Exploring the impact of a technology-mediated task on L2 learning and motivation

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Abstract

The study aims to assess the development of English modal verbs through the implementation of a technology-mediated task in the context of Spanish secondary school. An additional objective explores students' perceptions of the use of technology for learning while paying particular attention to the motivational impact of the web 2.0 tool Padlet (padlet.com). A t-test revealed that learning was not statistically significant ($p = 0.28$), however, upon an individual analysis, it was ultimately determined that learning did take place as the majority of the sample (75%) improved their test scores between the pre- and post-test as a result of the class intervention. Students' motivation was positively impacted by the use of technology in general, and by Padlet in particular, as the quantitative and qualitative data revealed.

Keywords: computer-assisted language learning, e-learning, task-based language teaching, English language teaching, motivation

1. Introduction

The COVID-19 pandemic has commanded educational institutions to transition to a teaching method that incorporates information and communication technologies (ICTs) into school curricula. This public health crisis has disrupted the traditional way of teaching worldwide for the foreseeable future. According to the OECD, "the restrictions caused by non-pharmaceutical interventions like social distancing have also impacted education at all levels, and will continue to do so for at least several months, as learners and teachers are unable to physically meet in the schools and universities" (Reimers & Schleicher, 2020, p. 3). If face-to-face classes are inaccessible, then alternative avenues to teaching must be considered, particularly those that integrate technological tools. But even before the pandemic, researchers had commented on the expanding scope of technology and its central role within education. Pegrum (2009) stated that "technology and education have a tightly intertwined future" (p. 5). Motteram (2013) added that "technology is no longer at the periphery of the [English language teaching] field, but at its centre" (p. 12). Furthermore, Bax (2003; 2011) hypothesized that technology would become 'normalized' in language education "as a valuable element in the language learning process" (p. 1). Now that we are living through a global pandemic, technology has only been normalized in the sense that its use has become 'normal' for remote teaching and learning, and this study attempts to provide testimony of the positive contribution technology can grant language learners.

The present dissertation concentrates on the context of secondary school in Spain when schools were closed during the nationwide State of Alarm, that lasted March 13, 2020 through June 20, 2020, when the government invoked confinement measures. The focal point of this study lies within the field of English language teaching (ELT) and computer-assisted language learning (CALL), by narrowing in on the development of a grammatical structure through the implementation of a technology-mediated task. Additionally, the motivational dimension of English language learning in this context is examined in an attempt to identify situated motivations students display while learning through technological tools. The main ICTs used in this study are Padlet (padlet.com) and Jitsi Meet (meet.jit.si), two web 2.0 tools, in addition to Instagram (instagram.com), a social network. These tools allow students to learn, interact, create, and collaborate.

The integration of ICTs into foreign language pedagogy has undergone a drastic transformation over the last 30 years, a shift which coincides with the changing roles of teacher and student in addition to the demand for the acquisition of digital literacy skills (Dudeney & Hockly, 2012; Stockwell, 2015). Simply put, it can be characterized by a move from using the Internet for information collection to content creation. In order for students to maximize the impact of technology on their learning, they should possess the appropriate literacies for using the technological tools. Pegrum (2009) argues for "education *through* and simultaneously *about* digital technologies" (p. 10) in which language learning overlaps with gaining new digital competencies. In today's pandemic era, students across the globe are discovering new ways of learning at the same time they develop the skills to effectively navigate, participate and collaborate in various educational platforms and applications. This is no small feat as most students have not been trained to use the tools and their teachers haven't been trained on how to use them to achieve their pedagogical goals.

Technologies are adaptable, in that they offer educators and students the possibility to expand the classroom beyond the four walls of physical space. In this context, Chappelle (2003) suggests incorporating class activities that involve communication between students and interlocutors who would not be normally available in the classroom and calls them "tasks not

confined by distance" (p. 24). This description can be applied to the present situation caused by the pandemic to reflect the type of tasks that educators should bear in mind. Chappelle (2003) clarifies that "rather than requiring learners to meet in a single physical location, the Internet is host to new spaces in which learners communicate through chat rooms, e-mail and discussion groups" (p. 12). That is to say, there are a multitude of classroom activities that can be performed from the safety of one's home while respecting social distancing recommendations via ICTs and the Internet. As the majority of the world's education systems have been catapulted into remote teaching and learning environments, it is compelling to recognize that the traditional concept of a classroom is transforming quickly. In the case of this study, there was no access to a conventional classroom setting due to the suspension of face-to-face classes by the Spanish government and regional Board of Education.

Chapelle (2003) insists that "the bond between technology and language use in the modern world should prompt all language professionals to reflect on the ways in which technology is changing the profession of English language teaching in particular" (p. 1). In order to do just that, this study specifically hones in on task-based language teaching (TBLT) within ELT from a technological perspective. When designing a technology-enhanced task, a number of elements must first be considered, such as the topic, the linguistic skill you seek to develop and the technological tool to be used. In the case of this study, the language skill addressed relates to the development of a grammatical structure. In their systematic review of CALL research, Macaro, Handley & Walter (2012) identify studies pertaining to vocabulary, reading or writing as most prevalent with less interest in grammar (p. 12). Furthermore, these authors stress that researchers should be concerned with "what technology" and "why" (p. 2) for the purpose of pinpointing what aspect of language learning the technology enhances. For this reason, this study pays particular attention to the web 2.0 tool Padlet and its influence on students' motivation as a situation-specific component at the learning level. In this respect, Macaro, Handley & Walter (2012) determined that CALL research is inconclusive when it comes to prove that technologies promote linguistic outcomes; however, they did observe that L2 learners exhibited more positive attitudes towards learning as a result of using the technology. Therefore, according to these authors, concentrating on students' motivation is essential when evaluating the outcome of a technology-mediated task. Similarly, in their review of technology and TBLT research, Lai & Li (2011) have suggested looking beyond "the conventional constructs" and instead to focus on "an expanded set of constructs" (p. 507), of which motivation is included.

Given all the above, in this dissertation we analyze the effects of a virtual lesson followed by the implementation of a grammar-based task, which were mediated by technologies, in students' foreign language learning. More specifically, we aimed to assess the acquisition of three modal verbs ('could,' 'have to,' 'might') and to determine if students' knowledge improved after a class intervention. An additional objective of the investigation is to assess how the technology used, Padlet more specifically, contributes to motivation. The reason why this tool was selected for analysis is that, besides being user-friendly, it facilitates collaboration and does not require students to register online. Moreover, this study intends to offer pedagogical implications that inform L2 teachers about ways to use technology in tasks, which will in turn promote learner motivation. Additional reasons for this study are fueled by my own personal experiences in the English language classroom as a native English-speaking teaching assistant as well as by interest in language learner motivation and the ways teachers can foster its development.

Research questions

The research questions investigated in this study are the following:

> RQ1. Does language learning take place through the integration of ICTs in the L2 classroom? Specifically, do students improve their knowledge of modal verbs (*could, have to, might*) throughout a technology-mediated task?
>
> RQ2. What are students' perceptions of technologies in general in the context of the technology-mediated task? Additionally, is students' motivation impacted after the use of the technological tool Padlet in particular?

Dissertation structure

This dissertation is organized as follows: The next chapter provides an overview of the literature and relevant theories, by illustrating the relationship between computer-assisted language learning, task-based language teaching, technology-based collaborative learning and how motivation develops within this multifaceted context. Then, chapter 3 is devoted to outlining the methodology implemented that draws from studies analyzed in the literature review. This chapter will also describe both data collection and analysis procedures which will be the basis for the chapter that follows it in which interpretations and comments are discussed on the findings of the study. Finally, the dissertation closes with a chapter devoted to the conclusions reached as a result of the main findings, the implications that accompany them as well as study limitations.

2. Theoretical Framework

This research is situated within the broader field of ELT. This chapter is divided into sections that detail the relevant theories and literature underlying the study: computer-assisted language learning, task-based language teaching, technology-based collaborative learning and motivation.

2.1 Computer-assisted language learning

Within the realm of the foreign language classroom, we are approaching the point in which technological tools are becoming what Bax refers to as "normalised" (2003; 2011). That is to say, normalization occurs when technology use in the language classroom becomes as normal as using pen and paper. Bax (2011) states that "by definition, normalisation in language education goes beyond the mere act of using a technology normally, as if it were 'invisible.' It requires in addition that the technology also contribute positively to the process of language learning" (p. 9). Technological tools are central to the field of computer-assisted language learning (CALL), which uses not only the computer but also information and communication technologies (ICTs) for language teaching and learning. The term CALL has its origins in the mid-1980s and its application has experienced a striking shift over the last 30 years to coincide with the technological developments and emergence of new applications and platforms (Dudeney & Hockly, 2012). One of the major technological transitions was from Web 1.0 to Web 2.0; from "the *informational* web" to "the *social* web" (Pegrum, 2009, p. 18). That is, a shift from using the Internet to gather information to, rather, interacting, creating and learning. Web 2.0 applications are used for content creation and online interaction, with classic examples including blogs, wikis and podcasts (Stanley, 2013). This shift also came with the rise of social networks, such as Facebook, Twitter and Instagram. These applications have "combined to produce a rich and varied tapestry of communication, sharing, and mutual social grooming, which is a compelling space for many"

(Dudeney & Hockly, 2012, p. 539). These emerging tools provided technology users with far-reaching opportunities for sharing, interacting and building knowledge at their fingertips.

The aforementioned technological shift relates directly to ICT tools, but it is also accompanied by a change in the roles that teachers and learners occupy, where learners are becoming more autonomous and taking responsibility for their learning and teachers assume the role of guides or facilitators (Vinagre, 2010). First, in order for both educators and students to engage and interact with the technology, they must possess some sort of technical knowledge. Thus, as Stockwell (2015) says, "there is a need to acquire an entirely new skill-set in order to function within the modern educational system" (p. 368). These skills have been dubbed "digital literacy" (Stanley, 2013; Stockwell, 2015) and allow users to access and create digital content, as well as facilitate effective interaction in virtual environments. These competencies are equally important for both teacher and student, where the teacher should be equipped with the necessary skills to use the technology and to also be able to support, encourage and help students develop their individual digital literacies (Lamb, 2017; Vinagre, 2017). In this way, teachers can "make learning through technology a far more rewarding experience for all" (Stockwell, 2015, p. 377).

Because the roles of teacher and student are actively changing, it is accompanied by a shift to a student-centered pedagogy with the spotlight on learner independence. So, with newer technological developments in the 21st century, there is "an emphasis on learner autonomy and the continued opportunities for learning that our students now have outside of the classroom walls" (Dudeney & Hockly, 2012, p. 542). As the roles of each classroom actor adapt to the changing times, there also exists an intricate relationship between teachers, learners and technology in which each has influence upon the other (Stockwell, 2015).

The following subsections of the chapter draw on task-based language teaching (TBLT) as it applies specifically to designing tasks that can facilitate the development of different aspects of language knowledge and skills, incorporate technological tools and involve student collaboration.

2.1.1 Task-based language teaching

The principles and practice of a task-based pedagogy encompass how learners can be supported in order to foster successful L2 learning (Ellis, 2003). First, we must define a task, which has proven difficult to do in the research as there is no consensus for what constitutes a task. However, for the purpose of this study, I will draw upon the definition put forth by Ellis (2003) and later comment on Chapelle's (2003) which applies technology to task theory. To begin with, the definition of a 'task' engages a variety of dimensions, such as the scope, perspective, authenticity, and linguistic skills, to name a few. According to Ellis (2009), a language-teaching task should meet certain requirements, as summarized below:

1. There should be a primary focus on 'meaning;'
2. There should be a need to convey information;
3. Learners should rely on their own resources;
4. There is an outcome besides the correct use of language (p. 223).

So, a task stimulates communicative language that is meaning-focused and that can correspond to a real-world situation with a defined outcome. Chapelle (2003) similarly outlines that a task must have a goal and "that they are carried out through participants' engagement in goal-oriented behavior that relies at least in part on language" (p. 129). The type of language that learners rely on depends on the design of the task. For instance, in designing a task, a further distinction can be made between unfocused and focused tasks, where the latter are designed to prime learners to construct meaningful language while using a specific target feature of the task, which is typically a grammatical structure (Ellis, 2003; 2009). A common type of focused task that revolves around

a particular linguistic feature is called an information gap task, where students notice a 'gap' in information or meaning and are propelled to use their linguistic knowledge to close it. The 'gap' affords the learner the opportunity to utilize the target structure in order to bridge the gap between grammatical form and meaning. This distinct type of focused grammar-based task is further detailed in the next section.

2.1.2 Grammar-based tasks

When designing a grammar-based task, there needs to be a 'focus on form' which refers to a focus on the grammatical form in the context of communicative activities in which meaningful language is produced. The objective of a grammar-based task is to direct the learner to identify a meaningful function of a specific structure. For example, Samuda (2001) analyzed a task-based lesson that was designed to elicit the use of epistemic modal verbs where the teacher gradually employed a didactic focus on form. The 'Things-in-Pocket' task designed by this author required students to deliberate the identity of a person (who they *may, could, might* be) after examining what they kept inside their pockets. The task asked students to forge new form-meaning connections between modal verbs and possibility. For this reason, the modal verbs themselves were 'essential' to task design and ultimately the task outcome. 'Essentialness' is a term coined by Loschky & Bley-Vroman (1990) in which it "is intended to suggest not only that the task cannot be completed without the grammatical point, but also that the grammatical point itself is the 'essence' of what is to be attended to" (p. 181). In the case of Samuda's (2001) study, the Things-in-Pocket task revolved around the epistemic modal verbs and the ultimate meaning constructed as a result of employing them.

2.1.3 Technology-mediated tasks

Turning to the technological aspect, TBLT can be implemented in technology-mediated environments in which Lai & Li (2011) suggest "TBLT as a pedagogical framework for technology-enhanced language learning" (p. 501). When we design a task to be carried out online, we must consider if the same criteria followed to design a task for the physical classroom also apply virtually. Upon consulting previous research in both task pedagogy and online tasks, Chapelle (2003) concludes that there are a series of extra features to take into account when constructing a technology-mediated task, which are summarized as follows:

1. The topic must be strictly defined yet relevant and interesting;
2. Additional interactions need to be thought-through such as the one between student and computer;
3. The location of the task is no longer confined to a physical space nor to a specific class hour;
4. Evaluation should consider creativity and self-expression as new criteria (p. 138-141).

In addition to these aspects, the task should factor in students' digital literacy skills in order to ensure successful task performance. If we consider the design of a grammar-based and technology-enhanced task, a further recommendation will be to include the listed criteria above beyond the routine assessment of content and accuracy. Besides these considerations, one should have a technological tool in mind for carrying out the task. Macaro, Handley & Walter (2012) conclude that the evidence for CALL improving linguistic outcomes is unconvincing, however, they mention that the specific tool utilized in a task "may produce different learning behaviors which are beyond linguistic outcomes but are no less educationally valid" (p. 33). That is to say, there is still value to be placed on the technological aspect in language teaching due to its benefits beyond linguistic

development, such as increases in learner autonomy, motivation toward language learning and the acquisition of collaboration skills as well as digital literacy skills. Lai & Li (2011) reiterate this point in their comprehensive review of technology-mediated TBLT research by stating that "the learning outcome from technology-enhanced TBLT should no longer be measured just in terms of language development and learner autonomy" (p. 511) but should also include the aforementioned aspects. Incorporating collaborative approaches within a task are explained in the next section.

2.1.4 Technology-based collaborative learning

When designing a task that involves groups in which participants are expected to work together to fulfill the goal of the task, then cooperation and collaboration must be considered. First, it is necessary to distinguish the two terms. Cooperation is when group members work individually on their part of the whole task in order to complete it by adding their individual contributions. Collaboration, on the other hand, involves mutual participation from and interaction between teammates to achieve an end goal. Kirschner (2001) explains that collaborative learning "is a personal philosophy, not just a classroom technique. There is a sharing of authority and acceptance of responsibility among group members for the groups' actions" (p. 4). What is important to note is that the work is shared among the group, where learners engage in the co-creation of knowledge.

Keeping those differences in mind, we shall apply the concept of collaboration to the design of a task that will utilize technology. Resta & Laferrière (2007) suggest four motives for the use of, what they call, technology in support of collaborative learning. They are as follows:

1. To prepare students for the knowledge society;
2. To enhance cognitive performance;
3. To add flexibility of time and space;
4. To foster student engagement in knowledge construction (p. 69-70).

In addition to the linguistic benefits, online interaction provides learners with digital literacy skills, collaboration skills and assists them in knowledge creation. Students "take an active role in the learning process as they participate in discussions, search for information, and exchange opinions and feedback with their peers" (Vinagre, 2016, p. 173). Furthermore, Macaro, Handley & Walter (2012) found that "language learners tend to work in groups in a more focused and cooperative manner online than face-to-face" (p. 27). This provides further evidence in support of implementing technological tools for collaborative group tasks. Collaboration focuses on the learners and requires learner autonomy in order for them to accomplish and finish the task at hand. It affords them opportunities to communicate through interaction and to share knowledge, which are key objectives of language learning (Dudeney & Hockly, 2007 as cited in Stanley, 2013, p. 52).

Now that task design considerations have been mentioned, which examine the integration of grammar, technology and collaboration, the next section introduces motivation theory and the role CALL plays in its development.

2.2 Motivation theory

Motivation is an integral component of language learning, with its foundations belonging to the field of social psychology. Canadian psychologists Gardner and Lambert (1972) laid the groundwork by establishing research procedures and standardized assessments in an attempt to measure motivation. One of the most long-standing contributions to the field has been Gardner's Attitude/Motivation Test Battery (AMTB) which quantitatively measures learners' motivation towards L2 learning. In the last couple of decades, education-focused research has investigated the

role and nature of motivation in the foreign language classroom as well as made recommendations for the best approaches to motivate students.

Motivation is characterized by an individual's desire to do something combined with the effort put forth to achieve it. Applied to language learning, Gardner (1985) defines it as "the extent to which the individual works or strives to learn the language because of a desire to do so and the satisfaction experienced in this activity" (p. 10). In order for there to be motivation, the learner must actively work towards the goal of learning the language. They may want to learn but if they do not expend the effort, then there is no motivation. The Gardnerian socio-educational construct examines the role of two types of orientations: instrumental motivation (i.e. learning a language for practical reasons like a job) and integrative motivation (i.e. learning a language due to a desire to integrate with the target language community) (Dörnyei, 1994). Other studies attempt to expand the Gardnerian model to encompass a wider range of motivational components, such as intrinsic and extrinsic motivation. These kinds of motivation can be considered global motivation, as it perpetuates various settings on a relatively universal level (Bodnar et al., 2016). The concept of intrinsic and extrinsic motivation will be detailed in the section that follows, then situation-specific components affecting motivation within the context of a technology-enhanced task will be explained.

2.2.1 Intrinsic and extrinsic motivation

Possibly the most general and well-known types of motivational components are intrinsic and extrinsic. Intrinsic motivation is when people learn because the process is enjoyable and the rewards are internal whereas extrinsic motivation is when people learn for an exterior motive, such as good grades (Dörnyei, 1994; Lamb, 2017). Deci & Ryan (1985) expanded on this dichotomy with their self-determination theory (SDT), in which they place intrinsic and extrinsic motivation on a continuum. Intrinsic motivation is placed on one extreme and a third component, called amotivation or the lack of any motivation, can be found on the opposite end. In the middle are varying types of extrinsic motivations, which are internalized and aligned with the goals of the learner (Bodnar et al., 2016, p. 189). Motives which are more internalized, or found closer on the intrinsic extreme on the spectrum, are related to desires to learn to satisfy curiosity, to accomplish a goal for personal satisfaction, and to engage for the purpose of pleasure (Dörnyei & Ushioda, 2011, p. 23-24). If we apply these types of motivations to adolescent language learners, intrinsic motives could include a desire to learn due to genuine joy resulting from interacting with the language, such as watching films or listening to songs in the target language. These concepts have pedagogical implications where "SDT's key insight for teachers is that with skillful instruction, they can help to make their pupils' motivation more intrinsic and more internalized" (Lamb, 2017, p. 315). The common theme across much of the research into motivation is that learners need to feel that their learning is internally driven instead of something that they feel obligated to do.

2.2.2 Situation-specific motivational components

In an attempt to conceptualize a general framework for L2 motivation, Dörnyei (1994) has constructed a set of motivational components that influence the learner at various degrees. The factors relevant to this study pertain to the Learning Situation Level, which is made up of course-specific motivational components that are related to the teaching materials, the teaching method and the learning tasks (Dörnyei, 1994, p. 280). In other words, within the scope of this study, assessing students' motivation at this level includes analyzing students' perceptions of technological tools via online instruction through a grammar-based task. The feature of the instructional setting worth considering includes the task design, in particular the role of ICT and

specific technological tools (i.e. Padlet) which boost situated motivations. This will provide a situation-specific analysis of motivation with respect to a technology-enhanced learning context. The next section describes in detail the motivational impact of CALL.

2.2.3 The motivational impact of CALL

In general, previous research into the motivational effects of CALL suggest that the technology can be attributed to positive learner attitudes (Macaro, Handley & Walter, 2012). Stanley (2013) states that technological applications and devices offer "an opportunity to introduce learners to tools for study which could help them later in life, as well as new motivating ways of learning a language" (p. 59). With the positive impact of CALL on motivation in mind, we must focus on answering Macaro, Handley & Walter's (2012) "what technology and why" question. If we are to make a connection between motivation and ICT, then we must be specific about *which* technological tool is motivating. As already mentioned, the answer to the "what technology" is Padlet, a web 2.0 tool which we chose specifically for this study.

As to the reasons why, the majority of previous studies employing Padlet use it as a tool to increase class participation and foster collaboration. Fuchs' (2014) writes a short commentary on her experience integrating Padlet into higher education courses to increase class engagement at the University of Kentucky. This article intended to share the benefits and possible drawbacks of using Padlet. In her thesis, Kleinsmith (2017) also commented on student engagement in addition to exploring Padlet's effectiveness in increasing academic achievement in mathematics with a group of 5th graders in the United States (South Jersey) in which the findings were positive in both regards. A third study by Zhi & Su (2015) found that Padlet can help improve student motivation and facilitate student engagement. This study was conducted with a group of postgraduate students in China taking a teacher development course. Although the studies provide support and list advantages of using Padlet, one element to point out is that all three did not involve secondary school students, which is the demographic of this study's participants.

2.3 Summary of theoretical concepts

This chapter has outlined the theories and literature pertaining to components of the teaching and learning process that are related to the present investigation. First, an overview of the field of CALL was presented that commented on the changing roles of teachers and students which has shifted the focus onto the learners, which is accompanied by a need for the acquisition of digital literacy skills for all classroom participants. Digital literacies support student performance by allowing them to engage with the technology with ease and confidence. Equally as important are the skills of the teacher so that they can facilitate and foster the digital skills of their students.

Secondly, a definition of a task was provided as it pertains to a task-based pedagogy in which a task stimulates meaning-focused language that possesses a resemblance to real-world activity. Next, information about TBLT as it applies to task design involving the incorporation of grammar, technology and collaboration was explained. A grammar-based task will incorporate a focus on form that bolsters the connection between form and meaning while prompting the use of communicative language. By incorporating technology into the design of the task, additional criteria must be examined, such as the students' digital literacy skills as well as how the assessment of the task should consider creativity.

Finally, the relationship between technology and motivation was explored in which, specifically, the motivational impact of Padlet was considered. Motivation was introduced as it appears on the intrinsic-extrinsic dichotomy in order to determine that students need to feel that

they are learning for their own reasons. Previous research tells us that positive learner attitudes result from the integration of CALL and therefore, situation-specific components (i.e. Padlet) within the learning environment were considered for their potential to positively impact students' motivation for English language learning. The next chapter of the dissertation describes the methodology carried out which draws from the preceding literature.

3. Methodology

3.1 Object of the study

The object of this study is twofold, with pedagogical aims in addition to research goals. From the point of view of ELT, the class intervention implements a grammar-based technology-mediated task, which also follows the principles of technology-based collaborative learning, as described in the literature review. First, the study attempts to assess the development of modal verbs in English; a second objective is to explore secondary school students' perceptions of technology in general while having to learn online due to the pandemic using three specific ICT tools: Padlet (to complete the task), Jitsi Meet (for teaching and interaction) and Instagram (for communication).

3.1.1 Research questions

The research questions investigated are the following:

RQ1. Does language learning take place through the integration of ICTs in the L2 classroom? Specifically, do students improve their knowledge of modal verbs (*could, have to, might*) throughout a technology-mediated task?

RQ2. What are students' perceptions of technologies in general in the context of the technology-mediated task? Additionally, is students' motivation impacted after the use of the technological tool Padlet in particular?

In order to answer the questions above, this chapter is divided into the following sections: first, from a pedagogical perspective, details about class intervention, the task and its teaching goals will be provided, followed by information regarding participants as well as their educational context (i.e. school). Then, a brief description of the technological tools used in the class intervention will be offered. Secondly, from a research perspective, the data collection instruments will be described as well as the methods (both quantitative and qualitative) followed in the study to analyze the data.

3.2 Class intervention

The class intervention consisted in a virtual lesson via Jitsi Meet and assigning a technology-mediated task, which was to be completed in teams over the course of a week. The virtual lesson included a brief review of last year's relevant concepts regarding the use of modal verbs and a full explanation of the three new modal verbs in English. Modal verbs are a type of auxiliary verb that express modality, such as certainty, possibility, willingness, obligation, necessity, ability. The students' previous knowledge of modal verbs included *can*, *must*, and *should* (as well as their negative forms), which were taught a year prior in their 1st year of ESO. In this lesson, they were taught three new modal verbs: *could*, *have to*, and *might* (including the negative forms *couldn't* and *don't have to*) which were new to them. Given that a single modal verb can express multiple functions, the functions selected for this lesson were restricted to the following: *could* as ability and polite permission, *have to* as obligation and *might* as possibility.

3.2.1 Task description

The task is grammar-based and encourages form-meaning connections to be made, between the modal verb and function expressed. Therefore, the purpose of the task was to focus on the grammatical structure (subject + modal + verb) while stimulating communicative language to express a particular meaningful piece of information. This information was to comment on their personal experiences during the COVID-19 pandemic. The instructions provided for the task were introduced after the grammar explanation via Jitsi Meet and were as follows:

> *Using modal verbs, create a Padlet in which you describe things or activities (expressed as abilities, permissions, obligations, possibilities) related to life before quarantine and your current life through the de-escalation process.*
> *Here are some ideas:*
> - *Before the confinement, you could go to the town square with your friends.*
> - *You have to stay at home. You have to wear a mask when you leave your home.*
> - *Now you are allowed outside to do sport, but you don't have to if you don't want to. You don't have to wake up early.*
> - *If you go outside without a mask, you might catch the virus.*

So, students needed to create a digital poster using Padlet where they were required to construct sentences within the scope of the pandemic, and they were prompted to choose a specific grammatical form to express themselves. The Padlet was to be completed in teams, in which groups of four students were directed to work together and collaborate. Instagram was incorporated using the teacher's account as an additional tool for communication in which reminders to the video conferences were posted as Stories and video conference links were shared directly to those students using a mobile phone to connect. Individual team meetings with the teacher were held via Jitsi Meet after the virtual lesson took place in order to guide the groups (all three tools will be described in detail below). The requirements of the task were for each team to produce 2 sentences per modal verb, for a total of 10 sentences.

From a pedagogical perspective, Chapelle (2003) highlights which important aspects to consider when choosing technology-enhanced tasks, which include "what the topics are, how interesting they are, and how current" (p. 140). Therefore, the overarching topic of the COVID-19 pandemic was selected because of its novelty and its relevance to the students' lives. It was also interesting because it is a real-world situation which nobody had encountered before. Regarding the technological tool used to carry out the task, Padlet provided students the opportunity to incorporate a number of multimedia formats. Students were encouraged to use their own photos or videos, but ultimately the decision was up to each one of the creators. Students gave their Padlets a unique title and they also changed the background image which gave them a fun and unique personality. Figures 1 through 4 that follow are examples of each of the teams' Padlets:

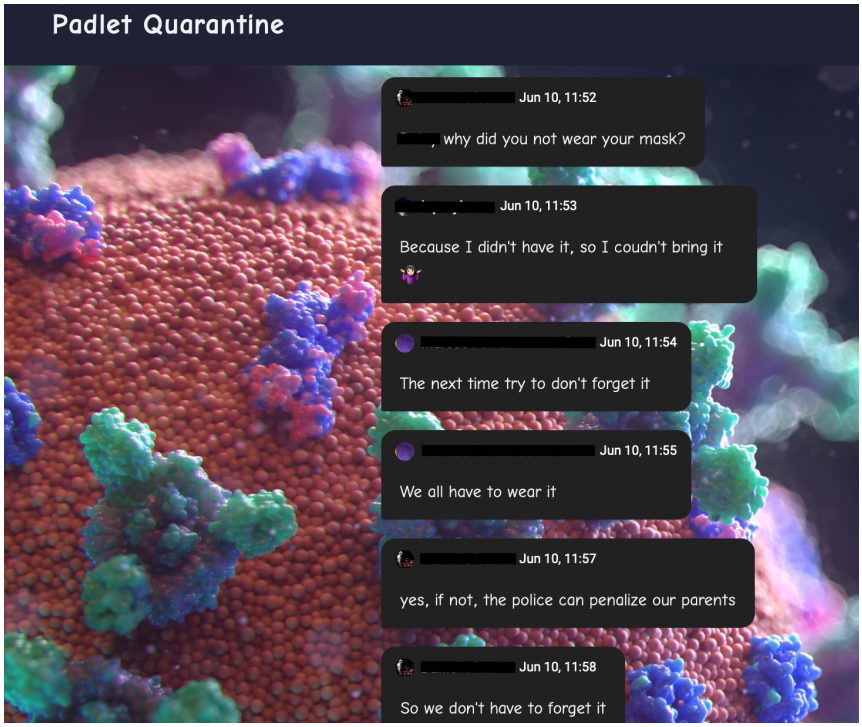

Figure 1: "Padlet Quarantine"

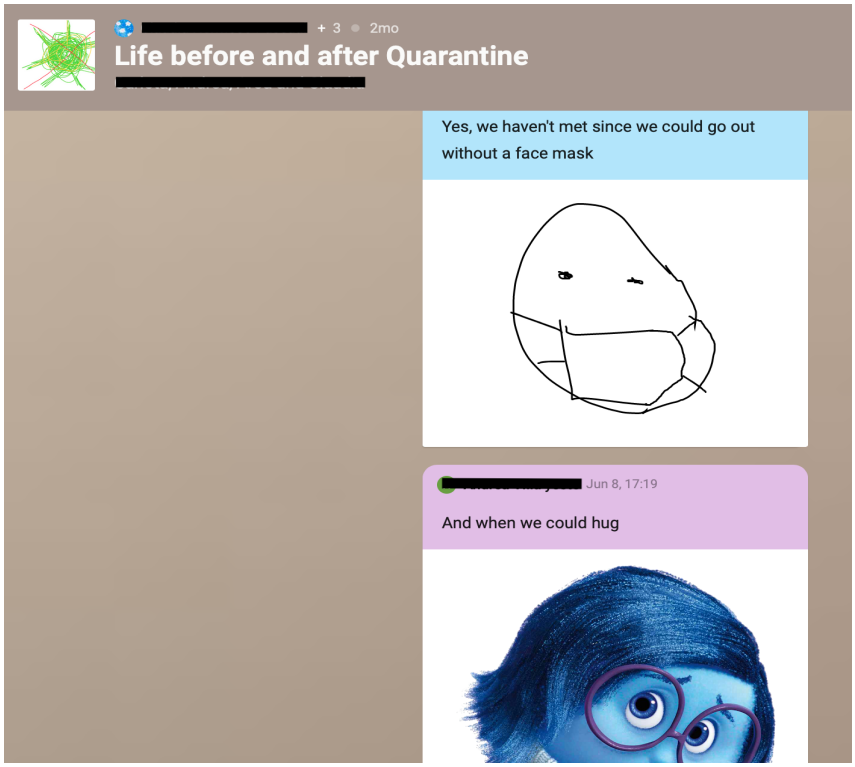

Figure 2: "Life before and after Quarantine"

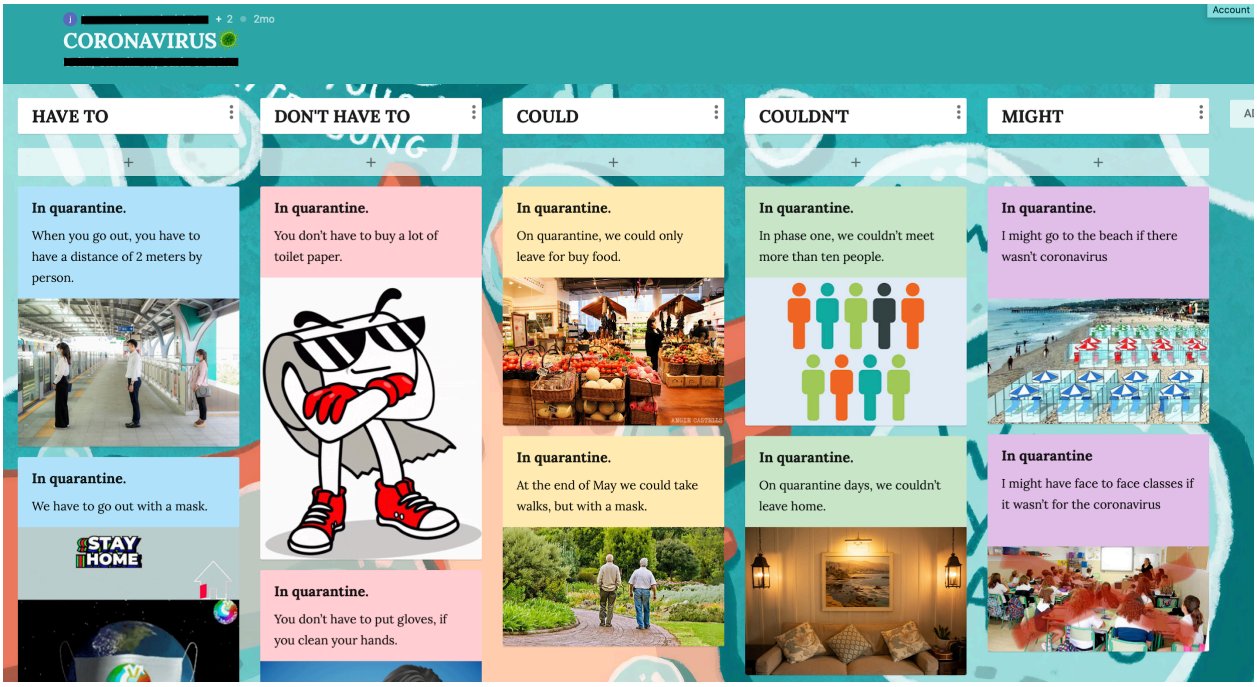

Figure 3: "CORONAVIRUS"

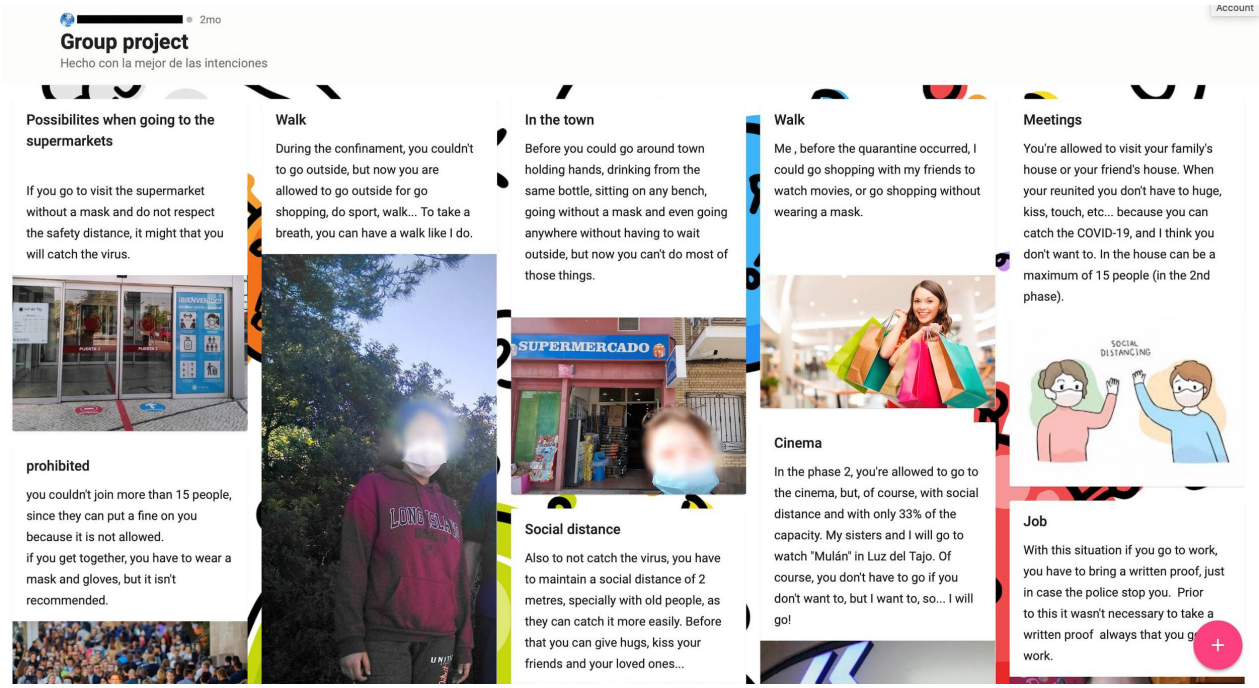

Figure 4: "Group project"

3.2.2 Participants

The participants of this study are 16 adolescents that form part of the bilingual program in the second year of obligatory studies (*Educación de Secundaria Obligatoria*, ESO for short). They are between the ages of 13 and 14. Of the 16 total participants, there are 13 females and 3 males. They were separated into four teams of four students to complete the task in this study. These

students have been studying English for approximately seven years since they began primary school. Each participant was recruited for the study on a voluntary basis (which will be outlined and explained in further detail in the Timeline section that follows). Lastly, all students had an Internet connection at home as well as access to a computer or a mobile device in order to successfully take part in this study.

3.2.3 School setting

The selected school is a public secondary institution (*Instituto de Educación Secundaria*, IES for short) in the small rural town of Villaluenga de la Sagra, which is located in the province of Toledo of Castilla-La Mancha and is about 40 minutes south of the capital, Madrid. The student population is roughly 700, many of which come from neighboring towns to attend to their secondary studies. As an IES, it offers 4 years of obligatory studies (ESO) and 2 years of Baccalaureate courses (*Bachillerato*). Moreover, this particular institution offers a bilingual program for ESO students. According to the Junta de Castilla-La Mancha, the bilingual program (called *Secciones del programa lingüístico*) involves the instruction of content areas in the foreign language (English) (CLIL, Content and Language Integrated Learning). For example, this IES offers biology, mathematics, music, and physical education in the L2 in addition to the foreign language course requirement. The program requires instruction in the L2 to be between 30-50% of the academic schedule at each grade level of ESO and students receive four hours of English language lessons per week in addition to the content areas.

To situate within the COVID-19 pandemic, the Board of Education of Castilla-La Mancha (*Consejería de Educación, Cultura y Deportes*) mandated that all school activity be suspended on March 12, 2020. So, the students of this institution had to transition to remote learning three months prior to the realization of this study.

3.3 Timeline

This study was carried out over the course of 2 weeks. The initial stage involved recruiting the participants for the study. The English teacher created a live-stream with the students present using Instagram's Live feature in which I was contacted to join in order to introduce my research project and ask for volunteers. As incentive, the teacher stated that those students who were to participate would be exempt from completing the weekly online homework assignment. Once 16 students agreed to devote their time, the teacher emailed a letter I had written to the parents (see Appendix A) as well as consent forms (see Appendix B) which were signed and electronically submitted within a week. The consent form highlighted that all details would be anonymized, and personal data would be protected. It also gave parents the option to consent to their child's use of personal photos or videos, which could be added to their Padlet boards during the course of the project. During this stage, participants were also split into their teams to create a total of four teams. In stage 2, the class intervention process was implemented over the course of two weeks (June 1, 2020 through June 10, 2020) as outlined below:

1. Administer pre-test: The pre-test was administered by email the Monday (June 1) before the virtual lesson (classroom intervention). Students were required to complete it by Tuesday evening before the virtual lesson was held on Wednesday.

2. Jitsi Meet tutorial (50 minutes): On Tuesday (June 2), the teacher and I gave a tutorial on Jitsi Meet (an Instagram story was posted as a reminder beforehand). In order for students to join, we emailed them a meeting link (the link was also shared via Instagram for those using a mobile device) and the purpose of this tutorial was to make sure they would be

technologically prepared for the next day. During the video conference, we solved any technical problems with the software (with microphones, for example), showed students the hand-raising feature as well as the chat, and ensured that all the devices could view my shared desktop.

3. Virtual lesson (1 hour): Wednesday (June 3) was the day of instruction in which the three modal verbs (could, have to, might) were taught. The students and their teacher joined me on Jitsi Meet where I shared my screen with a PowerPoint presentation that laid out the modal verbs, provided examples and a short comprehension exercise. At the end, I introduced the task guidelines. Throughout the lesson, all students were muted and their teacher monitored hand raising and read chat responses aloud. She also engaged and encouraged her students from start to finish.

4. Team meetings (30 minutes each x 4 teams): On Thursday (June 4), the teacher and I connected with the individual teams (an Instagram story was posted as a reminder again that included the timetable). The purpose of these video calls was to help each of the groups join Padlet and answer any questions that may have come up since the lesson the day before. Furthermore, the team meetings also served as an opportunity for students to begin working on the task and to encourage collaboration. The students were given until the following Tuesday (June 9) to complete their Padlets.

5. Final video conference (50 minutes): On Wednesday (June 10) of the next week was the final video conference. The groups gave a brief presentation of their Padlets, where I shared my screen so the entire class could view their classmates' work. After viewing all four Padlets together, the post-test was administered while connected to the Jitsi meeting to ensure that all students' answers were received.

6. Administer questionnaire: Finally, the motivation questionnaire was administered via email the following day (June 11) and students completed it by Friday (June 12).

3.4 Tools for online teaching

As already mentioned, three main ICT applications were incorporated into the teaching process, Padlet, Jitsi Meet and Instagram; the first two are web 2.0 tools and the third, a social network. In the next sections, these tools shall be described.

3.4.1 Padlet

Padlet (padlet.com) is a free web 2.0 tool that allows users to create a multimedia wall, called a Padlet, which most resembles a poster board and is digital in nature. Padlet works on a variety of devices, including mobile phones, and is user-friendly in that it does not require technical knowledge in order to use it (Fuchs, 2014). It has many noteworthy advantages as an educational tool: 1) easy to use, 2) instant collaboration, 3) multimedia, 4) privacy, 5) mobile, and 6) fun (Zhi & Su, 2015, p. 222).

When one goes to the Padlet website, it is immediately noticeable that the interface is visually appealing and inspiring. To use Padlet, the user has to first create an account and then click "+ Make a Padlet." Clicking this will take you to the page which asks you to select a layout: wall, canvas, stream, grid, shelf, backchannel, map or timeline. Each layout is geared toward a specific style but ultimately it is up to the user to make this creative decision and it is also dependent on their project goals. The layouts used by the participants in this study were wall, shelf

and backchannel. According to the Padlet website, the wall layout allows you to "pack content in a brick-like layout." The shelf layout lets the user organize and "stack content in a series of columns." Finally, the backchannel layout resembles a chat and allows users to "communicate in a chat like environment." Once you select your desired layout, a new tab will open in your browser and your Padlet is ready for you to customize and add content.

Regarding multimedia, Padlet offers users a number of options when adding posts, such as text, images, videos, links, doodles, and locations. There is also the option to upload photos or videos from your device or they can be retrieved via Google search, where you can even find moving pictures like GIFs. According to Fuchs (2014), "the wide variety of media supported by Padlet provides a particularly rich environment for engaging in today's complex information environment" (p. 8). This rich backdrop adds to the fun factor while supplying students with an opportunity to use their creativity that is lively, modern and relevant. Furthermore, contributions to the Padlet occur in real-time meaning that, if two users are connected, they will be able to see the actions of the other. This advantageous feature enables students to instantly collaborate on a Padlet from two different devices while accessing the board at the exact same time.

Since the task in this study was done in teams, only one Padlet was created per team (with a total of four Padlets). All students registered for a Padlet account but only one student per group created the board on their account while the other three group members contributed to that single board. The owner of each group's Padlet added the other members to the board, including myself and their teacher, and gave everyone permissions to "administer" the Padlet. This type of permission allows all members to view, add and edit posts as well as allow modifications to the Padlet. In addition, the Padlet has its access restricted to team members only. In other words, the Padlets were only viewable by members, creating a level of privacy necessary in online educational projects carried out with young students.

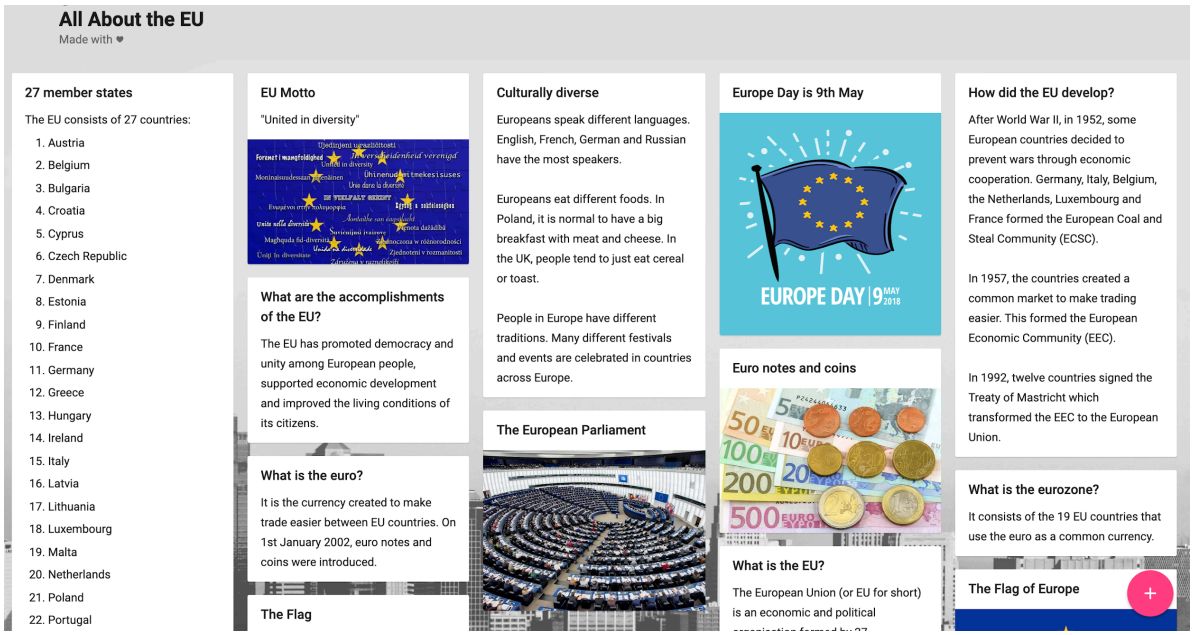

Figure 5: Exemplification of a Padlet

3.4.2 Jitsi Meet

Jitsi Meet (meet.jit.si) is another web 2.0 tool and is a free video conferencing platform that allows secure audio/video calls, desktop sharing, instant messaging, and many other features.

There are many video conferencing applications available in today's age but Jitsi was the superior choice due to the fact that there is no need to create an account to join a meeting (Neukirchen, 2020). Jitsi Meet offers a standalone application (for mobile devices) or it can be embedded in the desktop browser (for computers). To use Jitsi Meet, simply go to the website and type in a unique name for your meeting. Once your meeting has started, you can invite members to join by copying and sharing the meeting link.

In this study, the students individually accessed Jitsi Meet the meeting link and they had the option of connecting via mobile device or computer. The features of Jitsi Meet worth mentioning that can benefit online interaction are the following: mute everyone, raise your hand, chat and share your screen. Also, since Jitsi Meet does not require you to have an account, you automatically join a meeting as a 'Jitser' but can set your display name later. During the virtual lesson which all 16 participants attended, it was important for the 'room' to be quiet just as in the regular classroom setting. The 'mute everyone' capability facilitated this. On the same token, the hand raising feature was extremely useful and non-disruptive when a student had a question. Similarly, the side chat was used for comprehension checks where students could quickly type their answers to questions or comments without distracting the rest of their peers with background noise. Finally, and arguably the most powerful component, is the screen sharing function. This allowed me to project a prepared PowerPoint presentation, which was viewed by all students in the meeting, as well as demonstrate with examples and exercises. In addition to the aforementioned features, you can also record the meeting or blur your background, which are useful options for remote teaching and learning. An image of the Jitsi meeting from the virtual lesson appears below.

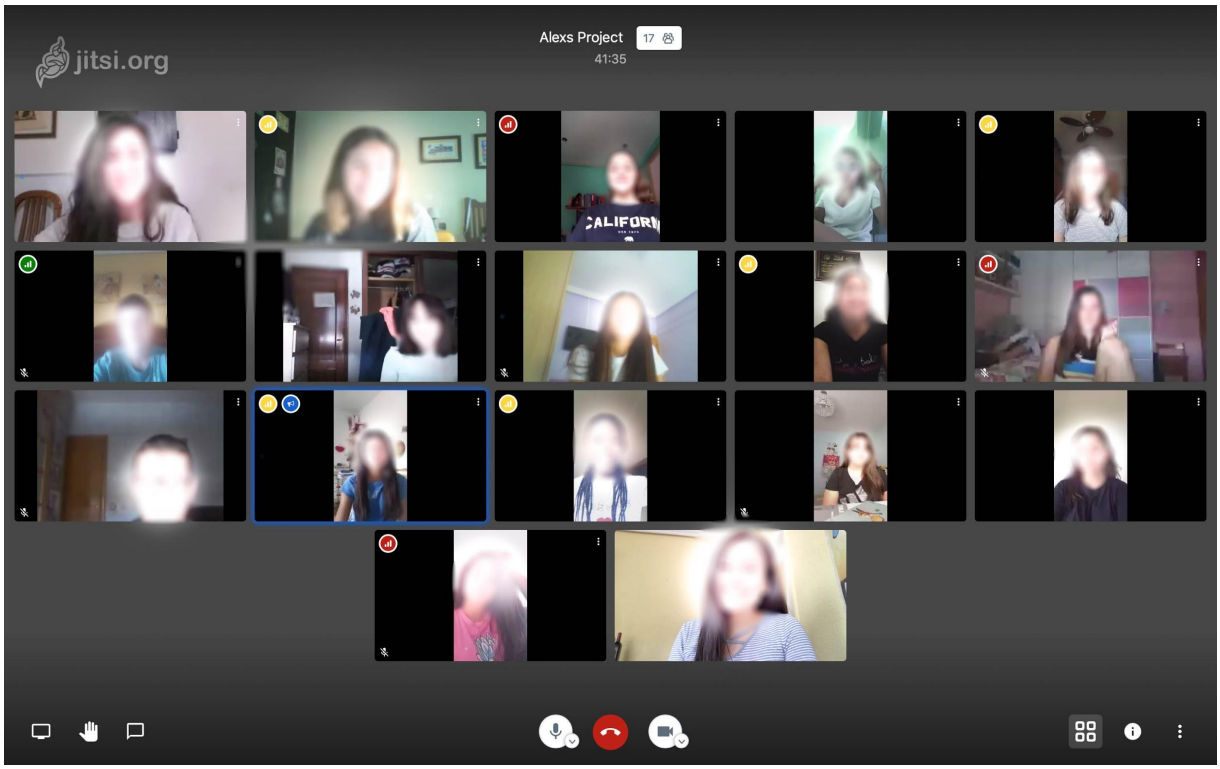

Figure 6: A Jitsi meeting 'room'

3.4.3 Instagram

Instagram (instagram.com) is a free social network platform for photo and video sharing. Since its inception, other features like direct messaging, story sharing, and live streaming video have been added. Instagram has 1 billion monthly active users and is the 6th most popular social network worldwide (Omnicore, 2020), therefore making it extremely likely for students to already have an account. Instagram was not the main ICT implemented in this study but rather "inherited" with the class, as the teacher had already created and incorporated a teacher-specific account into remote teaching during the pandemic. The teacher used the account to post activities, clarify points of grammar and vocabulary, and to showcase student's work that had been completed during their remote learning experience thus far. She also used the account to post Instagram Stories with fun photos, quizzes, gather feedback, to make announcements and post reminders for her students. For the purpose of this study, Instagram was used as a tool for communication. Specifically, it was used to recruit participants using its Live feature, post stories as reminders about the video conferences, and to instantly share Jitsi Meet links through group messaging for those using a mobile device.

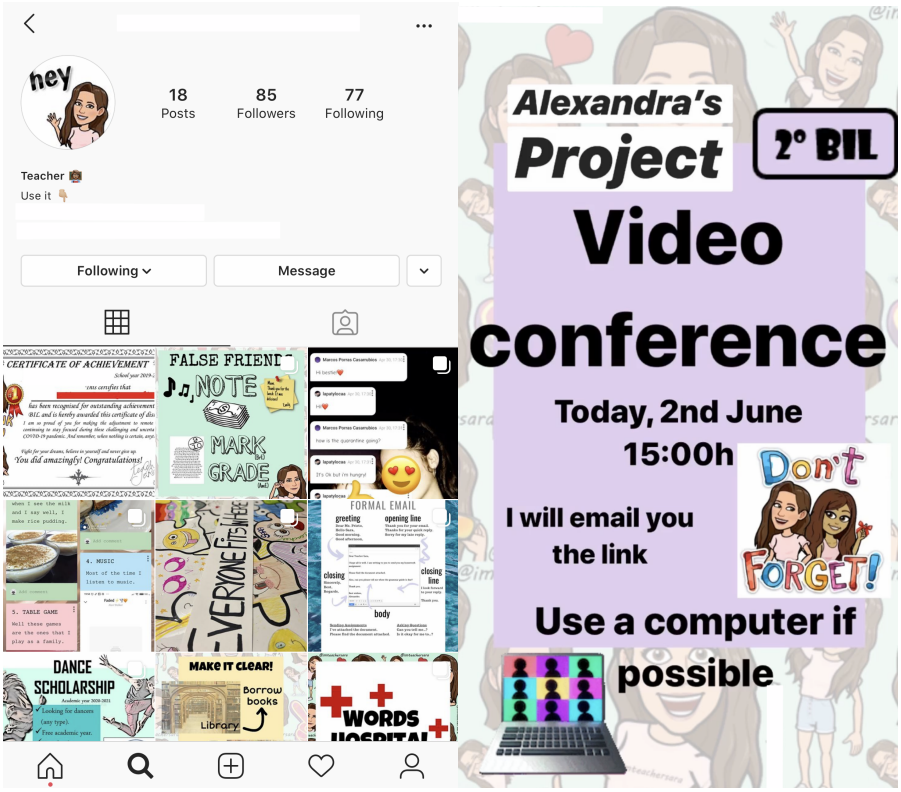

Figure 7: Teacher's account page and one of the Stories uploaded for the study

3.5 Data collection instruments

There was a total of three data collection instruments, which were composed and administered online using Google Forms, and included a pre-test, a post-test and a motivation questionnaire. All responses were completely anonymous. The instruments are detailed below.

3.5.1 Pre- and post-tests

Both tests consisted of 15 questions where there were three questions per modal verb: 3 *could*, 3 *couldn't*, 3 *have to*, 3 *don't have to*, and 3 *might*. The pre-test was a multiple-choice test

while the post-test was a matching test, but both tested the students' knowledge of the same modal verbs. The pre-test consisted of gapped sentences with four answer choices, where the gapped item was the modal verb. Students had to select the best answer to correctly complete the sentence. The pre-test was administered via email and it assessed the participants' knowledge of the modal verbs prior to the class intervention, in other words before they were taught. After the lesson and upon completion of the task, the post-test was administered over Jitsi Meet. The questions of the post-test were presented as matching items, where students had to match the beginning of the sentence with the end of the sentence. The items were separated into three sections of five sentences each. (Both tests are included in Appendix C & D).

3.5.2 Questionnaire

The instrument used to measure students' motivation was a questionnaire that included a total of 24 items (see Appendix E). The questionnaire was bilingual in order to ensure that each participant understood every statement fully and therefore, answers in either English or Spanish were allowed. There were four question items that specifically assessed students' perceptions of using technology in general for learning and another four questions about their experience using Padlet. Additionally, there were two open-ended questions that asked students to answer using their own words. The relevant sections of the questionnaire appear in Table 1 below.

SECTION IV: Technology
11. Having lessons online through a video call is enjoyable.
12. I prefer to have lessons in the classroom than online.
13. Working with technology helps me to do better on my English assignments.
14. It makes me anxious when I have to do my school work online / on the computer.
SECTION V: Padlet
15. Padlet was easy to use.
16. I enjoyed using Padlet as an educational tool to complete the assignment.
17. Padlet allowed me to easily work together with my classmates.
18. After using Padlet, I felt more engaged in my learning.
SECTION VII: Open-ended questions
23. Do you prefer to do your work using technology (computer or mobile phone) or on paper? Explain your preference.
24. Does the use of technological tools motivate or demotivate you as a student? Elaborate.

Table 1: Sections IV, V and VII of the questionnaire

The questions that focus on the use of technology (Section IV) were adapted from a Spanish study related to the presence of ICTs in secondary school by Martínez Rico (2006). The questionnaire items that involved Padlet (Section V) were taken from a study on the effects of Padlet by Kleinsmith (2017).

3.6 Method and data analysis

Originally, the study aimed to compare the results of two groups of students, a face-to-face control group and an online experimental group. Unfortunately, this was not possible due to the COVID-19 pandemic since all students were working online and, for this reason, the study analyzes the data obtained from only one group of students. A mixed methods approach to data analysis has been followed and therefore, both quantitative and qualitative data were gathered from

the three data collection instruments. This section outlines the methodology applied in the analysis of the pre- and post-test data as well as both the closed and open-ended responses to the motivation questionnaire.

3.6.1 Pre- and post-test scores

The pre- and post-tests produced quantitative data in the form of test scores which were automatically marked in Google Forms. First, it was necessary to identify if the distribution of the sample was normal and thus, the data collected from both tests were tested for normality using the Shapiro-Wilk test. Normality is dependent on the p-value generated from the test, where $p > 0.05$ indicates a normal distribution and $p < 0.05$ denotes a non-normal distribution. The p-value for both the pre- and post-test was 0.051 and 0.34 ($p > 0.05$), respectively, and thus the distribution was normal. For each test, descriptive statistics was used to calculate means and standard deviations of the overall scores. Finally, a parametric t-test was performed to compare the scores from the pre-test and the post-test to determine if there was a statistically significant difference between the two and if students' knowledge of the modal verbs was improved. The results from this analysis will help answer RQ1.

3.6.2 Questionnaire responses

The quantitative data from the motivation questionnaire consisted in 16 closed-ended questions, which were each designed as Likert-type items and separated into respective Likert scales that, when combined, intended to measure a particular aspect of motivation (as demonstrated in Sections IV & V of the questionnaire in Table 1). First, the responses were coded numerically from 1-"Strongly disagree" to 5-"Strongly agree." During this process, negatively worded items were reversely coded, where a 1 (=strongly disagree) on the questionnaire indicated a positive inclination. After coding, the numerical data was analyzed using descriptive statistics, where percentages, means and standard deviations were carried out for each questionnaire item. This analysis pointed out how situation-specific components, like technology and Padlet in particular, affected their motivation.

In addition to the close-ended questions, the motivation questionnaire contained two open-ended questions which required a qualitative analysis that was applied following Grounded Theory. Originally established by Glaser & Strauss (1967), Grounded Theory is a systematic method for coding and analyzing qualitative data (Hadley, 2017). This study implements the 'open coding' stage which is "the process of breaking down, examining, comparing, conceptualizing, and categorizing data" (Strauss & Corbin, 1990, p. 61). Thus, the goal of open coding is to identify and explain surfacing patterns in the data. For this study, the responses to the open-ended questions of the questionnaire were coded by marking key words, called codes, to form categories that described the content of the answer in order to name emerging themes. Some of the long answers to the open-ended questions will be quoted verbatim for the purpose of exemplification. The results from the analysis of the questionnaire will help answer RQ2. All results will be presented in the chapter that follows.

4. Results and Discussion

This chapter introduces the results obtained from the class intervention while commenting on the findings, beginning with the scores from the pre- and post-tests followed by the results and responses from the motivation questionnaire.

4.1 Pre- and post-test results

The purpose of the pre- and post-tests was to observe if students' knowledge of the three modal verbs (*could, have to, might*) improved as a result of the class intervention. Both tests were marked out of a possible total of 15 points. Results from the t-test produced a p-value of 0.28 ($p > 0.05$) meaning that there was no statistically significant difference between the scores of the pre- and post-test. The mean, standard deviation and t-test result are tabulated in Table 2.

	Pre-test	Post-test
Mean	9	10.31
Standard deviation	2.99	3.68
Number of students	16	16
t-test result	0.28	

Table 2: Mean, standard deviation and result of the t-test for pre- and post-tests

The mean scores between the pre- and post-test are not much different, at 9.00 and 10.31, respectively. The standard deviation for the post-test is quite high (3.68), and this higher value could explain the greater variability in test scores: for example, Students 4 and 8 scored the lowest with 3 and 5 points compared to their three classmates (Students 2, 6 and 7) who received full marks with 15 points. These scores, as well as those from the rest of participants, are presented in Table 3.

Student	Pre-test score	Post-test score
1	6	8
2	14	15
3	9	13
4	9	3
5	8	11
6	10	15
7	14	15
8	5	5
9	11	13
10	9	11
11	6	7
12	6	10
13	14	13
14	8	11
15	6	8
16	9	7
TOTAL	**144**	**165**

Table 3: Pre- and post-test scores

As can be seen in Table 3, despite not having statistically significant results, there was a noticeable increase in the majority of post-test values when compared to those of the pre-test, suggesting that students' knowledge did indeed improve. It must be emphasized that 12 out of 16 students raised their marks in the post-test, where some students improved quite considerably. Five students boosted their scores by 3 points or higher and their improvement is presented in Figure 8.

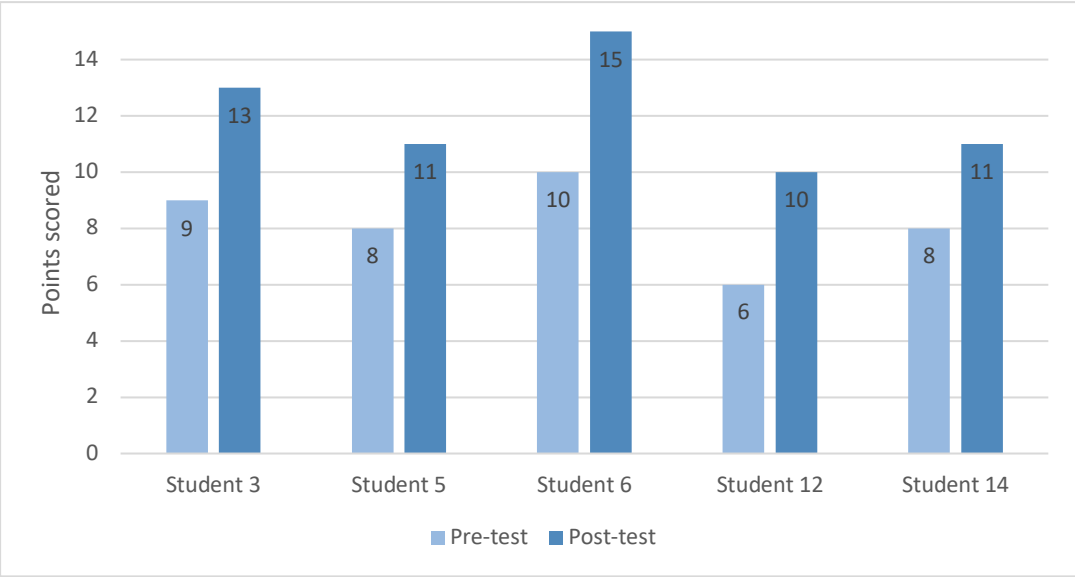

Figure 8: Students who improved by 3-5 points

This chart visually represents the 20% (3 point) or more increase in post-test marks from five students in particular (Students 3, 5, 6, 12, and 14). Student 6 is the most improved of the group who exhibited the highest increase in scores (33%, 5 points) and ultimately achieved one of the three perfect scores in the class. The next tier of improvement involved an increase in post-test scores by 1-2 points, which is shown in Figure 9.

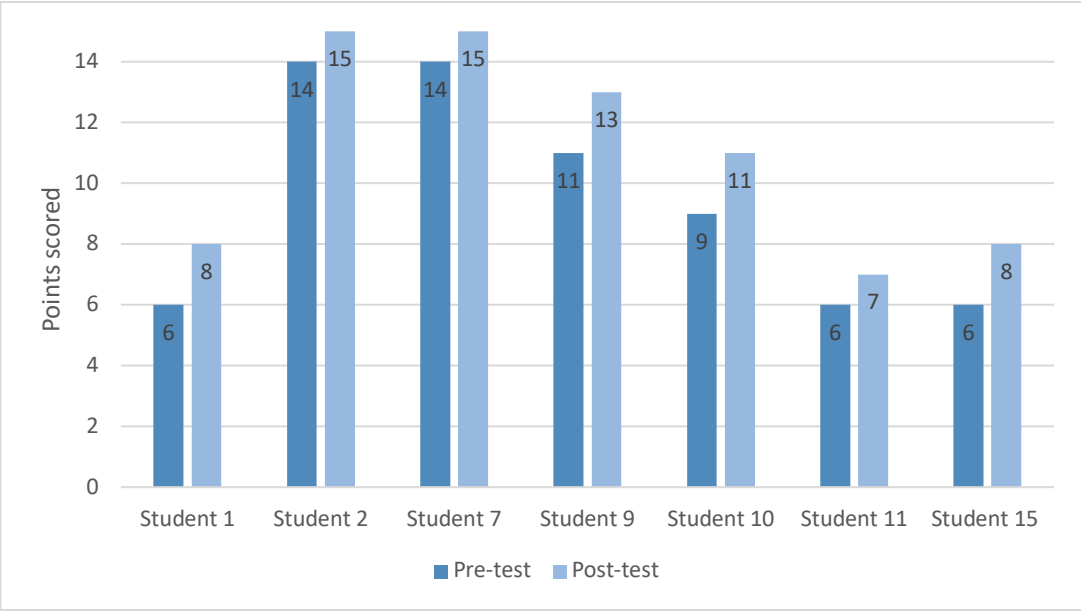

Figure 9: Students who improved by 1-2 points

As exemplified in the chart, these seven students increased their scores by 6 to 12% (1 or 2 points). The four remaining participants of the group did not improve: one student acquired the same score in both tests and the other four obtained lower marks. This information is presented in Figure 10.

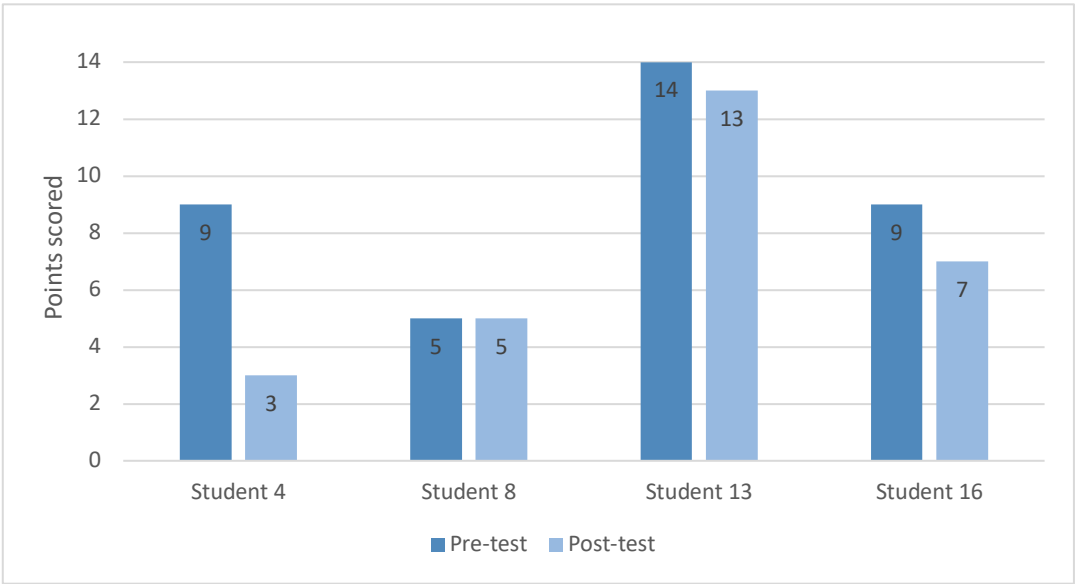

Figure 10: Students who did not improve

As a class, 31% (5 students) of the group improved substantially by 3-5 points while 44% (7 students) improved their scores by 1-2 points, amounting to a majority of 75% of the class that increased their grades in the post-test. Meanwhile, the remaining 25% (4 students) did not improve.

A possible limitation for the lowest scores of the post-test (Students 4 and 8 who scored 3 and 5 out of 15), could be due to a change in test format between the pre- and post-test. The pre-test was presented as multiple choice with one question having four possible answers. If the student

answered it incorrectly, then one point was subtracted. In the post-test, however, the questions were formatted as matching items divided into three sections of five questions each. Due to this formatting in Google Forms, if one question was incorrect then this meant that the other match was wrong as well, thus automatically deducting two points. This also allowed the possibility to miss more than two points depending on the matches selected.

So, to answer RQ1, the students in this sample have indeed exhibited improved grammatical knowledge pertaining to the three modal verbs (*could, have to, might*) through the implementation of a technology-mediated task. This finding is supported by the literature identified in Lai & Li's (2011) comprehensive review of technology-mediated TBLT in which it was determined that technology positively contributes to language learning in the context of a task-based pedagogy. Now that it has been established that the students' knowledge of the selected modal verbs has improved throughout this study, it must be noted that implementing technology in tasks "is not just about language learning" (Lai & Li, 2011, p. 511). In addition to "the target language to be acquired out of a given task experience," a technology-mediated task should also reflect on "the affordances of the technological tools necessary to perform the task" (González-Lloret & Ortega, 2014, p. 7). In order to examine those affordances, we decided to also look at students' motivation towards the foreign language and how the technologies used in the classroom intervention affected this. These results are presented and discussed in the following section.

4.2 Motivation questionnaire results

This section presents both the quantitative and qualitative results obtained from the closed and open-ended questionnaire items. Each questionnaire item consisted of a 5-point Likert scale from 1 to 5 (where 1=very low and 5=very high). There were four questions for each category (technology and Padlet) and the sum of students' responses were calculated for each. Descriptive statistics were applied in an attempt to assess the relative levels of motivation across each motivational category, where a score close to the maximum 20 possible would indicate a high level of motivation. The means and standard deviations of each motivational category are presented in Table 4 below.

	Effect of Technology	**Effect of Padlet**
Mean	12.5	17.94
Standard deviation	2.78	2.35

Table 4: Data obtained from the closed-ended questionnaire items

The data demonstrate a very high motivation directly resulting from the use of Padlet (mean: 17.94) in comparison to perceptions of technology in general (mean: 12.5). The standard deviation is the highest in the latter category (2.78) meaning that there was higher variability in responses from the mean (12.5). The subsections that follow will provide an in-depth discussion into each of these motivational components by drawing on the questionnaire items' totals and percentages to reinforce the findings.

4.2.1 Effect of technology on motivation

In order to answer RQ2, results suggest that students have enjoyed the general use of technology for teaching and learning, although they indicate a preference toward learning in the traditional face-to-face classroom. The mean for this category was 12.5, which is roughly located in the middle. This category concentrated primarily on technology as a tool for interaction and communication. The next two charts (Figures 11 & 12) depict the responses to questionnaire items that sought to reflect the impact of technology on students' motivation.

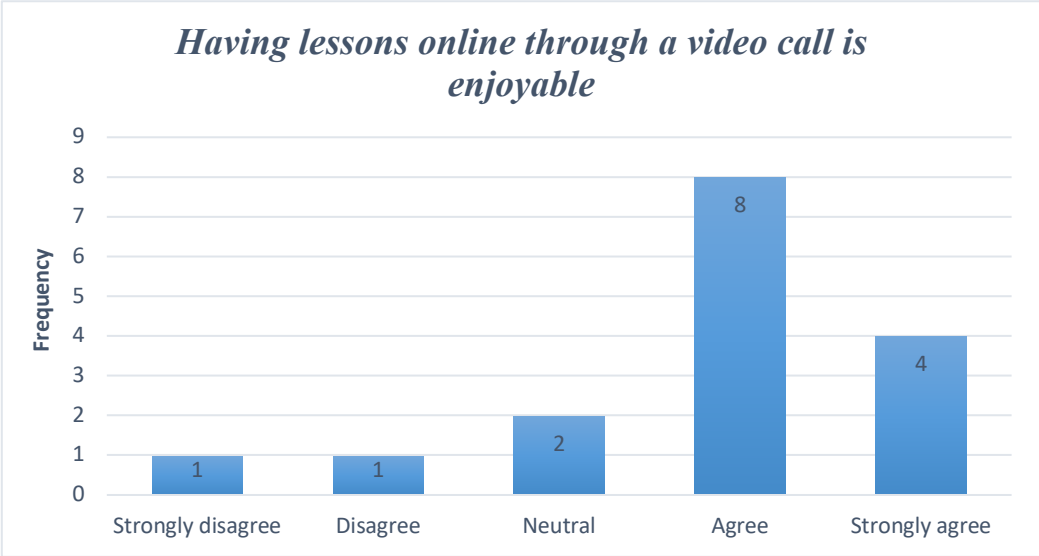

Figure 11: Responses to item #11

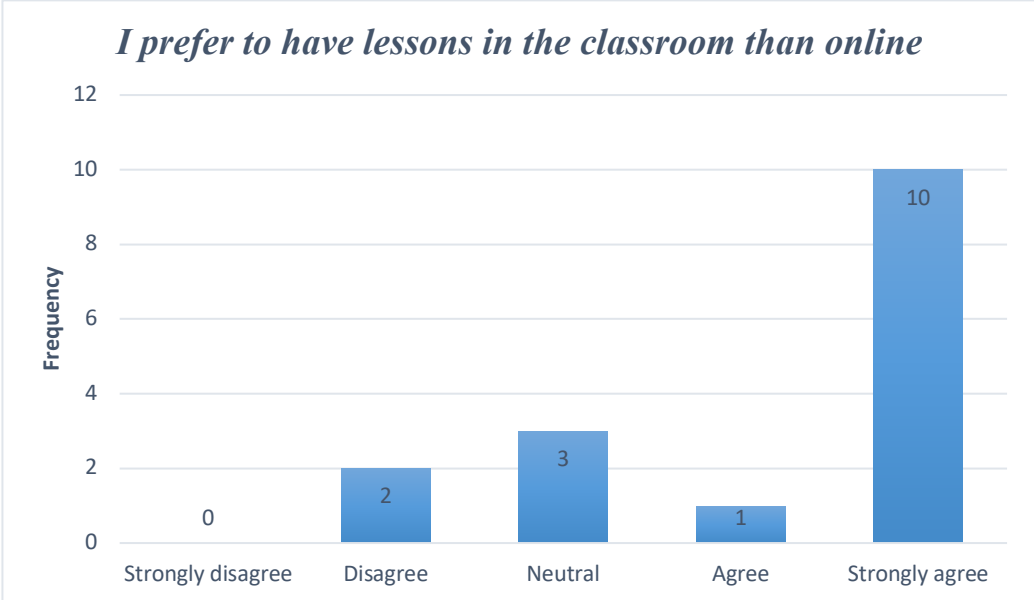

Figure 12: Responses to item #12

Figure 11 illustrates that the majority of students in this sample enjoyed having a virtual lesson, although answers did spread across all 5 response options. Conversely, the responses to item #12 (Figure 12) indicate strong sentiments towards a preference to in-person learning over online

classes. Item #12 is an example of one of the reverse-coded items in the questionnaire, and it is possible that reverse coding item #12 could potentially explain the high standard deviation (2.78) of this motivational category. A more plausible explanation could be that, while students managed to effectively learn with the use of technologies, they missed traditional classroom dynamics and social interaction with their peers. This was also compounded by students' fatigue as a result of the abrupt switch to remote learning combined with the government-mandated confinement measures issued three months prior due to the pandemic. To answer the first part of RQ2, the majority of students in this sample (12 students, 75%, as exemplified in Figure 11) possessed a positive perception towards the use of technology for learning and communication in the context of a technology-mediated task.

4.2.2 Effect of Padlet on motivation

Lastly, the web 2.0 tool Padlet was the spotlight of the final motivational component assessed in the questionnaire. The data reveals a very high level of motivation as a result of using this particular technological tool, with a mean of 17.94. The findings surrounding Padlet signal that a specific technological tool used to collaborate online with peers in a task that is creative can produce learning behaviors that stress the educational value of the tool in question. The two charts that follow (Figures 13 & 14) portray how students responded to the implementation of Padlet in the task.

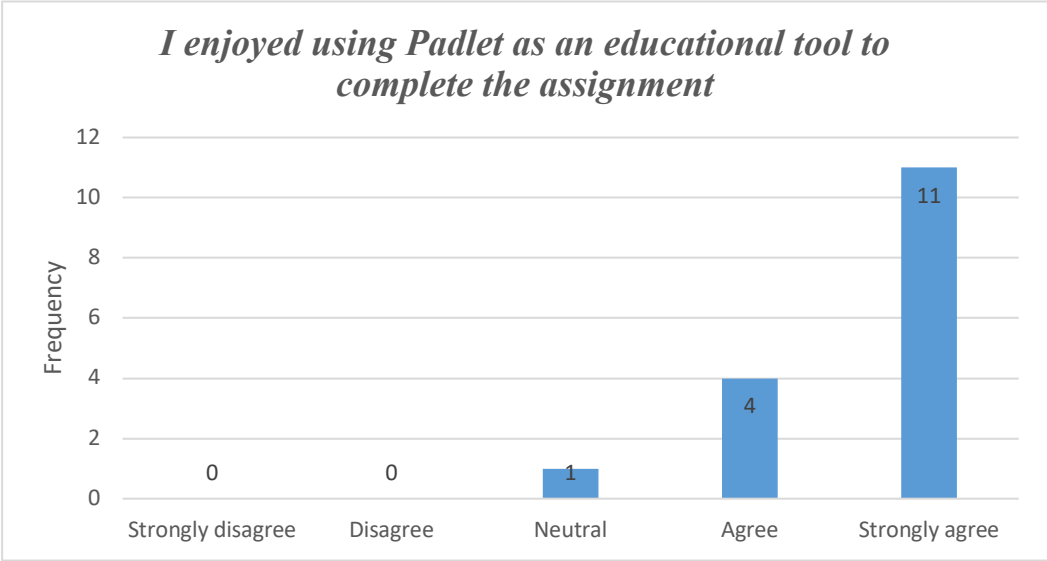

Figure 13: Responses to item #16

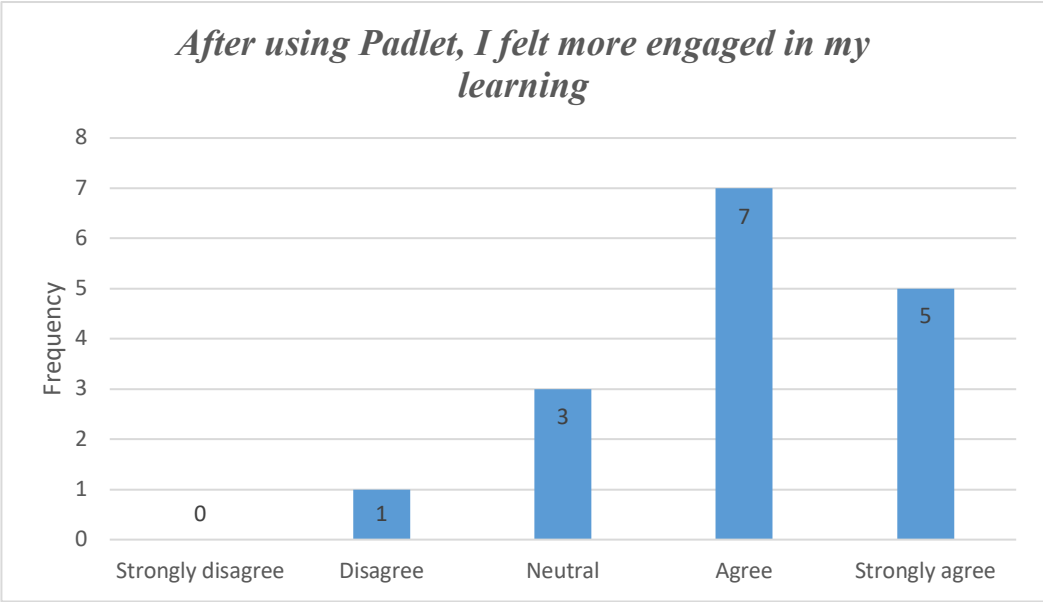

Figure 14: Responses to item #18

The vast majority of participants in this sample took pleasure in using Padlet to complete the task (as seen in Figure 13) and they also perceived higher interest, or motivation, in their learning as a result (as exemplified in Figure 14). Thus, it can be concluded that Padlet as an educational tool has had a positive impact on the motivation of the students' in this sample. Although a possible explanation for the participants' elevated degree of satisfaction with Padlet could be attributed to a novelty effect (Lamb, 2017). Padlet was not a brand-new technological tool to approximately half of the group, as represented in the pie chart in Figure 15 below.

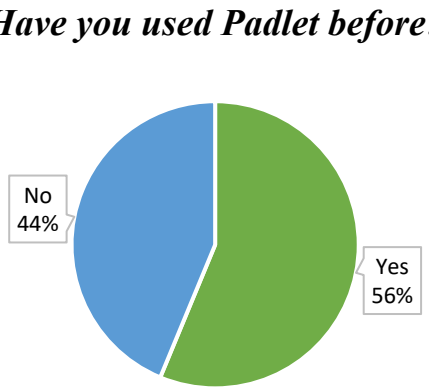

Figure 15: Responses to item #19

Of the 16 total participants, 9 (56%) had used Padlet before while 7 (44%) had not. Therefore, based on the findings from the questionnaire, and to answer the second part of RQ2, it seems that students' motivation has been positively impacted by employing Padlet to collaborate and be creative in the task.

4.2.3 Open-ended data

Finally, this last section of the Results and Discussion chapter presents the data obtained from the two open-ended questions from the questionnaire which were evaluated by implementing the open coding stage of Grounded Theory. An analysis was performed on the content of the students' answers by marking codes that could explain their preferences and motivations for learning English through the use of technology. The codes were combined and subsequently sorted to form unique categories in which two themes emerged: the role of technologies in the classroom and the motivating factor of technologies. These themes will be discussed below.

The role of technologies in the classroom

Students are capable of recognizing the differences between traditional and online teaching environments and thus, exhibit an awareness for the learning opportunities that technology provides them. One of the open-ended questions (item #23) asked students to specify if they prefer completing assignments with technology or on paper, to which many students expressed a preference for using technology. Students admit that the traditional method of teaching and learning with pen and paper is more practical and simpler, however few prefer it. They are also able to perceive what aspects make technology particularly appealing for use in the classroom. For example, Student 9 comments on how technology allows them to create creative content:

"It's always more practical with paper but with technology, it's more original and you can do a better job, so I choose the first option [technology]. (Con papel siempre es mas práctico pero con la tecnología mas original y se pueden [hacer] mejore[s] trabajos, asi que opto por la primera.)" (Student 9 response to item #23)

This comment tells us that Student 9 is aware of the differences between learning contexts and provides an explanation for their preference. Originality and creativity of students' performance is one of the additional criterion for evaluation suggested by Chapelle (2003) when grading tasks. It appears that the student would rather be graded on something fresh they have created than be graded on a more traditional grammar exercise. Additionally, these students touch on some points that researchers make to justify the use of technology in the classroom, such as the flexibility to work at their own pace, as stated by Student 14:

"It motivates me because I can work on my assignments wherever and whenever I want. (Me motiva porque puedo hacer los trabajos en el lugar y hora que prefiero.)" (Student 14 response to item #24)

The remark from Student 14 highlights one of the considerations mentioned by Chapelle (2003) when integrating technology into task design. That is, creating tasks and lessons that are not confined to a physical space or even to a concrete hour, which allows students the liberty to complete their assignments on their own schedule. Furthermore, various students mention the ease of use and quickness for completing assignments when supporting their preference for technology, like Student 2:

"I prefer work using computers because it is easier than using paper and a book." (Student 2 response to item #23)

The fact that many students find using technology "easier" could be attributed to the fact that they may already possess the sufficient digital literacy skills to navigate the technological tool at hand, subsequently allowing them to gain more out of the experience. What could be gained is increased learner motivation, which is the second emerging theme from the data and is explained next.

The motivating role of technologies

The second open-ended question (item #24) directly asked students if they felt motivated when using technological tools. The majority of students (13, 81%) reported that the use of technological tools is motivating for them as learners while only one student (6%) said that they felt demotivated. The remaining two participants (13%) expressed indifference, stating that they feel comfortable either way, whether they use technology or not. This question focused on the situation-specific motivational aspect of the task-based lesson, in which technology is central. The reasons students provided for explaining why technology motivates them vary but many can be categorized to reflect internal and external motives. For instance, Student 15 says:

"It motivates me. Because I learn more things that I didn't know before. (Me motiva. Porque aprendo más cosas que no sabía.)" (Student 15 response to item #24)

This response expresses a genuine interest for learning, and for learning specifically through the use of technological tools. On the same token, Student 2 is more direct in their explanation:

"It motivates me, because I like to use technological tools." (Student 2 response to item #24)

Both responses from Student 15 and Student 2 reflect internally driven reasons, in which they possess interest and enjoyment as a result of using technology for learning. Even at a young age, the students are aware of the benefits of technology and some even commented that they would need to possess knowledge of how to use technology (i.e. digital literacy skills) in the future. For example, Student 13 said:

"It motivates me, because I know that the majority of jobs will require technology in the future (Me motiva, porque se que en un futuro la mayoría de los trabajos funcionarán con tecnología)" (Student 13 response to item #24)

Rather than expressing personal enjoyment, this student's comment concentrates on external factors that motivate them. This student seems to find motivation for learning that is fueled by an awareness of the main role technology will play in the future job market. Finally, one student identified the specific technological tool that they find motivating:

"Yes, for example use Padlet motivate me a lot." (Student 7 to item #24)

Student 7 pinpoints the tool Padlet, that was the focus of this study, as the reason for why they find technology motivating. As a whole, the students in this sample feel motivated because they acquire new knowledge and they enjoy using the tools. These findings are supported by the data from the closed-ended questionnaire while further reinforcing the answers to RQ2 to affirm that students' perceptions toward the general use of technology are positive in nature and that these perceptions have a beneficial impact on learner motivation. The next chapter conveys the conclusions reached

upon interpretation of the main findings of the study and how they are relevant to the current literature by providing the implications that accompany them.

5. Conclusions

This dissertation has explored the implementation of a technology-mediated task in the context of secondary school students in which language learning was assessed as well as the impact of the use of technology on learners' motivation. The study concluded that students have improved their knowledge of the target grammatical structure (modal verbs), although this finding is not statistically significant. Furthermore, the findings reveal that students' express feeling motivated after using technological tools during the class intervention, and in particular, after using the web 2.0 tool Padlet. The main findings of this study reinforce the literature in regard to implementing technology-mediated TBLT in which technology supports language learning in addition to expanded aspects beyond learning, such as motivation (Lai & Li, 2011). The next section acknowledges the possible limitations in this study.

5.1 Limitations

Analysis of the data to determine if learning took place produced a not statistically significant result which could be attributed to the small sample size of 16 participants. If the results regarding language learning through the use of technology are to be generalized across the context of Spanish secondary school students, then studies with larger sample sizes will need to be conducted and they will need to be implemented across various institutions. Another important limitation, as already mentioned in the Methodology chapter, was the lack of a control group that would have been necessary to obtain more significant results. Due to the COVID-19 pandemic, this was not possible, but control groups will be introduced in future studies when the circumstances allow it.

5.2 Pedagogical implications

One of the reasons for most students' positive results, which was not explored in this study, could be related to the role of the teacher as a factor that can affect motivation in online learning. As mentioned in the literature review, the pedagogical role of the teacher is undergoing a change as education shifts to encompass technology-mediated environments (Lai & Li, 2011; Stockwell, 2015). Today more than ever, as the world grapples with the COVID-19 pandemic, there is a call for educators to adapt their approaches to teaching that go beyond the traditional classroom setting and that are suitable for distance learning. Reimers & Schleicher (2020) of the OECD implore "education leaders [to] take immediate steps to develop and implement strategies which mitigate the educational impact of the Pandemic" (p. 4). However, in order for teachers and education leaders to be able to do this, these individuals must first be properly trained in the use of technologies as well as possess the sufficient digital literacy skills in order to successfully and effectively promote learning. Lai & Li (2011) state that implementing technology in TBLT presents certain challenges when it comes to the teacher, which include higher demands of digital literacies. Other authors (Vinagre, 2017) suggest that, in addition to digital literacies, telecollaborative skills but also the skills necessary to design tasks and implement projects that can be supported by this mode of learning are also necessary. Despite this claim supported by most researchers in the field, "various accounts have shown that teachers [still] lack the necessary skills" (Lai & Li, 2011, p. 510). Thus, to reiterate Chapelle's (2003) point about CALL which is still applicable today, "the

priority in the field should be on research that addresses questions that can inform teachers and learners on the best ways to design and use technology" (p. 76). This study provides testimony to the benefits of incorporating technology in a task-based pedagogy, by focusing on three ICTs (Padlet, Jitsi Meet and Instagram) and showcasing the assets of each application.

In addition, it is imperative to consider the benefits of technology beyond language learning, as this study has reiterated by concentrating on the impact of technology on motivation. Besides motivation, ICTs are equipped with the resources to promote the "learner's ability to collaborate and communicate effectively online with peers and intercultural partners, the development of their intercultural competency and digital literacy skills, and the formation and development of their L2 identity" (Lai & Li, 2011, p. 510). In today's digital age, these multimodal competencies will be called upon in the future lives of this generation of students. Thus, it is critical to recognize and consider the far-reaching effects that technology offers within an educational context. Reeve et al. (2004) pose a question that educators should reflect on when planning lessons: "'How can I create the conditions under which students will be able to motivate themselves?'" (as cited by Lamb, 2017, p. 331). This study has intended to provide one possible answer to this question by organizing a task that employed Padlet, which was shown to have impactful and motivating qualities. If always important, students in virtual settings need to feel that their reasons for learning are driven by internal motives, such as enjoyment and creativity in real-world activities, while teachers need to change their role and their views on how to approach the learning process and identify the tools can facilitate such a process.

5.3 Further research

This study also offers suggestions as to what direction further research should take in order to answer pending questions surrounding technology-enhanced environments. For example, González-Lloret & Ortega (2014) state that in the emerging field that combines TBLT and CALL, "the question of how to integrate new technologies and language tasks into an organic and mutually informative whole remains thus far largely under-researched" (p. 4). This provides a stepping stone for future studies to explore approaches that integrate a task-based pedagogy mediated by technologies in an effort to consolidate curriculum design for educators. Furthermore, future studies should investigate the role and needs of teachers in online learning settings in order to address them in teacher training programs and to provide them with the knowledge, skills and support they need for integrating technologies into their classrooms. Comprehensive teacher training will facilitate the successful implementation of technology-enhanced tasks and projects and will ensure students reap the maximum benefits that the technology affords them.

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7. Appendix

Appendix A: Letter to the parents (Carta a los padres)

Madrid, 22 de mayo del 2020

Estimadas familias de los alumnos de 2º A/B (programa lingüístico):

Me llamo Alexandra y tal vez algunos de ustedes me conocen por lo que les han comunicado sus hijos. El año pasado colaboré con IES Castillo del Águila como auxiliar de conversación de lengua inglesa y este año estoy estudiando un máster oficial en la Universidad Autónoma de Madrid en lingüística aplicada al inglés. Les comunico mi interés en realizar una investigación para mi Trabajo Fin de Máster con los alumnos de 2º A/B.

La investigación está dirigida a explorar el desarrollo de un aspecto gramatical para analizar el grado de adquisición, la colaboración entre los alumnos y la motivación asociada a realizar un trabajo a través de las nuevas tecnologías. También, se recogerá la opinión del alumnado sobre el uso de las tecnologías en su proceso de aprendizaje. Dadas las circunstancias de COVID-19, este tipo de estudio adquiere una relevancia innegable para el proceso de enseñanza-aprendizaje no presencial.

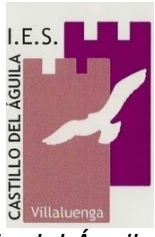
En el proceso de elaboración de la investigación, se guardará en todo momento la privacidad necesaria para salvaguardar la identidad de los sujetos estudiados. Los datos, siendo los trabajos hechos por los alumnos, únicamente serán utilizados para los fines de investigación.

Por todo ello, solicito su autorización para desarrollar este estudio y me gustaría contar con su colaboración. Sin más por el momento, les agradezco la atención que han prestado a la presente carta.

Les saluda atentamente:

Alexandra Rogers
Estudiante de máster
Universidad Autónoma de Madrid

Appendix B: Student consent form (Consentimiento)



IES Castillo del Águila

Yo, _____, padre/madre/tutor/a del alumno/a _____, con DNI _____, autorizo a mi hijo/a a participar en el proyecto de investigación que será llevado a cabo con la clase de 2º A/B (programa lingüístico) en el mes de junio en el IES Castillo del Águila. La investigación estará encabezada por Alexandra Rogers, estudiante del máster oficial en LINGÜÍSTICA APLICADA AL INGLÉS en la Universidad Autónoma de Madrid, en colaboración con la tutora del grupo, Sara Prieto.

Asimismo, durante este estudio,no se hará ningún uso de los datos de los alumnos distinto al estrictamente relacionado con el proyecto. Voluntariamente, se podrán añadir imágenes o vídeos en formato digital a los proyectos que dichos alumnos realicen.

Por lo tanto:
☐ marque la siguiente casilla si autoriza la cesión de imágenes o vídeos para ser utilizados en el proyecto de esta investigación.

En Villaluenga, a _____ de mayo del 2020.

Firmado: _____

Appendix C: Pre-test

Each question is a multiple-choice question with four answer choices. Read each question and answer choice carefully and choose the ONE best answer. There are a total of 15 questions. It should take you 5-10 minutes to complete. Don't worry if you don't know the answer. Remember, you haven't yet received the lesson. This is to determine a baseline of your knowledge. Thanks!

Cada pregunta es de tipo test con cuatro opciones de respuestas. Lee cada pregunta y respuesta con cuidado y elige UNA respuesta que sea la mejor. Hay 15 preguntas en total. Debes tardar 5-10 minutos para contestarlas todas. No te preocupes si no sabes la respuesta. Acuérdate que aún no hemos dado el temario. Esto sirve para determinar una base de tu conocimiento. ¡Gracias!

1. Already as a child, Mozart _____ play the piano beautifully.
    1. could
    2. can
    3. can't
    4. can to

2. ____ you tell me how to get to the town centre, please?
    a. could to
    b. can to
    c. could
    d. can't

3. Eight years ago, I ____ play the piano.
    a. can
    b. can't
    c. could
    d. can to

4. I didn't feel well yesterday. I ____ eat anything.
    a. cannot
    b. couldn't
    c. mustn't
    d. must

5. She _____ finish her homework last night.
    a. could not to
    b. could no
    c. couldn't to
    d. couldn't

6. We _____ study in the library after 6 PM.
    a. can't
    b. can't to
    c. not could
    d. couldn't

7. When do we _____ turn in our homework?

a. has to
b. have
c. must to
d. have to

8. You ____ wear a helmet when you ride your bike.
    a. have to
    b. have
    c. has to
    d. must to

9. In England, you ____ drive on the left.
    a. have
    b. had to
    c. has to
    d. have to

10. You can come to the meeting if you want, but you _____.
    a. have to
    b. don't have to
    c. mustn't
    d. must to

11. You _____ wear a tie in our office but some people like to dress more formally.
    a. have to
    b. has to
    c. don't have to
    d. have

12. You _____ go to the bank to do a transfer. You can do it online.
    a. don't have to
    b. have to
    c. has to
    d. had to

13. I _____ go on holiday to Australia next year. My parents are thinking about it.
    a. might
    b. must
    c. have to
    d. have

14. I _____ be able to help you, but I'm not sure yet.
    a. can
    b. can't
    c. might
    d. must

15. It looks nice, but it _____ be very expensive.
    a. can
    b. might
    c. must to
    d. mustn't

Appendix D: Post-test

Create complete sentences by matching the beginning of the sentence (numbered on the left) with the rest of the sentence. Each question has only ONE response. There are a total of 15 questions. It should take you 5-10 minutes to complete.

Completa las frases uniendo el comienzo de la frase (en la parte izquierda) con el final de la frase. Cada pregunta tiene solo UNA respuesta. Hay 15 preguntas en total. Debes tardar 5-10 minutos para contestarlas todas.

Section 1:

1. When Jane was a student, she could...
2. When we arrived home, we couldn't…
3. You have to…
4. If you don't like him, you…
5. Don't throw it away, it...

- don't have to see him again.
- might be useful, you never know.
- open the door because it was locked from the inside.
- read four books for this literature class.
- study for 10 hours a day.

Section 2:

1. When Mark was young, he could...
2. Peter couldn't play tennis last Monday because…
3. Dog experts say that you have to...
4. You don't have to…
5. I haven't decided yet but I might...

- he had broken his arm.
- go to the cinema with them.
- knock, just walk in.
- look after their hair regularly.
- play the guitar.

Section 3:

1. Could I please borrow...
2. In 1950, people couldn't...
3. You have to…
4. You don't have to…
5. Take an umbrella with you because it might...

- be raining later.
- read "Grapes of Wrath." It's an optional reading for extra credit.
- try these cakes. They are so good.
- use mobile phones.
- your phone for a moment?

Appendix E: Motivation questionnaire

This questionnaire will ask you about your motivations to learn English and about your experience working with technological tools during the course of this study. There are no right or wrong answers so please answer honestly and say what's true for you. There are 24 questions in total, three of which ask you to elaborate in more detail using your own words. It should take you about 10 minutes to complete. Thank you for your time.

Este cuestionario te preguntará sobre tus motivos para aprender inglés y sobre tu experiencia trabajando con las herramientas tecnológicas durante esta investigación. No hay respuestas correctas ni incorrectas, así que agradezco que seas sincero y contestes lo que para ti es verdad. Hay un total de 24 preguntas, donde tres de ellas te requieren elaborar en más detalle con tus propias palabras. Debes tardar aproximadamente 10 minutos para rellenar el cuestionario. Gracias por tu tiempo.

SECTION I: student's background

1. How old are you? *¿Cuántos años tienes?* (13) / (14)
2. Please select one: *Elige uno:* (male) / (female)

SECTION II: intrinsic motivation

3. I really enjoy learning English. *Me encanta estudiar inglés.*
4. I keep up to date with English by working on it almost every day. *Mantengo mi nivel de inglés practicándolo casi todos los días.*
5. Knowing English isn't really an important goal in my life. *Saber inglés no es una meta importante en mi vida.*
6. Learning English is important to me because it helps me to better understand films, television and songs. *Aprender inglés es importante para mí porque me ayuda a comprender mejor películas, televisión y canciones.*

SECTION III: extrinsic motivation

7. The main reason I need to learn English is to pass exams. *La razón principal por la que necesito aprender inglés es para aprobar exámenes.*
8. Getting a good grade in English class is more satisfying than knowing the language. *Me hace sentir más satisfecha con una buena nota en la asignatura de inglés que saber el idioma.*
9. Others will have a better opinion of me if I speak English. *Otros tendrán una mejor opinión de mí si hablo inglés.*
10. Being proficient in English can lead to more success and achievements in life. *Ser competente en inglés puede llevarle a más éxito y logros en la vida.*

SECTION IV: course-specific motivational component (technology)

11. Having lessons online through a video call is enjoyable. *Me gusta tener clases online a través de una videoconferencia.*
12. I prefer to have lessons in the classroom than online. *Prefiero las clases presenciales a las clases online.*
13. Working with technology helps me to do better on my English assignments. *Trabajando con la tecnología me ayuda hacer mis trabajos de inglés mejor.*
14. It makes me anxious when I have to do my school work online / on the computer. *Me da ansiedad cuando tengo que hacer mis trabajos online / en el ordenador.*

SECTION V: course-specific motivational component (Padlet)

15. Padlet was easy to use. *Padlet fue fácil de utilizar.*
16. I enjoyed using Padlet as an educational tool to complete the assignment. *Me gustó realizar el trabajo con Padlet como una herramienta educativa.*
17. Padlet allowed me to easily work together with my classmates. *Padlet me permitió trabajar fácilmente con mis compañeros.*
18. After using Padlet, I felt more engaged in my learning. *Me siento más motivado/a para aprender después de realizar el trabajo con Padlet.*

SECTION VI: additional information

19. Have you used Padlet before? *¿Alguna vez has trabajado con Padlet?* (yes) / (no)
20. How many times did you connect with your group mates to work together? *¿Cuántas veces te conectaste con tus compañeros para trabajar juntos?* (1-2 times) / (3-5) ...
21. How often did you connect to work on your part of the project? *¿Cuántas veces te conectaste para trabajar en tu parte del trabajo?* (1-2 times) / (3-5) ...
22. Did you have any difficulties? For example, with Padlet or connecting or with a group mate. If yes, explain why. *¿Has tenido alguna dificultad? Por ejemplo, con Padlet or conectándote o con un compañero.*

SECTION VII: open-ended

23. Do you prefer to do your work using technology (computer or mobile phone) or on paper? Explain your preference. *¿Prefieres realizar tus trabajos con la tecnología (ordenador o móvil) o con papel? Explica tu preferencia.*
24. Does the use of technological tools motivate or demotivate you as a student? Elaborate. *Como estudiante, ¿te motiva o te desmotiva el uso de las herramientas tecnológicas? Explica por qué.*