ENHANCING CRITICAL THINKING THROUGH JAMBOARD: AN ACTIVE LEARNING EXPERIENCE IN HIGHER EDUCATION

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Abstract

In a time where abundant information travels fast through the wide array of media and social networks available, it is of paramount importance to be able to distinguish trustworthy news from fake news, and to take critical positions to understand and face the changing world we live in. As such, critical thinking is perhaps one of the most challenging skills to be enhanced in the current higher education setting. The learner's profile has changed over the last two decades with the widespread implementation of digital technologies which deeply affected the students' needs. It is then no surprise that education stakeholders and decisionmakers have given priority to the fostering of the 21st century skills, namely the 4 Cs in education: communication, collaboration, creativity, and critical thinking, in addition to digital skills (Vuorikari et al., 2022), only to name a few. Active learning-based methodology, though not new (Bonwell & Eison, 1991; Michael, 2006; Bromley, 2013), reveals to be effective as it focuses on a student-centered approach and on collaborative input. This paper aims to address the importance of active learning in the current higher education context by describing a teaching and learning experience based on this learning methodology. The experience intended to enhance students' critical thinking within a rather theoretical subject, English culture II, taught to 1st year students of the bachelor's degree in Foreign Languages: English and Spanish, by means of an interactive and more engaging digital tool: jamboard. Students were presented with active slides guiding them during the performance of the stipulated tasks. By providing students with content and meaning, they were able to evaluate ideas and add value to them by putting forth critical reasoning about the issues discussed, namely the Civil wars in the 17th century in England and the Enlightenment in the 18th century. Overall, the results, based on a qualitative assessment, showed that the teacher has been merely a facilitator and students have been actively engaged in the learning process and have been able to reflect on issues from past times that have had implications in our present, hence enhancing critical thinking, creativity, collaboration, and digital skills.

Keywords: 21st century skills, critical thinking, digital skills, active learning, higher education.

1 INTRODUCTION

In the higher education context, gone are the days when (so one is led to believe), lectures were long soliloquies, where the students were merely listeners and passive recipients of endless theoretical information which they needed to reproduce almost verbatim in their assessment papers. Otherwise, students risked failing the subject. This pedagogical practice has been changing due to the development of digital technology over the last decades which has had far reaching and unavoidable impact on the way education, and all the actors involved in it, deal with the learning and teaching process.

Digital technology breakthroughs, covering the internet, digital mobile gadgets, artificial intelligence, web 2.0 tools virtual reality devices, only to name a few [1], have in fact changed the methodological approaches to teaching and learning. Stockwell claims that teaching and learning will be made easier through technology [2]. Undeniably, the educational paradigm has shifted over the last three decades. Moreover, the learners' profile has also changed. Currently, it goes in line with the features of a world where mobile devices, social networks, and fast, though not always trustworthy, information prevail.

In higher education, stakeholders, decisionmakers and lecturers are also aware of this massive influential trend. Although it can be a potential promoter of critical thinking disruption, technology can be integrated into education as a great ally, with appropriate, balanced, and well-founded use [2], as it is potentially engaging, fostering students' learning.

That is why the European Union continues to focus on promoting the digital competence of its citizens so they can cope more effectively with the technological and social challenges of today. Hence, the Digital Competence Framework (Dig. Comp. 2.2.) has been implemented and constantly updated [3, 4].

In addition to digital competence, the 21st century learning skills, known as the 4 Cs in education: communication, collaboration, creativity, and critical thinking are also worthy of attention. As such, the experience that we shall present in this article focuses on the fostering of critical thinking through the implementation of active learning moments in the classroom, enhanced through the use of technology in the subject of English Culture of the Bachelor's degree in Foreign Languages: English and Spanish.

Therefore, the objectives underlying the learning experience described and discussed in this article are to reflect on the benefits of active learning methods, to draw attention to the need of continually fostering critical thinking, creativity, and collaboration in the current higher education setting, paving the way for students to better understand and cope with current social, political, and cultural affairs.

In the next sections, we shall focus on the features and benefits of active learning, describing the learning and teaching experience set forth during the second semester of 2022/2023 at the School of Education-Polytechnic Institute of Bragança, Portugal. Then, results will be presented and discussed, followed by final remarks.

2 METHODOLOGY

As aforementioned, the learning and teaching experience presented in this study was conducted using active learning methodology, resorting to *Jamboard*, a digital learning tool. The creation of active moments aimed to promote active learning, motivation, and collaborative spirit in students. The steps of an English Culture lesson, with the duration of 90 minutes, will be described, analysing how much learning has occurred in the lesson, using this strategy. The number of students involved was around 40 students.

2.1 Active learning: importance and efficacy

Even though active learning is currently a buzz word it is not a new concept. Studies dating from the early 1990s and 2000s [5, 6, 7) already delved into it, acknowledging its importance and efficacy. Based on the assumption that a change from theoretical approaches – e.g. the long ingrained soliloquies of the past – was needed, Bowel and Eison [5] emphasized that active moments must involve students in doing things and thinking critically about it:

> they must read, write, discuss, or be engaged in solving problems. Most important, to be actively involved, students must engage in such higher-order thinking tasks as analysis, synthesis, and evaluation. Within this context, it is proposed that strategies promoting active learning be defined as instructional activities in doing things and thinking about what they are doing. (p. iii)

At Cornell University Center for Innovation homepage one can read a simple but overarching definition of Active Learning: "Active learning methods ask students to engage in their learning by thinking, discussing, investigating, and creating. In class, students practice skills, solve problems, struggle with complex questions, make decisions, propose solutions, and explain ideas in their own words through writing and discussion." [8] Three major keywords must then be highlighted when referring to active learning methods: thinking, creation, problem-solving.

Methods and strategies like task-based learning, project-based learning, think-pair-share, or problem-solving learning methods are in line with active learning goals. By providing students with authentic tasks, being able to apply the knowledge they learn in real life, active learning is enhanced. Active moments can involve small groups or whole class discussions, where students have the chance to reflect on different opinions, different approaches to what is discussed, as Michael Cavanagh also underlined [9].

2.2 Strategy: active slides and the use of *Jamboard*

As already mentioned, active learning can involve a wide variety of strategies, activities, and tools to engage students in their learning. In this teaching experience, the lecturer decided to use active slides and a digital tool, *Jamboard*, that served as a means to make students do tasks underlying specific purposes. The idea was to blend more traditional lecturing, based on a more theoretical presentation of the course contents, with an active, collaborative approach.

As such, after the topic of the Enlightenment was researched and discussed by the students prior to this class, as a way of consolidating this topic of the syllabus, a powerpoint presentation, with active slides authored and provided by Sofia Sá [10] in a training course delivered at the Polytechnic Institute of Bragança in 2023, was prepared and displayed to the students (Figs. 1 to 5). They were then challenged

with a specific task, which comprised a guiding question: “How did the Enlightenment really change the world today? Find examples of such evidence”, as shown in Fig. 2. Clear and straightforward instructions are also an effective activator, hence slide number 3 (Fig. 3). As it is also paramount to avoid distractions and have more focused students on the tasks they are doing, the inclusion of a timer also reveals crucial (Fig. 4). 30 minutes were given to complete the task. Finally, the lecturer provided the link and the QR code to *Jamboard*, the digital tool where students worked on their reflections (Fig.5).

Figure 1. Active Slide 1 introducing the topic

Figure 2. Active Slide 2 with the indication of the main task

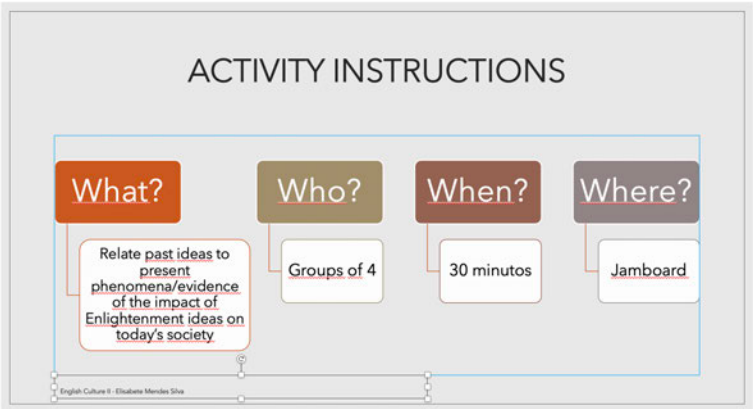

Figure 3. Active Slide 3 with instructions

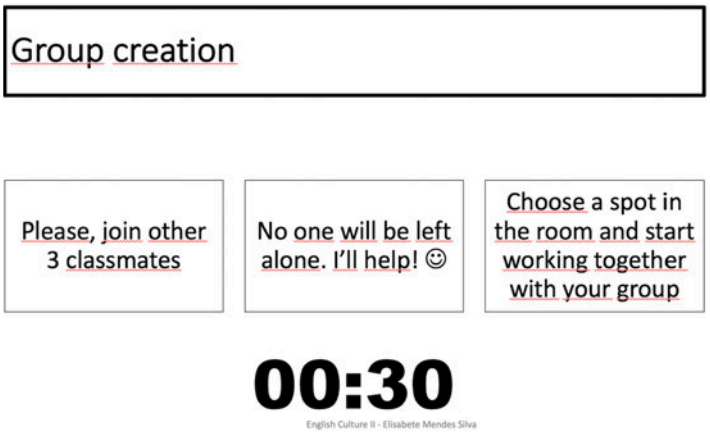

Figure 4. Active Slide 4 with timer

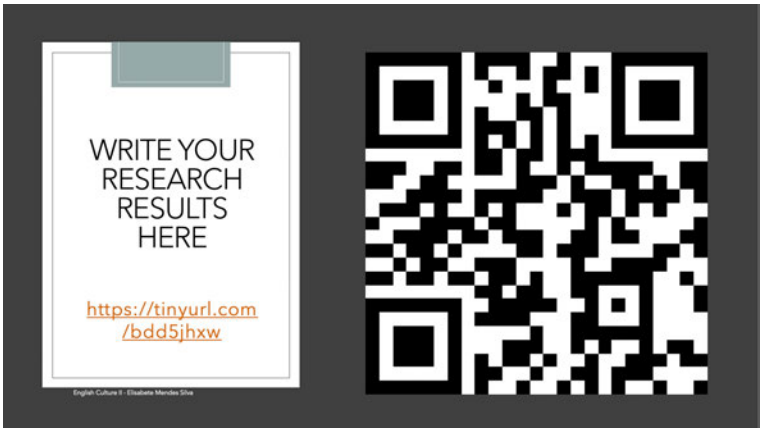

Figure 5. Active Slide 5 with link and QR Code to Jamboard

Due to class size, the work was carried out in 10 groups of 4 students, using their own mobile devices – mobile phones and laptops. In some cases, groups of 5 were allowed.

2.3 Lesson steps: active and passive moments

When planning a lesson, we need to bear in mind the different types of steps it will have, organising the activities according to their underlying objectives. We cannot simply ask students to do a task without a specific objective involved. Hence, a careful planning is needed, where active and passive moments are unavoidably included in the plan design. It is also crucial that all the steps involved in a lesson follow a cohesive and coherent thread, otherwise they will not be meaningful. As such, regarding the lesson we are analysing, students were given a lead-in activity (or a warmer), to warm them up for what would come next. To provide context for the lesson, students were then shown a picture of an LGBTQ parade where people called attention to the defense of their rights. Students were asked the question: "Would this be possible in a non-democratic society OR would this be possible in the foregoing centuries? We consider this moment to be passive, because the lecturer was merely brainstorming and providing students with a discussion question. Then the brainstorming that followed became an active moment, as students were actually discussing among them the question asked. This lasted around 5 minutes.

Afterwards, another passive and expositive moment followed. The lecturer elicited from the students the main principles of the Enlightenment movement in Europe, bearing in mind that one of the assumptions for this lesson was that students already had done some individual and group research on this topic in previous lessons.

After setting a context and preparing students for the main activity of the lesson, the lecturer displayed the powerpoint presentation, with active slides that would show the students specific instructions on how to do the task requested, as already shown above in Fig. 1, 2, 3, 4 and 5.

The lecturers posed the students the following question: “How did the Enlightenment ideas really change the world today? Find examples of such evidence”. This challenge would then set the start of a collaborative and active moment.

Students would then have to relate past ideas to present phenomena/evidence of the impact of Enlightenment ideas on today’s society. Students were given 30 minutes to do the assignment on *Jamboard* with which they were already familiar, even though some requested more time, 10 or 15 minutes in some groups.

By working together in groups, students were involved in active and collaborative moments. Students presented their own frames where they explained their ideas and the choice of pictures (if selected). The discussion took around 25 minutes.

3 RESULTS

The objectives underlying the main activity are really meaningful as one of the main purposes for the lesson was to enhance students’ critical thinking skills. The medium used for the assigned task was also effective, engaging and meaningful. Hence, its use should continue to be promoted from time to time in a course. As this was the second time students were dealing with Jamboard, they were already familiar with it and did not need extra time to get acquainted with it. The instructions on the active slides also worked very efficiently. Analysing the different steps of the lesson and how they actually worked out, we can advance that there were around 74% of active moments, against 26% of passive moments. These percentages were roughly calculated based on the time students spent on the different lesson steps.

The results reflect the beneficial discussion students had. By working together in groups, students were involved in active and collaborative moments. Students managed to discuss the topic by writing a few notes on the frame assigned. The lecturer had previously prepared the frames with the name of each group assigning them Enlightenment scholars or philosophers. Curiously, some groups did not pay attention to that detail and simply removed the title, as Fig. 5 illustrates.

Nonetheless, Fig. 6 and 7 illustrate the preliminary results of groups 5 and 6. Fig. 8 displays a complete version of group 8 work. Besides its engaging feature, J*amboard* also allows the lecturer to provide almost immediate feedback while the students are working, which can be highly motivating and self-assuring for the students. The lecturers’ comments can be seen in the pink post-it in Fig. 6 and 8.

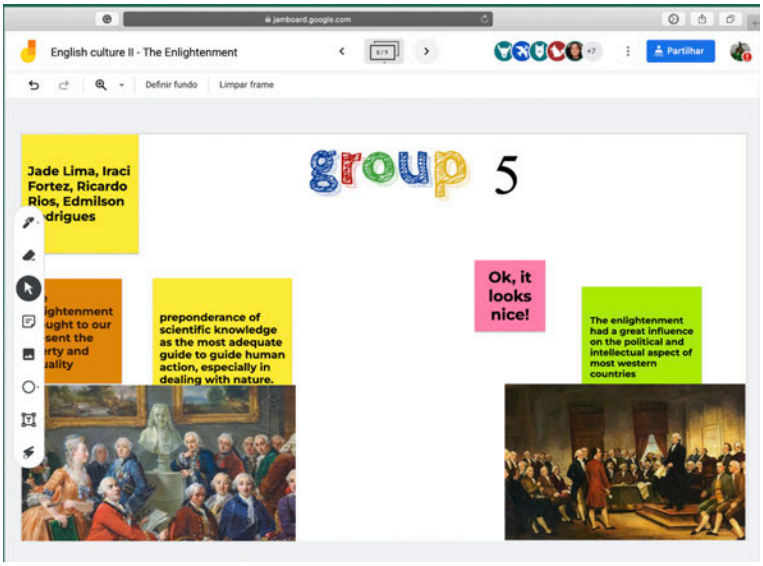

Figure 6. Preliminary result of group 5

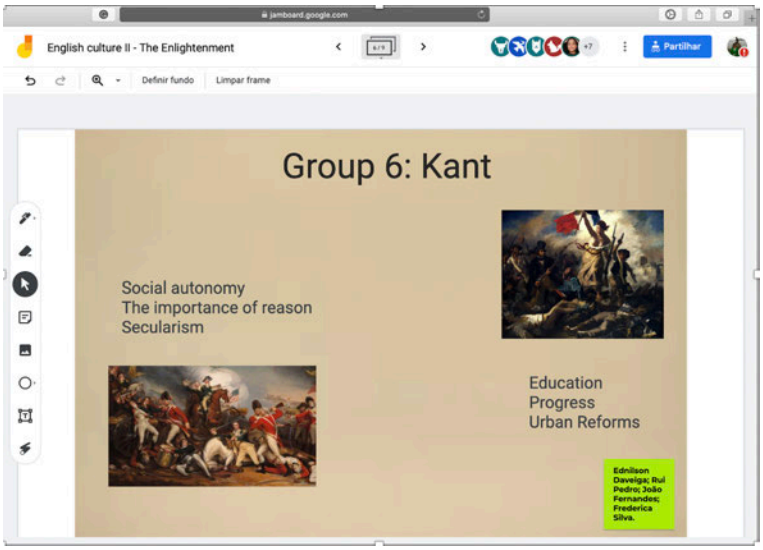

Figure 7. Preliminary result of group 6

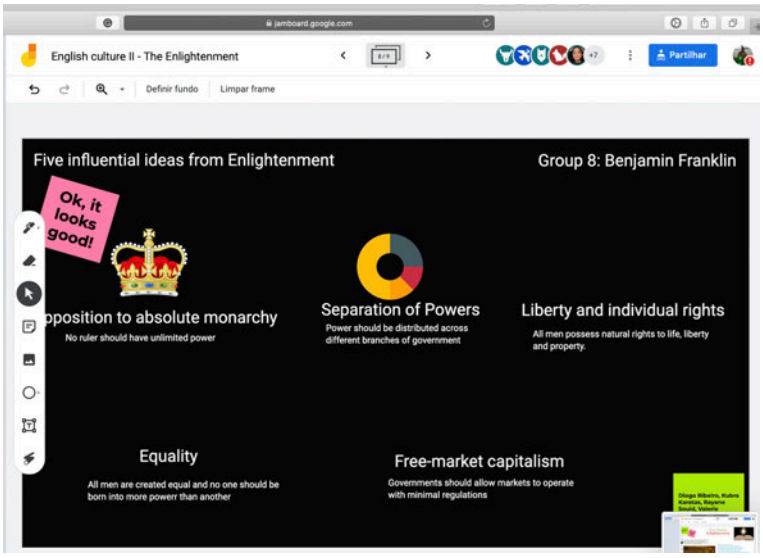

Figure 8. Final result of group 8

4 CONCLUSIONS

From the results obtained, we can conclude that the aims set for the class were met successfully. Students really worked as a group, thinking and discussing critically about the relevance of Enlightenment ideas to our present, a rather complex question they were presented with. The students were engaged and there was permanent interaction between the students and the lecturer, joined together by the digital tool *Jamboard.*

Other digital tools could also have been used, such as Mentimeter or Google sheets – very appropriate for collaborative work and for displaying students' own writings/opinions and works – but J*amboard* eventually became a more engaging tool.

Nonetheless, the lecturer was confronted with some unexpected aspects that were difficult to control. The fact that there was not a good internet connection forced the lecturer and the students to change classroom and that was disruptive in terms of time management. Moreover, groups of five can also be a shortcoming as some students can more easily get distracted or become less focused on the assigned task.

Overall, 21st century skills such as communication, collaboration, creativity, and critical thinking were enhanced, in addition to digital skills, using *Jamboard*. The learning and teaching experience was very enriching and insightful because it proved that students cope really well with activities that promote

active learning through discussions, and through assigned tasks underlying clear and specific purposes, holding them also accountable for their own learning. Additionally, careful planning is also paramount, even if one needs to adjust it during the lesson.

Active learning methods, as well as student-centred active learning strategies and tools, should hence be endorsed by higher education lecturers to have more engaged students and, first and foremost, to provide the means to foster critical thinking so students are equipped with adequate tools and skills to grapple with the world around them.

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