



Benemérita Universidad Autónoma de Puebla

Facultad de Lenguas

Maestría en la Enseñanza del Inglés

**The Impact of an Asynchronous Techno-Pedagogical Model on Students' English
Proficiency Level in a Virtual Learning Environment**

A thesis submitted to obtain the master's degree

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Proficiency Level in a Virtual Learning Environment**

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Dedication

To my mom. None of this would have been possible without you. You have been my constant support not only at this stage of my life, but throughout my entire journey. I cannot express in words how deeply I value the fact that you are my mother, nor how happy it makes me to see you happy. I love you so much, and I hope I am making you proud. Thank you, mom. Everything I am, and everything I will become, is thanks to you.

To my husband. My dear hubby, we have been through thick and thin, and you have never left my side. I still cannot believe that, even when I was so far away from home and facing such difficult circumstances back then, you took care of me and helped me thrive. Our relationship grows stronger with every year we share, and I cannot help but feel joy knowing I made the right choice. Thank you for being with me, supporting me, and loving me. I love you, and I cannot imagine my life without you.

To my father. We have had our ups and downs, and we have certainly been on better terms at other moments, yet that does not mean you are not important to me. You are and you will always be. I have always felt your support and constant encouragement. Thank you for those moments, and I sincerely hope that, from the bottom of my heart, you can feel as much joy for this achievement as I do.

To aunt Mary, aunt Claudia, aunt Carlota, and uncle Enrique. My dear family, you know how much I love you. Even though these past years we have been apart from different reasons, please remember that you are always in my heart and remain essential pieces of my life. I feel your love and your support, and I cannot wait to see you and hug you. Thanks for your constant support and encouragement throughout my life; I have never felt alone because of you.

To my dear cousins, Luis Enrique and Gaspar. I love you guys. I hope we can spend more time together one day whichever country we are in, but you are always in my heart, and you inspire me to become a better human being.

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To my aunt Silvia, aunt Betty, and Uncle Alfonso. We have seen better moments as a family, yet I love you, and you remain very important to me. I appreciate every time you encouraged me to keep going. Thank you so much.

To my friends (Nidy, Antea, Irina, Mary, Dany). You have remained my closest friends. Thank you. You do not know how much you mean to me. I love you, and you inspire me to be a better person. Thanks for having become the family I chose.

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Abstract

This thesis examines the impact of an asynchronous techno-pedagogical model on the English proficiency of undergraduate students enrolled in the Licenciatura en Enseñanza del Inglés at the languages department in the Benemérita Universidad Autónoma de Puebla. The incorporation of Information and Communication Technologies (ICTs) in higher education has increased the need for flexible learning environments which respond to students' several academic needs and demands. In this context, asynchronous learning emerges as an alternative that supports autonomous work, continuous access to resources, and personalised learning pathways.

The purpose of this research is to analyse the extent to which an asynchronous-techno pedagogical model contributes to the development of students' proficiency at the B1 Preliminary level. Additionally, it seeks to identify the kind of impact that the model has on learners' performance and to describe their perceptions regarding its design, usability, accessibility, and pedagogical value.

The study follows a quantitative approach. Data were collected through two mock Cambridge B1 Preliminary tests administered before and after the intervention, allowing for comparison of proficiency gains. Additional quantitative data were obtained through a Likert-scale questionnaire, which measured students' perceptions in five main areas: motivation and autonomy, usability, accessibility and technological anxiety, usefulness and academic performance, interaction and collaboration, and acceptance and willingness.

Results show that the asynchronous techno-pedagogical model had a positive effect on students' proficiency development. Whilst the degree of improvement varied, most participants demonstrated progress in skills and subskills associated with the B1 level. Students reported that the asynchronous format supported effective time management and enabled them to work at their own pace, also that the interactive nature of activities was also perceived as beneficial. Nonetheless, some participants encountered difficulties related to self-regulation and independent online study, which influenced their overall performance. Students' perceptions gathered through the Likert-scale questionnaire were predominantly favourable. They highlighted the accessibility of the model, the relevance of updated digital resources, and the alignment between activities and learning objectives as well as identifying areas of improvement for instance those related to interaction among participants.

Conclusively, such findings suggest that asynchronous techno-pedagogical models could effectively support English language development at the undergraduate level when properly designed and aligned with learners' needs. This research contributes to the understanding of technology-enhanced language learning in the Mexican higher education context and serves as a foundation for future adaptations of the asynchronous learning models for other levels, languages, and academic purposes.

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Chapter 1: Introduction

1.1 Background of the study

Information and Communication Technologies (ICTs) used in education in the 21st century presents some characteristics such as accessibility and availability which may impact teaching and learning in the classroom. Having become accessible worldwide, the use of such platforms and a diversity of technologies used in classrooms both synchronously and asynchronously is significantly changing the design of educational settings for both students and teachers. This has also made virtual classrooms appear reducing gaps related to geography, accessibility and even cost among users. The incorporation of such tools has revolutionised the way content curricula is delivered currently by offering online resources to adapt to students' needs.

Ratheeswari (2018) defines ICTs as technologies which may help users to communicate, learn and exchange some information. A similar term, yet more specific, is Information Technologies (ITs); However, this definition mainly focuses on the use of Internet and wireless networks as media of communication worldwide. The interest in the use of ICTs for education is high and therefore, the relevance of understanding the impact that such tools, when correctly used, have in classrooms in the 21st century become definitely important ranging from the most simplistic like an app integration to diversify activities in the classroom, to more complex ones like the integration of Artificial Intelligence (AI) in multiple areas in the educational field.

The process in the EFL context when discussing ICTs application is being transformed every day and explaining it requires a deep analysis of the state of the art. In this research project terms like English as a Foreign Language (EFL), B1 Preliminary, asynchronous learning, content curation among others will be highly discussed to make emphasis on the current state of such technologies to grasp a better understanding and form a base for the

present project. Even when there is a wide range of literature about the use of technologies in the EFL classroom to improve proficiency from basic to university level education, and from A1 to C2, or related to asynchronous learning and how to use it as an extra tool outside the classroom, this project seeks to address a very specific gap in the state of the art which is the use of an asynchronous element for undergraduate students in the foreign language teaching field. It is a quite reduced context in this particular study which can be taken to a more general perspective and adapted for future research.

Asynchronous learning is one of the key elements which will be of extreme relevance in this study and some authors have already shed light into clarifying more about different elements of this type of modality and how it is beneficial for students. In previous research (Bakar et al., 2013; Buckingham & Alpaslan, 2017; Ge, 2012; Gorjian et al., 2011; Ho & Swan, 2007; Pinto-Llorente et al., 2017), it is observable that multiple affairs have been discussed on this issue and yet few are addressing postgraduate levels, a gap which this project will be exploring. By introducing solid literature concepts from respected authors as those included here, the present study also will contribute to a better understanding of this issue, related to asynchronous learning and techno-pedagogical designs, and going in-depth into how an undergraduate ELT programme in a specific context deal with this situation/context.

1.2 Motivation behind this study

I particularly chose to work on this research proposal since it is of my personal interest to develop online courses for intermediate to advanced levels. This will help me realise the general aspects to take into consideration when designing my techno-pedagogical tasks as well as having in mind the elements that have been reported as difficult to deal with or in need of improvement through this research.

Since my intention is to create techno-pedagogical models for different languages (English, Spanish, Valencian, French, etc.), levels (A1, A2, B1, etc) and purposes (General skills training, specific purposes, certification training, etc.), this research project functions as a first step leading to more research needed to be done to be in constant improvement and development. Having technology around us and a constant need to interact with state-of-the-art ICTs is a trait that future language learners will need to have, as well as busy schedules taking over our already limited time, and thus, the need to further research, improve, and develop better and more complete techno-pedagogical asynchronous courses.

1.3 Aim and context of the study

The aim of the study is to analyse the impact that the use of an asynchronous techno-pedagogical model has on undergraduate students when it comes to developing their proficiency at B1-Preliminary level and how they would rank the tool in general in terms of accessibility, design, usability and other technical elements. Regarding the context, this research project took place in the Faculty of Languages at Benemérita Universidad Autónoma de Puebla in Puebla, Mexico. The participants are members of the Licenciatura en Enseñanza del Inglés, currently taking their 5th term.

The languages department was formally founded in 1954 offering first the degree in Enseñanza en lenguas Extranjeras (LELE). However, the programme in turn is called Licenciatura en Enseñanza del Inglés and only focuses on methodologies for teaching English as a foreign language specifically. The participants are members of the Licenciatura en Enseñanza del Inglés and this programme aims to prepare well-rounded professionals with theoretical and practical pedagogical knowledge, strong communicative competence in English and Spanish, and the ability to adapt to diverse educational contexts. Graduates are expected to promote intercultural communication, engage in initial research, and demonstrate social responsibility.

1.4 Justification of the study

In general terms, the need of asynchronous techno-pedagogical courses is evident for its flexibility, constant updating by designers but most importantly for its accessibility: 24/7. This particular characteristic allows students from any academic background to start learning or developing their knowledge on the subject anyplace, anytime. By offering students the possibility of ubiquitous learning, there is no doubt how this modality may be ideal for certain sectors of the society, especially those burdened by heavy workloads and little time for professional development. This could have an impact not only on the possibility of continuing developing professionally but also in terms of time management and stress reduction among workers, students and any sort of person interested.

Academically speaking undergraduate students are on the process of developing and getting essential tools which, if well-acquired, may have fruitful results in the students' final outcome expectations. An asynchronous techno-pedagogical courses will allow the designer to integrate activities with which participants work not only on their Low Order Thinking Skills (LOTS) but also developing their High Order Thinking Skills (HOTS). By challenging students with proper activities to activate HOTS and by using online tools to do so, the student can go through a faster process in their learning path. Integrating useful activities in the techno-pedagogical design is imperative; thus, they need to be student-centred and ideally focused on students having a useful outcome as a result: a project, a presentation, or a product.

In terms of practicality, having stated the benefits of accessibility through asynchronous techno-pedagogical tools, it is also important to highlight that by having an open platform online and thanks to the availability of countless resources, any asynchronous tool can be constantly updated and improved in order to provide accurate feedback through engaging activities aiming at developing students' skills and subskills. Students in need of feedback for improvement cannot wait hours for their teacher to help them face to face;

Nevertheless, by using asynchronous techno-pedagogical designs, teachers can actually provide feedback and error correction faster or even better immediately, a characteristic particularly relevant for students and/workers with many tasks to address and little time, since English may not be the only subject being studied by the participants at that moment. Another relevant aspect to the academic usefulness of this asynchronous tool is the integration of updated resources at B1 level standards which sometimes in books or traditional resources is not possible or requires more effort by the teacher, by using tools online the course can be constantly adapted or improved, as well as promoting interaction between participants and the instructor, whether for doubts or practice, a trait which is sometimes limited to the physical classroom when it comes to face to face teaching.

1.5 Research Questions

The present research project is based on the following 3 research questions, which also provide a justification and represent the connection between the dependent and independent variables. The first research question addresses the use of the techno pedagogical design in the context of the study and is as follows:

RQ1. To what extent does the use of a techno-pedagogical model for test training and language skills help undergraduate students at languages department- BUAP to improve their proficiency in B1-Preliminary?

This question is being asked since this research aims not only to prove whether the techno-pedagogical design had an impact on students but to what extent this impact is visible through their notes comparing the first ones (Mock test A) against the last ones (Mock test B). With these data, it is expected to find some participants having benefited more from using the techno-pedagogical design than others, even finding that perhaps some of them did not benefit from it. The relevance of this question and the next one come together since both function as a

way to complement each other, one asking about the type of impact this techno-pedagogical design has and another about to what extent, grasping a better understanding of the design.

The second research question discusses the impact the use of this techno pedagogical design has on the members involved in the study and is the following:

RQ2. How does a techno-pedagogical model for test training and language skills impact undergraduate students' proficiency level at the languages department- BUAP?

This question is being asked since the main purpose of this research is to find the usefulness of a techno-pedagogical model when being applied to undergraduate students at the languages department-BUAP. The relevance of this question is high since it will provide a general panorama of the usefulness of such techno-pedagogical design and visualise whether participants found more positive, neutral or negative in terms of usefulness. Finally, it provides a first step to be asked to further be developed through question 1.

Lastly, the third question addresses how students rank the use of this techno pedagogical model and aims to collect data for its future improvement:

RQ3. What are these undergraduate students at languages department-BUAP's attitudes on the use of a techno-pedagogical model to improve their proficiency in B1-Preliminary?

This question is being asked to understand the two previous questions through a Likert-scale questionnaire where students will be able to rank different aspects of the techno-pedagogical design such as usability, types of exercises, the asynchronous essence of the design and so forth. This question has relevance to the study since it provides a deeper understanding on why students obtained the grades they did and also to have a general panorama of what should be changed, included and eliminated from the design.

1.6 Hypothesis and Null hypothesis

The current research project is based on the following hypotheses:

Hypothesis. The implementation of a techno-pedagogical model will promote the improvement of proficiency at B1-Preliminary level in undergraduate students at languages department-BUAP due to its flexibility and 24/7 availability.

Null Hypothesis. The implementation of a techno-pedagogical model will have no effect on the improvement of proficiency at the B1-Preliminary level in undergraduate students at the Languages Department of BUAP. The flexibility and 24/7 availability of the design will not contribute to any measurable improvement in proficiency.

1.7 Key terms

Asynchronous course. In asynchronous online courses, students engage with content and activities at times of their choosing, rather than attending scheduled real-time sessions (Broadbent, 2017).

Techno-Pedagogical model. Techno-pedagogical models describe how technology and pedagogical practices are combined in a purposeful, structured way so as to enhance learning outcomes. A space which promotes both, methodologies and technologies (Susanto et al., 2020).

Proficiency level. The concept of proficiency in a second or foreign language comprises the aspects of being able to do something with the language as well as knowing about it. In other words, language proficiency encompasses a language learner's or user's communicative abilities, knowledge of systems, and skills (Harsch, 2017).

Virtual Learning Environment (VLEs). They are established technologies that have been supporting learning and teaching in higher education for over twenty years and which allow participants to continue their learning even when classes cannot take place face to face (Flavin & Bhandari, 2021).

Digital tool. They serve to develop the learning of the population and are defined as software programmes that make active and autonomous teaching possible (Mera-Santander & Rivadeneira-Zambrano, 2024).

Application. Application software is composed of context-dependent tools and devices. Most of the time, application software involves basic software to solve problems, prepare instructional materials or share and talk through ideas (Dogan et al., 2020).

Perception. In educational settings, student perception describes how learners interpret and evaluate their teachers' behaviour, instructional practices and overall classroom environment. These perceptions are formed through individual experiences, beliefs, prior knowledge, and social-cultural background (Gencoglu et al., 2021).

1.8 Contents and Organisation

Chapter 1 provided a brief introduction and overview of the research project. Chapter 2 provides a solid body of literature on the key elements to be discussed and which sustain, through a range of authors' studies, a solid base for the current research. Chapter 3 provides an explanation on key elements which were used for the research such as: the participants, the context, the instruments and the steps followed in the collection and analysis of obtained data. Chapter 4 provides a view of the elements obtained after applying, collecting and analysing data in a clear and accurate way to provide the reader with the understanding of what it implies and how it can be taken to further research. Finally, Chapter 5 provides conclusions for the research project.

1.9 Summary

As mentioned, this project aims to explore asynchronous language learning at undergraduate level. Recognising the challenges faced by undergraduate students managing diverse academic responsibilities, the project proposes the implementation of an

asynchronous virtual learning environment for Cambridge B1 Preliminary (PET) preparation. The main objective is to analyse the integration of an innovative and synchronous technopedagogical model to enhance language proficiency in a flexible and accessible manner. By adopting an asynchronous approach, the project addresses the varying schedules and research commitments that undergraduate students may be facing. This flexibility allows learners to engage with course materials at their own pace, ensuring efficient preparation for the Preliminary B1 level. This project emphasises the importance of embracing technology to address the evolving needs of postgraduate students in a fast-paced academic environment. Furthermore, the asynchronous virtual learning environment promotes inclusivity by eliminating geographical barriers and so, undergraduate students from diverse backgrounds can access high-quality language education, contributing to a more socially equitable and inclusive educational landscape.

In sum, the study aims to contribute to language education, making it more adaptive, accessible, and aligned with the needs of 21st century undergraduate students pursuing studies in ELT.

Chapter 2: Literature Review

2.1 Introduction

This chapter reviews the theoretical groundwork of the current study. Its objective is to provide the theoretical basis to support the methodological and analytical procedures and allow the study to reach conclusions about the issues it aims to explore. It provides a discussion of the following issues: English as a foreign language (EFL), B1-Preliminary, virtual environments, learning and teaching strategies in virtual environments, teachers' profile for virtual teaching, content curation, techno-pedagogical products design, gamification and evaluation of virtual environments.

2.2 English as a Foreign Language

Currently, English is used anywhere; from isolated words included in everyday language to complete sentences in merchandising and/or advertising. There is no question about how ubiquitous English has become. Thus, the need of learning this language not only to have more opportunities in the job market or education, but also to alienate yourself from other cultures increasingly connected in today's world. When defining what learning English is, two questions appeared clouding basic but essential information: English as a Foreign Language (EFL) and English as a Second Language (ESL). These two terms have been debated by many researchers since many years ago (Ringbom, 1980; Dewaele et al., 2019; Nurmalarasi & Rintaningrum, 2020; Zhang & Hasim, 2023). Some of these authors support the idea that these two terms are interchangeable whereas others suggest that there are several factors which make them different thus, it requires more consideration of such elements to really grasp the idea behind their differences (Dashtestani & Samoudi, 2014; Turnbull, 2018; Chaaban et al., 2019; Radwan, 2019).

To put it simply, learning EFL occurs when English is only used in the classroom context. It means that it is formal and only used for academic reasons within the school; as

opposed to learning English as a Second language where the community also shares the language beyond the classroom walls (Quimosing, 2022). It is possible to put it in an even simpler manner for our total understanding: EFL takes place when a student learns English for instance in Mexico, Colombia or Spain (outside the classroom, English is not the language typically shared by the rest of the community). Contrastively, ESL happens in countries like the USA, the UK, or Australia (outside the classroom, English is still used to communicate among members of the community).

EFL is taught in more than 100 countries worldwide due to its status as lingua franca and the constant development of strategies, methods and approaches to be in continuous progress. Nonetheless at first, EFL was considered not more than mimetic or just copying and imitating what students heard. However, it has had a long process of evolution, transforming, thanks to new teaching methods and by theories such as the Sociocultural which states that for learning to happen learners must participate in social and cultural activities, into more than just imitating what they heard. Magfiroh et al., (2022) state that teaching English has to make use of social strategies such as group discussion where students can develop interpersonal skills and clever ways of communicating. Allowing meaningful interpersonal interactions among students and teachers is of great benefit when it comes to developing language for communicative purposes (Kusumawardhani et al., 2017). Additionally, current teaching has to take into consideration that speaking English as a foreign language helps students not only in their academic and professional development but also to integrate to society (Shrishthy, 2022).

In Mexico, the context is EFL, as English is mostly used within the classroom but rarely outside. However, English is seen as a tool to obtain better opportunities in many aspects: such as a better income, a way of obtaining a higher position, for travelling matters or even for a CV enhancement. Additionally, there is a strong relation between Mexico and The

United States due to the proximity to each other, fuelling the need, among some Mexicans, of learning English in case of applying to work or move to the Anglo-Saxon country (Borjian, 2015). For this reason, learning English has become a matter of great importance for institutions from kindergarten to postgraduate levels and they are aligning themselves to international standards such as the Common European Framework of Reference for languages (CEFRL), which has the intention to make clear the learning path for both teachers and learners (Izquierdo et al., 2021).

Other similar studies show the same lack of proficiency among Mexican people reporting that it is far from being achieved (INEGI, 2019; Charles & Torres, 2022). This has to do with multiple issues stated in different studies like resources and time management in the classroom, but also on the fact that despite reforms adapting curricula into a more communicative teaching and thus learning for students, teaching in Mexico is still focusing on structural matters such as morphology and syntax like some studies show (Izquierdo et al., 2016; Kissau, 2019). These reforms have not been properly implemented causing the goals not being achieved neither in urban nor rural areas (Hernández & Izquierdo, 2020; Izquierdo et al., 2021).

In order to prevent such obstacles from happening different authors make emphasis on diversifying the resources used in the EFL classroom as well as contexts and content that take into consideration not only students' needs but also prior knowledge, values, beliefs, interests, motivation and even feelings (Jaime et al., 2021). As it is observable, the term EFL encompasses an array of issues that need to be dealt with when it comes to teaching; The context in Mexican society is a curious one where the term EFL is applicable and yet, due to globalisation demands more and more exposure. When it comes to addressing the creation of elements for teaching in the Mexican context, it is a key factor to take into account the audience it addresses and the context in which it is established, either EFL or ESL.

2.3 Learning English as a Foreign Language at B1 level

After discussing what the term EFL stands for, it is important to remember, as previously mentioned, that institutions are adapting to international standards both in language teaching and learning, the CEFR being the most recognisable standard in use nowadays. This framework describes the language ability that people have on a six-point scale, from A1 being the lowest level to C2 the highest one, and it is quite useful not only for students but also for employers seeking to have a more competent workforce in terms of language ability (Cambridge Assessment English, n. d.).

There are 6 levels in the CEFR which hold the following names: A1 or Breakthrough, A2 or Waystage, B1 or Threshold, B2 or Vantage, C1 or Effective Operational Proficiency and C2 or Mastery. This manual clearly states that is not contextualised and attempts to cover any language nor only English with valid criteria. However, it is suggested not to use it as a single best method since there are other standards that may suit better for specific contexts, as well, it attempts to provide the user with a clearly understanding of what each of these levels imply and to what extend test-takers are ready to do particular tasks by providing illustrative descriptors and Can-do statements for a better understanding.

The following general Can-do statements represent the expectation hold for each level through the English language development path and then, it is focused mainly on the competences necessary at B1 level:

Figure 1

Overview of the Common European Framework of Reference (CEFR)



Figure 2

Qualitative Aspects of Language Use at B1

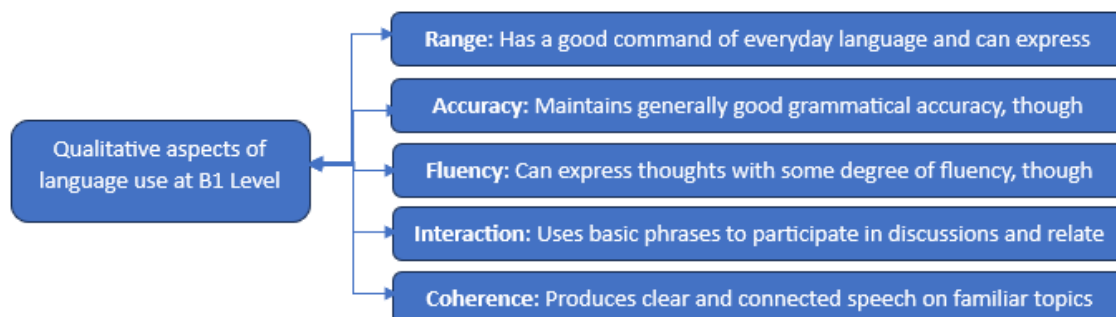


Figure 3

B1 Level Proficiency

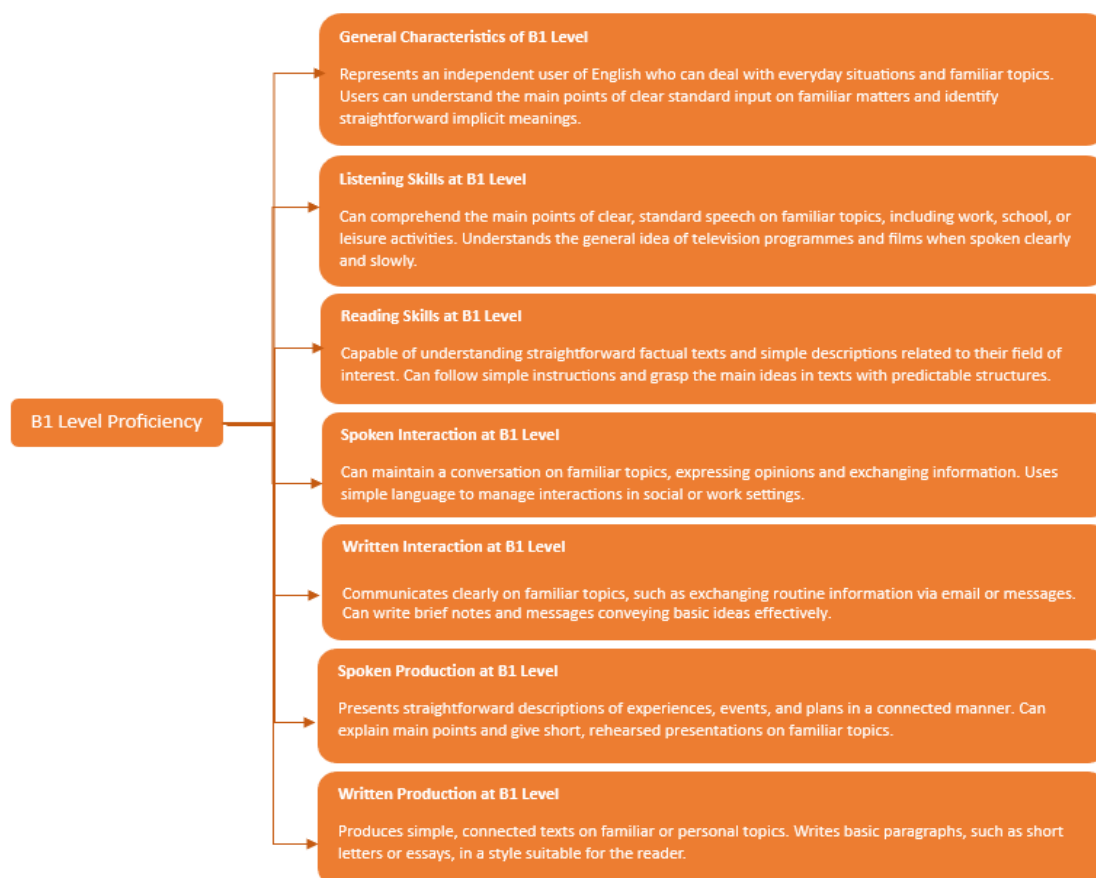


Figure 4

Communication Strategies at B1 level

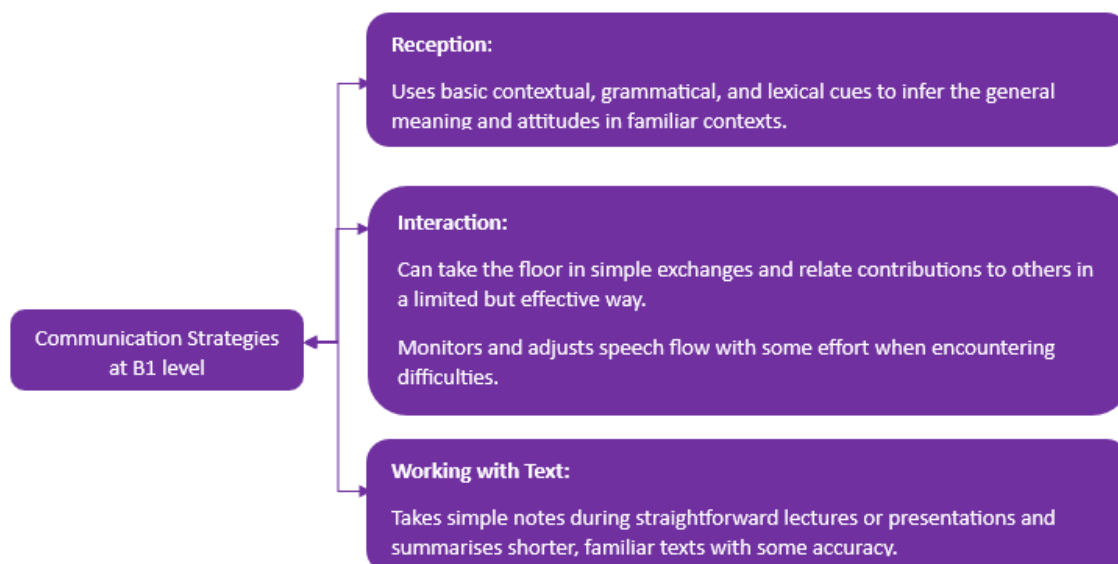


Figure 5

Illustrative Scales for B1 level

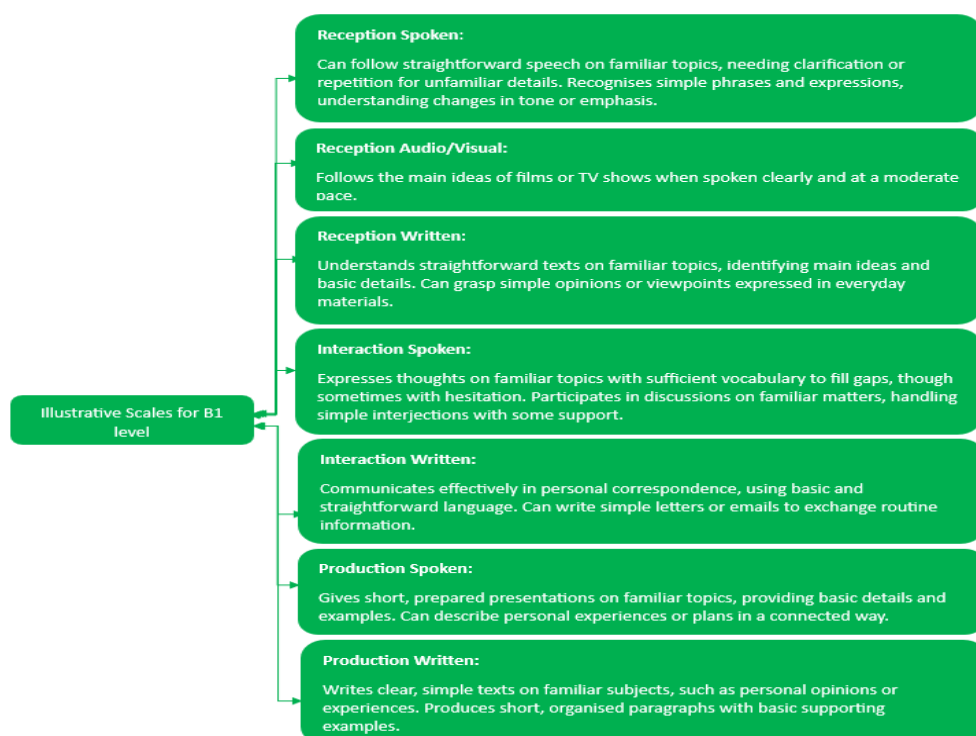
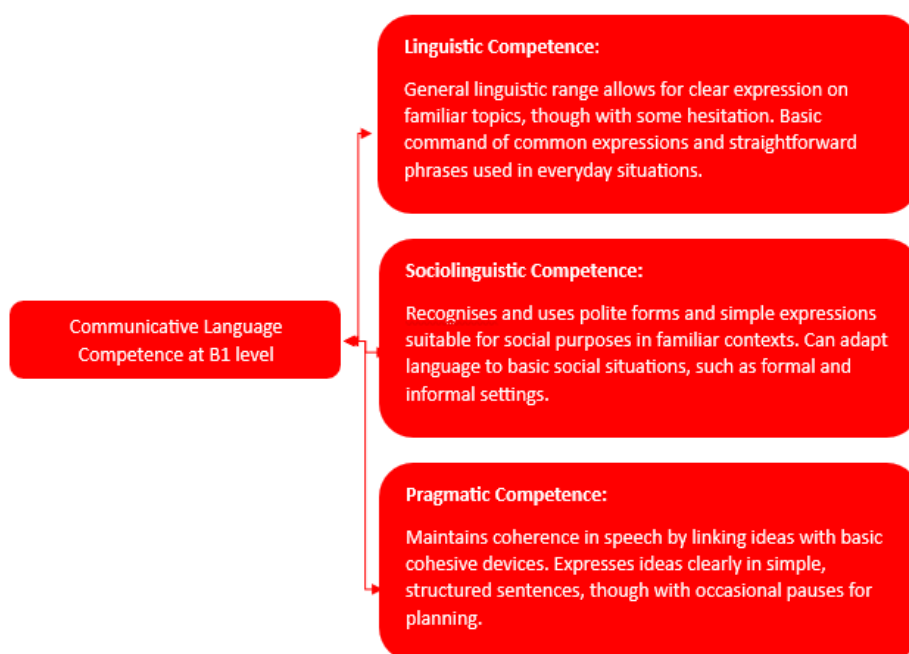


Figure 6

Communicative Language Competence at B1 Level.



The attached figures describe the B1 level within the Common European Framework of Reference (CEFR), which standardises language assessment (Figure 1). B1 is defined as the level of an Independent user (Figure 3), capable of dealing with everyday situations and understanding main points of clear standard input across all skills (Listening, Reading, Spoken/Written Interaction, and Production).

The functional skills are achieved through the underlying Communicative Language Competence (Figure 6) which integrates linguistic range (grammar/vocabulary), sociolinguistic awareness (polite/social forms), and pragmatic skills (coherence and linking ideas). These form the basis for the specific qualitative aspects (Figure 2), such as good range, general accuracy, some fluency, and coherence in speech.

Effective implementation of these qualitative aspects depends on practical communication strategies (Figure 4). These strategies help users manage reception, adapt their

speech during interactions, and process written texts. Together, foundational competences, qualitative aspects, and strategies illustrate the performance expectations defined in the illustrative scales (Figure 5) for all four macro-skills at the B1 level: Reception, Interaction, and Production in both spoken and written forms.

2.4 Learning English in a virtual environment

Even when the idea of teaching and learning English evokes the image of the typical classroom where students listen to the teacher while explaining something, sitting on an array of furniture, and everybody looking at the board at the front, the process of learning English may take place in different environments. After the COVID-19 pandemic, institutions worldwide were forced to adapt their teaching methodologies to make them suitable for virtual learning environments (VLE), also known as virtual educational environments (VEE), and even when education was already in continuous transformation, after the lockdown, it felt that ICTs as part of our methodological process were enforced and accelerated. Nevertheless, according to Makrakis (2017), this continuous transformation in education into a complete digitalised version with new pedagogical models has made education more sustainable and thus, convenient for everyone. This is basically owing to the fact that face-to-face classes are not possible on some occasions.

Higher education is in need to satisfy new demands by constantly adopting and adapting new transforming learning models into new and updated versions (Monroy-Garcia et al., 2020). According to Liesa-Orús et al. (2020), without the use of technology, the quality of teaching and learning cannot be guaranteed since 21st- century skills are a mandatory in recent years, and ICTs are part of them. It is evident that education has changed from what was previously expected, and the relevance of the 21st-century skills added to the continuous professional development that teachers must carry on in their fields of expertise may make the whole process of adaptation and implementation of ICTs even more challenging.

University education is probably the one that is expected to take the lead in terms of methodological and resource innovations, and not only that, but also highlighting the importance of using ICTs responsibly and ethically with the intention of raising the levels of digital competence among its students (Mirete et al., 2020). Certain authors have mentioned how ICTs expectations have not been successfully fulfilled (Karamti, 2016; Gamage, 2018), and this has been due to the fact that teachers incorporate them merely as a technical requirement for the teaching-learning process because of curriculum demands ignoring the potential benefit of actually using them accordingly (Area & Sosa, 2016; Cubeles & Riu, 2018).

In Mexico, Vera (2018) affirms that the lack of theoretical background and not enough training for teachers are the main problems faced when it comes to using VLEs besides causing among learners, confusion between learning concepts and applying those concepts to solve problems yet, at the same time well-used, VLEs present a solution to content resources and diversification, allowing the trainer to adapt to the students' needs especially at higher education levels. The use of VLS is changing the way in which universities are carrying out and delivering instruction as well as sharing information among the student's community (Arroyo et al., 2018). This can only be possible through continuous professional development as a way to reinforce theory and practice usage.

The use of multiple terms when referring to education online also baffles teachers and may cause problems when it comes to choosing suitable professional development. Terms such as e-learning, digital training or tele training have appeared alongside virtual learning in literature, but it is important to emphasise they are still the same and the relevance of using them remains the key aspect (Cabral, 2022).

Vergara and Morales (2021) show in the following chart, the most typical tools used in VLEs and the usage given by teachers.

Table 1*Educational uses of platforms by teachers (Vergara and Morales, 2021).*

Educational uses	Description	Platforms
Resource bank	Platforms that are mainly used to find resources and pedagogical materials that feed both synchronous and asynchronous classes.	YouTube Pinterest Twinkl La Casa del Saber
Communication	Platforms and applications that are used as a means of communication with students and parents.	Gmail WhatsApp Web pages Social Networks Like: Facebook Twitter
Didactic	Technological tools that allow synchronous interaction with students and between students during classes, as well as strengthening the didactics of the classes. In some cases, asynchronous platforms are used to strengthen learning through games.	Google Arts & Culture Padlet Mentimeter Boom Cards Wordwall La Casa del Saber Quizzzy
Evaluation	The platforms that are used prioritise formative evaluation with the purpose of monitoring the level of achievement of the objectives proposed for each class, to reformulate teaching.	Padlet Mentimeter Boom Cards Wordwall Quizzzy Kahoot Stream Yard Instagram Google Forms
Generation of teaching materials	Platforms or software that are mainly used to create both audiovisual and graphic material.	PowerPoint Canva Microsoft Word Wonder share Filmora
Synchronous classes	Platforms used to conduct online classes synchronously.	Zoom Meet Master Class Teams

Repository	The repositories are digital spaces where activities, recorded classes, guides, tasks and various resources are stored to be available to students.	YouTube Web pages Master Class Google Classroom Google Drive Facebook
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VLEs have evolved internationally and locally in the Mexican context, and they are likely to continue with their process as innovation never stops. This can be done by updating and integrating new elements and adapting previous elements still considered useful. However, teachers will also need to engage in some sort of professional development activities which can also take place through VLEs in order to grasp better the idea(s) behind technology integration in the classroom.

2.5 Learning Strategies for Virtual Environment

Having described and explained what virtual learning environments are, as well as providing tools which can be implanted into these learning spaces, it is important to highlight the fact that they are not magic tools which can be used without careful thinking and planning. The main objective of any class is and should be to provide students with knowledge which can be later used and adapted to other contexts/settings. So that, in virtual learning environments, some conditions must be met in order for learning to take place such as: proper use of available resources, careful planning and evident strategies for both students and teachers to take advantage in these sorts of learning environments and exploit every possibility. According to Sari (2019), the acceptance of such tools is essential from both students and teachers to carry on with the learning-teaching process encouraging communication in the target language, allowing students to express opinions and thoughts.

Developing such strategies is not an easy task and both teachers and students must be willing to cooperate to reach the learning goal. For example, flipped learning was one strategy

that teachers used and students followed as a learning strategy till current nowadays (Lin & Hwang, 2018). It is also quite common that such strategies have to do with the development of the skills for language proficiency (reading, writing, listening and speaking). Much research has been done about the best way to tackle reading skills acquisition strategies deficiencies, but it will always come to the teacher choosing depending on their students and context.

Developing reading can have a different impact on students depending on what they will use it for: academically or more informally. One strategy which has been promising is the so-called extensive reading thanks to the impact it has not only on developing basic aspects like vocabulary, punctuation, retention and comprehension but also in developing proficiency in general in other skills like writing and speaking (Beglar & Hunt, 2014). In higher education, this is becoming important since EFL undergraduate or graduate students make use of the language to access not only ways to develop their English competence, but also to gain content information on their specialisation areas which is done first through reading (Ghait & El-Sanyoura, 2019). According to Azmuddin et al. (2017), the complex structure of online materials that students can access to via online requires critical thinking and abilities to navigate through many possibilities while selecting the proper ones. As it is observable, reading cannot be taken lightly; teachers must make use of good methodologies prompting reading interest, and students have to extend their learning path beyond the virtual classroom.

Some of the best strategies for learning through improving reading skills are reducing distractions encountered. This may be difficult, but through a series of steps, such as a block ad and enticing links, it can be eliminated. Thus, both teachers and students can guarantee that learning goes on the right path. Second, drawing on prior knowledge and using metacognitive strategies. It will facilitate the transition between a known concept and the relation to new

ones through a logical bridge of thought and inferences. Third, using visual aids such as graphic organisers, mind maps, colours, and pictures helps to remember concepts (Khatoony and Nezhadmehr, 2020).

Writing is fundamental as well and a big concern due to the fact that teachers developing these skills in their pupils take it very seriously (Lan et al., 2015) and one because of technology an interesting door has opened, which is the use of immersive virtual reality or (IVR) which can support this process because it may empower students' own creativity and imagination to inspire them whilst developing their writing skills in an interactive way yet, it may be expensive to afford as stated by Lan et al., (2019). Certain authors like Sadiku (2015) even state that as long as students develop this skill, they are highly likely to be able to communicate in a clear way their ideas and feelings. Nonetheless, there are always bumps on the road which may difficult the process and that is why this has to be done through guidance from teachers to students (Cabrera et al., 2014). By doing so, students will not only benefit of better counsel but also assurance that everything is going well.

Little does it matter whether the course is synchronous or asynchronous, the enhancement of writing through the use of ICTs, multiple strategies have been studied and created for such scenario like the use of blogs which can promote creativity and reflection as well as a development of sense of identity since they will feel safely surrounded by a community who understands them and share their likes (Toquero, 2020; Yavuz et al., 2020). Multiple studies shown different aspects of how writing can be improved through IVRs and other ICTs; Gamified writing apps, digital storytelling and the use of electronic portfolios to preserve evidence have been widely researched yet, still many gaps have to be filled within specific contexts (Antonaci et al., 2019; Castillo-Cuesta, 2020; Karis et al., 2020) conversely all these studies share something in common, they agreed on the dynamism that these activities must have in order to be fruitful.

Next, listening is on the list and having an abundance of resources online, one may think this is the easiest to develop. However, success here will likely depend on the strategies students use to develop and improve such skills, as well as the resources choices. Because of their convenience, music, films and videos, among others, provide a vast collection of online resources in platforms that, if well-designed, offer potential to be well-suited for teaching and practising listening skills (Ma'fiah et al., 2021). Teachers can boost students' motivation and engagement during listening lessons by including audio-visual materials (Hardiah, 2019) and relying on them for better understanding seems a reasonable step to take. However, most stakeholders only know YouTube and Google, and based their classes on these instead of integrating technology into listening lessons. Using virtual language labs and speech recognition tools, students can identify both advantages and disadvantages through multiple levels and contexts (Trisno et al., 2019; Yulisa, 2018).

There seem to be multiple resources but so numerous challenges since according to Hanifah (2020), for some learners, listening is considered the most difficult skill to master, opposite to what may be believe. This has to do for certain factors which may magnify the challenge ahead for students: unfamiliar vocabulary, length of the audio and event accent and some pupils are never provided with strategies to deal with such struggles. These so-called strategies would be, for instance, video-based learning approaches where teachers need to share with pupils the path to do it or even flipped listening classrooms (Dhawan, 2020; Kazemi & Kiamarsi, 2017; Zuhairi & Hidayanti, 2016) given more freedom at in the classroom for the student on the basis of coming prepared to class. Whatever the plan is, all of them ought to have one thing in common: the idea is to facilitate listening acquisition.

Developing the listening skill is an essential matter just as the rest of the other skills and subskills. However, aspects outside our learning process control like, as stated before,

audio speed and accent variation, need to be tackled to guarantee students are able to overcome such challenges gaining confidence and thus, proficiency.

Moreover, it is crucial to mention how to help students develop speaking in virtual environments and what strategies they may use. In fact, speaking is the hardest skill to develop despite the availability of native speakers online and face to face (Rao, 2019).

Speaking relies on interaction and productivity, and this has to be understood to explore most of it. It involves multiple actors and rules for interactions among one another, and it takes time to be developed (Wael et al., 2018). In higher education, a lack of oral proficiency may result in low academic performance (Ramamurthy et al., 2021), and that is why the incorporation of modern methods and technology is not only an element of enjoyment but also a way of encouraging them throughout the learning process (Pazilah et al., 2019). Sharing strategies from teachers to students beyond the limits of the classroom, either online or face to face, synchronous or asynchronous, like videocalls with peers, virtual presentations and/or the use of interactive speaking games with online communities, has become a common trend in the integration of ICTs and development of digital literacies for both teachers and students (Habok & Magyar, 2018; Kurnia, 2019).

At the end, choosing strategies to tackle problems with reading, listening, writing, or speaking is a contextual matter. Not all students face the same difficulties; some may not have access to a specific task, resources may be limited, and multiple challenges may arise for the teacher as well as the student, who may feel and develop anxiety problems worsening the learning process.

2.6 Teaching English in Virtual Environments

Distance learning, as mentioned on previous sections, is the process in which students acquire knowledge through the use of electronic devices, gamified apps and other ICTs additions (Moore & Diehl, 2019). Moreover, according to Williams (2016), technology

and English language teaching are closely linked and traditional methods had to be adapted to fulfil the demands of the 21st-century education. It is not strange that with such high demands, the more knowledge teachers and students have about how to use technology, the better they will be ready to tackle today's challenges feeling more confidence while performing any task.

Many studies emphasise the importance of teachers' ability to use technologies because it is not just incorporating them but knowing how to do so. This, with the intention to provide an efficient teaching methodology by developing knowledge on the use of technology, appropriateness of apps based on context and the improvement of digital literacies and competences (Malinina, 2015; Cooperman, 2017; Phelps and Vlachopoulos, 2020). Teachers must understand that online teaching is not the same than face to face teaching and that it has different aspects to consider; therefore, teachers need to make use of their own knowledge and self-regulated their choices (Manion, 2020). By doing so, teachers will reduce anxiety in their students and make more educated choices for their teaching delivery to be impactful and fruitful.

Teacher's self-regulation strategies are important and inseparable owing to the fact that their own experiences will help them guide students and select the best content, how to monitor progress and how to encourage self-reflection in students (Hunutlu, 2023). Self-regulation can be understood as self-generated thoughts, feelings and actions planned in advance so they can help the teacher or the student choose the best path to follow according to their own needs to reach their goals (Rollins et al., 2022). Self-regulation is a process itself and has three phases: forethought, volitional control and self-reflection. The third one being the most important and the target to reach since it will be the stage that helps teacher understand whether or not their choices were successful or if, on the contrary, need re-evaluation (Mahmud & German, 2021). Carefully thought and planned paths will always benefit more students in the long term and teachers should be aware of this all the time.

To successfully select these teaching strategies, teachers need to be aware of the different elements in the process itself, that means the aims, the setting, and the own teachers' skills, which luckily, will help them reach students' goals (Seechaliao, 2017). Teachers need to focus on four basic elements for online teaching, particularly: knowledge-centredness, community-centredness, learner-centredness, and assessment-centredness (Quambaday & Mwila, 2022). Teachers also need to motivate their pupils to participate in class with the intention of promoting collaborative work and active learning, through valuable feedback, motivation, and self-reflection (Adebo, 2018). In other words, teachers have to know how to map students, how to manage connections during class, how to create engaging and dynamic classes and how to construct a lesson plan suitable for their online class (Lee & Drajiati, 2019).

One of the biggest decisions that teachers face is when selecting the tools and content to use in the online session, as well as the way of interaction: synchronously or asynchronously (Shahabadi & Uplane, 2015). For synchronous online learning, the typical tools used are those related to communication like face-time apps, and tools that can be adapted to be used by many students at the same time; whereas, for asynchronous learning, those apps related to time and advancement tracking are also applied to make sure students are working efficiently.

As a whole, teaching in virtual environments requires careful thinking about different aspects such as the modality, the tools, the methods used to deliver teaching, the focus of the lesson and the usefulness, and correlation of each material chosen with both the curriculum and accessibility to resources that the teacher faces in their reality.

2.7 Teachers' profile in virtual environments

English teachers must integrate virtual teaching practices to meet the growing cultural, social, and political demands of modern education. Teachers are expected to recognise the

importance of information and communication technology (ICT) in promoting both collaborative and independent learning (OECD, 2015). This is especially complicated when teachers know they should implement real opportunities for their students to practise, but their institutions lack infrastructure to support and promote these sorts of initiatives, or even do not know how to develop them through new ideas due to the lack of professional development (Drechsler et al., 2020).

This leads us to the term technological competence, which has affected not only how teachers need to integrate technologies in face-to-face and online education, but also has created a demand for a specific profile consistent with the demands of ICTs integration (Marin et al., 2021; Flores-González, 2022). The incorporation and promotion of ICTs/VLEs is essential nowadays for multiple reasons, and teachers require an effective professional development process which needs to include understanding beyond the technological aspect since teachers need to understand also the pedagogical implications behind each innovation and how to exploit them efficiently (Pilar-Mendez & Guerrero-Nieto, 2018; Flores-González, 2025). According to Cabrero et al (2022); Fernandez-Batanero et al (2022), and Fernandez-Rouco (2020), there are five points to consider in order to reach an effective professional development when teaching online:

- 1) Teachers' professional development must be linked to multiple aspects in and out of the teaching practice. It must have intellectual relevance and a social need for impact. This implies that the professional development that is offered to teachers must consider their ideals and visions in language teaching. Besides, it is important to explore interests and expectations and create a programme which can be fed and updated based on this.
- 2) Contextualised teaching will benefit teachers more than idealistic scenarios. EFL Teaching in the Mexican context is quite varied. Some institutions focus, most of

the time, in general English proficiency courses (A1-C2). However, this is not the only scenario. There are also institutions specialised in English for Specific Purposes (ESP), English for kids, Business English and Preparation courses. A proper professional development programme must consider the final institution's goals without omitting access to different teaching contexts that can reinforce or expand knowledge in teachers, thus promoting real growth in the institution's profile.

- 3) Disagreeing with other colleagues may bring fruitful professional development. On certain occasions, disagreement among teachers in terms of what type of professional development should be more suitable, is actually a good thing. Allowing dissenting voices on the original plan ought to incorporate wider visions and more in-depth reflections with the intention of covering more relevant topics for all. The original plan for the professional development offered through workshops or lectures may seem perfect at first. However, allowing teamwork among the most experienced teachers in the institution would open the possibilities, not only for topics but also for modalities.
- 4) Broader contexts may also bring good results. By broadening the perspective teachers take on their professional development, it may become more purposeful and may help with the inclusion of proper tools when using ICTs. English and the tools used to learn English should promote the use of the language in the classroom and beyond. Communication is a key element in online and face-to-face education, and it should be the main goal. Incorporating activities that allow students to interact with native speakers or practise the other skills in real contexts is of high importance. It ought to be all about what students can do to practise their language.

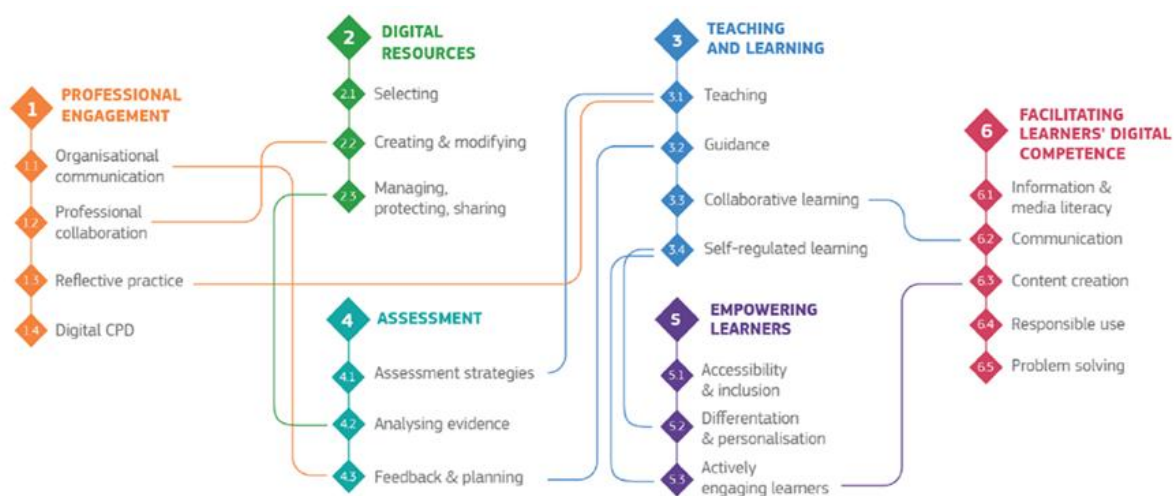
5) Professional development allows self-reflection within the classroom contexts and beyond. The idea behind this is to motivate teachers to move from a consumer perspective to a producer one with more reflection on the use of VLEs, their purpose, activity selection, and context choice. Therefore, it becomes even more tangible the fact that pre- and in-service teachers need to realise the full potential of digital technologies in the classroom and how to implement the most state-of-the-art ones to keep up with technological tendencies. At this stage, it is also important to mention that there are multiple frameworks which intend to measure the digital competence teachers must have to work online. In the next section, some models to measure this competence will be presented, helping teachers choose one or adapt one based on their contextualised setting and their own students' needs and sources availability.

2.7.1 Digital Competence Frameworks for teaching online

First, the European Framework of Digital Competence for Teachers.

Figure 7

Model 1 DigCompEdu



Source: Redecker & Punie, 2017.

This framework was introduced by the European Union's Joint Research Centre (JRC) in 2017 (Redecker & Punie, 2017). Its aim is to bring European educational policies together with this referential framework. Moreover, it consolidates findings from scientific research conducted at local, national, European, and international levels (Ghomi & Redecker, 2018; Redecker & Punie, 2017). DigCompEdu outlines a model of digital competence structured into six distinct areas. The next lines describe each one.

Professional Engagement. Teachers are expected to take advantage of digital technologies to improve their teaching practices and maintain effective communication with students, colleagues, parents, and the constantly wider educational community. This interaction not only supports individual professional growth but also promotes ongoing collective innovation within the educational system to which they belong.

Digital Resources. Educators must be able to identify high-quality digital educational resources and tools. They should also possess the abilities to create, adapt, and share these resources to match their instructional goals, student needs, and teaching methods. In addition, they need to manage digital content responsibly, ensuring respect for intellectual property and protecting personal data.

Teaching and Learning. Teachers should be proficient in incorporating digital technologies throughout all stages of the teaching process, from planning to execution, from beginning to end. This should be done with a focus on student-centred learning approaches that enhance active participation and engagement among students.

Assessment. Digital tools can improve traditional assessment techniques while allowing innovative evaluation methods. By analysing digital data on student interactions, teachers can offer more targeted feedback and support to improve learning outcomes for each student if necessary.

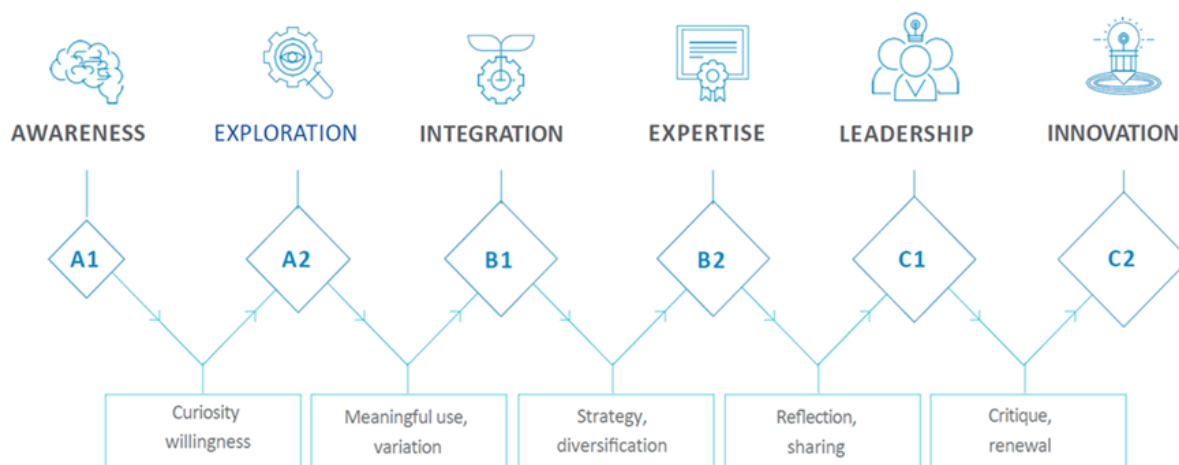
Empowering Learners. Digital technologies empower students by promoting greater collaboration and autonomy in the learning process. These tools also permit personalised learning activities that address each student’s competence level, interests, and specific learning needs.

Making Learners’ Digital Competence easier to acquire. This is an important part of a teacher’s ICT skills, as they must guide students in acquiring and developing the digital literacy necessary for the modern educational environment.

The DigCompEdu Framework states that these six areas can be evaluated from A1 (Novice teacher) to C2 (Pioneer), and it is shown as follows:

Figure 8

Model 2, showing the level of competence in progression of the European Framework of Digital Competence for Teachers



Source: Cabero-Almanera et al., 2020.

The next framework to be discussed is the International Society for Technology in Education (ISTE) which stands for Teachers (**Model 2**):

Because of the needs in of the 21st century, the ISTE Framework was created focusing on these needs (Crompton, 2017). The primary aim is to explore teaching methods, encourage

student collaboration, reassess conventional approaches, and enhance independent learning (Crompton, 2017; ISTE, 2018; Pérez-Escoda et al., 2019). One of the characteristics of this model is that it requires the teacher to be active and aim to innovation constantly in the ELT classroom throughout the whole learning-teaching process and that is the reason this model is divided into seven different profiles or roles, depending on what stages teachers currently are and these levels are as follows:

Trainees. By interacting with other peers, sharing knowledge and exploring technologies whilst supporting each other teacher can benefit when choosing elements for their own class.

Leaders. Teachers take the opportunity of leadership by bringing new ideas to the table and presenting them to the rest of the colleagues. Empowerment and strengths detection are important traits of the leaders' stage.

Citizens. Teachers have become role models for students contributing to the sharing of knowledge in a positive and responsible way.

Collaborators. Teachers in this stage believe in collaboration, not only among colleagues but also with students. They are constantly working on developing projects, discovering ideas and resources and solving problems using ICTs.

Designers. Teachers here have decided to start adapting already existing technologies to facilitate their teaching-learning process, some have even started developing their own through software programming.

Facilitators. Teachers facilitate learning exclusively through technology to have student develop their digital competence and be better prepared in the use of state-of-the-art technologies beyond the classroom.

Analysts. Because of their expertise, these teachers evaluate technologies commonly used in classrooms, detecting strengths and weaknesses as well as justifying the reasons for this. They are normally teacher trainers and/or researchers.

The UNESCO ICT Competence Framework for Teachers (ICT-CFT) also presents another option to take into consideration (**Model 3**):

Developed by UNESCO and defined as an array of competencies teachers must develop and improve over time to integrate ICTs innovation whilst teaching (Butcher, 2019), this framework promotes and reinforces hands-on understanding of the advantages that ICTs bring to the educational system. In addition, it emphasises that teachers, beyond developing ICT-related skills, should apply these tools to help students become collaborative, creative, innovative, engaged, and decisive citizens beyond the classroom and for their own good (Rodriguez et al., 2018). It has been divided into six different fundamental aspects in the teaching practice of professors; these are not levels of proficiency in ICTs usage but what elements the digital teacher needs to have:

Understanding ICTs in the educational policies. The proper use of ICTs to cover curriculum and aligned to the different policies surrounding it: internal and external.

Curriculum and evaluation. The importance of acquiring abilities with ICTs which will benefit the content and the assessment in the course.

Didactic methods. The use of technologies in the EFL classroom back effective and efficient methods used for teaching practices.

Application of digital abilities. Constantly improving and diversifying digital resources both for teachers and students to develop their digital competencies.

Organisation and administration. Administering resources properly, protecting both users and equipment from misuse.

Professional learning. Constantly updating their digital competences as teachers.

Next framework to be discussed is the Common Spanish Framework of Digital Competence for Teachers (**Model 4**):

This framework was launched as a project by the Ministry of Education, Culture and Sport in 2012 and has been updated four times since (Instituto Nacional de Tecnologías Educativas y Formación del Profesorado or INTEF, 2017a, 2017b) and it was based on the DigComp Framework of Digital Competences for Citizens and became the general framework for educators. There are five main areas in this model:

Information and Information Literacy. This has to do with the ability the teacher has about looking for, evaluating and picking resources which are beneficial to the classroom. Not only that, it involves how to do it ethically according to their context and how to implement it in their teaching practices.

Communication and collaboration. This has to do with the ability to interact, share and work alongside others in an efficient and effective way. A trait that has to be shown in the teacher and transmitted to the students.

Digital Content Creation. This has to do with the ability to create, adapt and share original resources using ICTs by ensuring this process respects copyright and licensing whilst fostering innovation and creativity.

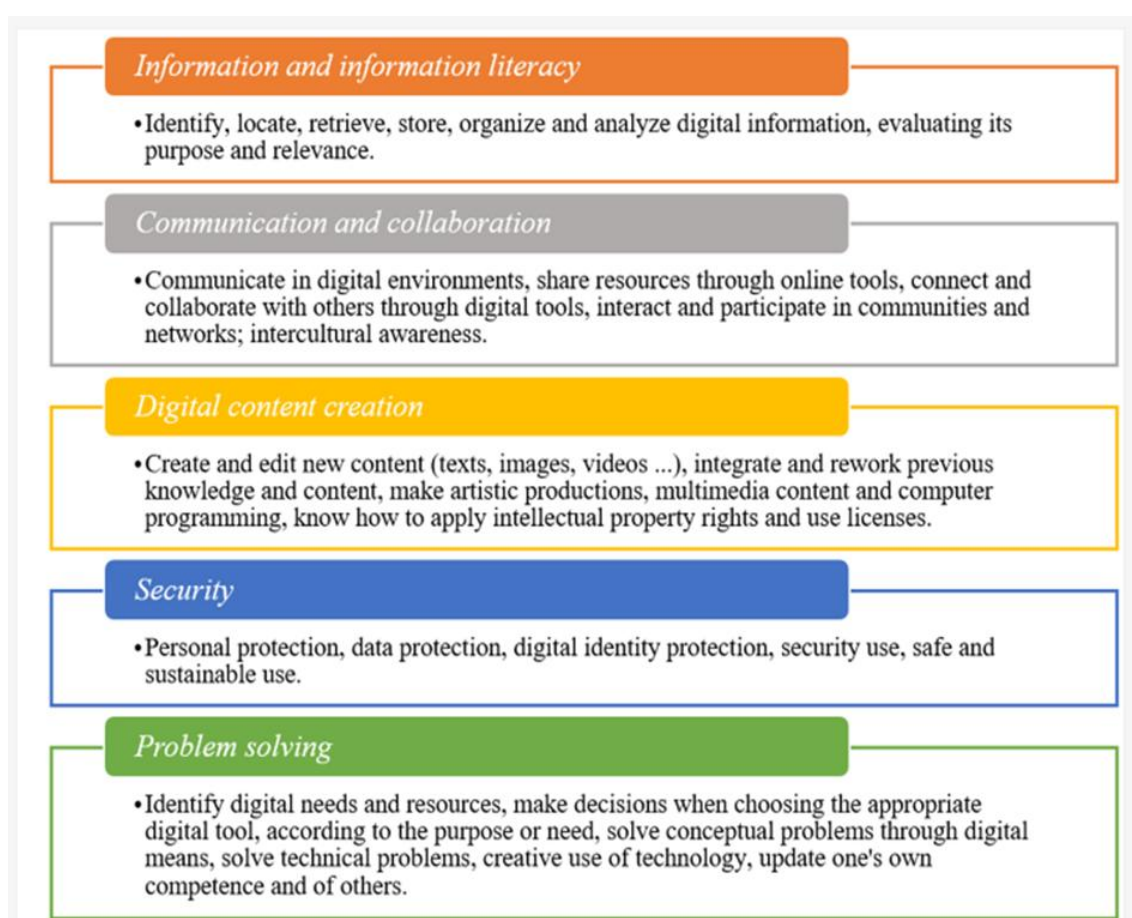
Security. This has to do with the ability to protect users and content from cyber threats, things such as securing data, promoting ethical online behaviour and ensuring the well-being of everyone involved

Problem-solving. This has to do with the ability to identify, address and resolve technical or pedagogical issues that may be presented whilst using the ICTs in the classroom, either face-to-face or virtually, and requires the teacher to be prepared with strategies for troubleshooting, adapting and innovating.

Besides being similar to the Dig Comp Framework, it also resembles the Common European Framework of Reference for Languages (Instituto Cervantes, 2022). Depending on the level of autonomy the teacher has, it can also be said that this framework ranges from A1 to C2. Figure 9 reveals more details about this framework.

Figure 9

Image representing the Common Framework of Digital Competence for Teachers



Source: Instituto Nacional de Tecnologías Educativas y Formación del Profesorado. INTEF, 2017b.

2.8 Digital Content Curation

In today's information-driven era, language learners across the globe have easy access to L2 resources and platforms (Qian & Bax, 2017). However, these resources may not be one hundred percent original, they might have been adapted or curated and this process could have been repeated more than once. The term digital curation has been employed in academic literature to describe emerging learning practices. While the term itself has created debate, it is broadly recognised as a comprehensive concept encompassing digital preservation, data curation, electronic records, and digital asset management (Dallas, 2016). Antonio and Tuffley (2015) defined it, even stricter, as that digital curation goes beyond merely transforming materials, but it involves observing learning through new glasses, making the adaptation purposeful for specific audiences with the intention to promote critical thinking and learning in that particular setting. This is of high relevance since many teachers are taking a step forward in the educational realm no longer wanting to remain users but becoming designers.

Digital curation is seen as essential to the learning process, as learners are conceptually placed at the core of their own learning and decision making (Potter & McDougall, 2017). Studies and discussions on digital curation frequently focus on creation-centred pedagogies and media literacy skills (Godwin-Jones, 2015). There are multiple studies talking about content curation covering multiple aspects of it. Mihailidis (2015) asserted that curation plays a key role in fostering digital and media literacy skills, emphasising that these competencies should be both student-led and creation-focused. Moreover, Chen (2017) offered curated listening materials to English learners to help guide their selection of online resources and information.

The way digital curators decide to work is entirely their decision. However, there is one framework which has been created to guide throughout this process. From an educational perspective, Sharma and Deschaine (2015) propose the 5 Cs of digital curation, outlining a

five-step framework for organising and managing digital content: Collection (preserve, revise, collect), Categorisation (purchase, generalise, classify), Critiquing (criticise, discriminate, assess), Conceptualisation (conceptualise, reorganise, re-signify) and Circulation (circulate, exhibit, render accessible). This proposal was created especially having in mind those teachers whose intention is to curate resources in order to share them with their students.

The benefits of curating content are multiple, but Good (2016) points out the way doing so can actually change the panorama of education and the learning process because it has become a new pillar of education, adopted by those who are weary of traditional, memorisation-based methods. This student-centred approach encourages learners to actively gather and organise information, rather than just searching for names, websites, or specific images. Curation fosters deeper knowledge by sifting through vast online resources to extract the most valuable content, acting as a more effective tool for learning than search engines. It offers a new way to identify and create personalised learning paths, making it easier to discover tools and resources (Mehta & Aguilera, 2020). Moreover, curation has revolutionised textbook creation, enabling the assembly of the best materials for any given subject.

A great example of content curation which has changed the way education is delivered are MOOCs. MOOC stands for Massive Open Online course, and they aim to teach either synchronously or asynchronously a great number of participants (Zubkov & Morozova, 2018). There are multiple studies worth mentioning such as using the flipped classroom to enhance EFL learning (Chen Hsieh et al., 2017), post-soviet professional education as a way of tackling university students' needs (Volegzhanina et al., 2017), oral proficiency development through an online learning community using the flipped-classroom methodology (Wu et al., 2017), Perceptions on using MOOCs following flipped-classroom models (Yaşar et al., 2021) foreign language development in university settings (Zarudnaya et al., 2018), and

the integration of MOOCs into technical curricula for blended English teaching and learning methodologies (Zubkov, 2020).

Content curation has been widely researched and continues on the same path. Thanks to technological tools, content curation has further increased allowing teachers become designers and students become independent users finding adapted/curated resources suitable for their needs and likes. Thus, applying the proper content curation may have a direct impact on how a techno-pedagogical design becomes beneficial for users as it will be discussed next.

2.9 Implementation of apps for gamification

Werbach (2014) interpreted gamification as the process of transforming non-game tasks into more game-like experiences. Gamification is described as the integration of game design features such as points, leaderboards, and badges into non-gaming environments to create a game-like educational experience (Landers et al., 2017). Notorious ways of motivate students could be the use of elements such as rewards and badges whilst doing and promoting healthy competition in educational environments (Shortt et al., 2021; Flores-González, 2024). This is mainly because students appear to enjoy healthy competence and the sense of winning functions as a propulsor for further learning.

The structure of a gamified learning environment ought to integrate three key elements to be fructiferous: dynamics, mechanics, and components (Bicen & Kocakoyun, 2018). Game dynamics cover elements such as status, rewards, self-expression, competition governed by clear and enforced rules, as well as achievement. Game mechanics include features such as level systems, narrative contexts, challenges, achievements, leaderboards, and similar components. Finally, these may also include trophies, rewarding experiences, and similar traits as encouragement (Govender & Arnedo-Moreno, 2021).

Digital environments usage through devices does, indeed, facilitate the introduction of gamification for the sake of students based on their needs as long as it is well implemented by

the teacher (Su et al., 2021; Flores-González, 2023) and normally and ideally gamification should be based on a communicative language teaching approach.

Communicative language teaching (CLT) is a method that focuses on interaction and communication as central to language learning (Tawfiq, 2020). However, some researchers have contended that CLT has not fully achieved its goals in various EFL environments, as these contexts often lack sufficient opportunities for students to practise English outside of the classroom (Humphries & Burns, 2015; Lee & Wallace, 2018). According to Kessler (2018), in the twenty-first century, advancements in technology and education have led to a growing range of learning environments which offer new opportunities for language learners. These may include social media contexts, gaming platforms, collaborative and telecollaborative projects, and various mash-ups.

Among these, gamified learning environments have become an increasingly popular area since students can experience heightened engagement and enjoyment, receive instant feedback, succeed in facing and overcoming challenges, and ultimately feel a sense of achievement (Bicen & Kocakoyun, 2018). With the growing popularity of gamification in language learning, several studies have emerged focusing on its application in language teaching and learning (Dehghanzadeh et al., 2019; Dehghanzadeh & Dehghanzadeh, 2020).

Gamification has been widely explored in both EFL and ESL contexts. Studies have shown it can be beneficial for anxiety reduction among users (Hwang et al., 2017; Hung, 2018; Barcomb and Cardoso, 2020). In addition, gamification has contributed to increased motivation and engagement (Zohud, 2019; Reynolds & Taylor, 2020; Zou, 2020; Almusharraf, 2021), improved learning performance in students (Ling et al., 2019), and promoted autonomy among student users of these tools (Setiawan & Wiedarti, 2020).

Conversely, some studies found that students with access to gamified content performed better than some control groups in the short term. However, this did not translate

into improved final learning outcomes (Calvo-Ferrer, 2017). Gamification can be a double-edged sword: for students who are disinterested and reluctant to learn, rewards and incentives may enhance their motivation. In contrast, for those who are already motivated, gamified learning activities could undermine their intrinsic motivation (Hanus & Fox, 2015). There must be a balance and the best way to avoid such problems is by profiling students that way teachers can predict what to use and how to use it based on evidence.

Another aspect to keep in mind is the fact that some students might encounter difficulties using a gamified learning application because of issues such as poor Internet connectivity, the fast pace of the game, its competitive aspects, and insufficient explanations provided after the game (Ebadi et al., 2021). The mixed results regarding the effects of gamification on students' motivation, satisfaction, empowerment, and achievement demand and require further investigation. As a result, it is necessary to explore the impact of gamification on EFL/ESL learners through a systematic review of relevant empirical research. It is important for teachers and researchers to be familiar with current gaming platforms and gamification elements in order to develop digital gamified language learning activities for their students. Therefore, English teachers should possess digital literacy skills. Incorporating digital technology to create gamified language learning experiences is an aspect of teachers' digital literacy. Unfortunately, teacher training programs often overlook the preparation needed for technology use in language education: Thus, highlighting the need for more studies focused on digital literacies in ESL is pivotal (Soyoof et al., 2021).

In evaluating the effectiveness of learning environments, particularly those that incorporate gamification as it will be explored in the next topic, it is essential to consider both the benefits and challenges presented by these innovative approaches. While gamified learning environments have the potential to enhance engagement, motivation, and language acquisition among EFL/ESL learners, the mixed results when using them may indicate that

their impact can vary significantly based on individual student needs and contexts (Guaqueta & Castro-Garces, 2018). Teachers must not only be adept in digital literacy but also understand the specific gaming platforms and gamification elements that resonate with their students. A careful assessment of students' preferences and challenges, such as technology access and learning pace, can inform the design of gamified activities that genuinely foster learning. Furthermore, according to Iaremenko (2017) the integration of a communicative language teaching approach within gamified environments can enhance interaction and communication, vital components in language acquisition. Up to this point, continued research and systematic reviews are necessary to clarify the potential effects of gamification on language learning outcomes, informing teacher training and curriculum design. By addressing these considerations, educators can better improve and encourage gamification to create effective, inclusive, and engaging language learning experiences, ensuring that digital advancements truly enhance educational practices (Kaban, 2021).

2.10 Evaluation of virtual environments

Technological advancements have influenced the progression of learning styles, shifting from verbal and visual modes to virtual ones and from needing a teacher guiding students face to face to the use of MOOCs (Blanco et al., 2018). As a result, educators must adopt innovative teaching strategies to engage more fruitfully with students. Nonetheless, many educators remain resistant to change, continuing to rely on the same instructional methods that were common two decades ago (Montiel et al., 2020; Flores-González, 2022). It is also stated that for millennial and Generation Z learners, educational experiences are more effective when they incorporate interactive learning, demonstrations, and social networking, rather than traditional lectures.

Schools face challenges in teaching ethical values when using technology, too. Wang and Calvano (2015) found that students who received ethics education did not demonstrate

better moral judgement in ethical dilemmas when using virtual tools compared to those who did not receive such education. One issue is the gap between theoretical ethics and practical application, as noted by Raman et al. (2019). This gap often stems from the high costs, inadequate infrastructure, or risks associated with implementing certain learning activities in real-world settings. However, emerging technologies like mobile apps and virtual simulations present opportunities to replicate complex, real-life systems and scenarios if they are well-implemented (Loon et al., 2015) which are ideal for both teachers and students to replicate a real scenario where there are learning benefits.

In the words of Bournissen et al., (2019) virtual technology enables students to gain practical knowledge within the classroom without needing to physically leave it or doing so in the distance. Transitioning from traditional classroom settings to virtual environments allows for real-time visualisation and interaction in a simulated world that closely resembles reality. This means students can acquire hands-on experience from home. Virtual Reality (VR), a type of virtual technology, enhances understanding of abstract concepts, boosts student motivation (Makransky & Lilleholt, 2018), and positively influences learning outcomes in behaviour skills training (Çakiroglu & Gokoglu, 2019).

As stated before, the implementation of new technologies such as VR into classrooms is definitely a state-of-the-art move in educational development and it is even more so when these technologies are implemented in virtual environments where the teacher may have more difficulties to be in control (Flores-González, 2025). A virtual learning environment can be understood as a space where activities are conducted using various technologies, such as the Internet, multimedia resources, and educational tools. These technologies have led to significant transformations in traditional education (Infante-Moro et al., 2016; Torres-Díaz et al., 2014). For such a reason, it is crucial that these elements are carefully evaluated by experts with the intention of securing the efficiency of such tools or by those teachers who opt

for certain tools over others. This is not an easy task and assessing environments may present a challenge since choosing one tool over another may be the success or failure of a lesson.

According to Corredor et al. (2018), there are four characteristics that any platform, such as a Virtual Learning Environment, should possess and which must be constantly assessed:

1. Interactivity. This ensures that users recognise themselves as central participants in their learning process.

2. Flexibility. This refers to the platform's ability to adapt seamlessly to the institution's structure, curriculum, and pedagogical content, making it easy to implement in various organisational settings.

3. Scalability. This is the platform's capacity to function effectively with both small and large user groups.

4. Standardisation. The ability to import and export courses in standardised formats like the Shareable Content Object Reference Model (SCORM), which consists of specifications that help create structured educational content.

In words of Jovanović & Milosavljević (2022), one characteristic of Virtual Learning Environments (VLEs), particularly regarding communication processes, is the presence of distinct but limited spaces where to work. These spaces have been named:

Information space. This area contains various materials for students to access and process, such as organised information, documents, databases, images, and graphics (i.e. resources, information area, and frequently asked questions section).

Interaction space. In this section, opportunities are created for users to exchange diverse types of information, including opinions, work outputs, questions, projects, and creative ideas (forums, and announcements).

Production space. This area is equipped with tools for processing information and solving exercises or problems (interactive/embedded games, and smart links).

Exhibition space. It allows for the sharing of learning outcomes and the socialisation of results, where students showcase their achievements and review the work of others (check points, online tests, badges, and certificates).

Even though students and autonomous learning are central in these environments, the teacher remains a crucial figure in the learning process and needs to be aware of the previously stated elements. This is because, besides being an expert in their field and the subject they guide, teachers also possess theoretical knowledge along with technical and pedagogical skills that enable them to foster and encourage learning in students (Morales Salas et al., 2019; Martínez, 2017). Thus, reinforcing teachers with a framework to assess which digital tools to use and which to avoid based on every teacher's context definitely comes in handy.

2.11 Conclusions

The literature collected throughout this chapter has the intention to guide the reader and provide them with a solid basis of theory on which the current research project is sustained. English is a language that has evolved and become a lingua franca as it is used as a communication tool all around the world. It has also become important not just as a native language but also in countries such as Mexico, where it is a foreign language. Moreover, after the COVID-19 pandemic, virtual environments took on special relevance in EFL education. Furthermore, technology evolves every day, and areas such as education are the first to be affected by such phenomena. It is essential that as teachers and students to develop digital competencies, techno-pedagogical strategies, and choose the ideal virtual environments where suitable education can be promoted.

In the EFL context, the steps to arrive at such a stage are many and for teachers, it involves knowledge of the target language at advanced levels, technological competence, discerning eye and theoretical background to sustain decisions made.

It is, therefore, fundamental to keep in mind these different aspects when it comes to virtual environments for EFL education in Mexican contexts.

Chapter 3: Methodology

3.1 Introduction

This chapter will explain to the reader not only the approach and steps that this research project followed, but will also discuss the treatment applied during the process as well as the instruments used to collect data and the analysis of such elements altogether. The context where this project was carried out and the participants who willingly collaborated here will also be reported.

This thesis has the intention to analyse the impact that the use of an asynchronous techno-pedagogical model has on undergraduate student when it comes to developing their proficiency at B1-Preliminary level, and how they would rank this tool in general terms of accessibility, usability and other technical elements. Moreover, the study was based on three research questions:

- 1) To what extent does the use of a techno-pedagogical model for test training and language skills help undergraduate students at languages department- BUAP to improve their proficiency in B1-Preliminary?
- 2) How does a techno-pedagogical model for test training and language skills impact undergraduate students' proficiency level at the languages department- BUAP?
- 3) What are these undergraduate students at the languages department-BUAP's attitudes on the use of a techno-pedagogical design to improve their proficiency in B1-Preliminary?

A quantitative approach was selected to give response to these questions, collect data, analyse results and give statistical evidence of the impact of this particular platform used to improve B1-level proficiency and the rankings BUAP undergraduate ELT students give to the tool.

3.2 Declaration of Epistemological and Ontological Stance

A quantitative approach was chosen to conduct this research project with a quasi-experimental design. According to Rana et al. (2021), a quantitative approach involves gathering and analysing numerical data to address research questions in a scientific manner. This approach is used to summarise information, calculate averages, identify patterns, make predictions, and examine casual relationships. However, it is mainly used to generalise findings to broader populations as well as enabling researchers to measure effect sizes (a large group of students developing their B1-level proficiency), assess the strength of associations and determine the impact (use of the platform to improve proficiency in pre- and post- tests) and evaluate the robustness of evidence (students' ranks of the platform) regarding effectiveness which is ideal for the nature of this thesis.

In addition, a quasi-experimental design is a true experiment which attempts to establish a cause-and-effect relationship between the independent and dependent variable (Thomas, 2024), and which suits perfectly the intention of the present project.

The hypothesis behind this research project is that the use of a techno-pedagogical model will have a positive impact on students' proficiency allowing them to reach a B1-level according to the CEFR and Cambridge Standards thanks to its use. This will be proved or disproved by analysing the dependent and independent variables. On the one hand, the independent variable is the cause of potential change (Bhandari, 2023), and in this research project, it will be the use of the techno-pedagogical model. Its value is independent regardless of other variables. On the other hand, the dependent variable is the effect derived from the cause, and for this study, the effects are the possible changes in students' proficiency due to the use of such a techno-pedagogical model.

The first step on this research project was the planning, development, creation and testing of a techno-pedagogical design aligned to Cambridge B1-Preliminary standards. This

was used by 40 students currently enrolled in the undergraduate programme in ELT, in their 5th term, at Benemérita Universidad Autónoma de Puebla in Puebla, Mexico.

Among the reasons for selecting a quantitative approach and not a mix-method or qualitative one is worth mentioning the following:

1) Objective measurement of proficiency improvement. This approach permits the collection of numerical and precise data before (pre-tests) and after (post-tests) the treatment (implementation of the techno-pedagogical model) which in turn facilitate the statistical analysis of these elements eliminating subjectivity, and making sure the results are on measurable outcomes rather than interpretive or descriptive data, determining in this way the effectiveness of the techno-pedagogical design.

2) Statistical analysis for reliable results. A quantitative approach allows the use of statistical methods for analysis. These represent through reliable visuals whether the impact is statistically significant making the results more credible and generalisable.

3) Scalability and generalisability. This study has a considerable sample size in terms of participants currently taking their 5th term of their major in ELT in this university (BUAP) so that, using a quantitative approach, increases its generalisability. Thus, the results have the potential to be applied to broader populations or contexts (other students, institutions or levels).

4) Standardised data collections. The use of a Likert-scale questionnaire at the end of the treatment would be beneficial since all students respond the same question in a quantifiable way, making easier and more standardise the collection of data and reducing bias in the process.

5) Clear comparison of pre- and post- intervention data. Due to the nature of the quantitative approach, collecting and comparing grades before and after the use of the techno-pedagogical design is an easy issue. In this way, it is possible to clearly observe the impact of

the treatment which, whether positive or negative, is worth reporting and suitably draw conclusions about the intervention's effectiveness.

Moreover, the nature of the results from the instruments used such as the pre-test, post-test and Likert-scale questionnaire provide enough and solid evidence to answer the research questions and reach the objective of this study.

3.3 Research design

The first step on this research project was the design of the techno-pedagogical model, based on Cambridge standards, for A2 students looking to improve their English proficiency level to B1 which was later evaluated and approved by experts on the technological area.

After the evaluation phase and its approval, the selection of candidates took place, for which 40 students were selected and willingly decided to participate in the study. These students were enrolled in the course and given access to the platform where a first task, before the implementation of the course itself, took place. Participants were asked to work on a pretest to collect data about their levels before the treatment.

In order to prevent students from advancing on the course before taking the pre-tests, a restriction was implemented. Thus, encouraging students to take the pre-test before the use of the techno-pedagogical design.

The treatment or implementation phase took place from January 13th to May 5th 2025 and it was implemented via Moodle platform for LEI students (access given to those in the BA programme) ensuring easy accessibility. This phase is at the heart of the research, as the didactic intervention acts as the independent variable, laying the groundwork for future studies. It was designed to support the different skills and subskills in the language learning process, helping students develop well-rounded proficiency aligned with the Cambridge B1 Preliminary Standards.

The post-treatment consists of a final standardized test where grades are collected and compared to those obtained before the use of the model. Both the pre- and post-tests are aligned to Cambridge B1 Preliminary standards securing reliability when obtaining language levels. Finally, a Likert-scale questionnaire which consists of 20 items was applied to the participants in order to obtain their perceptions about different aspects of the course and the platform in terms of usability, design, technical issues, and content.

This statistical analysis assesses to what extent the techno-pedagogical design fulfilled its intended aims based on students' perceptions for obtaining a B1-level proficiency. Besides assessing the impact which the platform had on students' language development through the pre- and post-tests results comparison, this study also shows general satisfaction from participants by the use of a Likert-scale questionnaire, allowing a dual perspective and deeper insights into what could be improved, adapted or changed for future or different language proficiency development courses.

3.4 Description of the context

As previously stated in chapter 1, the need of an asynchronous techno-pedagogical model is evident for its flexibility, constant updating by designers but most importantly for its accessibility 24/7. ELT undergraduate students could definitely benefit from a course which may allow them to have a strong base when it comes to language proficiency since these students are still developing as teachers in both methodology and language, as well as making them aware of Cambridge Certification Standards which are typically asked for graduation and employment. Moreover, chapter 2 of this research project also states how during and after the pandemic lockdown, the essence of education changed to a totally different panorama, incorporating ICTs not for innovation but for necessity. However, these ICTs have to be well-designed and well-used to achieve the expected results and it may turn out more complex than just innovating in the classroom.

The Faculty of languages, where this research project was carried out, holds six programmes. Three undergraduate programmes (Licenciatura en Enseñanza del Inglés, Licenciatura en Enseñanza del Francés, Licenciatura en Enseñanza de Lenguas con opción inglés) and three postgraduate ones (Maestría en Enseñanza del Inglés, Maestría en Innovación en la Enseñanza de Lenguas, Doctorado en Enseñanza y Aprendizaje de Lenguas). For Licenciatura en Enseñanza del Inglés (LEI) students, there is a graduation requirement in which they need to prove they hold a B2 level through any certification, such as TOEFL, ITEP, Cambridge First, among other exams.

This Faculty also offers some extracurricular language courses to the public in general (English, French, German, Italian, Japanese, Spanish for Foreigners) as well as specialized courses for certifications in English (Casa de la lengua Inglesa), in French (Casa de la lengua francesa), and in German (Casa de la lengua Alemana), and for continuous professional development (Educación continua). These courses do not require to be academically enrolled in the languages department directly; some students may come from other Faculties or even outsiders from the university.

This research project focuses on 40 LEI students from different semesters but who at least have reached an A2 stage of language usage. The students are between 19 and 22 years. This study intends to demonstrate students' progress from A2 to a solid B1 according to the CEFR and Cambridge Standards.

Participants possess knowledge about the use of English since they have already taken English courses formally through different subjects in different related areas of language: General University formation courses, Language courses, Linguistics, Teaching, Culture and even some of the students may have already taken some electives (Optativas) in the areas of either translation or Spanish language teaching. Nonetheless, little to none experience is held

when it comes to asynchronicity since all courses are either face to face or hybrid but synchronous.

3.5 Description of the participants

40 participants willingly participated in this research project and signed a consent form allowing their data to be used for research purposes. There are 18 men and 22 women ranging from 19 to 22 years old. All students belong to the Licenciatura en Enseñanza del Inglés (LEI) programme offered at Benemérita Universidad Autónoma de Puebla. It is important to state that students were required to have at least an A2 level of proficiency in English in order to take full advantage of the course.

3.6 Description of instruments

Three instruments were used to collect the necessary data for this study. First, there were two standardized tests based on the B1-Preliminary by Cambridge Assessment. The first test was used as a pre-measure intended to collect the participants' level prior to the treatment. This was done with the intention of providing a first glance at students' general level. As stated, this first instrument measures reading, writing and listening. This was used to measure participants' proficiency before the intervention, that is, prior to the use of the asynchronous techno-pedagogical design by the participants. It was implemented through google forms and embedded in the platform used by undergraduate ELT students at the languages department-BUAP.

Figure 10

Pre-test visualisation for participants in Google Forms

PET B1- Mock Test (Reading)
 Time: 45 minutes
INSTRUCTIONS TO CANDIDATES
 Read the instructions for each part of the paper carefully.
 Answer all the questions.
 Write your answers carefully.
 You must complete the exam within the time limit.
INFORMATION FOR CANDIDATES
 Questions 1-32 carry one mark.
 hugomen2507@gmail.com [Cambiar cuenta](#)
 * Indica que la pregunta es obligatoria
 Correo electrónico *
☐ Registrar hugomen2507@gmail.com como el correo electrónico que se incluirá en mi respuesta
 Full name: *
 Tu respuesta
 E-mail: *
 Tu respuesta
 Siguiente [Borrar formulario](#)

PET- Mock test (Writing)
 Time: 45 minutes
INSTRUCTIONS TO CANDIDATES
 Read the instructions for each part of the paper carefully. Answer the Part 1 question and one question from Part 2.
 Write clearly and check your spelling.
 You must complete the test within the time limit.
INFORMATION FOR CANDIDATES
 Each question in this paper carries equal marks.
 hugomen2507@gmail.com [Cambiar cuenta](#)
 Se registrarán el nombre, la foto y el correo electrónico asociados con tu Cuenta de Google cuando subas archivos y envíes este formulario
 * Indica que la pregunta es obligatoria
 Full name: *
 Tu respuesta
 E-mail: *
 Tu respuesta
 Siguiente [Borrar formulario](#)

PET- Mock test (Listening)
 Time: Approximately 35 minutes
INSTRUCTIONS TO CANDIDATES
 Listen to the instructions for each part of the paper carefully.
 Answer all the questions.
INFORMATION FOR CANDIDATES
 There are four parts to the test.
 Each question carries one mark.
 You will hear each piece twice.
 hugomen2507@gmail.com [Cambiar cuenta](#)
 No compartido
 * Indica que la pregunta es obligatoria
 Full name: *
 Tu respuesta
 E-mail: *
 Tu respuesta
 Siguiente [Borrar formulario](#)

Figure 11

Pre-test visualisation for students in the Moodle Platform

PET Mock Test- Reading

Please follow the instructions and work on the Reading component of the Preliminary English Test.

PET Mock Test- Writing

Please follow the instructions and work on the Writing component of the Preliminary English Test.

PET Mock test- Listening

Please follow the instructions and work on the Listening component of the Preliminary English Test.

Evidently, the second test was used after the implementation of the treatment (techno-pedagogical design), and its aim was to provide a general view of the impact, whether positive or negative, had had on participants' proficiency level. This was exactly the same in format and implementation as the pre-test.

Figure 12

Post-test visualisation for participants in Google Forms

The figure displays three screenshots of Google Forms used for post-test visualisation. Each form is titled 'PET B1- Mock Test (Reading)', 'PET Mock test (Writing)', and 'PET B1- Mock Test (Reading)' respectively. They all include a 'Time: 45 minutes' indicator and 'INSTRUCTIONS TO CANDIDATES' section. The 'INFORMATION FOR CANDIDATES' section mentions 'Questions 1-32 carry one mark.' and provides a link to 'Cambiar cuenta' (Change account). A red asterisk indicates that the question is mandatory. The forms also include a section for 'Correo electrónico' (Email) with a checkbox to register the email as the one to be included in the response. The 'Full name' and 'E-mail' sections are marked with a red asterisk. The bottom of each form features a 'Siguiete' (Next) button and a 'Borrar formulario' (Delete form) link.

Figure 13

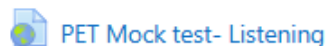
Post-test visualisation for students in the Moodle Platform



Please follow the instructions and work on the Reading component of the Preliminary English Test.



Please follow the instructions and work on the Writing component of the Preliminary English Test.



Please follow the instructions and work on the Listening component of the Preliminary English Test.

Second, a techno-pedagogical design based on B1- Preliminary Cambridge standards was created for the treatment phase. This intervention had 11 units related to language proficiency development within Cambridge B1-Preliminary standards and 4 units to practise

reading, writing, and listening. Each unit followed a 5E model instruction process (Engage, Explore, Explain, Elaborate, Evaluate) in order to mark an ideal path of learning which would feel smooth and motivating to continue.

The 5E instructional model permits that students can take further responsibility in their learning development through a meaningful way (Bastida-Bastida, 2019). According to Diaz et al. (2020), this model is based on a specific and well-known paradigm, constructivism; in which previous knowledge works as a basis for new one and that requires students to actively participate to develop understanding of their realities of language, meaning what really is used, instead of going after memorisation.

The experiment's duration was of five months (January to May 2025) which is a whole semester in the Department of languages- BUAP. Students had the freedom to access the platform 24/7 since the course was totally asynchronous. The following pictures show an example of one unit and a brief explanation of the others.

Figure 14

Unit 2. Sections Engage and Explore- General representation of all units' format

Unit 2- Past experiences

Introduction
Brief introduction to the unit with important information to check.

Useful Vocabulary (Life events and Memorable experiences)
Read the following information containing vocabulary about life events and memorable experiences. Typically related to the use of *Past Simple* and *Past Continuous*.

Engage

Travel problems
Watch the following video about travel problems. Notice how *Past Simple* and *Past Continuous* tenses are used.

What happened?
Look at the following photo and write on the forum what you think happened based on the pictures. Use simple ideas.

A frog goes to school



Explore

Last month
Read about Emma's last month trip. Pay attention on how the verbs are in *Past Simple* (words in bold) and time expressions used (italics).

A great experience
Work on the following task and drag the words to the place where they belong. Read carefully before selecting the words.

Figure 15

Unit 2- Sections Explain, Elaborate and Evaluate- General representation of all units'

format

Explain

 **Past Simple**

Read and study the following information about Past Simple.

 **Practice Past Simple**

Work on the following crossword and practice Past Simple.

 **Past Continuous**

Read and study the following information about Past Continuous.

 **Practice Past Continuous**

This hangman will help you practice Present Continuous.

 **Mixed uses of Past Continuous and Past Simple**

Read about how to use Past Continuous and Past Simple together.

 **Practice Mixed uses of Past Continuous and Past Simple**

Order the sentences so they make sense.

Elaborate

 **Past experiences**

Share a story on the forum about a past experience. It can be funny, scary or interesting. Make sure you use Past Simple and Past Continuous.

 **Last Christmas!**

Record yourself explaining what you did last Christmas. Remember to use Past Continuous and Past Simple.

Evaluate

 **Exam- Unit 2**

Take the following exam to check your understanding of the topics seen in this unit.

Here is a table showing the contents of the techno-pedagogical design for B1-

Preliminary competence:

Table 2

Contents in the intervention

PET-B1 Preparation Course		
Unit	Name	Components
1	In the present	Objective: By the end of this lesson, students will be able to correctly use the Present Simple and Present Continuous tenses to describe regular actions, routines, and current activities. They will also learn to apply appropriate time expressions for each tense, improving their ability to talk about everyday situations and actions happening at the moment. Introduction + Useful vocabulary (Daily routines/hobbies/interests) Engage: A typical day/ What are you doing? / Choosing the correct answer. Explore: Emma's routine/ What is Emma doing? Explain: Present Simple/ Practice Present Simple/ Present Continuous/ Practice Present Continuous Elaborate: I have things to tell you! / What are you doing right now?

Evaluate: Exam unit 1

- 2 Past experiences **Objective:** By the end of this lesson, students will be able to correctly use the Past Simple and Past Continuous tenses to describe completed actions, ongoing past activities, and interruptions. They will also learn to apply appropriate time expressions for each tense, improving their ability to talk about past experiences, memorable events, and sequences of actions in the past.
Introduction + Useful vocabulary (Life events/ Memorable experiences)
Engage: What happened? / Travel problems.
Explore: Last month/ A great experience.
Explain: Past Simple/ Practice Past Simple/ Past Continuous/ Practice Past Continuous/ Mixed uses of Past Continuous and Past Simple/ Practice Mixed uses of Past Participle and Past Continuous.
Elaborate: Past experiences/ Last Christmas
Evaluate: Exam unit 2
- 3 Talking about the future **Objective:** By the end of the unit, students will be able to confidently discuss future plans, make predictions, and describe upcoming events using clear and accurate language.
Introduction + Useful vocabulary (Plans and goals)
Engage: Future plans/ What are your plans for the future?
Explore: Emma's plans
Explain: Future with will/ Practice future with will/ Future with going to/ Practice going to/ Future with Present Continuous/ Practice future with present continuous/ Future mixed forms/ Practice future mixed forms.
Elaborate: What will life be like in 50 years? / What do you want in life?
Evaluate: Exam unit 3
- 4 Comparisons **Objective:** By the end of the unit, students will be able to confidently describe and compare people, places, and things using clear and accurate language, and apply these structures effectively in their speaking and writing.
Introduction + Useful vocabulary (Adjectives)
Engage: Describing pictures/ A game to discover comparison.
Explore: Maria's new home.
Explain: Comparatives/ Practice comparatives/ As...as structure/ Practice as...as structure/ Superlatives/ Practice superlatives/ Too-enough-very-so/ Practice too-enough-very-so.
Elaborate: Compare your current life to ten years ago/ Talk about the changes in your city.
Evaluate: Exam unit 4
- 5 Following the rules **Objective:** By the end of the unit, students will be able to confidently talk about obligations, grant or deny permissions, and describe prohibitions using clear and accurate language.
Introduction + Useful vocabulary (Rules, laws and social norms).
Engage: Crazy laws around the world/ Crazy laws around the world-Comments
Explore: Rules at the community library
Explain: Modals for obligation/ Practice modals for obligation/ Modals for permission/ Practice modals for permission/ Modals for prohibition/ Practice modals for prohibition

		Elaborate: What do tourists need to survive in Puebla? / As a LEI student... Evaluate: Exam unit 5
6	Describing past habits	Objective: By the end of the unit, students will be able to confidently describe past habits and repeated actions using clear and accurate language. Introduction + Useful vocabulary (Childhood memories and technology from the past). Engage: Grandparents' childhood memories/ What was your childhood like? Explore: Grandpa's childhood Explain: Used to/ Practice used to/ Would/ Practice would/ Mixing used to, would and other past tenses/ Practice mixing used to, would and other tenses. Elaborate: Highschool vs University/ Technology used to be different. Evaluate: Exam unit 6
7	Speculations and predictions	Objective: By the end of the unit, students will be able to confidently use modals of deduction and the Future Continuous to express ideas about certainty, possibility, and future activities using clear and accurate language. Introduction + Useful activities (Science, technology and innovation) Engage: Technology in 2050/ Dream or reality? Explore: The mystery of the missing tablet. Explain: Modals of deduction/ Practice modals of deduction/ Future continuous/ Practice future continuous/ Mixing modals of deduction with future continuous/ Practice mixing modals of deduction with future continuous Elaborate: Mexico will be changing/ Speculating about your own future. Evaluate: Exam unit 7
8	Expressing preferences	Objective: By the end of the unit, students will be able to confidently use would rather, would prefer to, gerunds and infinitives to express preferences and discuss actions with accuracy and clarity. Introduction + Useful vocabulary (Entertainment, leisure activities and lifestyle) + Useful vocabulary 2 (Clothes and clothes materials). Engage: Expressing preference/ What type of clothes do you prefer? Explore: Planning the perfect weekend. Explain: Would rather and would prefer/ Practice would rather and would prefer/ Gerunds and infinitives to express preference/ Practice gerunds and infinitives to express preference/ Extra practice- Would rather- Would prefer- Prefer Elaborate: Beach or mountain? / What's your preference? Evaluate: Exam unit 8
9	Narrating stories	Objective: By the end of the unit, students will be able to confidently use the Past Perfect (Simple and Continuous) tense and time clauses to express relationships between past events with clarity and precision. Introduction + Useful vocabulary (Storytelling and personal anecdotes) Engage: What had they done? / Something funny happened. Explore: The busy morning

		Explain: Past perfect/ Practice past perfect/ Past perfect continuous/ Practice past perfect continuous/ Mixing past tenses- storytelling/ Practice Mixing past tenses/ Practice mixing past tenses II Elaborate: Share a memorable event and what led to it/ 2017 earthquake. Evaluate: Exam unit 9
10	Giving advice	Objective: By the end of this unit, students will be able to confidently use forms to express advice and instructions effectively in both spoken and written English. Introduction + Useful vocabulary (Health) + Useful vocabulary 2 (Problems) Engage: Counsellor/ What do you suggest? Explore: Getting ready for the school trip! Explain: Modals for advice/ Practice modals for advice/ Imperatives and other structures for advice/ Practice- Imperatives/ Practice- Imperatives and other structures. Elaborate: I suggest... / Priorities in life. Evaluate: Exam unit 10
11	Expressing quantity	Objective: By the end of this unit, students will be able to confidently use quantifiers and articles efficiently in both spoken and written English. Introduction + Useful vocabulary (Shopping, money and resources) + Useful vocabulary 2 (List of nouns) Engage: At the supermarket/ Doing the shopping. Explore: A busy day at the supermarket. Explain: Quantifiers/ Practice quantifiers/ Articles/ Practice articles I/ Practice articles II Elaborate: Packing for the trip/ Christmas celebration Evaluate: Exam unit 11
12	Preliminary English Test- Paper 1 Reading	Objective: By the end of this unit, students will be able to feel more comfortable when taking the Preliminary English Test- B1 by Cambridge. Engage: Exam skills: 6 tips to help you with reading exams. Explore: Reading strategies for B1 students/ PET- Reading Can-do statements. Explain: What are we supposed to do in the reading component PET B1? / Reading Part 1: Multiple choice/ Reading Part 1: Multiple choice (example)/ Reading Part 2: Matching/ Reading Part 2: Matching (example)/ Reading Part 3: Multiple choice/ Reading Part 3: Multiple choice (example)/ Reading Part 4: Gapped text/ Reading Part 4: Gapped text (example)/ Reading Part 5: Multiple choice cloze/ Reading Part 5: Multiple choice cloze (example)/ Reading Part 6: Open cloze/ Reading Part 6: Open cloze (example)/ Marksheet. Elaborate: Share your thoughts (reading component). Evaluate: Exam Unit 12
13	Preliminary English Test- Paper 2 Writing	Objective: By the end of this unit, students will be able to feel more comfortable when taking the Preliminary English Test- B1 by Cambridge. Engage: Exam skills: 6 tips to help you with writing exams Explore: Writing strategies for B1 students/ PET- Writing Can-do statements Explain: What are you supposed to do in the writing component? / Evaluation criteria for the writing component/ Writing Part 1: Writing an e-mail/ Writing Part 1: Writing an e-mail (example)/ Writing Part 2:

		Writing an article (Option A)/ Writing Part 2: Writing a story (Option B)/ Writing Part 2: Writing an article/ writing a story (example tasks A&B)/ Marksheet
		Elaborate: Share your thoughts (Writing component)
		Evaluate: Exam Unit 13
14	Preliminary English Test- Paper 3 Listening	Objective: By the end of this unit, students will be able to feel more comfortable when taking the Preliminary English Test- B1 by Cambridge. Engage: Exam skills: 4 tips to help you with your listening exams/ Exam skills: 6 more tips to help you with your listening exams Explore: Listening strategies for B1 students/ PET- Listening Can-do statements. Explain: What are you supposed to do in the listening component of PET-B1? / Listening Part 1: Multiple choice/ Listening Part 1: Multiple choice (example)/ Listening Part 2: Multiple choice / Listening Part 2: Multiple choice (example)/ Listening Part 3: Gap fill/ Listening Part 3: Gap fill (example)/ Listening Part 4: Multiple choice/ Listening Part 4: Multiple choice (example)/ Marksheet. Elaborate: Share your thoughts (Listening component) Evaluate: Exam Unit 14
15	Preliminary English Test-	Objective: By the end of this unit, students will be able to feel more comfortable when taking the Preliminary English Test- B1 by Cambridge. Engage: Exam skills: 5 tips to help you with your speaking exams/ Exam skills: 6 more tips to help you with your speaking exams. Explore: Speaking strategies for B1 students/ PET- Speaking Can-do statements. Explain: What are you supposed to do in the speaking component of PET-B1? / Evaluation criteria for the speaking component/ Speaking Part 1: Interview/ Speaking Part 2: Extended turn/ Speaking Part 3: Discussion/ Speaking Part 4: General conversation/ Speaking component (example)/ Marksheet Elaborate: Share your thoughts (Speaking component) Evaluate: Exam Unit 15

Third, a Likert-scale questionnaire was used in order to obtain the participants' general perspectives of the treatment once this was done, and it consisted of five key areas: content, utility, accessibility, technical issues, and improvements. A Likert-scale is defined as a rating scale to measure different elements such as opinions, behaviours or attitudes towards a phenomenon or element normally consisting of five answers where participants assign a number based on how much they agree or disagree (Bhandari & Nikolopoulou, 2023). The use of this instrument with a reliability of 0.95 allowed to obtain quantifiable data which could be easily interpreted and expressed in graphics.

3.7 Description of data collection

There were three types of data obtained for this research which will help give meaning to the results and respond the research questions:

1) To establish a baseline before implementing the treatment, it was important to assess participants' existing language proficiency level. Consequently, a pre-test that assesses reading, listening and writing was administered, ensuring a comprehensible evaluation of their linguistic competencies. To uphold the validity of the study and mitigate potential biases, a safeguard was introduced: participants were required to complete the pre-test before gaining access to the course itself. This procedural constraint ensured that no student engaged with the intervention prematurely affecting their initial results.

2) The treatment was introduced in the form of a techno-pedagogical design which was created in the Moodle platform for LEI students. This consisted of 15 units and students had access 24/7 since its modality was asynchronous. Constant supervision by the designer was necessary in case of technical problems or participants questions. However, such phenomena never took place throughout the treatment.

3) After the treatment was applied, it was necessary to measure participants' linguistic progress to determine the effectiveness of the course. To this end, a post-test also aligned to B1 levels standards by Cambridge Assessment and including the same sections: reading, listening and writing, mirroring the pre-test at the beginning of the intervention, was administered. By employing an identical assessment format, the study aimed to facilitate a precise comparison between the pre- and post-tests results; furthermore, to uphold methodological rigor students were required to complete the post-test under the same controlled conditions as the pre-test in order to minimise external variables that could compromise the reliability of the results. This meant, participants could only answer the post-test after the full completion of the platform usage and were given limited time to do it to prevent further practice using other resources.

) In order to assess students' perceptions about the techno-pedagogical design used as intervention for B1 language proficiency development, a Likert-scale questionnaire was applied to the participants. Such questionnaires to gain insights into students' experiences with the design focusing on five key aspects: language learning potential, learner fit, meaning focus and authenticity, impact and engagement, practicality and accessibility. The 25-item questionnaire was developed to evaluate how effectively the platform facilitated language learning through reading, writing and grammar and some listening activities. The questions were designed to reflect students' engagement with the learning material, their perceived usefulness of the activities and any challenges encountered during the process. Data collection was done through Google forms, allowing for efficient distribution and response gathering.

3.8 Description of data analysis

The following table shows a brief summary of the data analysis which was carried out in the current research project:

Table 3

Data Analysis followed for each research question in the study

Research questions	Instrument(s)	Process
Research question 1: To what extent does the use of a techno-pedagogical design for test training and language skills help undergraduate students at languages department-BUAP to improve their proficiency in B1-Preliminary?	1) Techno-pedagogical design for B1-Preliminary proficiency development. 2) Mocks test A/B based on Cambridge PET-B1 real model.	First, students took mock test A to measure their proficiency before the intervention. Second, the intervention took place from January 2025 to May 2025 and students were free to make use of all the resources within the techno-pedagogical design. Third, Mock test B was applied in order to obtain participants proficiency after the intervention, this was done with the intention to compare both mock test A and mock test B's grades

Research question 2: How does a techno-pedagogical model for test training and language skills impact undergraduate students' proficiency level at the languages department-BUAP?	Paired Samples t-test obtained through SPSS	and compare them, providing an answer to the research question 1. Paired Samples t-test using SPSS to calculate measurements before and after treatment in the same group, the improvement and the p-value
Research question 3: What are these undergraduate students at languages department-BUAP's attitudes on the use of a techno-pedagogical model to improve their proficiency in B1-Preliminary?	Likert-scale questionnaire to measure students' attitudes towards the techno-pedagogical design.	Participants were asked to collaborate once more by responding a Likert-scale questionnaire, which measure their attitudes towards the implementation of the techno-pedagogical design for B1-Preliminary proficiency.

3.9 Conclusion

This chapter presents the methodological procedure. The implementation of the treatment was explained, which basically consisted of granting access to participants to the platform, not before taking their pretest as a way of knowing their level prior to the use of the techno-pedagogical design, and then, applying them a post-test, similar in format to the first one, in order to obtain new grades and compare them to the first ones. After, a Likert-scale was applied to obtain participants' perceptions on content, utility, accessibility, technical issues, improvements, allowing to show results through graphics which will be explained in the next chapter.

The context of the study as well as the way the data will be collected and analysed was also exposed and so has been the relevance to the study and the gap it intends to fill, making

sure the reader is well aware where this research is coming from and going to in a crystal-clear way based on the information presented on this chapter.

Chapter 4: Results

4.1. Introduction

This chapter will present the results, which aimed to investigate the impact of the techno-pedagogical model on undergraduate ELT students in the transition from A2 to B1.

The results have been organised following the order of the research questions on which this projected is based.

4.2 Answers to research questions

1) To what extent does the use of a techno-pedagogical design for test training and language skills help undergraduate students at languages department- BUAP to improve their proficiency in B1-Preliminary?

In order to clearly answer this question, it is necessary to pay attention to the following results obtained in the pre- and post-tests:

Table 4

Levels obtained by participants before and after the intervention

Pre-test		Post-test	
Number of participants	Results	Number of participants	Results
4	B1	6	B2
31	A2	31	B1
5	A1/A2-	3	A2

As it is observable in the results, 40 students took the pre-test before the intervention showing results in the scale from A1-B1 regarding reading, writing and listening. The same process was used to obtain the post-tests results showing that participants moved from A1-B1

to A2-B2, proving the techno-pedagogical design works within scale the exam itself measures.

Table 6 displays the distribution of English language proficiency levels among participants before and after the intervention. In the pre-test phase, the majority of participants (31) were categorised at the A2 level, five participants at A1 level and four were at the B1 level. Following the intervention, the results indicate measurable improvement: 31 students move from A2 to B1, 3 students move from A2- to A2, 4 students from B1 to B2 and two participants showed great improvement by moving from A2- to B2.

These findings suggest a positive shift in proficiency levels with all groups demonstrating progress. Notably, the largest gain was observed in two students who moved from a low A2 (A2-) to B2, also the 31 students who initially scored A2 and move to a successful B1. The emergence of participants at B2 level post-intervention, despite the absence of such results in the pre-test, highlights the potential effectiveness of the instructional approach applied during the intervention period.

2) How does a techno-pedagogical design for test training and language skills impact undergraduate students' proficiency level at the languages department- BUAP?

The implementation of the techno-pedagogical design tailored on the B1 Preliminary framework by Cambridge yielded a positive academic impact, as evidenced by students' improved proficiency levels following the intervention. The data suggest that the integration of such tool contributed significantly to participants' development beginning at A1/A2- to B1 levels moving on to A2 to B2 competence.

Not only does the transition between levels serve as evidence of positive impact, but also an independent-samples analysis was conducted in order to obtain the statistics behind the impact of the techno-pedagogical design on students' B1-Preliminary proficiency. The

results indicated significant improvements across all areas in the intervention obtaining p values <0.01 as shown in the following table.

Table 5

P values obtained in each skill in the techno-pedagogical model for B1 Preliminary proficiency

Skills and sub-skills	Average	P value	Statistic interpretation	Activities to develop each skill	Tools and apps used
Reading	+28%	< 0.01	Significant improvement in reading comprehension	Main activities used: Fill in the blanks, gap filling, multiple choice questions, true/false questions, ordering sentences and paragraphs, drag and drop, interactive quizzes. Subskills: Skimming, scanning, prediction, inference, identifying main ideas and supporting details, understanding text organisation, recognising references, critical reading.	PDF documents, HP5 activities within the platform, Educaplay, Wordwall.
Writing	+32%	< 0.01	Significant improvement in written production	Main activities used: Fill in the blanks, sentence completion, writing prompts, interactive writing tasks, writing mapping. Subskills: Generating ideas, planning and organising, paragraphing, cohesion and coherence, sentence construction, revising and editing.	PDF documents, HP5 activities within the platform, forum and chat within the platform.
Listening	+25%	< 0.01	Significant improvement in oral comprehension	Main activities: Information transfer, listening with visuals, interactive quizzes. Subskills:	YouTube, Educaplay, Wordwall, HP5 within the platform for recording and listening to

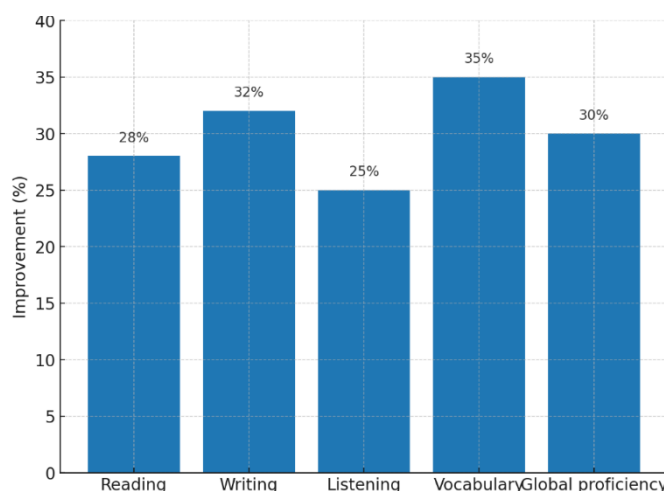
				Listening for gist, listening for specific information, recognising reference, critical listening, identifying main ideas and supporting details.	students' pronunciation.
Vocabulary	+35%	< 0.01	Highly significant improvement in vocabulary learning	Main activities: Fill in the blanks, gap filling, matching, word categorisation, crossword puzzles, drag and drop, true/false tasks, flashcards, interactive games. Subskills: Word meaning, word formation, collocations, register and appropriacy, spelling, contextual usage, focus in meaning.	Educaplay, Wordwall, PDF documents, forum chat within the platform, HP5 activities within the platform.
Global proficiency	+30%	< 0.01	Statistically significant overall improvement; overall positive impact	Main activities: The intervention offered a range of activities to work all the mentioned skills and subskills as well as offering link for external websites for extra practice and the possibility for students to use the chat and forum of the platform as a way of exchanging useful resources. Subskills: Due to the level that this intervention is aiming at (B1-Preliminary), some more advanced subskills were not actively worked on. However, the intervention aimed at covering most of the subskills required to successfully passing this level.	All tools and apps used, promoting the development of skills and subskills through the intervention, were selected based on various reasons such as the easy manipulation for students, free access and the avoidance of overcomplex electronic tools which may have students from learning content.

Reading comprehension increased by 28%, writing performance improved by 32%, listening comprehension showed improvement of 25%, and vocabulary learning, which

showed the most substantial growth, was of 35%. Considering general outcomes, global proficiency was improved by 30% ($p < 0.01$), indicating that the intervention through the techno-pedagogical design for B1-Preliminary proficiency had a statistically significant and educationally meaningful effect on students' general language proficiency at B1-level.

Graph 1

Impact of the asynchronous techno-pedagogical design on B1 students' proficiency



Thus, the intervention based on asynchronous techno-pedagogical principles proved to be an effective strategy for promoting academic improvement among undergraduate ELT B1 Preliminary learners, suggesting the value of combining technological tools with proper pedagogical planning and organisation.

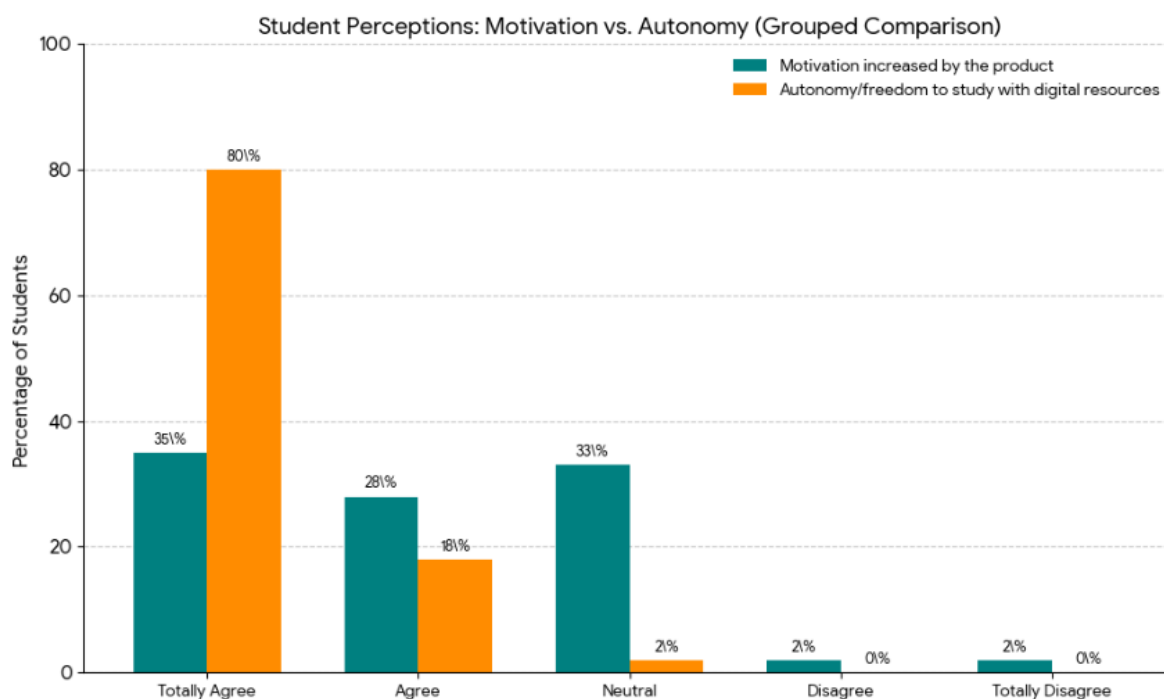
3) What are these undergraduate students at languages department-BUAP's perspectives on the use of a techno-pedagogical product to improve their proficiency in B1-Preliminary?

The third question in this research project addressed students' perceptions towards the techno-pedagogical model used to support their B1-Preliminary proficiency. The Likert-scale questionnaire results showed students have a positive perception of the intervention. Results can be divided in 5 different dimensions for a better interpretation: motivation and autonomy, usability, accessibility, and technological anxiety, perceived usefulness and academic

performance, interaction and collaboration and acceptance and willingness to continue using the approach. In the following lines explain each one.

Graph 2

Student perceptions: Motivation and Autonomy



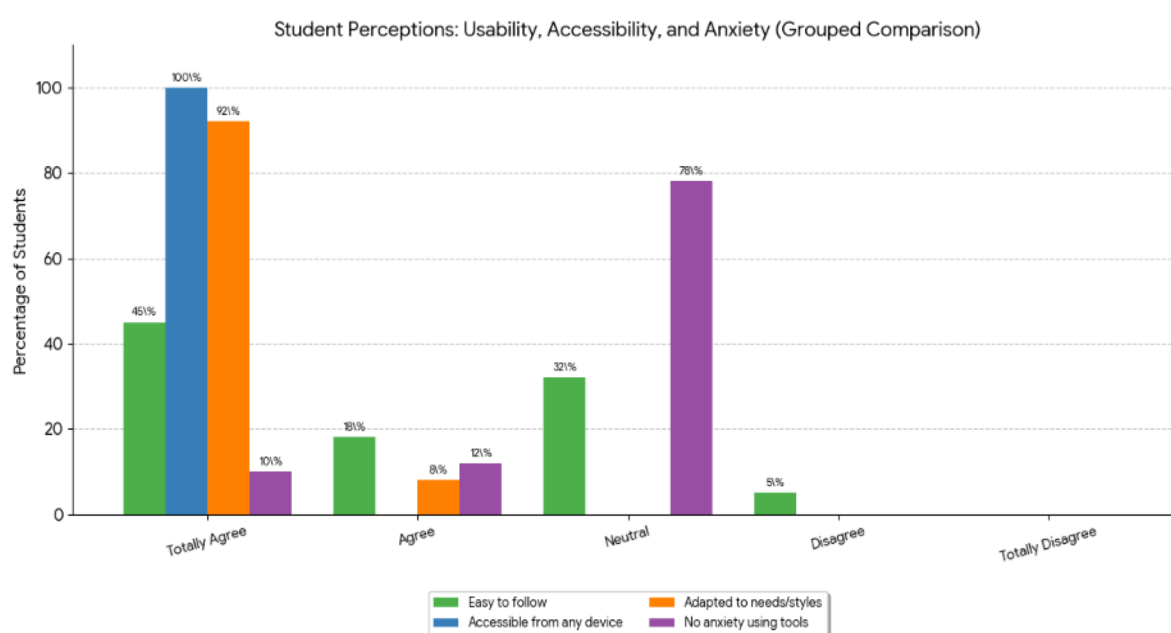
The results show that 35% of students totally agreed and 28% agreed that the technological model increased their motivation to learn. Additionally, 80% totally agreed that digital resources allowed them greater freedom and autonomy to study, with another 15% agreeing to this statement.

These findings suggest that the product not only encouraged students to participate actively but also supported independent work habits. This aligns with Zohud (2019), and Bicen & Kocakoyun (2018) who highlight that game-based and interactive digital tools increase student motivation and engagement. From a sociocultural perspective, Vygotsky's notion of mediation explains how technological tools can scaffold learner autonomy by providing individualised pacing and support. The high percentages imply that motivation may have functioned as a driver for sustained engagement with B1-level content.

Recent literature also corroborates this existing relationship between motivation, learner autonomy and the use of technology. For instance, Yang, Liu, & Hunt (2022) found that digital environments, if flexible and supportive, may support self-regulation, and develop autonomy in learners. In the same way, Chávez and Palaoag (2024) explored how AI-driven mobile applications designed around self-determination principles have the potential to enhance motivation in the long term, thanks to the development of competence and autonomy. Additionally, Treesattayanmune & Baharudin (2024) have encountered that in those learners displaying a higher degree of autonomy, there was also found more active engagement with the digital instructional content, which, therefore reinforced their persistence and accountability towards their learning path. These findings, supported by the previously stated theories, suggest that motivation and autonomy mutually reinforce each other and can be cultivated and encouraged through well-designed techno-pedagogical models resulting in positive perceptions from participants.

Graph 3

Student perceptions: Usability, accessibility, and technological anxiety

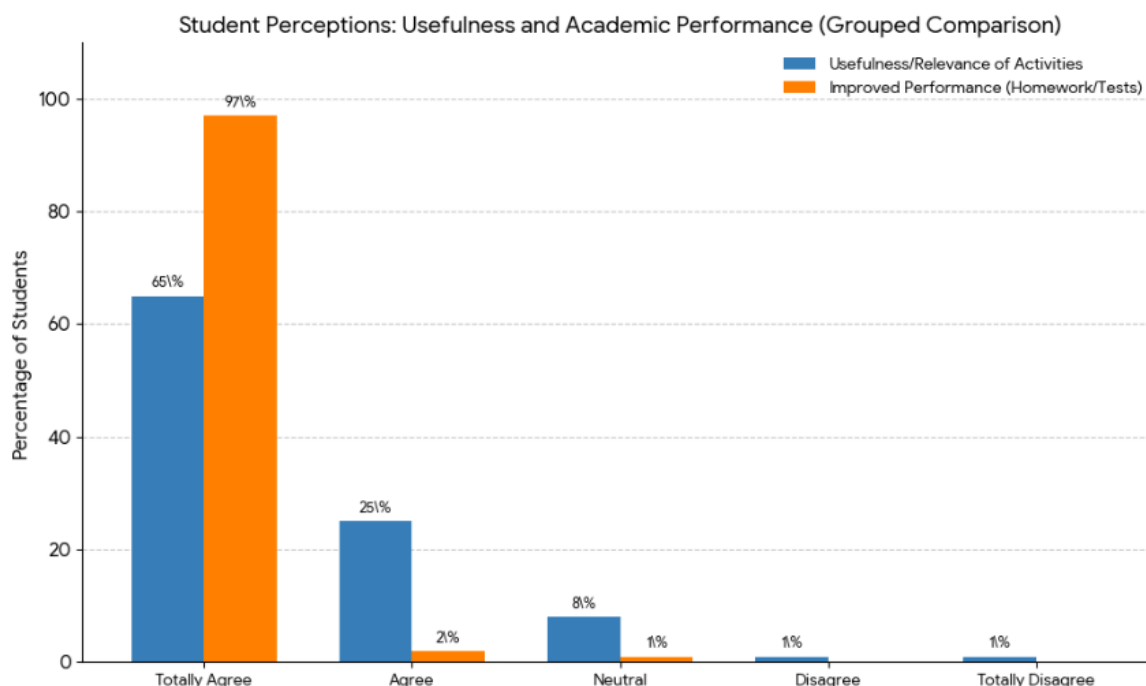


In terms of usability, 45% of participants totally agreed and 18% agreed that technology in class was easy to follow. Significantly, 100% of students indicated that the technological tools used were accessible from any device. Furthermore, 93% reported that the model could be adapted to their needs and learning styles. These findings align with Saleh et al. (2022), who found in a large number of Learning Management System (LMS) users that the ease of use and user satisfaction were among the highest scoring perceptions in a User Experience Questionnaire (UEQ) evaluation of Moodle-based platforms. Similarly, in their study Ahmed et al. (2024), it was reported that a majority of students agreed that the LMS was easy to use, demonstrating that usability is perceived by users when the design is clear and navigation becomes intuitive.

These results reflect a strong perception of ease and practicality, which corresponds to Redecker & Punie (2017), who emphasise the importance of digital competence and intuitive platforms in educational settings. Makrakis (2017) also states that usability is a key factor in the success of technological integration. While 78% reported neutral feelings about anxiety when using platforms, only a small percentage expressed discomfort, indicating that digital stress was not a barrier. In their study, Deng & Liu (2025) showed that technological competence, self-efficacy, and teacher support and autonomy play mediating roles when it comes to test and homework anxiety reduction to such an extent that anxiety becomes significantly lower in the presence of such elements. This idea is also supported by Wang (2024) since in his study it can also be found that interactive methods greatly reduced anxiety among college students, suggesting that technology anxiety again can be controlled or even reduced through the implementation of well-designed, interactive techno-pedagogical models. Moreover, the neutral stance may suggest familiarity with technology rather than indifference, supporting the idea that the design minimised cognitive load.

Graph 4

Student perceptions: Usefulness and academic performance



A total of 65% totally agreed and 25% agreed that technological activities were useful and relevant. Additionally, 98% totally agreed that the techno-pedagogical model helped them improve their performance in homework and tests.

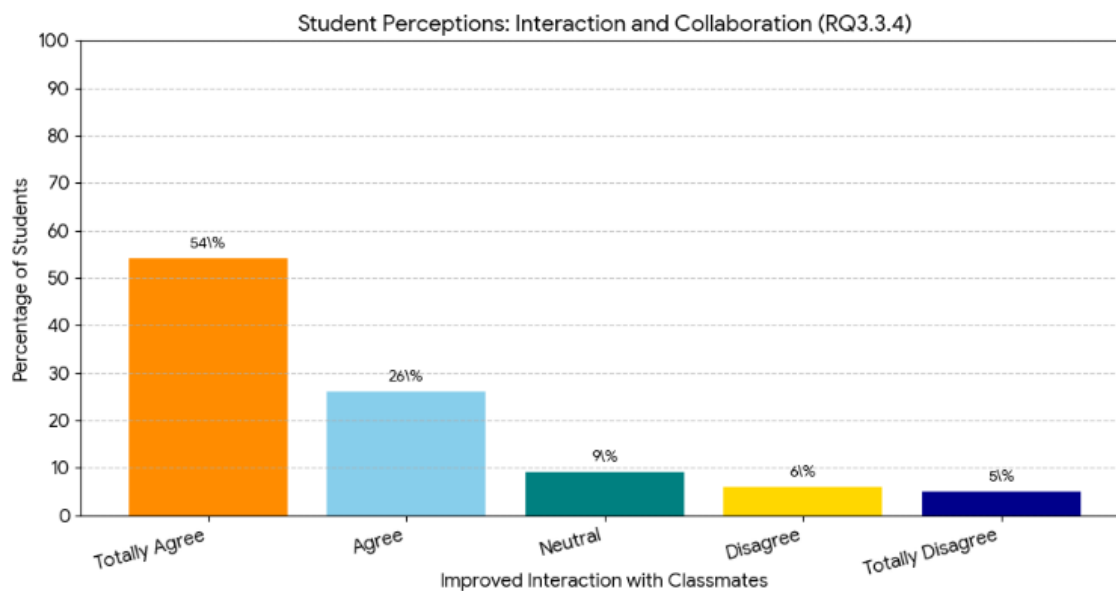
These perceptions reinforce the view that meaningful content integration supports achievement. Sharma & Deschaine (2015) and Antonio & Tuffley (2015) note that well-selected digital resources and curation strategies contribute to deeper content engagement and academic relevance. Since B1-Preliminary tasks involve both receptive and productive skills, students' recognition of improved performance suggests that the intervention provided tangible academic benefits. Li and Wang (2022) found that blended learning, mixing face to face with online elements, improved significantly K12 students' overall performance reinforcing, thus, the idea that integrating technology into instruction increases effectiveness which is what results also showed in the current study.

More evidence supporting this can be found in Cao (2023) where in their meta-analysis is reported that the integration of technology in blended learning programmes improves attitude, performance and achievement in most countries, showing the link between academic gains and perceived usefulness by the participants. Lin & Yu (2023) also confirm this by stating that the perceived usefulness, that higher education students showed in their study, significantly predicted students' positive attitudes towards digital academic reading tools on computers, suggesting in this study that attitudes mediate and directly impact on usefulness and performance.

As a final piece of evidence and one of the most recent ones, Kuş (2025) claimed that technology-related factors including the perception on how useful these are, showed a close relation with participants academic performance, just like in this study.

Graph 5

Student perceptions: Interaction and collaboration



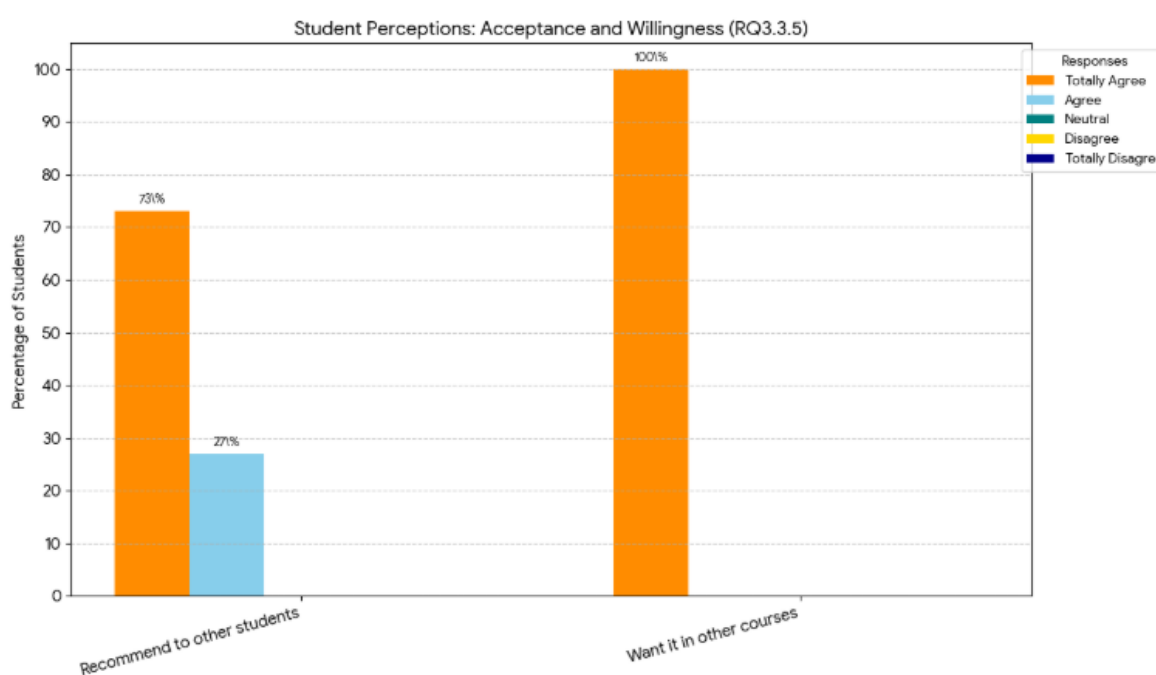
When asked if technology improved interaction with classmates, 55% totally agreed, 25% agreed, 10% disagreed, and 10% totally disagreed. These mixed results indicate some variability in collaborative experiences. This variation in perceptions among participants was also found in Gopinathan et al., (2022) who, in their study, demonstrated that student

engagement was enhanced through digital collaboration tools. However, it was different among participants owing to contextual and individual factors, not technological ones.

For the majority, the model appears to have facilitated communication and peer engagement, which is consistent with Magfiroh et al. (2022), and Kessler (2018), who emphasise that interaction in virtual spaces support communicative competence. Xu et al., (2025) also found that student learning outcomes can be enhanced through the use of supported-technology collaboration, showing a positive impact on students' academic achievement in their study. However, the 20% disagreement rate suggests that not all learners benefited equally from the collaborative features, possibly due to personal preferences or the need for more guided tasks. These findings also align with those by Vera (2018) who emphasised in their study that while digital resources can prompt collaboration among participants in a course, their impact is going to be mainly dependant on how the tasks are designed, firstly, and also on students' attitudes.

Graph 6

Student perceptions: Acceptance and willingness



In this dimension, findings also indicate strong acceptance of the approach: 73% said that they would recommend the model to other students, and 99% expressed that they would like to see techno-pedagogical approaches in other courses.

This demonstrates high levels of satisfaction and perceived value. According to Makrakis (2017), and Guaqueta & Castro-Garcés (2018) sustained adoption of digital pedagogies depends on learner endorsement and institutional relevance. The students' willingness to see the approach expanded implies that the perceived benefits were significant and transferable to other learning contexts. This is also in line with Barz et al., (2024) who stated in their study that attitudes that students have towards e-learning are strongly influenced for different factors such as: prior experience and affinity to technology, and these directly affect in the acceptance of technological resources to learn and continue learning.

This is important to consider since according to Peiris et al., (2024) learning showing a positive acceptance of online technologies and digital resources show significantly higher engagement and display an intention to continue using technology beyond emergency remote teaching and for self-learning, too. It is important to pay attention to the elements of acceptance and willingness since according to Xu et al., (2022) certain behavioural elements may indicate that self-efficacy, metacognitive strategies and digital resource availability significantly may enhance students' continued willingness to stay in their learning path.

The quantitative data reveal a predominantly positive perception of the techno-pedagogical model across five key dimensions: motivation, autonomy, usability, performance, and acceptance. The integration of these findings with established theories suggests that the model did not only align with learners' needs but also supported the development of B1-Preliminary proficiency through engagement, relevance, accessibility, and interaction.

4.3 Conclusions

This chapter presented the main results obtained after the implementation of an asynchronous techno-pedagogical model aimed at improving B1 Preliminary proficiency among undergraduate ELT students in the languages Department at BUAP. The data obtained from pre- and post- tests evidenced clear progress in participants' performance in all the skills and subskills assessed in the test, confirming upward movement from A1-A2 to B1 levels, and in some cases, B2.

Regarding the impact of the intervention, statistical analyses revealed significant improvement ($P < 0.01$) across the different skills, with an average increase of 30% in global proficiency. Reading, listening, writing, and vocabulary development showed notable gains, with vocabulary showing the highest percentage of progress. These results indicate that the techno-pedagogical model effectively supported participants' development within the parameters measured by the Cambridge B1 Preliminary framework.

In addition, the analysis of students' perceptions through the use of a Likert-scale questionnaire demonstrated positive attitudes towards the intervention. Results report increased motivation, high perceived usefulness, and greater autonomy among participants, as well as favourable evaluations concerning usability and accessibility. While most respondents expressed satisfaction and willingness to continue using similar approaches, a small percentage indicated limited interaction. However, as theory has supported, this might have been caused for individualised situations.

This chapter has outlined the quantitative and perceptual data derived from the intervention. The evidence presented establishes the foundation for the interpretation, discussion, and implications to be developed in chapter 5.

Chapter 5: Conclusions

5.1 Introduction

The previous chapter presented the findings resulting from the implementation of the asynchronous techno-pedagogical model, offering empirical evidence to address the three core questions in this research. The data analysis unequivocally demonstrated a significant improvement in participants' B1-Preliminary proficiency, with notable shifts observed across all measurable skills (reading, writing, and listening). Furthermore, the findings revealed a predominantly positive perception of the asynchronous digital learning environment among the undergraduate ELT students in the languages department-BUAP, particularly in regards to usability and the course's contribution to their academic performance. The highly significant P-values (< 0.01) obtained provided strong statistical evidence in support of the research hypothesis.

This chapter will now help with the transition from the presentation of what was found to the critical examination of what these findings mean for English language teaching and the strategic integration of technology. This final chapter serves as the capstone for the project, providing a comprehensive discussion and conclusion by grounding the quantitative outcomes in the theories presented in chapter 2, literature review, and it will interpret how the flexibility and 24/7 essence inherent to the asynchronous techno-pedagogical model contributed to the observed improvement in B1-Preliminary proficiency, offering new context-specific insights into best practices for digital education in the Mexican university environment.

This concluding chapter is organised to logically synthesise the entire research. It begins with a comprehensive summary of findings, directly addressing all three research questions with reference to the empirical data. This is immediately followed by a section outlining the accomplishments of the aims, detailing how the study fulfilled its primary objectives and hypothesis regarding proficiency elevation. Next, the limitations of the study are acknowledged, discussing the constraints encountered during implementation and data

collection. Following this, the further research section will propose specific, practical next steps and promising avenues for continued investigation in asynchronous ELT. A personal reflection then offers insights into my own (the researcher's) subjective learning and growth derived from the study. Finally, the chapter presents the final comments, summarising the ultimate contribution of this research to the field of techno-teaching and B1-Preliminary preparation.

5.2 Summary of key findings

These findings directly answer the core questions of the research, concerning the impact of the asynchronous techno-pedagogical model, as follows:

RQ1- To what extent does the use of a techno-pedagogical product for test training and language skills help undergraduate students at languages department-BUAP to improve their proficiency in B1-Preliminary? The findings showed a significant extent to which the asynchronous techno-pedagogical model contributed to B1 proficiency improvement, in some cases even higher. For instance:

Higher degree of improvement. The intervention resulted in a statistically significant increase in the overall B1-Preliminary proficiency of the participants. This demonstrates a high degree of effectiveness, strongly confirming the research hypothesis regarding the model's value as a test training and language skills tool.

Empirical strength. The P-values (<0.01) obtained from all measured skills, as documented in Table 5, underscore the robust statistical extent to this positive change, indicating that the observed gains are highly reliable and not due to chance.

RQ2- How does a techno-pedagogical model for test training and language skills impact undergraduate students' proficiency level at the languages department-BUAP? The data revealed the nature and mechanism of the product's impact on participants proficiency as followed:

Uniform skill elevation. The impact was broad and balanced, resulting in meaningful improvement across all the three components assessed by the Cambridge B1-Preliminary (reading, writing, listening) as well as in vocabulary expansion, primarily. This demonstrates that the product's integrated instructional design (as represented in figures 14 and 15) successfully fostered balanced skill development, rather than skewing development towards a single modality.

Mechanism of impact. The design impacted proficiency by providing targeted, repetitive, and accessible practiced aligned with the B1 Preliminary exam structure. The asynchronous, self-paced nature allowed students to revisit complex content, facilitating the internalisation of test strategies and language structures at their optimal learning speed resulting in participants increasing their level, at least 1 level above their own, ideally landing in B1 and in some participants even reaching the B2 realm after analysing their Pre- and Post-test grades (as shown in table 4).

RQ3- What are these undergraduate students at languages department-BUAP's perceptions on the use of a techno-pedagogical product to improve their proficiency in B1-Preliminary? The student perception data indicated a generally high degree of acceptance and positive appraisal for the technology-enhanced environment due to the following:

High utility and academic value. Participants reported an overwhelming positive perception concerning the product's usefulness. High mean scores were recorded in items related to usefulness and academic perception (figure 19), indicating that students strongly viewed the digital resources as directly supportive of their preparation for the B1- Preliminary exam and their overall academic progression.

Usability and autonomy. The asynchronous platform was highly rated for usability, accessibility, and motivation (figures 17 and 18). Students perceived the 24/7 availability as

key to fostering learner autonomy, allowing them to manage their study time effectively and mitigating reported levels of technological anxiety.

Social interaction nuance. While high scores were confirmed for acceptance and willingness (figure 21), metrics related to interaction and collaboration (figure 20) were comparatively less robust than those related to accessibility. This perception confirms a common challenge in purely asynchronous delivery environments, yet it does not diminish the high overall utility perceived by the learners.

These findings establish empirical validity and strong pedagogical utility of the designed asynchronous product, positioning it as a powerful model for technology-driven language preparation.

5.3 Accomplishments of the aims

The overall aim of this study was to strategically integrate an innovative techno-pedagogical product to elevate proficiency in the Cambridge B1 Preliminary among undergraduate students within an asynchronous virtual learning environment as stated through the hypothesis at the beginning of the research. The implementation of a techno-pedagogical product will promote the improvement of proficiency at B1-Preliminary level in undergraduate students at languages department-BUAP due to its flexibility and 24/7 availability.

The pre-test and post-test comparison data demonstrated a statistically significant improvement in the B1 proficiency for participants. This outcome directly validates the product's effectiveness as a techno-pedagogical solution for standardised test preparation and general language skill enhancement. The strategic integration, characterised by the course content and structure detail in Table 2 and Figures 14 and 15, was shown to be successful in achieving the desired elevation in proficiency.

The specific aims of the study were directed at measuring impact, analysing the mechanism of that impact, and determining students' perceptions as it can be understood through the three core research questions:

1. To determine the degree of proficiency improvement in Cambridge B1 Preliminary by using a techno-pedagogical model for test training and language skills. The statistical analysis confirmed a high degree of improvement across all assessed skills (reading, writing, and listening, as well as vocabulary extension) as grades shown in both Pre- and Post tests, with the P-values (<0.01) providing empirical certainty that the improvement was attributable to the intervention. This specifically addresses the degree or extent asked by my first research question.

2. To analyse the impact of the techno-pedagogical product on students' proficiency level. The analysis successfully detailed the nature of the impact, showing that the design fostered uniform skill elevation and provided an effective mechanism for self-paced, targeted learning. This mechanism, allowing the 24/7 accessibility of the asynchronous environment, was identified as a key factor in facilitating the internalisation of test strategies and language content. This addresses the how asked by my second research question.

3. To identify students' perceptions regarding the use of a techno-pedagogical product to improve their proficiency in B1-Preliminary. Through the administration of the perception instrument, the study gathered comprehensive data revealing a high overall positive appraisal of the product, particularly concerning its usefulness, academic value, and usability. While acknowledging the expected trade-off in interaction metrics, the study successfully identified and quantified the students' strong acceptance of technology integration for proficiency improvement.

5.4 Limitations of the study

While the data presented in Chapter 4 provides robust evidence supporting the efficacy of the asynchronous techno-pedagogical model, it is necessary to contextualise the findings by acknowledging the inherent limitations of the study's design and scope. These constraints provide the limits of the conclusions drawn, and ideally, come up with witty ideas for further research in the future.

The most significant limitation resides in the sample size and composition, as well as the quasi-experimental design which was chosen.

Sample size: the intervention was conducted with a relatively small sample of undergraduate students enrolled at the languages department-BUAP. Even when the sample size was mathematically sufficient for non-parametric statistical analysis utilised, its magnitude naturally constrains the ability to generalise the findings across the broader population of Mexican undergraduate ELT students or students preparing for B1-Preliminary globally.

Homogeneity. The participants in this study were all students specialising in language education, implying a potential pre-existing higher level of intrinsic motivation and metacognitive awareness regarding language learning and technology use compared to students from other university programmes. This homogeneity may have contributed to the overwhelming positive results, and one must be cautious not to overgeneralise the success of less technologically adept or less motivated learner groups.

Design constraint. The study employed a one-group, pre-test/post-test design without a dedicated, non-intervention control group. While the comparison across time periods and the strong statistical significance mitigate this, it also prevented from making an absolute casual claim that the gains were solely due to the techno-pedagogical product and not to other external, unmeasured variables (such as maturation or external study efforts). The temporal

and content focus of the study also introduces a clear limitation on the nature of the conclusions which can be drawn.

Short-term snapshot. The study spanned a limited period corresponding to the academic course structure. This duration was enough to produce statistically significant short-term gains, yet it did not allow for the investigation of long-term retention or sustained proficiency maintenance. It is not possible to conclusively state that the gains in B1 skills would persist months after the intervention finished.

Skill scope. My techno-pedagogical product focused heavily on receptive skills (reading and listening), and structured written production (vocabulary expansion and writing) which are highly measurable asynchronously. Consequently, the study's conclusions about proficiency elevation are less definitive regarding productive skills and subskills (speaking and pronunciation), which are important component of holistic B1 competence but are challenging to measure comprehensibly and reliably in a purely asynchronous, large-scale virtual learning environment.

The deliberate core design choice, a fully asynchronous virtual learning environment, while contributing significantly to flexibility and autonomy, as seen in the results, presents an intrinsic limitation related to interaction and pedagogical presence.

Social connectivity. As indicated by the perception data (RQ3), metrics concerning interaction and collaboration (Figure 20) were less unanimously positive than those for usability and usefulness. This confirms that replicating the immediate, high-fidelity social presence of a physical classroom remains a challenge in fully asynchronous settings. Nevertheless, I acknowledge that the focus of efficiency and autonomy and the essence of the techno-pedagogical product itself inherently traded some degree of immediate social connectivity and peer-to-peer learning opportunities. Moreover, the study's instrumentation

and the reality of an online environment introduce variability which cannot be fully controlled.

Self-report bias. The study's reliance on self-reported perception data (Figures 17-21) introduces the possibility of response bias (e.g. social desirability bias), where participants may have been inclined to report overly positive feedback about a project associated with their department and Faculty.

Technological fidelity. The asynchronous nature of the project meant that participants engaged with the platform using their own devices and internet connections. Variability in bandwidth, device quality, and dedicated access across students may have served as an unmeasured moderator variable, potentially affecting engagement levels and, in turn, final proficiency gains. Complete control over confounding variables, such as participants' time spent on external B1 resources or the fidelity of their dedicated engagement hours, was impossible to achieve.

5.5 Further research

Based on how promising the results turn out to be, this allows for further investigation to give an answer to the limitations previously stated and in the area of techno-pedagogical model integration in ELT in general. The following suggestions are precisely designed to build upon the findings and constraints I found in the current research, thus enhancing the generalisability and depth of knowledge in asynchronous language learning and informing strategic instructional decisions.

1. Given the short-term focus of the intervention, probably the most immediate priority is the need for longitudinal studies. Future research ought to track a similar cohort for six to twelve months following the completion of the asynchronous course. This would involve administering periodic B1-Preliminary proficiency checks to measure the long-term retention

and the sustained impact of test-training strategies. This would directly address the short-term limitation and help determine the durability and real-world applicability of the results.

2. In order to move beyond the quasi-experimental design, future studies should introduce a control group and expand the sample demographics to strengthen external validity (maybe other programmes outside the ELT field but inside BUAP). For this, two subproposals are envisaged:

A controlled trial. Implementing a randomised controlled trial comparing a group using the techno-pedagogical model (intervention group) against a group receiving traditional instruction-led learning (control group). This would provide stronger evidence of casual relationship between the intervention and the proficiency gained.

Generalisation. Replicating this study across multiple programmes at BUAP or across multiple universities in Puebla or Mexico (at a major scale), particularly in those with varying levels of technological maturity. This would definitely and effectively address the limitations concerning the sample size and homogeneity previously stated, and determine if the findings are unique to the BUAP (undergraduate ELT programme) context or broadly applicable.

3. Future research could look upon innovative methods for assessing this skill and explore alternative delivery models. Having stated that, here are two ideas worth exploring:

Speaking assessment. Researchers should explore the use of advanced technological solutions such as AI-driven diagnostic tools or structured asynchronous video recording tasks coupled with detailed and clear analytic rubrics (e.g. human-rated models, automated fluency and accuracy analysis, among others) to measure and track the speaking skill through time accurately.

Hybrid design. Another way is to investigate the efficacy of a blended or hybrid learning model that combines on purpose the autonomy of the asynchronous platform (for receptive skills and practice) with required synchronous virtual sessions (for high-fidelity

interaction and productive skill practice). This design would help mitigate the asynchronous design limitation regarding social connectivity.

4. Further investigation is also needed when it comes to the correlation of technological variables with pedagogical outcomes in order to assess the validity of the solution propose through the intervention. Future studies, ideally, ought to integrate the techno-pedagogical model with learning analytics tools to systematically track and correlate direct measures of student engagement (e.g. platform login frequency, time spent per unit, number of attempts per activity, etc.) with final proficiency scores. This would allow researchers to identify specific behavioural patterns that led to success and help address the challenge of unmeasurable variables. Furthermore, a detailed cost-effectiveness analysis comparing the investment (time, content development, etc.) would also be recommendable since it can be contrasted versus the traditional, synchronous model. Nevertheless, this suggestion would benefit more administrators rather than teachers because this analysis would provide crucial data for decision-making about large-scale adoption.

Finally, the success of any technological intervention is deeply intertwined with the digital competence of the educators supporting it. That is why, future research must assess the impact of implementing this techno-pedagogical model, or future variations of it, on the teachers' digital competence. An intervention study could be designed to measure how teacher training, specifically focused on integrating the asynchronous design, enhances their pedagogical, professional, and content-related digital skills, ensuring the sustainability and quality of the model over time.

5.6 Personal reflection

The completion of this research has been more than a mere academic requirement for the master's degree in ELT in which I am currently enrolled. It has been a profoundly reflective, thought-provoking, and at times, challenging journey as an English language

teacher, and emerging scholar as well as researcher of technology implementation. Having spent considerable time immersed in the theoretical underpinnings, the practical product development, and the meticulous data analysis, I can now offer a deeper, more personal insight into the process and implications of the results.

My initial hypothesis, which centred on the idea that a carefully designed asynchronous course could effectively prepare students for the B1-Preliminary exam whilst managing the constraints of limited synchronous contact, was a significant leap of faith. There was always a degree of anxiety about relying solely on a digital intervention to achieve such specific, high-stakes proficiency gains. This anxiety was not lessened by the fact I work as a Cambridge examiner myself, knowing the demands of the exam and sophisticated skills to successfully certify the level according to Cambridge standards.

Witnessing the statistically significant improvement across all receptive skills was not just a successful finding, but it was also deeply validating. It proved that deliberate pedagogical design can triumph over time and space limitations (traditional classes) when integrated with technology. More powerful than the numbers was the student feedback regarding their increased autonomy and the ability to control their learning pace (as seen in Figure 17). This confirmed a core conviction I personally hold: the true revolution in educational technology is not simply the tool itself but its power to shift agency and ownership of learning fully into the hands of the student. I have learnt that my role, and the role of contemporary educators is fundamentally transitioning from content delivery to becoming sophisticated designers of self-directed learning environments where students can successfully thrive.

Another important point I would like to make is that while the efficiency gains were clear, the most significant personal realisation stemmed from confronting the non-quantifiable limitations of the asynchronous model, mainly about interaction and collaboration. Despite

the platform's features, I felt a recurring tension and this was that the data showed resounding success in skill improvement, yet students' comments sometimes hinted implicitly at a desire for a more human connection and communal experience. I conclude that whilst technology solves logistical problems (time, distance, repetition), it does not automatically solve the intrinsic human need for social learning and emotional presence. This experience honestly impressed on me the need for a deep pedagogical humility, recognising that even the most innovative digital product requires intentional design elements to foster that community and teacher presence to prevent learning from feeling isolated or purely transactional. It also lessens a major fear that teachers may be facing, being replaced by technology. This shows, based on participants' comments, that even when improvement is present, and goals are met, the human aspect is missing to be ideal. The research underscored that the socio-emotional trade-off in asynchronous settings is a real factor that must be explicitly mitigated through careful course management and communication strategies.

Before this research project, my professional lens was largely focused on my individual competence and ability in building the model successfully. Nevertheless, through the process of linking the findings back to broader frameworks like the DigCompEdu, my focus broadened considerably. I now view the integration of technology not as a local classroom project, but as a systemic challenge. For the asynchronous model to be truly sustainable, it needs not only study readiness and willingness, but comprehensive institutional support for teacher digital competence. This project reinforced my belief that the development of quality digital courses is a shared, ongoing responsibility since it requires continuous, targeted professional development for all Faculty to ensure they are prepared not just to use the tool, but to design transformative learning experiences which balance rigour, autonomy, and human connection.

This personal journey has moved my expertise from a technical understanding of digital platforms to a philosophical appreciation for the complex but rewarding, symbiotic relationship between EFL teaching, technology integration, and learner empowerment, creating not only a desire to learn more about technology use in EFL environments across multiple levels and focuses (e.g. ESP/Exam preparation), but also about the surrounding implications which I did not pay attention at first (e.g. Student/Teacher digital competence, motivational aspects, and of course, interaction in online environments). It has been a fructiferous journey full of vicissitudes which I have greatly enjoyed and used as motivators to continue my personal development and growth as a researcher.

5.7 Final comments

This research thesis investigated the efficacy of a strategically integrated, asynchronous techno-pedagogical model to improve undergraduate ELT students' proficiency to the Cambridge B1 Preliminary level. The empirical evidence gathered directly addresses a critical gap in the literature regarding the effectiveness of structured digital interventions in high-stakes testing preparation within a specific institutional context.

The main finding confirms the study's primary hypothesis: the use of a techno-pedagogical model resulted in a statistically significant improvement in the B1 proficiency levels of the participants showing that this success was most pronounced in the receptive skills (vocabulary expansion, reading, and listening) demonstrating the product's high efficiency in delivering targeted, repeated practice necessary for test familiarity. The design also allowed for flexibility and accessibility maximising deliberate practice among participants and thus, engagement.

Furthermore, the overwhelmingly positive student perception regarding the design's usability, accessibility, and direct contribution to academic performance affirms the pedagogical viability of such models because, as seen, participants did not just perform better,

they valued the product's structure and utility, recognising it as a direct aid in managing the pressure of high-stakes testing. This positive acceptance is a notorious hint for predicting the long-term sustainability and scalability of digital learning initiatives.

All things considered, my thesis provides strong empirical validation for the structured integration of asynchronous technology as a powerful, autonomous, and a scalable supplement to traditional EFL instruction. Speaking as a master's candidate who has personally navigated this project, I can say that its enduring legacy is the empirical proof that strategic, well-designed digital environments can definitely bridge the gap between institutional proficiency demands and student performance in high-stakes examinations such as those by Cambridge assessment, and for this project specifically in B1-Preliminary. The research successfully moved beyond the mere use of technology to establish a sort of framework for its principled integration.

As I conclude this academic journey, the primary conviction I carry forward is that the future of ELT depends on educators embracing their roles of digital innovators. This study represents my commitment to evidence-based practice, a final declaration that through thoughtful design, we can create engaging, autonomous, and effective learning environments which truly empower students to achieve global standards of excellence.

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