended learning: online and face-to-face.

This paper has been carried out under the framework of the innovative project GAME-EDU (PIE19- 186) and the research project CLIL-TECH (B1-2020_26). A total of 398 students from both academic years were administered an online survey so as to determine their satisfaction of the execution of the team breakout. A specific question regarding the communication tools used during the gamification experience was posed. The number of valid responses, collected from participants, was 389 (96 from 2019-2020; 293 from 2020-2021), as there were 10 participants who did not respond to that specific question in the online survey. The group collected from 2019-2020 were named year 1 of the pandemic (Y1), while the other group of participants from 2020-2021 were called year 2 of the pandemic (Y2). Data were exported into Excel and quantitatively analysed with SPSS Statistical package for Windows v.23.

Results

Some items were inquired about with regard to the teamwork in the execution of the breakout:

- Item 1: I feel more relaxed with my team during the game rather than with other methods.
- Item 2: All the members of my team have worked equally and collaboratively.
- Item 3: I have been highly involved during the game.
- Item 4: All the members of my team have listened to all my ideas.
- Item 5: I have listened to all the ideas of my team.
- Item 6: The breakout promotes participation.
- Item 7: The breakout improves teamwork.
- Item 8: The breakout benefits communication.

Previous items were analysed with a 4-point Likert scale so as to check their agreement or not: totally disagree; disagree; agree; totally agree.

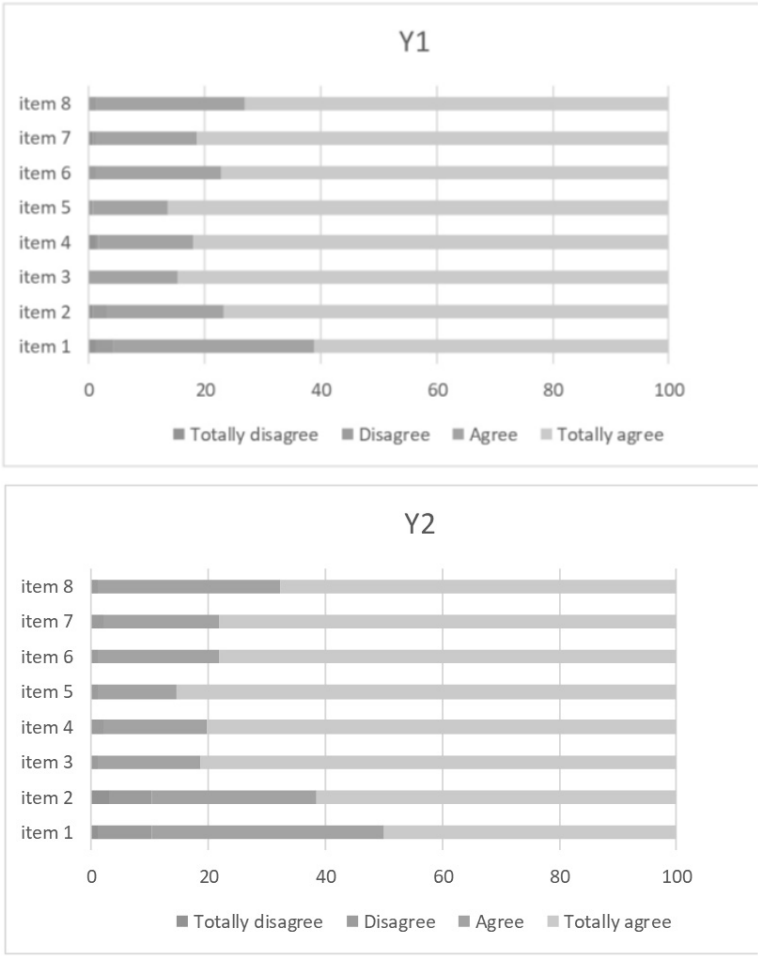

Figure 1. Impressions about the execution of the breakout as a team in Y1 and Y1.

According to the responses evaluated in both groups, more than half of the participants indicated to totally agree with the statements of the eight items listed above. The highest percentages were found in item 5 (I have listened to all the ideas of my team) in both groups (86.3% in Y1 and 85.4% in Y2). The second most frequent item in percentages for totally-agree option was item 3 (I have been highly involved during the game) in both groups (84.3% in Y1 and 81.3% in Y2). These two items were followed by item 4 (All the members of my team have listened to all my ideas) as the third most frequent in both groups (81.9% in Y1 and 80.2% in Y2).

Items 6 (The breakout promotes participation) and 7 (The breakout improves teamwork) share percentages in Y2 (78.1%), while in Y1, frequency in item 7 for totally agree is slightly higher (81.2% compared to 77.1% of item 6).

Item 8 (The breakout benefits communication) seems to be very popular among participants from both groups for totally-agree option and agree option, being greater the percentage in Y2 (99% for both options) compared to the Y1 (98.6%). In item 2 (All the members of my team have worked equally and collaboratively) Y1 participants showed

more percentage in agree and totally-agree option (96.9%) compared to the Y2 ones (89.6%).

Finally, item 1 (I feel more relaxed with my team during the game rather than with other methods) responses decreased the percentage in totally-agree option in Y1 and Y2 (61.1% for Y1 and 50% for Y2).

Apart from these impressions of the undergraduate students, in the final survey they were inquired about how they communicated during the execution of the breakout. Therefore, another question was posed to participants to know the communication tools used by the members of their teams during the implementation of the breakout. Some answers were provided, and others were also extracted from other-option responses of the participants. Next table lists all the answer options:

Table 1

Type of communication in a team breakout

Type of communication tool	Tool
Instant Messaging	WhatsApp (text)
	WhatsApp (voice)
	WhatsApp (video)
	Facetime (call and video)
	Discord (call and video)
Videoconferencing platform	Google Meet
	Hangouts
	Skype
	Teams
	Zooms
Other services	Cloud-service platform (Google Drive)
	Networking messaging (Facebook)
No Tools	Face-to-Face meetings

As seen in table 1, three sections of tools were categorized. In the first one, we extracted the results related to the use (or not) of instant messaging tools or apps. Next figure (Figure 2) illustrates the results obtained from the data of both.

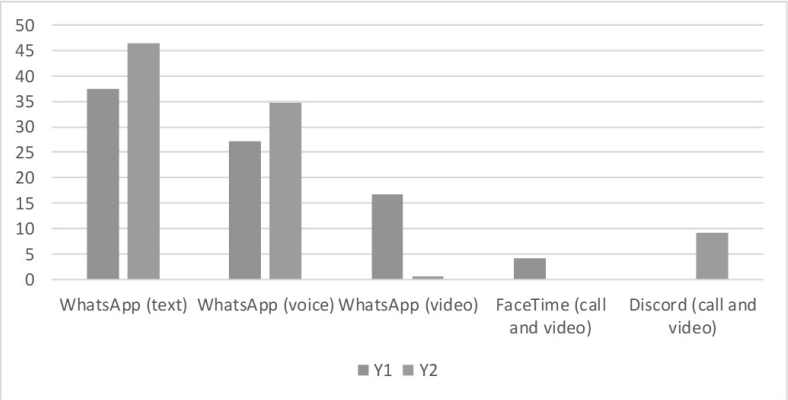

Figure 2. Results obtained from the data of Y1 and Y1.

In both groups, the use of WhatsApp for texting and voice messaging was common for communicating among the members of the team during the breakout execution. However, the percentages of use were slightly greater in Y2 (37.5% in Y1 and 46.4 in Y2 for text; 27.1% in Y1 and 34.8% in Y2 for voice messages). On the other hand, video in WhatsApp was more employed by Y1 participants (16.7%) when compared to the responses for this selection from Y2 (0.7%).

Besides, two tools presented no percentage at all in either of the groups. We refer to FaceTime (for call and video), which was used by 4.2% of Y1 (0% in Y2); and Discord, which was a tool indicated by 9.2% of Y2 participants (but marked by 0% in Y1 participants).

The second section of tools or apps used for communication in the breakout was devoted to indicating the videoconferencing platforms, as shown in the next figure (Figure 3):

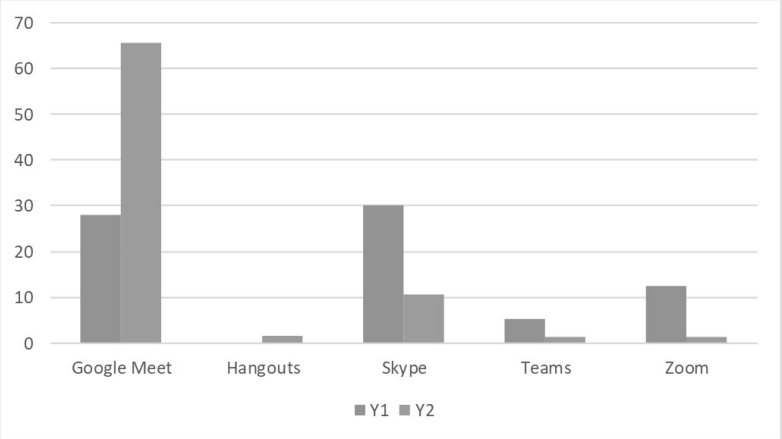

Figure 3. Videoconferencing platforms used by Y1 and Y2 participants.

The most frequent platform tool was Google Meet, with a greater percentage in Y2 (65.5%) compared to participants who marked this option in Y1 (28.1%). Skype, however, was more utilised in Y1 (30.2%) than in Y2 (10.6%).

Regarding Teams and Zoom, both shared the percentage of participants in Y2. That is, only 1.4% marked these platforms, while the percentage from Y1 differed: 5.2% used Teams, whereas 12.5% employed Zoom. Finally, the only platform which threw no percentage in one of the years was Hangouts, whose use was inexistent in Y1, but very few employed it for communicating among members in Y2 (1.7%).

Lastly, other services in the third section were the usage of cloud-service tools, such as Google Drive (including the work with documents or Doc, as indicated in the cloud-service tool), as well as networking messaging provided by Facebook. In these two cases, the use was not that high for Facebook, as 0.3% used it in Y2 while no participants indicated that option in Y1. However, Google Drive percentage was very similar in both groups, as it was marked by 27.1% from Y1 while 22.9% from Y2.

Finally, 15.4% of Y2 participants declared that they also met face-to-face, while in Y1 the percentage of face-to-face meetings was 0%.

Discussion and Conclusions

The coronavirus pandemic has had a negative impact on different sectors, being particularly affected the educational sphere. Teachers from different educative stages all over the world had to adapt their traditional teaching modality to an online one using a great variety of tools and platforms. At university level, we adopted an utterly online modality during 2019-2020 and a hybrid model during 2020-2021. For both academic years, we proposed an alternative assessment for a subject on English Didactics from the Degree of Primary Education at the University of Málaga. The innovation consisted of an online microgamification, by means of an educative breakout, to be implemented in groups. To solve the challenges of the breakout, all the members of a team had to agree in their answers, so fluid communication was crucial. To examine the tools used for communication and the satisfaction of team experience, we administered a survey with different items evaluated with a Likert scale.

According to the outcomes thrown after analysing the responses with the Likert scale, we observed that the most frequent answers for totally-agree option were found in item 5 and item 3, which denotes that self-conception of the engagement in the team for the execution of breakout has been high. On the other hand, participants from both years totally agreed in the promotion of participation (item 6) and the improvement of teamwork, being in accordance with the positive aspects of the implementation of a breakout exposed by different authors (Gómez-Urquiza et al., 2019; Moreno-Fuentes, 2019; Negre, 2017).

On the other hand, we inquired the students about the tools or platforms they employed for communicating with the rest of the members. The most popular instant messaging app was WhatsApp (for text and voice) in both groups (Y1 and Y2), being surprisingly higher in Y2 rather than Y1, when all the students were confined because of the recommendations of the Spanish Government from March 2020. Y2 participants lived in the period of pandemic in which face-to-face meetings were allowed, though with some restrictions. However, WhatsApp for video was higher in Y1 (16.7%) than in Y2 (0.7%), which denotes that the difficulties for face-to-face meetings were replaced by the instant video calling among the members of a team. Curiously, some apps were not used in one or another group. One of them is Discord, a VoIP, or instant messaging and digital distribution platform, which released in 2015 and

with special relevance in video game communities (Schwartz, 2021). This platform has been more popular among Y2 participants (9.2%) with no participants in Y1 who selected this as a communicating tool.

The most frequent percentage was encountered in Google Meet above all for Y2 participants' communication (65.5%). This together with the use of WhatsApp coincided with studies in which these two are considered popular apps or platforms for online learning (Absah et al., 2021; Janiar Arifin et al., 2021). However, Google Meet seemed to be a more flexible platform that fostered students' motivation (Nanditha, 2021; Permana Putra, 2021). Other platforms were also included for online learning, such as Zoom (Absah et al., 2021). Nevertheless, in this paper we found that, even though this platform received some popularity in Y1 (12.5%), in the line with the so-called 'Zoom bombing' (Boland et al., 2021), the percentage dropped in Y2 participants (1.4%). This might be due to the news published about the security settings which proved to show vulnerability regarding data privacy (Botha & Furnell, 2021).

However, the most outstanding aspect has been the face-to-face meetings that has come back after COVID-19 lockdown from 2019-2020. In fact, some participants of Y2 (15.4%), 2020-2021, opted for this type of meetings, instead of using digital tools, apps, or videoconferencing platforms. This reveals that, even though technologies have facilitated the transformation into a totally online modality of teaching, digital tools have not come to replace human contact. Despite the benefits and the rapidness of accessibility to materials and content, as well as the development of subject-related skills and knowledge (Cranfield et al., 2021; Sánchez-Ruiz et al., 2021) face-to-face communication, even for digital natives, is inherent to human beings.

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