



Trabajo Fin de Máster en:

Tecnologías de la Información y Comunicación en la enseñanza y el tratamiento de las lenguas

**Audio Trainer Play: design of a gamified app for the development of audio
skills in a secondary school context**

**Audio Trainer Play: diseño de una aplicación gamificada para el desarrollo
de las destrezas auditivas en un contexto de enseñanza secundaria**

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To the memory of my mother and father.

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Abstract

La investigación de este trabajo va dirigida al campo de la Enseñanza Asistida por Dispositivos Móviles, en particular, en el enfoque dirigido a sus aplicaciones. Gracias al trabajo colaborativo junto a un estudiante de informática, se ha creado una aplicación denominada Audio Trainer Play (ATP) con el objetivo de mejorar las destrezas orales y, en concreto, auditivas de nuestro alumnado, ya que es donde más dificultades muestran. Aún hoy día, la mayoría de las apps se diseñan dirigidas al aprendizaje de vocabulario y, en general, no tienen en cuenta el contexto del discente.

Gracias al apoyo del British Council y de Burlington Books, la aplicación tiene 70 audios cuidadosamente seleccionados que tienen una temática relacionada con la realidad de nuestros alumnos/as. Todas las audiciones constan de una serie de preguntas así como sus correspondientes transcripciones para que puedan ir comprobando su grado de comprensión en todos los niveles (léxico, fonético, idea general, etc.). Además, se han introducido una serie de elementos de gamificación para que la app resulte más motivante en su uso.

Posteriormente, se ha realizado un estudio utilizando una metodología mixta cuantitativa-cualitativa basada fundamentalmente en cuestionarios y en la observación de clase con un grupo de voluntarios no seleccionados aleatoriamente. Por ello, con el objeto de alcanzar una mayor validez interna, se utilizó la técnica de triangulación para contrastar los distintos datos cuantitativos y cualitativos, la información procedente de los cuestionarios inicial y final así como el grupo experimental (aquellos expuestos a integración curricular) con el de control.

Los resultados demuestran una gran motivación del alumnado en este recurso y una mayor exposición al inglés durante el periodo de prueba. Consideran las transcripciones como un elemento fundamental de ayuda para su aprendizaje, así como la posibilidad de ver las respuestas correctas. Por otra parte, el grupo experimental ha mostrado mayor motivación hacia los temas y ha podido servirse en mayor medida de técnicas ‘top-down’ al estar familiarizado con la temática y el léxico que aparecen en las audiciones.

Consideramos que uno de los grandes retos que tiene la Enseñanza Asistida por Dispositivos Móviles es la de poder adaptarse mejor al contexto de nuestro alumnado.

1. Introduction

This project is focused on Mobile Assisted Language Learning (MALL), a subset of Computer Assisted Language Learning (CALL), which has been extensively studied in recent years. The situation is different for MALL because, even if some research is being carried out, it is normally very fragmented in specialised literature: only about 10% is published in CALL journals as opposed to over 45% in conference papers (Burston, 2014).

Mobile phones are a reality for us nowadays: we use them to take pictures, to check our social networks, to do the shopping... even to get divorced! ('Nace una app para divorciarse online, en cinco pasos y sin salir de casa', 2017). Shocking as it may seem, these are our times and this is the reality of our students, the "digital natives" (Prensky, 2001).

This is why a pilot test based on MALL was run. The first thing to determine was exactly on which aspect of MALL to focus: on the apps available on the market or on all the functionalities embedded in our devices (photo camera, geolocation, audio/video recording and playing, text messages, etc.) In the latter approach to MALL, mobiles are considered like a Swiss army knife and they try to exploit all the resources available in these devices.

This project is based on the first approach, mobile apps, but not those available on the market but a new mobile app. It can be argued that there are a lot of apps that can be easily installed in our mobiles today, but the two main reasons to build an app are that:

- most of the apps today are designed by computer experts and not by linguists, like the famous Duolingo, which uses great gamification techniques but old teaching methods (grammar and vocabulary in isolation, for example) (de Moraes Sarmento Rego, 2015).
- they are generic apps that do not fit into any curriculum or syllabus, so they do not take into account the context and, in our opinion, those apps did not address our students' needs.

The main problem for this project was building the app itself. Initially, the author of this dissertation had even considered to program it himself but it was very challenging task for a linguist, even with a good computer knowledge, to make an app without the help of a

computer expert. As a result, our supervisor got us in touch with a computer student who wanted to work in software development.

As mentioned above, often there is not substantial pedagogical expertise in the apps on the market but there was an app that could be very useful for our purposes: Audio News Trainer (ANT), developed by the ATLAS group at the UNED (Castrillo, Bárcena & Pareja-Lora, 2014; Pareja-Lora et al., 2013). This app was different in many respects because it was made by a team of many linguists and a few computer experts and was backed by solid pedagogical foundations. This app had been tested by our former students a couple of years ago and they found it very useful. They also gave us some ideas to improve it, so our starting point was to build an app taking their opinions into account and this is how Audio Trainer Play (ATP) was born in this collaborative project between a computer student (César Gayo Bravo) and a linguist.

Most MALL apps are mostly based on out-of-context vocabulary and not on oral skills. Still, one of the main difficulties of our students, and any students in general, is listening comprehension. This is why ANT was very interesting, because it was designed to develop the listening skill by using news podcasting structured in three different levels. Although an excellent app for more advanced learners since it offers authentic materials, it was very difficult for those who were not so proficient in the language.

The aim was to have more “control” on the constantly changing flow of podcasts so that our students could have the following aspects aspects that were considered important in the new app:

- a set of questions related to the audio
- a script of all the audios so that they could check any aspect (spelling, gist, pronunciation, etc) that they were not sure about
- gamification elements
- curriculum integration so that they could be familiar with the topics and the vocabulary

The first problem was to find the most suitable audios for our students. Although it was considered to prepare the audios ourselves with the help of native speakers, it was decided that the best option was to rely on the best publishers and institutions that were willing to support this project. This is how contact was made with the British Council,

“UK’s international organisation for cultural relations and educational opportunities” (‘British Council | The UK’s international culture and education organisation’, 2017), who kindly offered to pick the 20 most suitable audios available in their webpage [Learn English Teens](#). Those audios were chosen taken our curriculum into account.

Burlington Books were also contacted, not only because they are very important publishers, but also because some of their textbooks are used in our school. They kindly offered to take as much material as needed for our research purposes, which was a major boost for this study because a contrast students could now be established between those following their materials with the rest. 50 audios were selected, thus ATP was launched in mid-November 2016 with a total of 70 audios.

1.1 Objectives

The main objective of ATP is that students improve their listening skills by using their mobile phones in their free time. In the author’s view, one of most important aspects of MALL is that it promotes incidental learning, which can also take place “anytime, anywhere” (Geddes, 2004). However, a complementary approach to this idea would be to also make it “sometime, somewhere” (Spaccapietra, Al-Jadir, & Shijun Yu, 2005). It is important that students use this app at any moment but the idea is to offer them an app that is more tailored to their needs and takes their learning context into account. This is why curriculum integration is deemed important for our study, not to mention that there are very few studies in this respect.

Furthermore, there are some studies in Spain that show the importance of moving from TIC¹ to TAC², that is from ICT in general to ICT applied for a specific purpose in education. For example, Sancho Gil (2008) claims that simply using ICT is not enough to improve the learning process. Of course, technology today is very powerful, it has lots possibilities to store, manage, present and transmit information. Nevertheless, it is not so useful if it does not take place within a a specific educational context with a follow-up assessment that can provide feedback about learning outcomes. In this respect, ATP is an app that is made with our students’ context and needs in mind.

1 Acronym in Spanish for ICT, Information and Communications Technology (“Tecnologías de la Comunicación y la Información”)

2 Acronym in Spanish for Learning and Training Technology (“Tecnologías del Aprendizaje y Conocimiento”)

On the other hand, it should also be mentioned that there are many ways to understand curriculum and the finality is to promote linguistic diversification with our work. Following the document of the Common European Framework of Reference for Languages (CEFRL) , it could be considered that:

a given individual does not have a collection of distinct and separate competences to communicate depending on the languages he/she knows, but rather a plurilingual and pluricultural competence encompassing the full range of the languages available to him/her (Verhelst, Avermaet, & Takala, 2009)

The main goal behind this project is increase the motivation for language learning. If there is more motivation, there will probably be more exposure to the language and, therefore, more learning. These ideas are partly based on Bongaerts (1988) and they are referred later in this paper. This increased motivation was attempted:

- by using the mobile phone, which is the favourite device for young learners
- by introducing some gamification elements that find enjoyable

At the end of the day, motivating students is probably the most serious challenge that teachers have to face in their lessons. As in any other activity in life, motivation is a key factor.

The importance of having more exposure is also mentioned above. Some students in our area (and their parents) are under the impression that going to a language school is enough to learn a foreign language. Learning in any kind of school is formal learning and our students need to benefit from more exposure to the language in any context, whether formal or not. This is particularly important in Spain, a country and a culture that takes for granted that all the audiovisual material produced in other languages must be dubbed. The discussion regarding the negative effects of dubbing everything and not being exposed to other languages is a complex issue that does not belong here, but it has been discussed by Spanish authors like Díaz Cintas (2003).

1.2 Research methodology

In order to carry out this research a mixed approach was adopted, that is, a quantitative-qualitative approach. The survey was conducted in the form of questionnaires so as to get some quantitative information that is expected to be valuable. This information

will be contrasted with the qualitative information obtained in the open-ended questions in the questionnaires and classroom observation.

Our students will need to complete two questionnaires, one before trying ATP and the other after using it for some time. In this respect, the duration of the project will be four weeks (from mid-November to mid-December, 2016).

In order to enhance our internal validity, triangulation was used by contrasting:

- The quantitative information in the questionnaires and qualitative feedback from class observation, the open questions included in the questionnaires and the impressions of other teachers in the school (quantitative-qualitative comparison)
- Comparing the two questionnaires at the initial and final stages of our study (temporal comparison)
- Comparing two main groups of students: those who did not benefit from curricular integration with our app (control group) and those who did (experimental group)
- Taking the app logs into account

The questionnaires will have the following structure:

- Habits
- Expectations
- Motivations
- Pedagogical Aspects (only the final questionnaire)
- Aspects to improve (only the final questionnaire)

The full contents of the questionnaires is in the Annexes section of this paper.

The study will take place in the context of our school, which is the biggest secondary school in the province of Jaén with over 1500 students, who will be sent questionnaires using our corporate mail hosted by Google. However, adult students (about 400) do not have this service to get in touch with other peers or teachers and they use their own learning platform, so our research population is reduced to about a thousand students.

There has not been any kind of random assignment. Therefore, it is a convenience sample since this study relies upon students' volunteering attitude towards the project. Although there are many possible candidates to fill in the questionnaires, a very high participation is not to be expected because not all of them check their emails and they are not used to participating in research projects. In any case, our department colleagues were

contacted so that they can give information to their students about this project. Also, our colleagues will also provide valuable feedback about their students' participation and motivation.

Descriptive statistics was used to analyse the results, such as the graphs provided by Google Docs, although pivot tables and charts both in Excel and SPSS were also used so as to find some connections between the data.

1.3 Structure of this dissertation

In the following section the three theoretical aspects behind our project will be analysed: listening comprehension, MALL and gamification.

The role of **listening comprehension** in L2 learning nowadays was analysed at the very beginning. Even though it is a complex skill of utmost importance, it is usually at the service of the other skills, mostly speaking, and there has not been much important research about it until recent times.

The cognitive aspects of listening are very important for this study, especially top-down and bottom-up processing and their implications as well as the complex cognitive processing that very quickly takes place while listening in proficient speakers, sometimes so quickly that it goes unnoticed (automatic processing). Moreover, the importance role of memory in listening comprehension will also be explained. To finish this section, the different stages in listening (perception, parsing and utilisation) according to Anderson (1995) are reviewed.

It is also interesting for this project to see the evolution on listening methodology in the classroom, starting with the text-oriented instruction in the 50s and 60s. The predominance of the written skills was clear at this time and reading texts aloud was common practice. In the 1970s the Council of Europe was very important in recognising the importance and the complexities of listening in a foreign language. Listening techniques that are common practice nowadays (like pre-listening tasks or warm-up) were introduced as well as authentic materials thanks to the cassettes and videotapes. From the 80s onwards, learning L2 skills has become more learner-centred and has tried to improve their metacognitive strategies.

The second aspect to analyse in this theoretical framework is **MALL**, starting with the main idea and brief evolution of this fast-changing subject. The articles written ten years ago spoke about PDAs and how to use SMS text messaging system to improve our teaching practice. Today everybody refers to smartphones and tablets and the world of possibilities that they can offer.

Next on the dissertation is the state of the art in MALL following the two main trends mentioned above (learning apps and Swiss army knife approach). To finish this review of MALL trying to answer the difficult question: where is MALL today? There are many studies about MALL, but it is usually a fragmented subject when it comes to publications. Many articles are not published in specialised journals and studies and research about it tend to be a one-off event.

As a result, there is a reference to a common framework that attempts to classify apps according to different characteristics depending on the distance from the teacher and the social component. Most of the apps today fall on one of those categories and the advantages and disadvantages of this approach will be analysed.

Last but not least, **gamification**, a concept that is directly linked to games in general and that is why some studies do not show a clear-cut difference between games and gamification. Consequently, it was defined what gamification is and its importance for learning. The idea is to go from the more general to the more specific, thus moving from a psychological point of view (the human being as one of the very few mammals that keep playing in their maturity) on to the pedagogical implications that it has for language learning.

On the other hand, there are different kinds of gamification, namely structural and content gamification and their elements and characteristics. The last subsection was devoted to speaking about how gamification and MALL relate to and complement each other.

The third section is to see the app **Audio Trainer Play** in detail. All the functionality of the app was reflected by using screenshots of our Android device and the possibilities that it offers to improve our listening skills. It will also be explained how these three elements mentioned above, listening comprehension, MALL and gamification, are reflected in the app and the pedagogical considerations in mind. A short reference to

technical aspects of the app will be made as well as the explanatory videos prepared for our students.

After describing the app, the results obtained in this study will be analysed to see if the answers to the posed questions were found. The end of this dissertation is devoted to the conclusions, the milestones that were reached, our contribution to the different disciplines covered in this study and the future directions.

2. Theoretical framework: mobile development of audio skills and gamification

The areas of concern and research interest in this study are threefold:

Research	Reflected in
Linguistic	Listening comprehension
Technological	Mobile Assisted Language Learning
Pedagogic	Gamification

In the following pages these three aspects are analysed for the purposes of the study.

2.1 The teaching of listening comprehension

One of the main objectives in our project is improve oral skills and, more specifically, the listening or aural skill. One of the subjects in this Master's studies deals with this topic, which is of utmost importance to any teacher of modern languages and even more in a country like Spain, which has been the sole country in Europe for more than a decade without any kind of oral test before secondary school students have access to university (García, 2007).

As a result, not surprisingly, one of the main difficulties of our teenagers who study English today lie in the oral skills, both in listening and speaking. Bongaerts (1988), who looked at highly proficient L2 learners, found that most of them had the following characteristics:

- they had had intensive L2 training,
- were highly motivated, and
- were constantly and massively exposed to L2 input

But what is the role of listening in L2 learning? According to Jesús and Mayor (2009), there is little research devoted to this skill taking into account the fact that we spend most of our time doing precisely that (50% of our time according to Gilman and Moody, 1984). Some of them even go as far as to say that “listening has been treated as the Cinderella of the four macro-skills” (Flowerdew & Miller, 2005). Not until recently do we have important research about listening, which is now considered to be a key element in L2 acquisition.

Regarding teaching, the author agrees with Jesús and Mayor (2009) on the fact that we should pay special attention to designing materials that:

- are based on recent research
- appropriate to language proficiency
- motivating
- technologically state-of-the-art

Paying attention to the first aspect, recent research on listening comes from a variety of fields such as Psycholinguistics, Cognitive Psychology, Bilingualism, and Applied Linguistics. In our opinion, one of the most important books devoted to the listening skill recently is that of Vandergrift and Goh (2012). Their point of view is that of a teacher and they also agree that much more attention should be devoted to listening in class: “While language learners are often taught how to plan and draft a composition or deliver an oral presentation, learners are seldom taught how to approach listening or how to manage their listening when attending to spoken texts or messages.” (page 4).

2.1.1 Cognitive aspects of listening

Vandergrift and Goh (2012) refer to four main aspects: (1) top-down and bottom-up processing; (2) controlled and automatic processing; (3) perception, parsing, and utilization; and (4) metacognition. The relationships between them can be seen in illustration 1.

Bottom-up processing is when learners try to make sense of the individual sounds by grouping them into meaningful units in order to understand the message. From the phonetic point of view, we start with the different phonemes (segmentals) and then we move on to aspects like intonation, stress and rhythm (suprasegmentals). The idea is to interpret the different phonemes in order to move on to increasingly larger units of meaning, such as words, sentences and finally discourse.

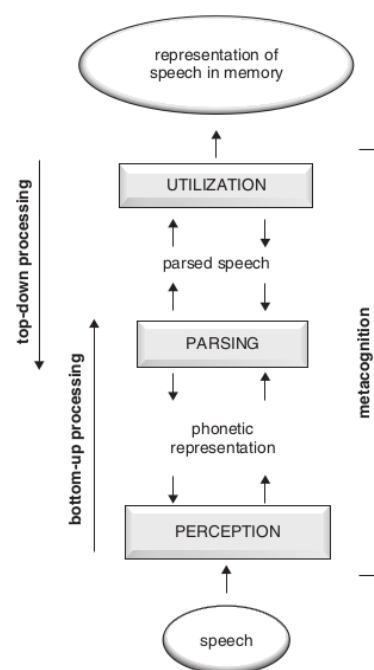


Illustration 1: Cognitive Aspects

This approach alone cannot account for L2 students listening processing, since it ignores the problem for students to keep pace with the sound stream nor does it take into account their knowledge of the world. Therefore, bottom-up processing is based almost exclusively on linguistic knowledge, especially phonological, morphological and syntactical aspects of the target language.

On the contrary, top-down processing is set on the context of the listening activity and uses previous knowledge to get the message across. Consequently, learners can apply different types of world, pragmatic, cultural and discourse knowledge that act as a conceptual framework that creates certain expectations before listening. What learners do is confront these expectations and the appropriate knowledge sources with the sound stream in order build meaning. However, this top-down approach alone is not suitable either since listeners may not have the sufficient knowledge required for the task.

As Vandergrift and Goh (2012) point out, “in reality, top-down and bottom-up processes rarely operate independently”. Research in L1 shows that both processes are interactive, especially concerning how information from top-down processing limits and guides interpretation (Davis & Johnsruide, 2007). Both the knowledge of different sounds and the context are simultaneously applied in order to create a “mental representation of what they have heard” (Vandergrift & Goh, 2012).

Depending on the purpose of listeners, they can use more one process or the other. If they are looking for specific information or details, they will use more bottom-up processing. On the contrary, if they want to get the gist, they will resort more to top-down processing.

In L1 listening, we change from one process to the other very quickly, almost immediately, hence the term ‘automatic’ processing. The processes in L2 learners depend on their proficiency in the language, but in general they have more problems to coordinate these processes because their linguistic and metalinguistic knowledge is not that of a native speaker. In this case we will resort to controlled processing.

In controlled processing the listener is aware of the processes behind the speech stream. According to Johnson (1996), a cognitive skill like listening can be like any other skilled behaviour and become automatic after some practice, like learning to ride a bike. However, following the same example, if we ride too fast at the beginning or we are not

strong enough to brake, we will probably fall off the bike. It is exactly the same with the listening skill: if the speech stream goes too fast or our (working or short-term) memory fails to take in so much information, our comprehension will suffer and we will start to “guess” the missing parts by using the context or any other possible strategy (visual aids, topic knowledge, etc.)

The role of memory is of paramount to understand listening comprehension. Long-term memory is very important so that we can understand the different situations the speakers are involved. On the other hand, short-term or working memory is in charge of the processes while listening. If we can process information automatically, our working memory will be available to process new information. If that is not the case, then our comprehension will suffer greatly because we will get “stuck” processing something while more information is coming.

Anderson (1995) differentiated three interconnected stages in listening comprehension: perception, parsing and utilization. This is what we could see in Figure 2.1, not as independent processes of each other, but rather as interconnected bottom-up and top-down processes as explained below.

In the perception stage, listeners use bottom-up processing to try to decode incoming speech so that they can do one of the most difficult tasks for any learner: word segmentation. This is truly complicated for a non-proficient listener since, unlike reading, we cannot see the boundaries between words. There are certain components that can help like intonation but other suprasegmentals like rhythm or stress can complicate the situation. Therefore, there are times that listeners can understand some words in isolation but not in connected speech. According to Goh (2000), difficulties reported by L2 listeners during the perception phase include (1) not recognizing words; (2) neglecting parts of speech that follow; (3) not chunking the stream of speech; (4) missing the beginning of a sentence or message; and (5) concentration problems.

In the parsing phase, listeners parse the sounds which they have heard and try to find potential word candidates. This is also a skill that improves over time as proficient listeners are able to match the phonetic representations with the appropriate words in a given context and they can also process more information. According to Field (2008),

listeners have fewer problems to identify content words, which makes sense since these are the words that carry more meaning.

In the utilisation phase, listeners use top-down processing to make sense of what they have heard. They resort to information which is not present in the linguistic input, basically the information stored in their long-term memory, and generate a conceptual framework to contrast their speech perception with their context-based knowledge. If the automatization of this process fails, then they have different difficulties like (1) understanding the words but not the message, and (2) feeling confused because of seeming incongruence in the message (Goh, 2000). According to Vandergrift and Goh (2012), all the processes are not independent. In fact, they occur “so rapidly in fully automatic, fluent listening that these processes take place in parallel fashion: that is, they occur simultaneously as new speech is processed.”

Jesús and Mayor (2009) refer to Pérez Basanta (2000: 1615) to explain the difficulties regarding the automatization of the different processes and, more specifically, the problems that exist with less proficient students regarding bottom-up processing:

Unfortunately, since the first exposure to the language almost always is via the written form, the phonological layer is the missing link in students' instruction. It has been my experience from a lengthy period of teaching listening as a specific subject, that contrary to Field's (1998) claim that misunderstanding occurs at the level of syntax, the real hurdle is the phonological one.

The author could not agree more with this statement. Although listening comprehension is a complex skill as seen before, it is also our perspective as teachers of English that most students need as much exposure to language oral input as possible in order to improve their bottom-up processing. This is particularly important with languages which are so different from a prosodic point of view such as English and Spanish. In addition, in Spain listeners are not used to listening in a foreign language since they are young, which is an important drawback since the phonological system of L1 that we acquire as children can dramatically interfere with our perception of a L2 (Cutler, 2001).

Consequently, based on recent research and teaching practice, we need to provide L2 learners with a considerable amount of language input in the form of speech stream. We

can gradually improve their phonological decoding and process automatization with practice, the same as learning to drive a car. Our objective is to achieve this goal.

2.1.2 Perspectives on teaching listening

Regarding views of teaching listening in history, following Vandergrift and Goh's terminology, three types can be mentioned:

Text-oriented instruction

In Brown's opinion (1987), listening pedagogy was strongly influenced by reading and writing in the 50s and 60s. There was a heavy emphasis on imitation and repetition of both sound and grammar patterns. These listening activities were more oriented to test how well the learner had understood than to help the learner understand more accurately. We also agree with Vandergrift and Goh (2012) that "this tendency to test rather than teach listening continues in many classrooms to this day".

Table 1.1. Features of Text-Oriented Listening Instruction

Learning objectives	<ul style="list-style-type: none">• Decode sounds: phonemes, word stress, and sentence-level intonation• Listen to, imitate, and memorize sound and grammar patterns• Identify relevant details from oral input• Demonstrate understanding of the meaning of the passage
Listening input	<ul style="list-style-type: none">• Words, phrases, and sentences read aloud• Written passages read aloud
Classroom interaction	<ul style="list-style-type: none">• Learner–teacher• Individual listening
Learner response	<ul style="list-style-type: none">• Discriminate sounds at word- and sentence-levels• Write dictation of written passages• Answer comprehension questions based on the listening passage• Complete written texts with details from the listening passage
Challenges for learners	<ul style="list-style-type: none">• Listening is not taught as a language skill• Learner comprehension is constantly assessed informally• Listening passages are often dense and do not reflect the linguistic features of spoken texts

Illustration 2: Text-oriented Listening Instruction

Table 1.1 (page 7) shows the different characteristics of this approach to listening mostly based on cognitive theory, in which meaning was thought to be built in an incremental way, from individual sounds to words, groups of words and then the text (bottom-up). On the other hand, this kind of listening activities tended to be written texts read aloud, which greatly increased the lexical and grammatical complexity, as many linguists like Halliday (1985) demonstrated.

Communication-Oriented Instruction

The view of listening as a distinct and complex skill received a major boost when the Council of Europe started addressing the communicative needs of learners in the early 1970s (Howatt, 1984). As a result, Vandergrift and Goh (2012) write:

Listening was presented as a complex set of skills and micro-skills. It was no longer perceived as something that could simply be “picked up” by language learners, but as a complex communicative skill that had to be learned as one would learn other language skills such as reading and writing.

The new methodology tried to change the old habits of teaching listening comprehension, encouraging teachers to use authentic materials like films and songs instead of long written passages. It was the advent of videotape recorders first and radio cassettes in the mid-60s that brought authentic materials into the classroom. Another breakthrough in developing students' aural skills was the introduction of pre-listening tasks. Table 1.2 presents a summary.

Table 1.2. Features of Communication-Oriented Listening Instruction

Learning objectives	<ul style="list-style-type: none">• Develop both macro and micro skills for listening• Develop specific enabling skills for listening
Listening input	<ul style="list-style-type: none">• Spontaneous learner–learner talk• Scripted or semi-scripted texts with a high degree of authenticity• Authentic listening/oral interaction materials
Classroom interaction	<ul style="list-style-type: none">• Learner–learner• Learner–teacher• Individual listening
Learner response	<ul style="list-style-type: none">• Respond to spoken texts in socially and contextually appropriate ways (e.g., inferring attitude, taking notes, identifying details)• Complete missing information in texts or discourse• Use information from listening text for other communicative purposes
Challenges for language learners	<ul style="list-style-type: none">• Listening often neglected in thematic lessons that integrate the four language skills• Listening neglected in oral communication activities which focus more on speaking• Learners indirectly assessed for comprehension

Illustration 3: Communication-Oriented Instruction

Despite these advances in listening pedagogy, this skill used to be at the service of the other skills, especially writing and speaking. In general, listening activities used to prepare the students for more demanding productive tasks. That explains why, when there was a combination of oral activities, the emphasis was more on the speaking component.

Learner-Oriented Instruction

It was in the late 1970s and 1980s when the different learner-oriented developments in L2 teaching effected changes in listening instruction. The question that researchers were

trying to answer is why some learners are more successful at learning a foreign language than others (O'Malley & Chamot, 1990; Oxford, 1990; Stern, 1983; Wenden & Rubin, 1987). As a result, the new approach was more focussed on the individual learner and the strategies required to attain better results. According to O'Malley and Chamot (1990), these strategies were both based on cognitive and affective factors.

As regards cognitive strategies, teachers started to make their students aware of the different mental processes that took place while listening by using different techniques like thinking aloud (Chamot, 1995) and checking informed guesses. The idea behind it was basically “teaching listeners how to listen” (Vandergrift & Goh, 2012). The use of these techniques and the attempt to create a scaffolding listening practice clearly helped students in this task. On the other hand, affective factors deal with motivational aspects related to the social and affective environment of the learner. In this respect, it is very important to provide students with authentic materials.

Table 1.3 Features of Learner-Oriented Listening Instruction

Learning objectives	<ul style="list-style-type: none">• Use listening strategies for enhancing comprehension and coping with problems• Develop metacognitive awareness about L2 listening
Listening input	<ul style="list-style-type: none">• Spontaneous learner–learner talk• Scripted or semi-scripted texts with a high degree of authenticity• Authentic listening/oral interaction materials
Classroom interaction	<ul style="list-style-type: none">• Learner–learner• Learner–teacher• Individual listening (self-directed)
Learner response	<ul style="list-style-type: none">• Respond to spoken texts in socially and contextually appropriate ways (e.g., inferring attitude, taking notes, identifying details)• Complete missing information in texts or discourse• Prepare reflections and self-reports on use of strategies
Challenges for learners	<ul style="list-style-type: none">• Learners become aware of strategies but the lessons do not always allow them to experience the use of these strategies in more tangible ways• Learning to listen is often an individual affair and listeners do not benefit sufficiently from the knowledge and experiences of others• Learners lack a variety of structural support that could assist them in their overall development of listening abilities

Illustration 4: Learner-Oriented Instruction

2.2 Mobile Assisted Language Learning

Mobile Assisted Language Learning (MALL) is a subset of Computer Assisted Language Learning (CALL) and mobile learning (m-learning) that, according to Chinnery (2006), “is a burgeoning subdivision of the e-learning movement”. There is more than one definition of what m-learning is due to the fact that it is not clear what we mean by the term ‘mobile’: “does it relate to mobile technologies, or the more general notion of learner mobility?” (Agnes Kukulska-Hulme, 2009). Both aspects are very important, so when we talk about “m-learning”, we can refer to any of them (or even both).

Therefore, one of the characteristics of MALL is that it is very fast changing area and the same applies to its literature. The first reports that deal specifically with MALL appeared in 2000. However, the situation at that time does not have much to do with the state of the art today, since in MALL the arrival of new technologies has triggered a revolution rather than an evolution.

Certainly using any technology, whether mobile or not, is not new for L2 learning. During the Second World War it became very important to have an oral proficiency in other languages. It is the time of the audiolingual method, which is based on structural linguistics, contrastive analysis and behavioural psychology. The possibility to record or play authentic oral texts is the origin of the first language labs in the 50s. The techniques used in these labs involved the repetition of certain patterns of the target language, following the stimulus-response approach.

In the next decade, in Chinnery’s words (2006),

Influenced by behaviorism, the lab was progressively replaced in the 1960s by drill-based computer-assisted instruction, which decades later was itself surpassed by a more intelligent, interactive and multimedia computer-assisted language learning

Phil Hubbard (2014) and other authors also agree that this is the beginning of CALL.

As regards MALL, if we understand “mobile” as “mobile technology”, the first portable devices that are similar to computers are the PDAs³, which are a kind of pocket computer. The use of these devices started in the 80s (Viken, 2009), but they are no longer manufactured today (from 2010 approximately). In fact, it is not difficult to find references

³ Personal Digital Assistant

to these devices in articles published four or five years ago (i.e., Miangah, 2012), but today they seem technologies from the past.

That is probably due to the use of mobile phones. These devices started in the 70s, but it was not until the advent of the so-called smartphones when they fully unleashed their potential as portable minicomputers. Although they were widely used in Japan at the end of the 90s, it was not until the mid-2000s when the Symbian operating system by Nokia started to be more well-known. Only a few years later, in 2007 Apple launches their first iPhone, which is not only a smartphone, but it is also one of the first to have a capacitive touchscreen instead of a resistive one after Steve Jobs's decision that the iPhone could only have one physical button (apart from the power button). Only a year later the HTC Dream is released, the first mobile with the Android operating system. This has evolved to the present situation, in which the two main operating systems are Android and iOS, followed at a great distance by other systems like Nokia's or Windows Mobile. ('Top 8 Mobile Operating Systems from Jan to Dec 2016 | StatCounter Global Stats', n.d.)

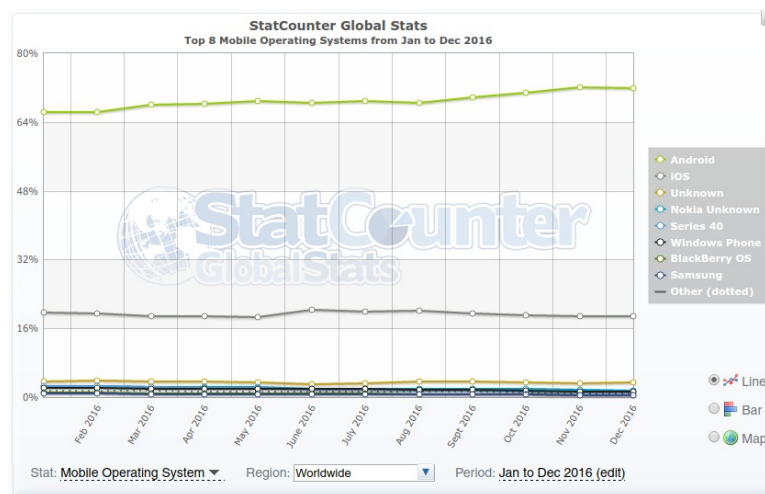


Illustration 5: Mobile phone operating systems

2.2.1 The state of the art in MALL

In MALL two main trends can currently be observed:

- Development of apps for mobile phones and tablets, mainly for Android and iOS
- Exploitation of all resources and functionalities of this kind of devices as if it were a digital Swiss army knife: photo camera, geolocation, audio/video recording and

playing, social networks, Internet, text messages, messaging apps and many others so as to enhance language learning or some specific skills.

Mobile apps

Today apps are used for everything: appointments with the doctor, shopping, booking tickets, sharing tasks, etc. Perhaps due to great amount of available apps, it is difficult to find a common theoretical framework when it comes to the educational field and, more specifically, L2 learning. It is true that MALL is a relatively new discipline and mobile phones have changed the way that we live, but beyond a few lists of L2 learning apps like Segev's (2014), the chances that you will get totally lost when browsing for apps on the Internet is very high. It is the same when it comes to research.

One of the few articles that alleviates this situation a bit is that of Park (2011). In his opinion, we have moved from e-learning towards m-learning and then to ubiquitous learning. We can see this in the following figure:

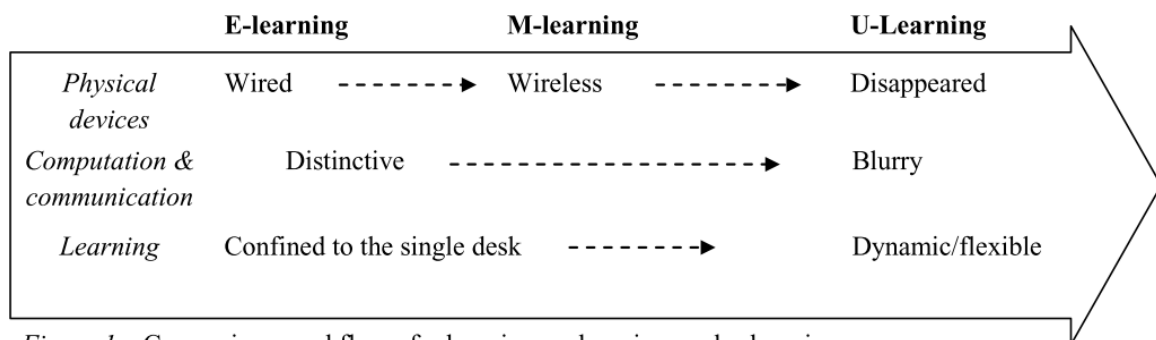


Figure 1. Comparisons and flow of e-learning, m-learning, and u-learning

Illustration 6: Comparison of e-learning, m-learning and u-learning

He suggests a way to classify mobile apps in four categories following two criteria: transactional distance and individual/group activities. The former is a concept that takes distance into account not only as a geographical concept but also a pedagogical one. In this way, we refer to a kind of education in which either technology is the only resource to establish connection with the learner (high transactional distance) or it is used as a complement to conventional in-person learning methodology (low transactional distance).

According to this, mobile apps can be classified in four types:

- High Transactional Distance and Socialized Mobile Learning Activity (HS)
- High Transactional Distance and Individualized Mobile Learning Activity (HI)
- Type 3: Low Transactional Distance and Socialized Mobile Learning Activity (LS)

- Type 4: Low Transactional Distance and Individualized Mobile Learning Activity (LI)

We can see this in the following figure:

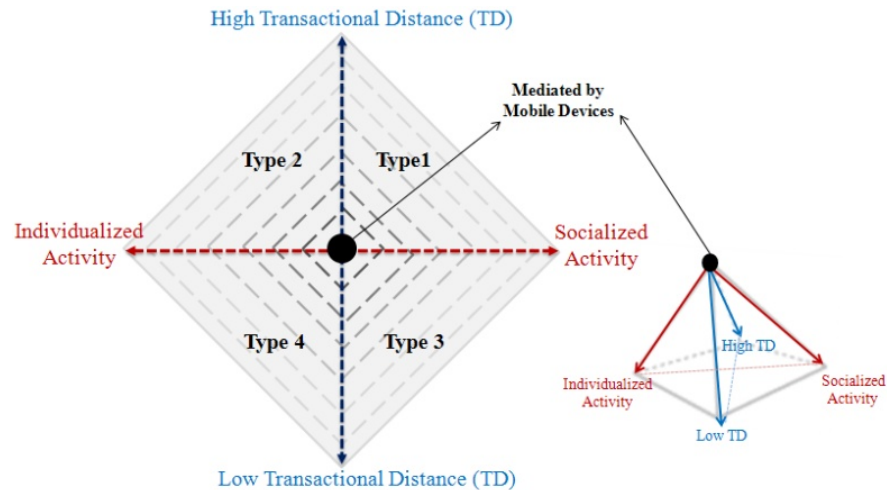


Illustration 7: Different kinds of apps

Type 1 HS activities are those in which there is a great distance with the instructor, students are involved in collaborative learning, materials are taught through mobile apps and most interactions take place among students. This kind of activities have been primarily used by mathematics or physics students through a series of highly structured tests which fostered collaborative and social learning. In L2 learning a possible activity would be to think of a series of multiple choice questions that students have to answer as a team.

Type 2 HI activities are those in which students have more psychological and communication space with the teacher and students are involved in their individual learning with well-organized learning materials, which are delivered through the mobile app and most interactions take place between the individual learner and the content. In this modality students are usually pleased to incorporate this flexible learning with their mobile lifestyle.

There are not many studies about type 3 LS activities although, in Park's words (2011), "this type demonstrates the most advanced forms in terms of the versatility of mobile devices and learners' social interactions". Students collaborate to achieve a common goal and they do it as a group. On the other hand, there is a low transactional distance with the teacher and the instruction is loosely structured. There are relatively few

studies about LS activities, although some experiments can be mentioned in audio-based learning forums where a series of asynchronous audios replaced the text-based discussion online forum.

Type 4 LI is ideal for blended learning, since there is a low transactional distance with the teacher and it is aimed at meeting individual learners' needs. This modality has more to do with the Swiss army knife approach mentioned before rather than the use of apps. For example, students can use their mobile to take pictures of plants, animals, objects and so forth so that they can work on all those materials later in class. LI activities have a great potential and they can be used in any subject, not just L2 learning.

Now that this common framework is established, let us analyse the shortcomings of type 2 HI activities, which are the most predominant in MALL:

- Since they are meant to be individual far from the teacher, there is not any kind of collaborative learning or social component. Apart from that, as Hubbard says in relation with the students' pedagogical training, we cannot have an initial session, explain everything about the app and have the impression that it is enough. We have to let students use it before formal training begins. "Learning (both technical and pedagogical) should be incremental but also include plenty of recycling and reviewing key concepts and strategies" (Hubbard, 2014)
- There are not solid pedagogical foundations behind many of the apps in the market. Most apps are made by computer experts, not linguists (Fatahipour & Ghaseminajm, 2014)
- As in the rest of apps, we have the problem of the small screen (Godwin-Jones, 2011; Kukulaska-Hulme & Shield, 2007). This is one of the most important technological aspects that a good app must solve. As Stockwell (2008) showed, there are many students that prefer to do the activities on the computer because it takes a lot to perform those in the smartphone.
- Despite the advantages of mobility and potential to adapt to different contexts, there are still very few apps that are sensitive to context (Fatahipour & Ghaseminajm, 2014)
- Apps are usually expensive.

- Many of them depend on the Internet connection in order to work. It is true that the situation today has notably improved in this respect, but there are still students that still have problems to have a connection (rural areas, young students, etc.)

Despite these problems, it does make sense to develop apps for L2 learning. MALL has the benefits of:

integrating the mobile technology in both formal and informal contexts; the 'fun' moment when engaging learners in authentic learning contexts; the learners' contribution to the creation of the learning content; the use of mobile devices to support the practice of achieving listening and speaking skills effectively (Viberg & Grönlund, 2012)

Digital Swiss army knife

We can also use the resources available in our mobile phone in our lessons. The first articles published in this respect date back to the years before the smartphone and they mainly deal with the use of text messages using the Short Message Service (SMS) developed by Nokia. Later it was the time of the Multimedia Messaging System (MMS) but, apart from the limitations of the systems themselves, there was the problem of the cost of the service. Notable exceptions are those researches that had some kind of funding or grant. For example, Ismail, Mohammed Idrus and Mohd Johari (2010) sent daily messages related to the content of different university courses to these students, who had a very positive impression about the experience and stated that it had improved their learning experience.

Today we hardly ever use the text messages via SMS but via the messaging apps like WhatsApp or Telegram. One of their strengths is the fact that they do not cost a penny and they can be used in creative ways. Segev (2014) gives us some ideas:

- *How about sending your students a short news article or podcast and asking them to send an audio response summarising it in their own words or giving their opinion?*
- *Students could send photos with captions to illustrate different tenses. Alternatively, they could describe daily habits or routines, or create a set of instructions.*
- *Students could create a video or audio of themselves making a short business presentation or reviewing a movie/book or TV show.*

We could even create a messaging group with our students or among themselves. This is important because we could do some collaborative as well as motivating work. Another possibility that we have is that of sending audio and video files easily and on the spot. When language labs started, they could not have imagined the wealth of possibilities that we would have many years later: the students can record their own audio for teacher's supervision, teachers can record their lessons and send them to their students, apps like Skype can get us in touch with people from other countries, etc.

Another fantastic tool is GPS. Smidts, Hordijk and Huizenga (2008: 4) think that:

New possibilities emerge when a pupil starts learning with a mobile device with GPS functionality. Via satellites the GPS receives signals that indicate the position of the pupil with the device. On the basis of this position the pupils can receive location-specific information on their devices, or add this information. In this manner a connection will be formed between the physical and the virtual worlds in which the pupils find themselves; several layers of information are accessible at the same time.

Combining geolocation and audio, Hockly (2014) suggests the use of Voices (<http://voices.com>) to practice oral skills as a motivator. The idea is record some audios giving information about a part of our city or an important sight and locating it via GPS so that anyone can find that information in that place later.

Internet and social networks are very important in MALL today. For example, a research of 147 undergraduate students examined the effect on learners' satisfaction of incorporating Facebook into their business communication courses (Huang, Lin, & Villarreal, 2014). The results were that students showed positive opinions about course effectiveness, feedback system, and ease of use of Facebook. However, learners' perceived usefulness did not significantly effect on their satisfaction.

These are just some ideas of the possibilities of MALL beyond the apps, using some of the amazing functionalities that these devices have acquired over time. Obviously, there are many more ideas that could be listed, but the main focus in this dissertation is on the app approach.

2.2.2 MALL in formal education

According to the references in MALL studies, 570 have been published over the last 20 years, most of them describing project implementations. Regarding the origin of

these publications, it is shocking to find how scattered all the information is: only 10% was published in CALL magazines.

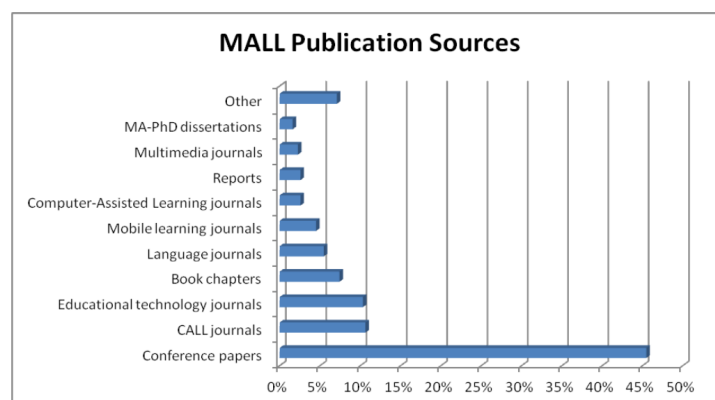


Illustration 8: MALL Publication Sources

Not surprisingly, 60% of the studies use English as a L2.

It is extremely difficult to find information about curriculum integration in MALL. There are some references in some articles (Godwin-Jones, 2011; Kukulska-Hulme & Shield, 2007), but as Burston (2014) puts it:

With few exceptions, published studies of MALL implementations have not progressed beyond pilot testing, i.e., design proposals, proof of concepts, limited experiments, class trials. To the extent that any large-scale implementations have been attempted, these have remained marginal to the curriculum, restricted to the use of voluntary complementary materials, most notably vocabulary review. Above all, what is most striking about published MALL implementation studies is the virtual absence of follow-up reports of curricular integration.

This shows that MALL is still, as the author says in the title, “still on the fringes”, as an outsider when it comes to formal education. There are experiments and trials, but not attempts to integrate MALL into everyday teaching practice.

From the early 2000s on sometimes we could read that the revolution of mobile learning would arrive in a few years, even before the end of that decade:

Integrating Mobile Assisted Language Learning (MALL) technology (personal multimedia players, cell phones, and handheld devices) into the foreign language curriculum is becoming commonplace in many secondary and higher education institutions. (Abdous et al., 2009, p. 76)

This statement does not have much to do with the reality of many educational institutions:

Such claims, needless to say, are at variance with the foregoing analysis of published MALL application studies. While it is certainly true that between 1994-2012 over experimental MALL

implementations were undertaken, few of these have actually been integrated into the curriculum in any substantial way and even fewer have been pedagogically innovative, let alone revolutionary. (Burston, 2014)

Not only do we have an absence of curriculum integration but also a lack of follow-up studies. Generally speaking, most MALL contributions are a one-off account. There are some notable exceptions like ANT (Audio News Trainer), developed by the ATLAS research group. There are some follow-up articles of an application that is still considered to be at an experimental stage (Castrillo et al., 2014; Pareja-Lora et al., 2013).

According to Burston, this lack of curriculum integration is caused by different factors:

- historically, technological limitations and cost factors
- technologically, incompatibility between several operating systems
- pedagogically, a methodology at variance with with the learner-centred methodology that has been predominant for the last two decades

While the first two factors have improved over time, there still remains the pedagogical question, which is something that Kukulska-Hulme and Shield (2007) already reported when reviewing MALL. For Godwin-Jones (2011):

... for the most part uses of mobile devices were pedestrian, uncreative, and repetitive and did not take advantage of the mobility, peer connectivity, or advanced communication features of mobile devices. Most activities were teacher-led and scheduled, not leveraging the anytime, anyplace mobile environment. Oral interactions and learner collaboration were infrequently used. The problem is less one of hardware/software shortcomings and more in developers' conceptualization of how language learning could be enhanced in new, innovative ways with the assistance of mobile devices. (p. 7)

2.2.3 MALL for listening comprehension

It is surprising not to find more research focused on oral skills, especially since it is one of the most important for our students. Vocabulary seems to be predominant, probably because it is much easier to implement. Apart from this, most studies have a short project duration and with few students. In any case, there do not seem to be studies in connection with listening comprehension in a formal education environment due to the reasons stated above.

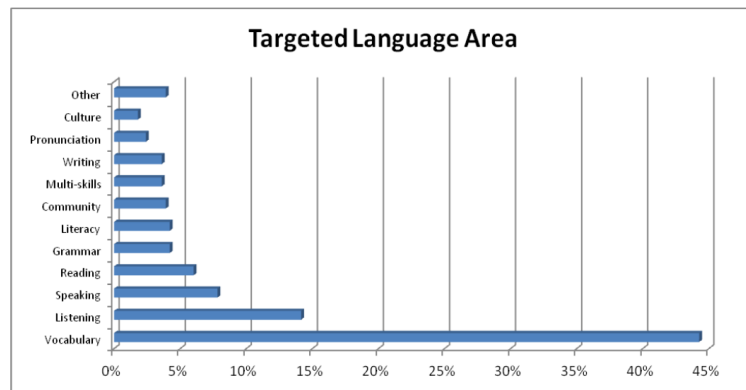


Illustration 9: MALL Targeted Language Areas

As Read and Kukulska-Hulme (2015) remind us, “the most prevalent and widely explored technology for mobile listening comprehension reported in the literature is that of podcasts, ever since they started to be used in Japan in 2005”. Rosell-Aguilar (2007) citing Meng lists the following possible uses of creating podcasts:

- Record and distribute news broadcasts.
- Recorded teacher’s notes.
- Recorded lectures distributed directly to student’s MP3 players.
- Recorded meeting and conference notes.
- Student projects and project support interviews.
- Oral history archiving and on-demand distribution.

Rosell-Aguilar summarises the taxonomy of uses of podcasting for language learning in the following figure:

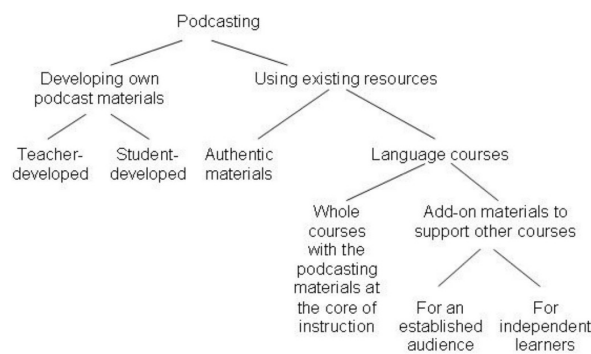


Illustration 10: Taxonomy of uses of podcasting for language learning

Among the advantages of podcasting are the motivation that it provides, the easy access to information, free downloads, publicity and additional teaching materials, especially in distance learning education.

Although the advantages of teaching listening comprehension with podcasts are many, there have been some researchers that have pointed out some disadvantages, like the amount of time required to set up and prepare podcasts. Also, it has been stated that supplementary (especially non graded) activities are often ignored by the students and there is also the pedagogical question. As Read and Kukulska-Hulme (2015) put it, “...pedagogic theory is important, something not explicitly present in the use of most podcasts.”

2.3 Gamification

It is possible to go beyond the boundaries of foreign language learning theory to understand what gamification is, since game is a concept so closely related to human nature itself. In the field of psychology, Dr. Peter Gray (2009) provides some very interesting reflections on this topic. He starts by stating that most mammals only play when they are young and they do it to practise and learn the skills which they will need as adults: predators practise predation as well as prey animals practise getting away from predators. It is not common to find animals that continue playing in their adulthood.

It is not the case for humans, who continue playing all of their lives. Compared to other animals, our brains are three times bigger than chimpanzees, our closest living relatives ('How do human brains differ from those of other primates? - BrainFacts.org', 2014). Our brain is quite immature at birth and takes a much longer span of time to develop compared to other species. These reasons might explain why we keep playing the rest of our lives. According to Gray (2009), "playfulness in humans does not end when adulthood begins and it serves many functions beyond the learning of species-specific skills". He talks about these functions:

- Play as a means of suppressing aggression and promoting cooperation. For example, when animals are engaged in playful fighting, it is clear that they have no intention to hurt the others as compared to a real fight. This is what has evolved in humans as more advanced forms of cooperating and sharing with others that surpass those of other mammals.
- Play as a basis for art, music, literature, theoretical science, religion, and all that we call "higher culture." Gray argues that play is by definition creative and also representative: it is not a real fight, it represents a fight. Therefore, we are laying the foundations of imagination too. All these elements connected with beauty are the essence of art, music or literature.
- Play as a basis for productive work. Compared to other animals, "in humans playfulness can blend with productivity. When productive work is suffused with the qualities of play--that is, with freedom, creativity, and imagination--we experience that work as play."

- Play as a basis for education. Play is a way to learn new things, but this learning is far superior in humans as compared to other species as we pass the culture from generation to generation.

As a conclusion, there is overwhelming evidence that game-based strategies are positive for human beings and, more specifically, for their learning processes. Gamification is the general term that we use when we apply gaming techniques and aesthetics in any other context in order to engage people, solve problems or help us carry out unpleasant tasks. A typical example, cited by Rodríguez and Santiago (2015) is that of Stockholm’s piano staircase (‘Piano Staircase | The Fun Theory’, n.d.). We all know how healthy it is to go up the stairs but we tend not to do it. In the metro in Stockholm 66% more people than normal chose the stairs over the escalator after it was placed.

But what is it more precisely? Below we have a very good explanation of what gamification is not (‘Game Thinking – Differences between Gamification & Games’, 2013):

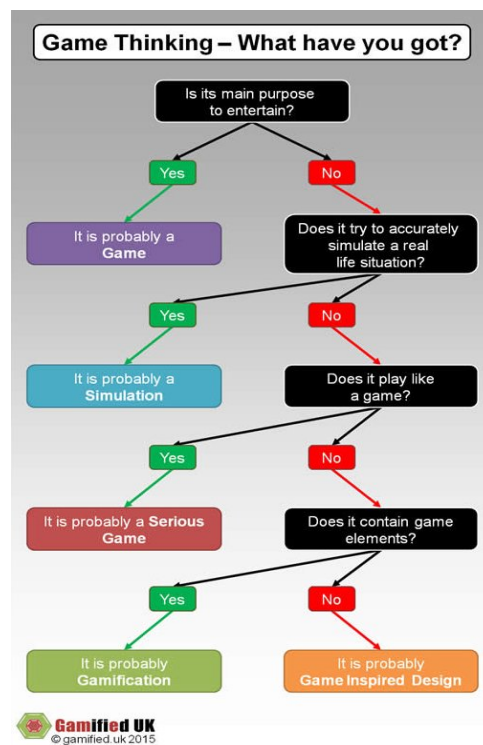


Illustration 11: What is gamification?

According to Rodríguez and Santiago (2015), gamification is not:

- **Creating a game**, because the idea is rather to change attitudes, measure results and, especially, motivate.
- A **serious game** is a game aimed at learning a specific skill, solving a problem or a real-life situation. There is a thin line dividing this kind of game and what gamification is, since they are “two sides of the same coin” (Rodríguez & Santiago, 2015). There are great games created for the purpose of learning, like Intelligym (cognitive simulators to train athletes) and Genomics Digital Lab (interactive science games about plants).
- **Theory game** has to do with the strategy that we follow in the decision-making process.
- Creating a **reward system** alone. Obviously there should be rewards in gamification, but it is not the only purpose of the project. In Rodríguez and Santiago (2015):

*The fact itself that we are playing should be the highest reward. If you do X and you get Y as an added bonus, it is a process that can help us move forward, access the game and discover the challenges that players are facing, but it is not the key concept of gamification.*⁴

- PBL (Points, Badges and Leader boards) alone. Likewise, it is easy to include these elements in our project but that does not necessarily make it a gamified system.

In relation to point number 1, one of the key aspects of gamification, Dr. BJ Fogg (2007) says that there are three elements required in order to change our behaviour: motivation, ability and triggers. If one of these elements is missing, then there is no behavioural change.

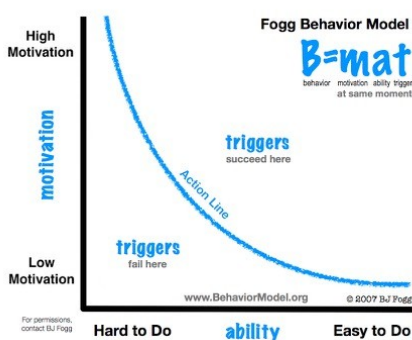


Illustration 12: Fogg's Behaviour Model

⁴ “El hecho en sí de jugar debe ser la mayor de las recompensas. Si además haces X, y te llevas Y, es un proceso que nos puede ayudar a dar el salto, acceder al juego y descubrir así los retos a los que se enfrenta el jugador, pero no es el eje fundamental de la Gamificación.”

Therefore, behavioural change takes place when succeeding in motivating tasks that have the appropriate level of difficulty. It is important to know the difference between intrinsic and extrinsic motivation. The latter one is a tangible reward, a physical or virtual one, like the the points or prizes that we obtain. However, intrinsic motivation is a positive conscious feeling of personal fulfilment and achievement. This type of motivation has to do with the theory of self-determination (SDT), which refers to three elements driving human motivation: autonomy (being in control), competence (mastery) and relatedness (to other people). When designing a good gamified experience, there should be both intrinsic and extrinsic motivators.

2.3.1 Types of gamification

According to Kapp, Blair and Mesch (2014), there are two main types of gamification:

- Structural gamification is when we apply “game elements to propel a learner through content with no alteration or changes to the content”. It is only the structure around the content that changes, not the content itself. This kind of gamification is closely related to Points, Badges and Leader boards (PBL), tracking learning process as well as a social component. An example would be when we give extra marks to a student when performing a specific task without altering the task itself.
- Content gamification is “the application of game elements and game thinking to alter content to make it more game-like”, for example, adding story elements to a course or listing challenges instead of objectives for the syllabus. Basically the purpose is to do the course more game-like but not to turn the content into a game. These are additional activities for the course.

A good design of structural gamification must take into account the following aspects (Kapp et al., 2014):

- affordances to help gain KSA⁵
- clear goals with objective measures and criteria
- incremental goal and rewards that create a series of sequenced mini-goals that become incrementally more challenging

⁵ Knowledge, skills and abilities.

- learners must know their progression
- real-time feedback when learners are not doing well
- transparency, that is, the rules are clear and understood
- possibility for people to show their status as they are progressing
- challenging tasks that are not so easy as to become boring or so easy as to demotivate
- learners' engagement over time with distributed practice, that is, distribute their learning efforts over many short sessions
- levelling up, the possibility to move from one level to the next
- social sharing
- game elements:
 - Rules, which should be simple to understand and be taken seriously.
 - Reward structure, which can include earning points, badges and moving through levels.
 - Leader boards with the list of top players
 - Point system, which can be used for purposes like showing progress, unlocking content or achieving social status.
 - Currency, which is a special kind of score: they are used to acquire other items.
 - Badges, that is, “visible symbols of accomplishment” (Kapp et al., 2014). The badges that are achieved over time should be accessible for the learner as a good motivator.

On the other hand, we have content gamification that consists of those game elements and mechanics that we can use to make content more attractive for learners. The following could be listed:

- Stories, because they are engaging and evoke emotions, which is good for remembering events and information. A good plot also incites to curiosity and bring the class into what Harmer (2001) calls an atmosphere of “pleasurable tension”.
- Challenge, a key element as explained before.

- Curiosity about what comes next. Instead of being told what they need to do, learners can discover content throughout the course so that curiosity can drive their learning process.
- Character. In Kapp's words (2014), "it seems that having an avatar appear on the screen can be motivating to learners because they somehow feel more accountable to a 'person' than to a computer". It makes content more realistic and engaging.
- Interactivity, which encourages students to learn on their own and keep using the material.
- Feedback.
- Freedom to fail. Although in normal instruction, it is not advisable to remind learners their mistakes, it is not the same in a gamified experience. There is no fear to fail here, so it is a good idea to promote trial-and-error-learning.

2.3.2 Gamification in MALL

The author agrees with Brophy's opinion (2015) that "gamified strategies are a natural complement for learning resources and activities made available online and accessed via mobile devices". Games and the latest technology go hand in hand for younger learners, for the so-called "digital natives" (Prensky, 2001). They are so used to technology that gamification and MALL are concepts that assist each other.

Gamification in MALL takes place in the form of different apps which are downloadable from the different online platforms, such as Google Play or the iPhone App Store. Probably the most famous app and the first to appear in different essays about this topic is [Duolingo](#) (de Moraes Sarmiento Rego, 2015; Flores, 2015; Myhre, 2015).

De Moraes (2015) refers to previous studies of this app that show the use of "quite old teaching methods and modern gamification strategies at the same time". It is based on the translation of texts and teaching grammar and vocabulary in isolation. Where it really excels is in the use of gamification:

- Mechanics: rules are clear and well presented.
- Aesthetics: it is very visual, so the experience is very pleasant.
- Feedback: the user gets the information immediately.

- Levels of progress: you can jump from one level to the other if you think it is too easy after completing a task successfully.
- Other aspects to mention are: experience points, possibility to fail, progression bar with activities, virtual currency (lingots) that can be used on a shop that contains unlockable rewards and the possibility to add friends to see your progress.

Despite this possibility to add friends, the app does not exploit collaborative learning nor does it take into account learners' context. It is exactly in this context where [ClassDojo](#) excels. It is a totally different app since "classDojo is a behavior management tool for teachers that gamifies the reinforcement of desired classroom behaviors" (Brophy, 2015). The teacher defines the class and will define the attitudes that will be rewarded. The teacher can decide to give points to a student at any moment and this will be immediately applied. All this information is collected and shared with parents, individually or as a group.

Nowadays there are a lot of apps for L2 learning. In Spain some learners are starting to use [Busuu](#), which introduces the concept of getting in touch with native speakers. The idea is to complement the learning process in the app with the real-life practice. [Voxy](#) claims that their methodology is context-based and the training is tailored to their students' needs.

Edmodo, Zondle, Socrative, Brainscape, LingoBee, Memrise, Babbel... There are many other apps that could be listed here but it is clear that L2 learning can be enhanced by the combination of MALL and gamification. However, as de Moraes (2015) points out:

The challenge in using gamification elements in mobile language learning is to go beyond activities focused on the acquisition of specific elements, such as vocabulary and translation of sentences, and expand the horizons to more complex offerings considering student's context and the different forms of collaboration among peers.

3. Audio Trainer Play

To the best of the author's knowledge, there are few MALL studies that are adjusted to secondary school education curriculum. Therefore, this is an emerging line of research in which the following questions could be addressed:

- Is it beneficial to implement MALL taking a specific context into account?
- Is gamification one of the best ways to motivate secondary school learners?
- Are certain strategies in listening comprehension enhanced by the use of a gamified app that is not generic?
- Are students going to be more exposed to English by listening to English in an informal learning context by using an app that has to do with their formal learning environment?

3.1 Contextual background

Looking at the current situation of MALL in L2 teaching, it seemed like a good idea to work on a specific app that could address the needs of learners from a more sound pedagogical point of view. As we could see, there are many apps in the market but most of them are made by computer experts and not linguists. An exception that has already been mentioned is ANT developed by the ATLAS group.

Developing ATP has been possible thanks to the collaboration between César Gayo Bravo, a computer undergraduate student at Universidad Politécnica de Madrid, and the person writing this dissertation, who had initially intended to do it alone with some computer knowledge, but soon realised that this task was not possible without a computer expert. Therefore, this project is also an example of collaborative learning, where the linguist has designed the ideas and the programmer has implemented them. Also, we were supported by a very important cultural institution such as the British Council and a well-known publisher such as Burlington Books.

However, it is very difficult to predict the duration of software project because a lot of bumps (and bugs) can be found on the way. Work on building ATP started in March 2016 and it was not totally ready by the end of the academic year, in June. The development over the summer was scarce, so it was decided to resume the project in

September and finish by November in order to have enough time to do some research. After debugging the app and testing the server, the final version of ATP was launched at the end of November, so the students had approximately four weeks to test it.

On the other hand, due to different reasons it has not been possible to include all the intended features.

3.2 Description and functionality of ATP

3.2.1 ANT as a precursor

The app that was initially the inspiration for our project, ANT, needs to be explained before fully describing the functionality of ATP.

ANT is developed by the ATLAS group (Castrillo et al., 2014; Pareja-Lora et al., 2013), like VIOLIN or VISP. To have an idea of the apps developed by this research group, we can take a look at the following figures (Castrillo et al., 2014):

APP NAME	SKILL INVOLVED				
	Oral comprehension	Reading comprehension	Writing (text production)	Oral production	Other
ANT (Audio News Trainer)	YES	NO	NO	NO	
FANCLUB	YES	NO	NO	NO	
Business App	YES	YES	ADDRESSED	ADDRESSED	Audiovisual
VIOLIN	YES	NO	NO	NO	Audiovisual
VISP (Videoclips for Speaking Production)	YES	NO	YES	YES	Audiovisual

Illustration 13: Skills involved in the use of the ATLAS apps

APP NAME	RESOURCES USED	USER'S CEFR LANGUAGE LEVEL
ANT (Audio News Trainer)	News provided by Internet radio issuers through RSS connection	A1-C1
FANCLUB	Prose fiction (free audiobooks) videos	A1-C1
Business App	E-voice simulator / YouTube video links	B1 Business people and students
VIOLIN	Video extracts from the TV-series "Friends" (length of the videos: 1'-3')	B1
VISP (Videoclips for Speaking Production)	Video extracts from the film "Moulin Rouge" (length of the videos: 5"-30")	B1
Eating Out	Audio clip, performed by some ATLAS group members (length: 4' 20)	A2-B1

Illustration 14: App resources and corresponding CEFR language level

The key idea of ANT is clear: improve the listening skills of the students through real-life materials that are classified in three different levels. Those materials are podcasts from different online services that are coloured in green, yellow and red depending on their difficulty. The benefits of podcasts as a pedagogical resource has been defended by many authors, including those who designed ANT (Santiago & Bárcena, 2016).

Each student who wishes to become part of the project will receive an email with the app and their username/password combination. Once we install the app, the procedure is the following:

- Log in.
- Copy the different website addresses (URLs) of the different RSS feeders according to the three levels (they just have to do it the first time for copyright reasons)
- Click on the level and podcast that we are interested in.
- Access the Facebook webpage to comment on the different podcasts.

This social aspect is very important because it introduces the notion of collaborative learning and helps learners to interact among themselves to help each other.

On the other hand, the idea that learners can have access at real-life material classified in different levels is very attractive. However, our students said that the lowest level was already very high for them and this is the main problem that weaker students had to overcome. Other suggestions were to integrate a Facebook button in the app to make comments, insert the RSS codes so to make the first login easier and remember login details for the next session.

As a conclusion, it could be said that:

- ANT is designed to work individually but it integrates the social context. In the respect, the role of the teacher a facilitator is extremely important to achieve independent performance (Palalas, 2011; Valarmathi, 2011).
- There are solid pedagogical foundations in the app since it is built collaboratively among linguists and computer experts.
- It is an app that it visually designed for MALL, so it is very easy and convenient to use. The main inconvenient is in the small screen itself, which is one of the main drawbacks of these devices (Godwin-Jones, 2011; A Kukulska-Hulme & Shield, 2007; Lan, Sung & Chang, 2007)



*Illustration 15:
ANT Screenshot*

- The content is permanently updated with new podcasts, so it is very dynamic. (Podcast teaching references) On the negative side, we are dependent on an Internet connection, but this is required to have the all the information up to date.

3.2.2 ATP

Our impression of ANT was that it is a great app but, because it was being constantly updated (actually one of its strong points), the content could not be controlled in any way. Therefore, there were two elements that were considered important and were to be incorporated in the new app: curriculum integration and transcriptions.

The lack of curriculum integration has already been mentioned as one of the characteristics of MALL. The paradigm of MALL has been the famous “anytime, anywhere” (Geddes, 2004) learning, which is indeed one of the elements which is more repeated in MALL literature (Brophy, 2015; Hubbard, 2014; A Kukulska-Hulme & Shield, 2007)

However, MALL in particular and e-learning in general should take place “sometime, somewhere”, as Spaccapietra and others (2005) defend in their article. As they conclude:

Ubiquitous computing is the IT revolution of the 21 st century. It entails a variety of new approaches to information management and dissemination. The common goal for these approaches is to provide personalized and contextualized information services, contrasting with the anonymous and all-embracing information currently provided by Web services.

They think that the “sometime, somewhere” could perfectly complement the current paradigm but, as they regret, “unfortunately, it is getting too little attention from industry and academia.”

Therefore, after taking a look at the textbook and materials used by our students, it was considered a good idea to use listening activities which were similar in both the CEFR level and the topics that they dealt with so as to analyse if there were any benefits of a more context-based and personalized learning process.

The second idea was to integrate transcription. In an application that has a changing content like ANT, it is hard to implement this feature. Obviously we can resort to ASR⁶ (Hubbard, 2014), which is more widely used to teach speaking, in order to put the oral text

⁶ Automatic Speech Recognition

into words. It is advancing very fast but some technical problems can still be found like “mutilated patterns, fused patterns, disjoint parts of a pattern, lost parts of the pattern, noise superimposing the pattern” (Bolshakov & Gelbukh, 2004).

By controlling the content of the auditions, the transcripts could be provided so that our students can contrast their bottom-up skills with the contents of the audio. As Krashen (1985) said, “humans acquire language in only one way – by understanding messages, or by receiving ‘comprehensible input’”. Therefore, transcripts and subtitles help a lot in making sense of those oral texts slightly beyond our level. In relation to subtitles, which are similar to scripts when there is no video, Talaván (2010) talks about different benefits of subtitles which are common to transcripts such as assisting students in the development of oral comprehension skills or providing different types of support (textual, and technological) for language development.

The design of ATP took into account the criteria of REALL, Rubric for the Evaluation of Apps in Language Learning (Martín-Monje, E., Arús-Hita, J., Rodríguez-Arancón, P., & Calle-Martínez, C., 2015), for the creation of digital learning objects, which we can see in the following picture:

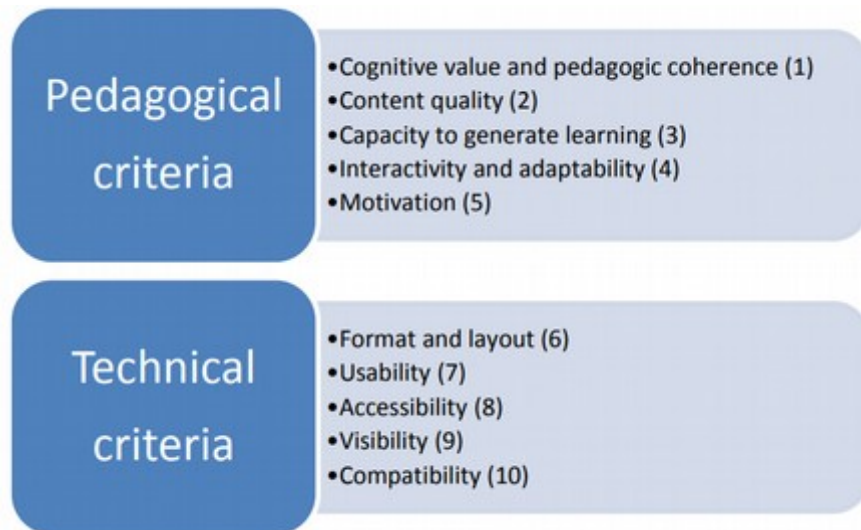


Illustration 16: Quality criteria for the creation of digital learning objects

In the picture below we have a screenshot of the login screen:

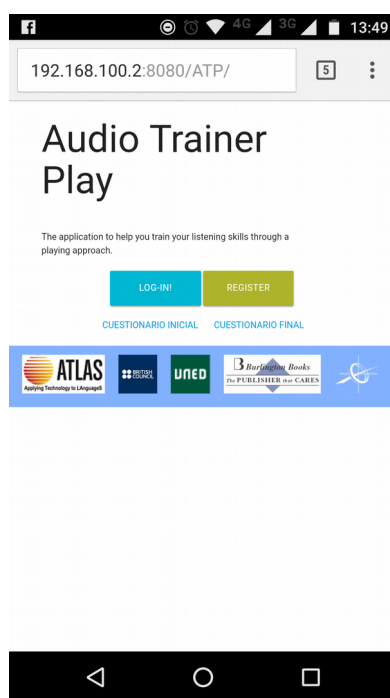


Illustration 17: ATP Welcome Screen

ATP is a webapp, so it needs to be accessed on the Internet. As we know, there are two main mobile operating systems, but the target was to make it accessible on any operating system and any device to study their habits. The URL that appears is that of our local network, but it is accessible on <http://juanjomagana.ddns.net/ATP>

The logos that appear are:

- the ATLAS research group, creators of ANT
- British Council, which has given us permission to reproduce some audios
- UNED, the university where this Master's thesis is carried out
- Burlington Books, which has given us permission to reproduce any audios
- Universidad Politécnica de Madrid, where our collaborator carries out his studies

We can login with our user/password combination. If we need to register, we click on the corresponding button and we are taken to a screen where we have to fill in the following information: name, username, email, age, sex, educational level and password.

Once are logged in, we can find the following options:



We can start a new game if we want to start from scratch or we have not played before. We can also resume a previous game and pick it up where we left off. Then we have information about the app, the top scorers and the option to log out.

If a new game is started, then our level needs to be chosen, as we can see on the right.

The CEFR levels range from A1 to B2, although there are very few audios for A1 as it is such a basic level (there are only 5). On the other hand, it was decided to introduce some intermediate levels between A2 and B1 as well as B1 and B2 so as to make a smooth transition between levels in case that the student starts from the beginning. More importantly, the aim is to have a very graded level of difficulty and challenge that can trigger the behaviour change of our students (Fogg, 2007).

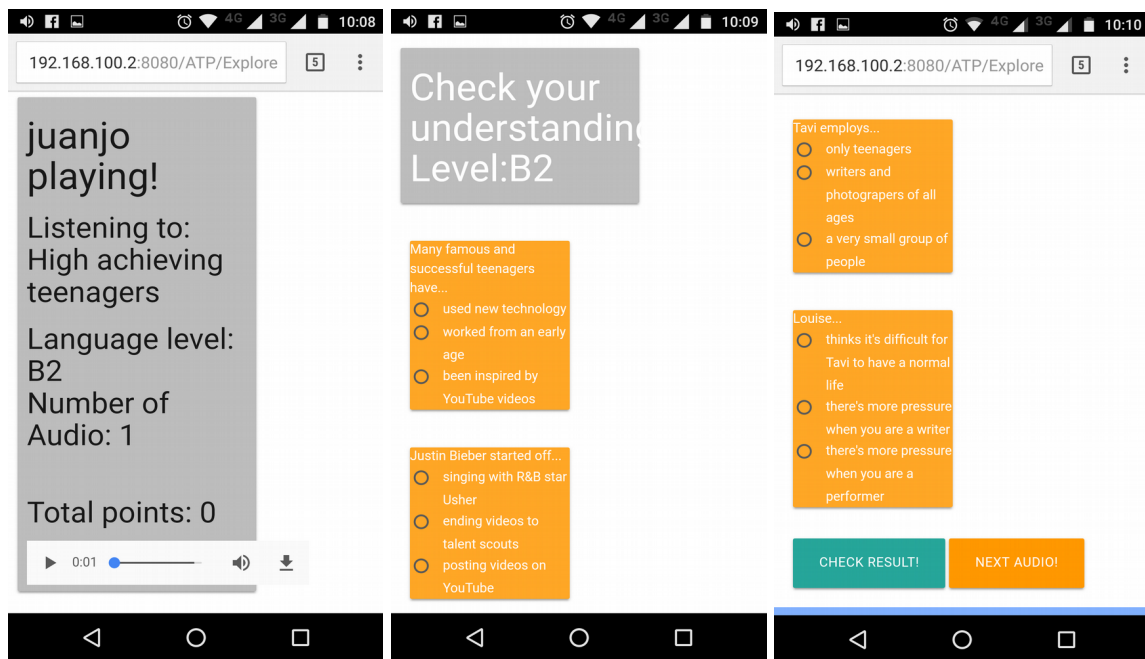
There are 15 audios corresponding to the main levels A2, B1 and B2 and 10 audios corresponding to the additional levels which were called A2+ and B1+. The total number of audios of the application is 70. 20 of



those listening audios were provided by the British Council® ('LearnEnglish Teens | British Council', 2016) and 50 by Burlington Books®.

In our secondary school the book that students use is called "New English in Use" by Burlington Books®. This textbook has a higher version, more focused to CEFR standards called "Advanced English in Use" which, according to the webpage, it is a "high-performance course that will take secondary students up to the B2 level of the CEFR and help prepare them for international exams such as KET and PET." ('Catalogue | Burlington Books', 2016). This material was considered to be suitable for our purposes of curriculum integration and level of challenge. Both textbooks are similar in topics and vocabulary but they are different materials.

As a result, most audios are related to the curriculum of our compulsory secondary students but there are also some other activities that deal with topics of their interest. The audios are played sequentially to avoid repetitions of the same content. As already mentioned, we can start from the last position by playing "Continue".

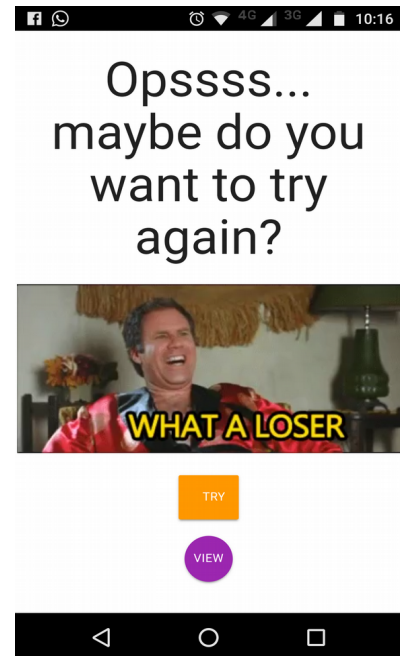


The audio begins to play automatically on desktop browsers but you normally have to activate play on mobiles (the 'autoplay' function may not work). Once we have finished listening, it can be played as many times as necessary by clicking on the same button. If we scroll down, we can see the questions and click on the correct answer. Most questions are multiple choice and some of them are true/false. Due to technical reasons, it was very

difficult to introduce open answers. In addition, following the advice of our former students revising ANT, our objective was to introduce as fewer clicks are possible and the mobile keyboard is not as fast and convenient as that of a computer.

If our performance is really terrible, we may be welcome with a screen like the one on the picture. Regarding gamification in MALL, one of the elements which was referred to in the theoretical framework is the freedom to fail (Kapp et al., 2014; Rodríguez & Santiago, 2015). Obviously it is not a good idea if our students are treated disrespectfully and are laughed at in class. However, the perception is totally different in front of a screen and actually having mistakes can be fun too:

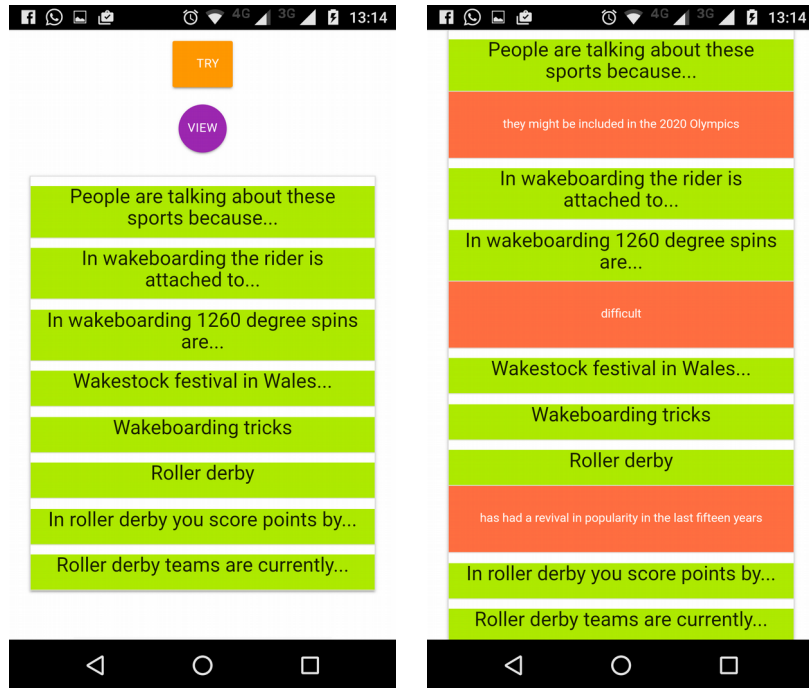
In many environments, learners are objectively scored and either they are right the first time or they fail and do not pass. Few people enjoy failing in traditional learning environments, and most will do everything they can to avoid failing. This means that most learning environments do not encourage exploration or trial-and-error learning.(Kapp et al., 2014)



Our purpose is not that the students try multiple guesses to see what happens, which is also discouraged by Kapp. All on the contrary, the idea is rather that “gamification offers the possibility to work on resilience, to accept making mistakes as a normal part of the learning process which is totally necessary”⁷ (Rodríguez & Santiago, 2015).

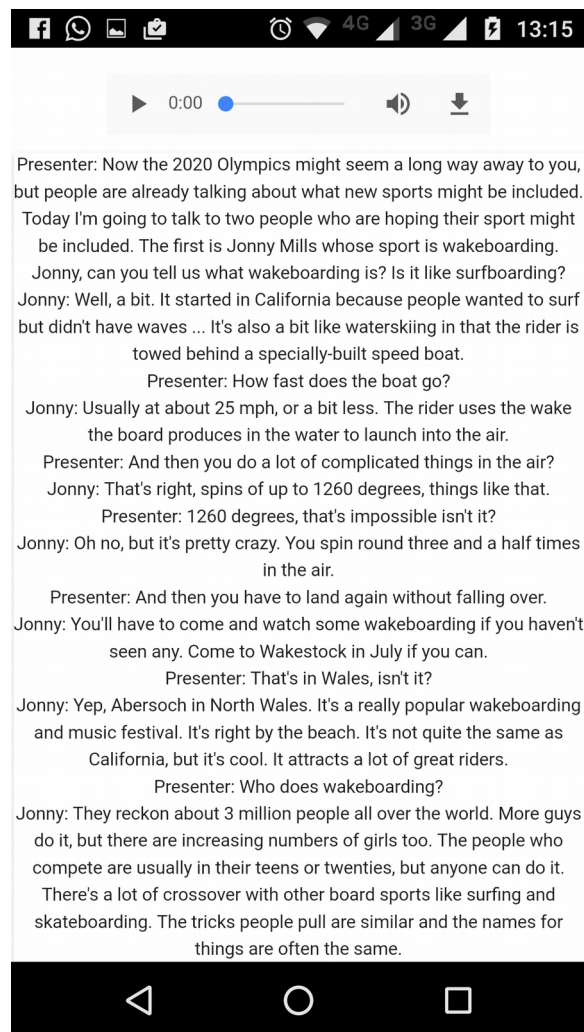
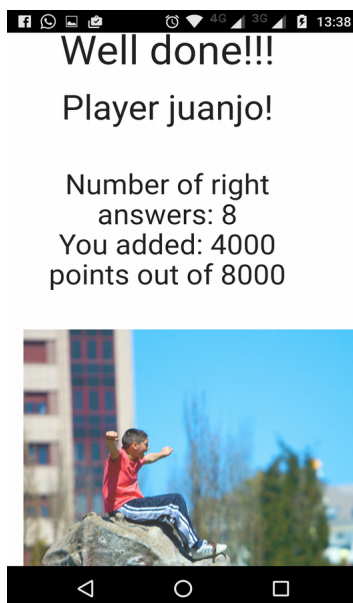
That is why students now have two possibilities: try again and view results. If they choose to view results, they are presented with the questions but they will have to click on each one of them to see the correct answer so that they can have some time to think about what they answered before they see the answer. Another reason for this procedure is that they may have doubts with some specific answer, not with all of them. In any case, it is not considered a good idea that all the answers are unveiled at the same time.

⁷ “La Gamificación ofrece trabajar la resiliencia, la aceptación del fallo como algo normal y totalmente necesario como parte del proceso de aprendizaje”

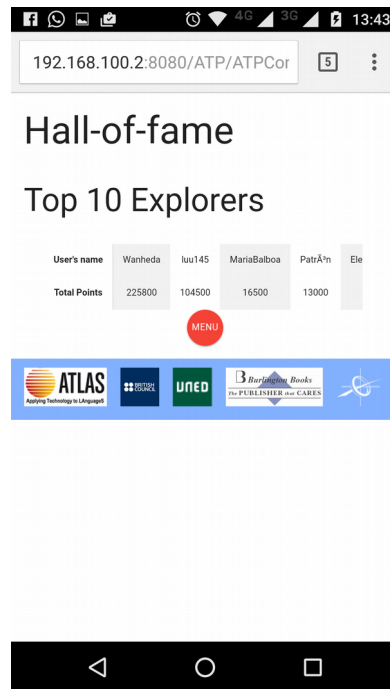


Another aspect mentioned above is the importance to have the transcription included, so below the answers they will find the script and also a button to play the audio again.

With a little bit of practice, we may see the screen below:



To finish, students can check their results in the leader board:



The term 'explorer' is because in the future two profiles for students could be created: explorers and journalists. The latter is implementing all the functionality of ANT with the news podcasts and the former is the role that was just described.

3.2.2.1 Technical Aspects of ATP

This information belongs more to the field of computing than to that of language teaching. However, this information is considered to be relevant here because these studies are highly technological and, as Pareja-Lora (2016) said in a seminar, both computer experts and linguists have to work as a team in order to produce good technology applied to substantial language learning. In that respect, despite not being computer experts ourselves, the author has actively worked on both linguistic and computer aspects of the app, which is programmed in Java and HTML5 using responsive design, has a SQLite database and has used Materializecss for the front-end. The technical contributions to this app are:

- Help debug the application using the Eclipse Integrated Development Environment (IDE) for Java Enterprise Edition Developers. As collaborators have different operating systems (Windows and Linux), the paths to the files, the Java versions

and other technical aspects were different. However, this was beneficial in the long run because the errors could be traced more easily.

- Modify and compile Java files and export the result in WAR (compressed format) files with Eclipse to track the changes.
- Help to design several aspects of the front-end of the app like the position of the logos and modify several styles, like Materializecss settings like “initial-scale” parameter to adjust it to the mobile phone screen.
- Modify the database: rename all the listening titles.
- Complete most JSON files that are in charge of selecting the correct answer.
- Complete all of the transcription files.
- Provide all the images and other prizes that appear in the app.
- Set up the latest Apache Tomcat 8.0 server and run it in the PC.

Información de Servidor					
Versión de Tomcat	Versión JVM	Vendedor JVM	Nombre de SO	Versión de SO	Arquitectura de SO
Apache Tomcat/8.0.39	1.8.0_112-b15	Oracle Corporation	Linux	4.9.3-1-ck-haswell	amd64

Illustration 18: Tomcat Server Information

3.2.2.2 Videos about ATP

In order to make the information more accessible to our students, two short videos (both are about three minutes long) were made giving the following information:

- [Functionality of ATP](#)
- [Pedagogical aspects about listening](#)

The transcription of both videos is at the end of this thesis. The first one explains the basic aspects about how the application works, so that the rules are clear from the beginning and they do not have any problems when using it. The other video explains why it is necessary to listen out of the context of the class and how important exposure to the language is.

Both videos were made online using [Voki Presenter](#) and then uploaded on YouTube. Vokis were preferred to real characters because avatars are gamification elements. Our students confirmed that they had fun watching the videos.

3.3 Methodological approach of the study

The objective is to carry out a pilot study to test if a mobile app which is tailored to the needs of specific students increases their motivation. It is not expected to scientifically prove this but rather to see if there is any evidence in this direction that could lead to future in-depth studies. In any case, the new app ATP was intended to get the same attention from students as Duolingo and other popular gamified apps, because that would mean that they are motivated to use it. Motivation leads to exposure and exposure leads to learning, which can be enhanced by curricular integration in our view but can also take place without it.

A quantitative-qualitative mixed methodology was used to approach our study and all the information was triangulated in order to achieve a higher internal validity. The triangulation was performed by establishing connections with:

- The quantitative information in the questionnaires and qualitative feedback that was obtained by class observation, the open questions included in the questionnaires and the impressions of other teachers in the school (quantitative-qualitative comparison)
- Comparing the two questionnaires at the initial and final stages of our study (temporal comparison)
- Comparing two main groups of students: those who did not benefit from curricular integration with our app and those who did (experimental group)
- Revising the logs of the Apache Tomcat server regularly to check the activity that was taking place daily to get extra information about the app use.

Despite having a comparison or experimental group, the design is non-experimental, although it might be argued that it is similar to a quasi-experiment since there is no random assignment in the sample but there is an experimental group in the analysis. In any case, it is not a true experiment and an attempt to enhance our validity was achieved by triangulating the results as described above. In this respect, the author followed the advice of Zohrabi (2013) regarding reliability and reporting findings, especially in connection with validity, reliability and reporting the study.

Moreover, since our tool to obtain quantitative data was the questionnaire, it was important to make good questionnaires, which is not always the case according to

Ainciburu (2010). In her opinion, some of the aspects to take into account when writing questionnaires are:

- Questionnaires that were already used by other authors do not constitute a valid data collection method per se.

This is not the case of the questionnaires in this study since they are all new.

- The fact that the study has internal coherence does not mean that the questions are clear or properly posed. Validation must be carried out by using another kind of technique.

The questions have been asked taking account of our research population, secondary school students, so they are expected to be at least clear enough.

- If a questionnaire is translated or items are changed, then the data collection tool must be validated again.

In this respect, questionnaires were asked and answered in Spanish and this is how it is reflected in this study.

- The ideal situation is to obtain data that can be triangulated from those that are included in the questionnaires, especially qualitative data that are found in interviews, class observation, etc.

This is exactly what was described above except for the interviews as such. It is true that students have asked some questions about ATP in class but most qualitative data is obtained by open-ended questions and class observation.

Class observation is also a very valuable tool for our purposes. According to Bailey (2001) a classroom observation is deliberate investigation of teaching and/or learning experience through the regular procedure of data collection and analysis. It is true that the duration of this project is only four weeks but some important information can be obtained by using both participant and nonparticipant methods. In the first case, questions in connection with ATP are answered in class but it is even more interesting to know, for example, their impressions on the app when talking to another peer in class (nonparticipant observation). As Zohrabi (2013) puts it, “one of the main drawbacks of the observation is the reactivity problem. That is, the students react differently because of the researcher’s presence in the classroom.” As a result, many impressions in relation to ATP were provided by our own colleagues.

3.3.1 Context

Los Cerros school originated in 1943 as an elementary vocational school but with the new educational laws, especially since the 1980s, it became a comprehensive school offering ESO (acronym for Compulsory Secondary Education, GCSE level), Bachillerato (Sixth Form), face-to-face and distance education for adults, special needs education and, of course, vocational training. At the moment it is the state school with the highest number of students (and the second one in teacher numbers) in the province of Jaén.

The school had initially a different location to that of today, which dates back to 1979. On the other hand, the school receives a lot of students from towns nearby.

Úbeda is a town that lives primarily on the service sector, thus 49% of the population work at commerce and administration. Nonetheless, as any other town in Jaén, agriculture is a very important sector as well. In fact, 15% of the olive production in the world belongs to the towns in this area of La Loma. Apart from other activities like farming and industry, the other activity that is worth mentioning is tourism, especially since Úbeda and Baeza were declared World Heritage Sites in July 2003.

Over 1500 students come to this school every day and their studies can be summarized in the following table:

STUDIES	STUDENTS
ESO	331 (21,42 %)
BACHILLERATO	269 (17,41 %)
VOCATIONAL TRAINING	550 (35,60 %)
ADULTS	395 (25,57 %)

More graphically:

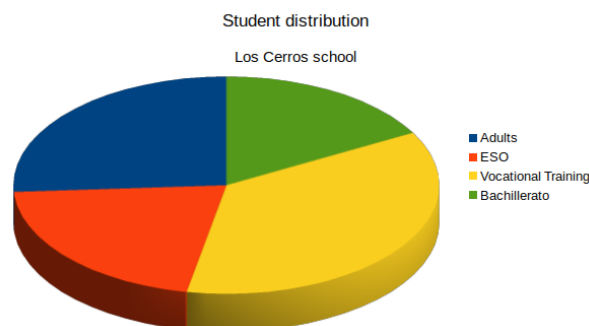


Illustration 19: Los Cerros student distribution

Regarding distribution by gender, there are about a hundred more boys than girls. There is not much difference in compulsory studies or Bachillerato, but the gap is higher in adult studies and, especially, in Vocational Training.

STUDIES	BOYS	GIRLS
ESO	158 (47,73 %)	173 (52,27 %)
Bachillerato	134 (49,81 %)	135 (50,19 %)
Vocational Training	309 (56,18 %)	241 (43,82 %)
Adults	215 (54,43 %)	180 (45,57 %)

It is interesting to see the different vocational studies girls and boys do according to their gender:

PROFESSIONAL FAMILY	BOYS	GIRLS
Sports Science	36 (63,16%)	21 (36,84%)
Administration and Finances	45 (43,69%)	58 (56,31%)
Electrical Installation Trade and Telecommunications	83 (97,65%)	2 (2,35%)
Information and Communication Technology	90 (90,90%)	9 (9,09%)
Tourism	7 (22,59%)	24 (77,41%)
Nursing Education	8 (7,21%)	103 (92,79%)

As we can see above or in the chart below, some studies show a very high number of one gender or the other. For example, studies connected with electrical components, electronics, robotics and ICT are carried out almost exclusively by boys. All on the contrary, it is difficult to see them in studies like tourism and, above all, nursing education, where more than 90% of students are girls.

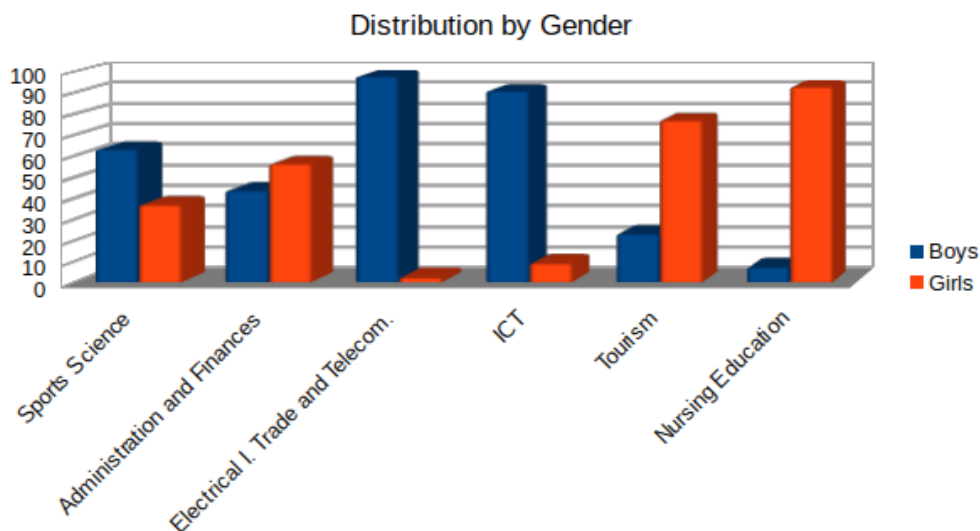


Illustration 20: Distribution by Gender

3.3.2 Research population

As mentioned above, the school has over 1500 students, but as we could see, almost 400 are adults and they were not included in the sample for various reasons. Unlike the other students, adults have their own online learning platform, where they communicate with their teachers and peers, have their learning materials and do some of their tasks. Moreover, they are very different in aspects like age, motivation and learning techniques, so it is difficult to find a representative sample of adults without a very in-depth study. More importantly, there is not an efficient system to get in touch with them.

Vocational and secondary school students share more characteristics in common despite the great diversity. In vocational training, most students are over 18 but they are normally under 25 and some of them even come from a university education background. Depending on their vocational studies, their level of English will also be very different. For example, tourism students are usually very good at foreign languages whereas electrical installations students are not. There are both basic vocational training at ESO level and higher vocational training at pre-university level. Basic vocational training students do not usually have the motivation to participate in additional tasks, so a high number of participants who fill in the questionnaires is not expected.

Bachillerato students are 16-18 years old and ESO students are 12-16, although more feedback is expected from the 14-16 range because they are more mature. The age range then is approximately from 14 to 25, although most of them are between 14 and 20 years old.

In order to communicate with them, our corporate email, which is hosted by Google, was used. As many other educational institutions, our school enjoys the benefits of [Google for Education](#), which allows us to use tools such as Google Classroom for our lessons and other productivity tools such as Google Docs and Gmail. It was decided to send an email message with all the information about the ATP project and the corresponding forms to the almost one thousand students with corporate mail (979, to be precise).

It must be taken into account the fact that not all of them check the email very often or they are interested in practising more listening. That is why contact with the other teachers in the department of English was made so that they could pass on this information

to their students and encourage them to test the app and fill in the questionnaires. It was particularly important for us the opinion of 3rd ESO students as well as higher vocational training students, since their textbooks and the listening materials in the app are related.

The email was sent in mid-November and the lessons in the first term finished on December 22nd, so the duration of the project was almost four weeks. Subjects tested the app and filled in the questionnaires on a voluntary basis. It was not possible to reach an agreement in the department of English to mark this collaboration as it would be done with any other task that our students hand in. This is partly due to the fact that the Andalusian Board of Education, like other educational institutions, is imposing some restrictions on this kind of studies lately. As a matter of fact, schools now have instructions not to allow any questionnaires that belong to any university or other institution until they can find a “legal framework” to do so.

In conclusion, a non-probabilistic sample based on convenience was employed, since our corporate mail was used to get in touch with the students and there is a dependency on their volunteering attitude towards our research, thus it could not be predicted in advance which students from the different studies that are offered in our school were to voluntarily take part in this study.

3.3.3 Data collection and analysis tools

A survey was conducted and it is based on two questionnaires which are included in the Appendix section of this dissertation. The first one is made up of 14 questions and the final one consists of 30 questions. They have the following blocks of information:

- Habits
- Expectations
- Motivations
- Pedagogical Aspects (only the final questionnaire)
- Aspects to improve (only the final questionnaire)

The questionnaires have a number of questions that are based on different levels of measurement, a couple of them presented directly as a Likert scale and most of them as a kind of “hidden” Likert scale, because there are four levels of measurement that range

from higher to lower values but they are not worded using the Likert pattern (i.e., “totally agree, agree, undecided, disagree, totally disagree”)

There are a very few dichotomous questions or contingency questions, that is, a question in answer to a previous question.

As regards qualitative methods, a set of open answers was included so that our students can give us some insight into their mobile use and learning strategies. Also, this was complemented with classroom observation (for example, if they talk about the app with each other, if they ask the teacher questions, etc.). As a general rule, our attempt was to become observers rather than participants for some reasons:

- we can get a lot of valuable information by observing, especially after a few years of teaching
- they already have a couple of structured questionnaires and questioning them more in class can be counterproductive
- our aim is not to bias the research by putting pressure on our own students as compared to other students in the school. Although it cannot be called ‘random sampling’ by any means since they are volunteers that were not selected, the intention was to have as many random volunteers as possible.

Since this research is based on a non-probabilistic convenience sample, descriptive statistics was used to measure the results that were obtained. Obviously some conclusions are reached beyond the data that is described here, but inferential statistics might not be appropriate for our study as, not being a probabilistic sample, wrong conclusions could be drawn. However, it is considered at some point that valuable information can be obtained like this, non-parametric powerful tests like chi-square and others as described by Cantos Gómez (2012) or Urdan (2010) might be used.

In general terms, the graphs provided by Google Docs will be used, although also use pivot tables and charts both in Excel and SPSS so as to find some connections between the data.

Our statistical information was obtained from the two questionnaires that our students were sent by email and quantitative descriptions are presented in a manageable and graphic form. Data frequency distribution is mostly referred to, but also measures of

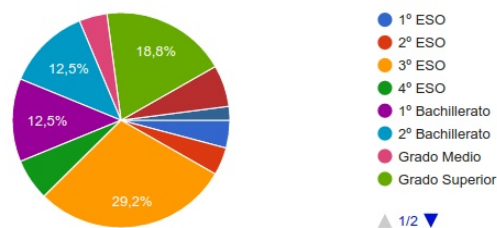
central tendency such as standard deviation, mean, median, mode as well as some of dispersion ones like standard deviation.

4. Analysis and discussion of results

4.1 Initial questionnaire

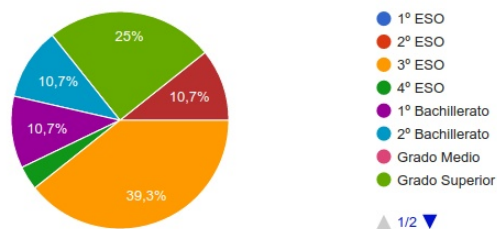
In the **initial questionnaire** we can already appreciate the diversity of the students in the school:

Nivel de estudios (recomendado) (48 respuestas)



There is a slightly higher number of 3rd of ESO students because they are our former students and probably they are a bit more motivated to collaborate. This can more be more clearly appreciated in the results of the final questionnaire:

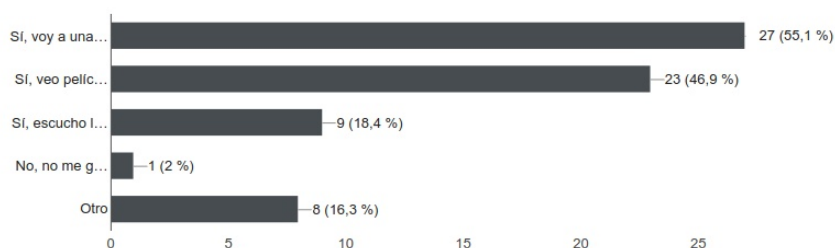
Nivel de estudios (recomendado) (28 respuestas)



A question was included to see if they are following the bilingual syllabus in our school or not to see if this information can also be relevant for our study. Both questionnaires show that about two thirds follow the bilingual syllabus.

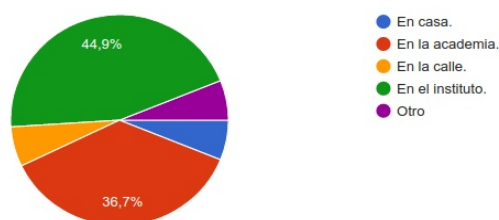
Regarding their exposure to oral English out of the classroom, about half of them say that they go to language schools or watch films and TV shows in their original version. Fewer students listen to the radio or podcasts and some declare in the open answers section that they enjoy listening to music in English:

¿Trabajas el 'listening' fuera del instituto? (49 respuestas)



Regarding their exposure to English in general, they declare that:

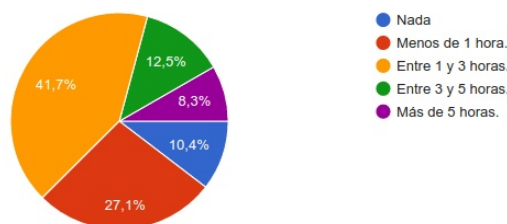
¿Dónde tienes más exposición al inglés? (49 respuestas)



Most exposure is still produced in a classroom, either that of the secondary school or their language school (81,6%). Aside from the fact that many of them go to language schools, their exposure to English outside any kind of academic context is relatively low. From our point of view, it seems that several students and their parents think that going to a language school is enough for them to learn English, thus a very autonomous attitude on these students' part is not perceived. This is reflected in the following graph, where 37,5% of students declare that they do not have any input outside the classroom at all or that is limited to less than one hour a week. However, there is also a remarkable 20,8% that spend three hours or more listening to authentic materials. In our view, this result could be better because nowadays technological advances make English accessible everywhere, but most Spanish people prefer to watch TV or films in Spanish. Citing Díaz Cintas (2003), Talaván (2010) puts it this way:

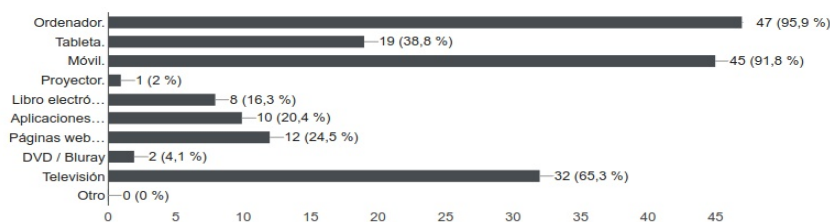
Spain, for example, is traditionally a dubbing country for different political, cultural and ideological reasons (Díaz Cintas, 2003), and this audiovisual translation choice seems to be one of the main reasons behind the poor level of proficiency in foreign languages which Spaniards appear to have.

¿Cuánto tiempo le dedicas aproximadamente a la semana a escuchar inglés por tu cuenta?
(48 respuestas)



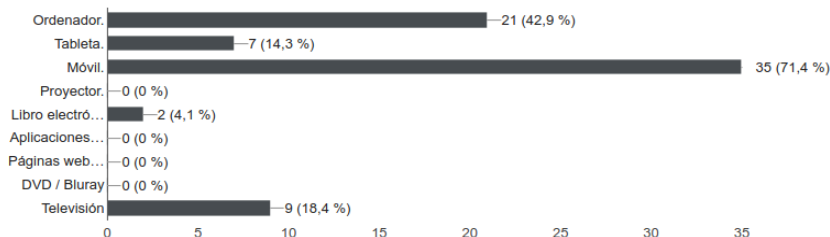
Regarding their favourite technological resources:

Por favor, selecciona los recursos TIC que sueles usar fuera del centro:
(49 respuestas)



Not surprisingly, most of them prefer either their computers or mobile phones. This is an important piece of information to contrast with the final questionnaire because it is relevant to know which CALL resource they use when both are available (for example, at home). In any case, they already declare that they spend more time using the mobile than any other technological resource:

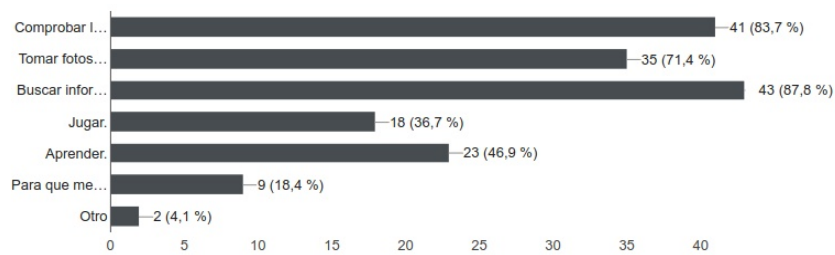
Por favor, selecciona el recurso con el que pasas más horas enganchado a la pantalla:
(49 respuestas)



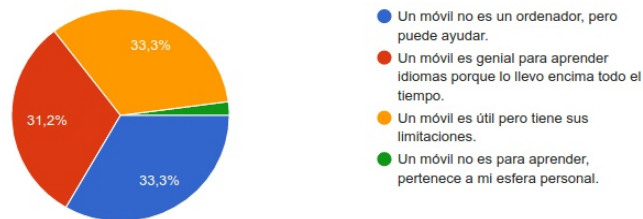
Regarding their expectations, they use the mobile for the purposes we can see in the image below. It is interesting to contrast that about half of them think that they could use the mobile for learning but when they are asked about its learning potential, only 2.1 % say that mobile phones are not appropriate for that purpose. The rest admit that using a mobile phone to learn can be a great idea despite its limitations:

Por favor, selecciona los usos que le das a tu móvil más allá de lo que es estrictamente comunicación (llamadas y mensajes).

(49 respuestas)



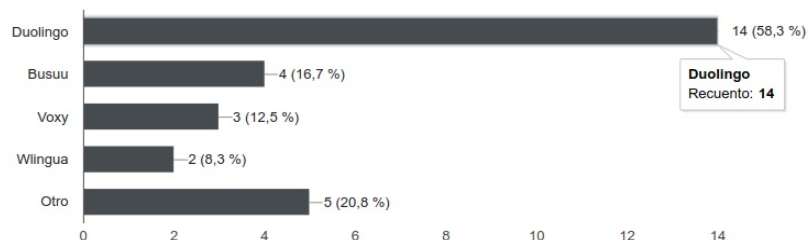
¿Te planteas usar el móvil para ayudarte a aprender idiomas? (48 respuestas)



On the other hand, regarding gamification, 79.6% think that a mobile app can hook them when competing with their classmates in order to get more points. This is reflected in their motivations, which is the last section of the initial questionnaire. Not surprisingly, many of them have tried the famous Duolingo but also other apps:

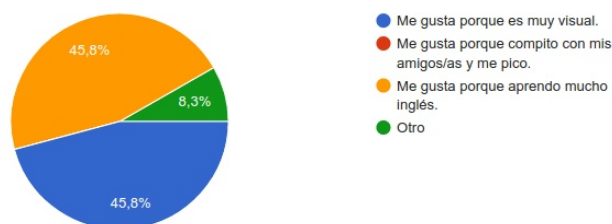
Si has utilizado alguna aplicación para aprender idiomas en el móvil, indica cuál te ha gustado más:

(24 respuestas)



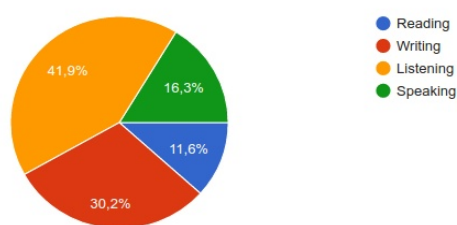
The reasons behind using these apps are also very interesting. A very high number of students was expected to say that the most important feature is the visual aspect, but in this survey we can see that the learning aspect is as important as the visual one:

En caso afirmativo, ¿puedes dar alguna razón por la que te guste esta aplicación?
(24 respuestas)



They also say that learning English is very important for them (93,9%) even though they may have some difficulties learning the language. When asked about the skill which is more problematic for them, oral skills in general and listening in particular are the areas where most students have problems:

En caso de tener dificultades, ¿qué destreza es la que más te cuesta?
(43 respuestas)



4.1.1 Summary

As a quick summary of the information obtained in the initial questionnaire, it can be stated that our students:

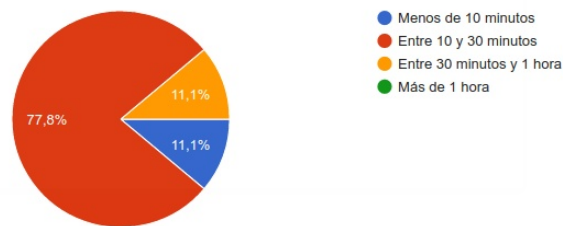
- come from many varied groups in our school, so there is some representation of the different training courses offered by the school.
- practise English out of school but most of them in another kind of school: the language school.
- about one fifth of them do practise listening skills on their own for a minimum of three hours
- they love using the mobiles for any purpose, also for learning, which is an important aspect for them
- they are already familiar with some apps that promote L2 learning
- they think learning English is important
- the listening skill is the most difficult one for them

4.2 Final questionnaire

4.2.1 Habits

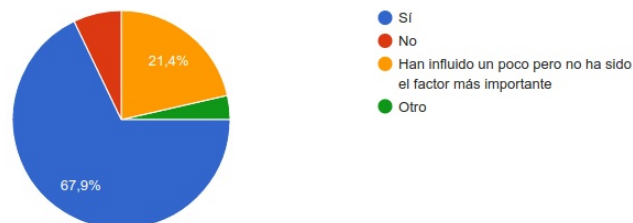
In connection with their habits, the target was for them to use the app about 30 minutes every week by practising one or two activities every day. The results are the following:

1 ¿Cuánto tiempo le has dedicado a la aplicación semanalmente de forma aproximada?
(27 respuestas)



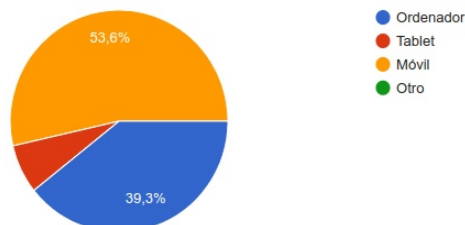
Most of them have used the app between 10 and 30 minutes every week. More students were expected to use ATP over 30 minutes but many of them had exams, as we can see below:

13 ¿Han influido las fechas próximas a los exámenes en que te conectes menos?
(28 respuestas)



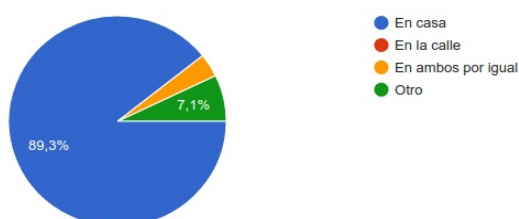
Regarding the technology that they used:

2 ¿Desde qué dispositivo te has conectado con más frecuencia? (28 respuestas)



They have preferred to use this mobile app on their phones rather than on their computers, even when they could use any of them because most of the mobile app use took place in their own homes, which is mostly due to the fact that they needed Internet, so 64,3% of students only got online when there was wi-fi available. This is really surprising for us because, even though the app was built with a mobile approach in mind, most adults would use a computer whenever available. However, the so-called ‘digital natives’ (Prensky, 2001) prefer to use their mobile phone over any other device.

3 ¿Dónde te has conectado con más frecuencia? (28 respuestas)



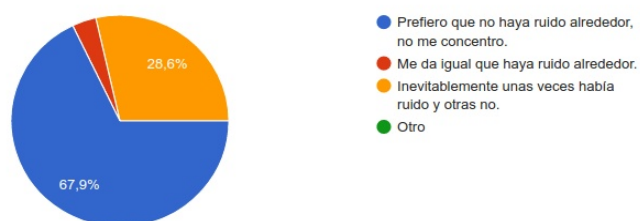
Many of them used the app when they were bored or had nothing to do, which is exactly what people do with our mobiles when checking our social networks or using messaging programs. A lot can be achieved if they start using the app in their free time. In Miangah’s words (2012) words, “learning through mobile phones outside the classroom has the advantage of better exploiting the learner’s free time; even the students on the move can improve their learning skills”.

5 ¿Cuándo has usado la aplicación? (28 respuestas)



When listening, it has not been perceived that they prefer headphones over loudspeakers in their mobile phones or their PCs. However, they wanted to have as little noise as possible interfering with the activity, which contrasts with real-life situations where we have lots of distractions:

7 Cuando has realizado las audiciones... (28 respuestas)

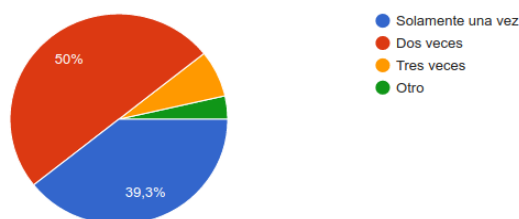


To finish the section of habits, it was important to know how many times they listen to the same audio file. In Vandergrift and Goh's words (2012);

Clearly, repetition of an oral text at normal speech rate, as practice, is beneficial for improving listening comprehension. What appears to make repetition more powerful is the opportunity for listeners to apply a greater range of strategies to each subsequent listen. Listeners apply metacognitive knowledge by reflecting on what they have understood and where they need to pay greater attention, and then by planning for more focused attention to selected areas of the text during the next listen. These strategies, in combination with repetition, improve comprehension of rapid L2 speech.

Half of them used this strategy of repetition twice while 39,3% had only one listen:

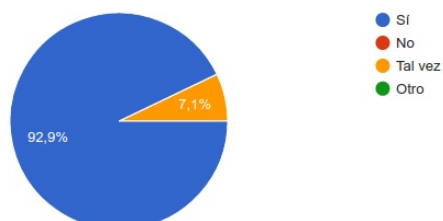
8 ¿Cuántas veces has escuchado las audiciones por lo general? (28 respuestas)



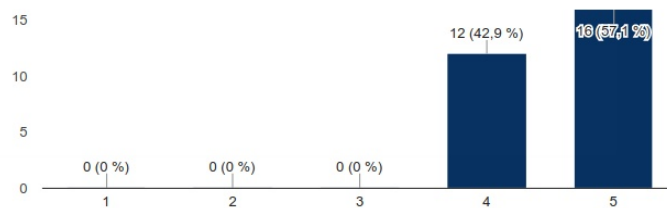
4.2.2 Expectations

Regarding the students expectations, the results that were obtained can be considered satisfactory, since the average mark was over 9 out of 10 (exactly 4,57 out of 5). 16 students out of 28 considered the app to be excellent and gave a mark of 5 out of 5.

9 En general, ¿dirías que la aplicación es lo que esperabas de una aplicación para mejorar el listening? (28 respuestas)



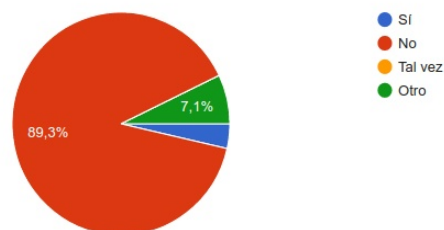
11 Si tuvieras que ponerle una nota a la aplicación, ¿cómo la calificarías?
(28 respuestas)



4.2.3 Motivation

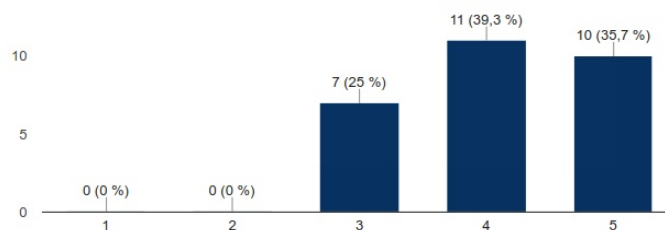
In the motivation section some relevant information can also be found, especially in question 14. The problem with many apps is that people use them at first but then they grow tired very easily. However, it was found that:

14 ¿Te has cansado rápidamente de la aplicación? (28 respuestas)

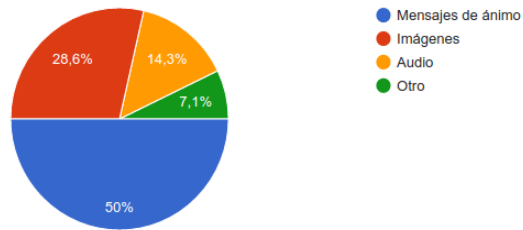


Students have used the app several times and they don't find it too boring or repetitive. Perhaps that is because of the gamification elements that are present in the app:

16 ¿Como calificarías la pantalla que aparece tras comprobar el resultado?
(28 respuestas)



17 ¿Qué es lo que más te ha gustado de esta pantalla? (28 respuestas)

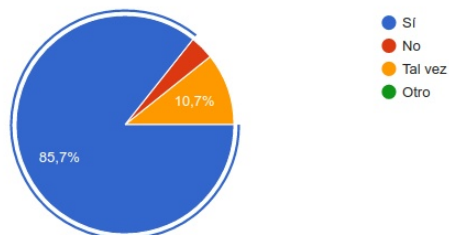


It would have been better to introduce more gamification elements since there was the problem that students found ATP the same as doing listening in class but with their mobile. However, it was a pleasant surprise to see that they were encouraged by the messages and images that they could see when they scored points. They also enjoyed it when they did not score any points as they were not afraid to fail, following the freedom to fail idea mentioned in the theoretical framework (Kapp et al., 2014; Rodríguez & Santiago, 2015).

18 ¿Te ha animado a seguir usando la aplicación? (28 respuestas)



19 ¿Te ha parecido bien el sistema de puntos? (28 respuestas)



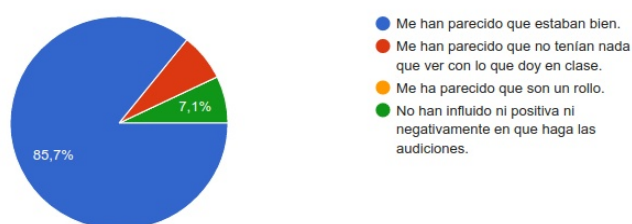
On the other hand, it seems that the element of competition was not as important for them as expected. Direct competition with other students is practically nonexistent although half of them confess that they would like to get the highest possible mark:

20 ¿Has competido con otros compañeros/as para obtener más puntuación?
(28 respuestas)



One aspect that is particularly important for our study is in the following question regarding the topics that the audios dealt with:

21 Con respecto a los temas de los listenings... (28 respuestas)



The vast majority of students thought that the topics were well-chosen and appropriate for them despite the great diversity of studies. However, all the 18 students with curricular integration, 3rd of ESO and Higher Vocational Training students, thought that the topics were good and motivated them to listen more. In contrast, the remaining 10 students without curricular integration, only 6 out of 10 had such a good impression on the topics and 4 out of 10 had different opinions. Although the sample is not very large, a contrast can be established: 100% of the experimental group versus 60% of the control group.

If the answers are converted to a Likert scale, the following values could be assigned to the topics:

- 4 → I think they were great
- 3 → They have not had any positive or negative influence for me to use the app.
- 2 → They have nothing to do with the topics that I listen to in class.
- 1 → I find them boring.

Taking that into account, we can see the results in this pivot table:

Summary.						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
VAR001 * VAR009	28	100,0%	0	0,0%	28	100,0%

VAR001 * VAR009 [count, row %, column %, total %].						
VAR001	VAR009			Total		
	2	3	4			
Control	2,00 20,00% 100,00% 7,14%	2,00 20,00% 100,00% 7,14%	6,00 60,00% 25,00% 21,43%	10,00 100,00% 35,71%		
EXPERIMENTAL	,00 ,00% ,00% ,00%	,00 ,00% ,00% ,00%	18,00 100,00% 75,00% 64,29%	18,00 100,00% 64,29%		
Total	2,00 7,14% 100,00% 7,14%	2,00 7,14% 100,00% 7,14%	24,00 85,71% 100,00% 85,71%	28,00 100,00% 100,00%		

Chi-square tests.			
Statistic	Value	df	Asymp. Sig. (2-tailed)
Pearson Chi-Square	8,40	2	,015
Likelihood Ratio	9,51	2	,009
N of Valid Cases	28		

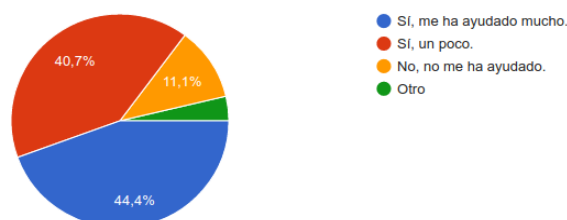
Illustration 21: SPSS Pivot Table comparing groups 1

The chi-square test shows a value of 8.40, which is higher than the expected critical value of 5.99, so it could be stated that this information is statistically significant at $p < 0.05$ and reject the null hypothesis. This information should be handled carefully due to the nature of the sample, but at least it seems there is a correlation between curricular integration and increased motivation, which is our final target.

4.2.4 Pedagogical aspects

Regarding transcription, very positive opinions could be read in the answers of our students who, except for 11.1%, find them more or less useful. Some selected opinions (in Spanish) basically state that transcriptions help them to learn vocabulary, understand specific parts of the audio and check mistakes.

23 ¿Te ha ayudado ver las respuestas correctas y la transcripción?
(27 respuestas)



Some opinions of the students:

Aumentar speaking. (Mateo Poza Palomares, Higher Vocational Training)

A aprender de los errores que solemos cometer y no nos damos cuenta. (Víctor Campos Litrán, 2nd Bachillerato)

En descubrir nuevo vocabulario y cómo escribirlo, y en entender mejor la pronunciación. (Laura Granero Hueso, Higher Vocational Training)

Porque así sabía en qué me había equivocado. (Lorena Millán Mendieta, 3rd ESO)

En si no había escuchado bien una palabra, me ayuda a saber cuál era. (Noelia Berlanga Delgado, 4th ESO)

Para comprender algunas palabras que no entendía. (Sandra Aranda Fernández, Higher Vocational Training)

A ver en qué preguntas me he equivocado y mirar la respuesta. (Aurora M.^a Navarro León, 3rd ESO)

En saber cuál era el fallo. (Antonio José Ortega Amate, Higher Vocational Training)

Me ha ayudado a comprobar qué palabras eran las que no había escuchado bien. (Sergio Campos Quesada, 3rd ESO)

Students with difficulties say that the app has helped to improve their listening skills although, understandably, others say that they would need more time to check if there is any learning improvement. All of the stronger students think that all language input is beneficial for learning languages in general and listening skill in particular irrespective of their level.

27 Si ves que eres un alumno/a que tiene ciertas dificultades con el inglés, usar la aplicación...
(23 respuestas)

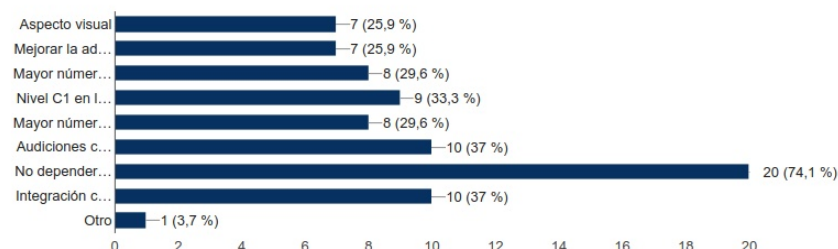


4.2.5 Aspects to improve

Regarding the aspects to improve, most of them declare that depending on an Internet connection is a negative aspect that limits the availability of the app in certain contexts. Other aspects that they comment is: visual aspect, improve the responsive web

design for the mobile phone screen, more listening audios, include C1 level, more prizes, activities with video and social network integration. A student also proposes a system to check your score even if you are not in the top scorers list.

29 Selecciona todos aquellos aspectos que consideras que la aplicación podría mejorar:
(27 respuestas)



Most students suggest that the app should be included in Google's Play Store or in Apple's App Store, which is a great compliment. In order not to repeat the same idea several times, these two opinions were chosen:

En el sistema de puntos, si cambias de nivel, al acabar una audición y conseguir puntos se me borran los que ya tenía (María Balboa de la Blanca, 1st Bachillerato)

Creo que sería una buena idea hacer de ella una aplicación descargable en Play Store, ya que aportaría muchos colaboradores más, debido a su mejor accesibilidad. (Lucía Carrasco Egea, 2nd ESO)

4.2.6 Summary

A brief summary of the final questionnaire could be:

- they prefer to use a mobile app on a mobile phone even if a computer is available
- they have used the app in their free time while at home because of the wi-fi
- half of the students listen to the audios twice, which is a good learning practice
- they consider the app is good and they do not grow tired of it soon
- they have enjoyed the app partly because of the gamification elements included
- the topic of the audios are interesting and motivating, especially for those who have curricular integration
- they tend to check their transcriptions and consider that it is a very important element in their learning process

These results show that MALL can be an effective way to increase motivation and, hence, language exposure and, ultimately, improve learning. Our students have

collaborated on an entirely voluntary basis and they have enjoyed using ANT in their free time, so it can be said that incidental learning was fostered, which “almost always takes place although people are not always conscious of it” (Marsick & Watkins, 2001). On the other hand, the results show that the learning process, whether aware or not, has been an important factor for our students. They liked using the app and the gamification elements have worked in this respect, but it should not be overlooked that one of the strongest reasons for them to use the app seems to be their motivation to learn.

However, there seems to be a correlation between the students who had curricular integration with an even higher motivation, which is also reflected in their use of top-down strategies. Students with curricular integration who do not have such a high level of English had fewer problems getting the gist of the listen than the details, while those with no curricular integration had more problems with the main idea and resorted more to bottom-up strategies:

VAR001 * VAR013 [count, row %, column %, total %].					
VAR001	VAR013				
	Datos concretos (fechas, nombres, números...)	He comprendido ambos sin problema: datos concretos e Idea general.	general	Idea	Total
Control	3,00	6,00		1,00	10,00
	30,00%	60,00%		10,00%	100,00%
	60,00%	42,86%		11,11%	35,71%
	10,71%	21,43%		3,57%	35,71%
EXPERIMENTAL	2,00	8,00		8,00	18,00
	11,11%	44,44%		44,44%	100,00%
	40,00%	57,14%		88,89%	64,29%
	7,14%	28,57%		28,57%	64,29%
Total	5,00	14,00		9,00	28,00
	17,86%	50,00%		32,14%	100,00%
	100,00%	100,00%		100,00%	100,00%
	17,86%	50,00%		32,14%	100,00%

Illustration 22: SPSS Pivot Table comparing groups 2

Therefore, it seems that our context-based learning strategy has proven successful in our sample. There are not great differences between the two groups beyond the use of more efficient top-down strategies and more motivation for the topics. Fortunately for us, most of them, irrespective of their group, enjoyed learning with ATP.

Regarding differences between the two questionnaires, unexpectedly it seems that much more language learning has taken place at home. As explained above, this is due to the requirement of an Internet connection for the app to work and, obviously, it was not our intention that students used the app mostly at home. The concept of sometime, somewhere is applied to context-based learning and it is complementary to the anytime, anywhere view that it is very important. It cannot be foreseen what the results would have been if

students could have used the app anytime, anywhere, so there has not been ubiquitous learning in this study despite the mobile phone use.

5. Conclusion

The implementation of MALL has been tested in our everyday teaching practice at school. As a teacher for over 16 years, the author considers that there are many possibilities in exploiting MALL resources and, although there already exist some interesting apps in the market, the target to have an application that was more directly addressed at our students' needs. This involved developing their oral skills and, more specifically, their listening skill as it seems to be the most problematic in our context. There are not many listening apps available and their drawback, especially for students with difficulties in L2, is that their contents do not match that of their English lessons.

The number of apps keeps rising every day but many of them are not made by L2 specialists but by computer experts. As a result, a search of different apps that could be suitable was conducted and resulted in finding ANT, which was considered very helpful for our stronger students as it includes authentic materials. However, the problem still remained with the weaker students.

Our aim was to control the contents of ATP in order to include a transcription which was helpful for our students and the results show they have clearly taken advantage of this resource. Also, it was intended to include a set of questions to check their understanding ability using some gamification elements, not as everyday instruction. The idea is to promote autonomous and independent learning, not teach them another lesson. Therefore, they were free to fail without further consequences so that the app could encourage repetition and practice while keeping the motivation levels high.

It was also considered a good idea to connect the contents of their lessons and their textbook⁸ with their mobile phone practice. Therefore, materials from a very similar textbook were included but with a higher level⁹ as well as other similar materials to check if they could benefit from familiar vocabulary and topics in their processing.

After building the app, the results were tested by using a mixed methodology approach and using triangulation to enhance our internal validity. It has been found out that:

8 "New English in Use" by Burlington Books[©]

9 "Advanced English in Use" by Burlington Books[©]

- the app is successful among students and they do not stop using it shortly after using it
- they are always willing to use their mobile phone
- they enjoyed the gamification elements included although there are not been much competition
- their learning motivation is high
- the transcriptions are very helpful for them
- the familiar topics and words help them to have a better understanding
- students who were not familiar with words/topics did not benefit from the app in the same degree

Regarding our findings, MALL can be said to be a very effective way to improve audio skills. It is true that it has not been “measured” how much ATP has helped our students develop their listening skill beyond their opinions, but the impression is positive overall. A pre-test and post-test study that could quantify this improvement was not made, but the qualitative information leads in that direction.

Transcription has also shown to be of utmost importance in any listening app and a lot of positive feedback from our students was received in this respect. Some of them declared not to use transcription but most of them did, even when they had a good L2 level.

Furthermore, curriculum integration was tested to make any difference as compared to “generic” out-of-context software. Although aware of the limitations of this study as far as internal validity is concerned, all the students subject to curriculum integration showed better top-down processing strategies and enjoyed the topics more. In order to prove this scientifically, much more in-depth study would need to be carried out with a large randomised sample.

Finally, it was very surprising to see that digital natives prefer to use their mobile phones when they could perfectly use a desktop or laptop computer. Although trying to foster incidental learning, this has taken place mostly at home due to the presence of wi-fi and, even so, most students have opted to use their mobiles.

As to our contribution, the first aspect to highlight is the fact that it was possible to work collaboratively in order to build a MALL app ourselves. The author agrees with Pareja-Lora (2016) that teachers can make the apps themselves if they find a reason to do so. He mentioned that there are two ways to create an app: the easy way, by using certain tools and without any programming code (Heller, 2016), or the hard way, by using Java and HTML5. The latter approach was chosen since the app was not only intended to be compatible with Android or iOS, but with any operating system. In this way, the way to create ATP was found and, despite many aspects that likely to be improved, our overall results seem positive.

On the other hand, this app is different from many other apps, since it is not type 2 (High Transactional Distance-Individualised Learning) but type 4 (Low Transactional Distance-Individualised Learning). As already stated, Type 4 LI is ideal for blended learning, since there is a low transactional distance with the teacher and it is aimed at meeting individual learners' needs. This modality normally has more to do with the Swiss army knife approach but it is as possible to build it into an app. In fact, LI activities have a great potential and they can be used in any subject, not just L2 learning.

The app is geared to improve the listening skills whereas most MALL projects still deal with vocabulary learning. We spend most of our lives listening and it is one of the skills that our students have more problems with, so it was considered that there were strong reasons to work on it on a MALL project.

To the best of the author's knowledge, there is not any listening app that includes transcription, which is very shocking for a teacher. It is indeed one of the aspects that our students reported as being more beneficial in their learning process as they could check all the aspects regarding pronunciation (individual words as well as in connected speech), comprehension and vocabulary. Learning takes place when there is understanding and the transcriptions help in that respect. In many ways, they are similar to subtitles when listening with video and there are many studies that show the advantages of the latter ones, not only in listening but also speaking and reading (Talaván, 2010). However, even today most secondary school textbooks do not include the listening scripts in the student's book.

Another aspect that is worth mentioning is curriculum integration. Most MALL projects are carried out without the curriculum in mind. In any case, first they devise the

app and then they expect that it fits into the curriculum. In this case, the opposite procedure was followed: first have the curriculum in mind and then devise the app so that it serves its purpose (expand the listening skills of our students autonomously and independently). This context-based and incidental learning has been positive for all our students, especially for those who did have curriculum integration. Although it cannot be claimed as conclusive evidence, there seems to be a correlation with curriculum integration and improving both motivation and top-down processing.

In connection with our posed questions, the first aspect to test is if it was possible to build a MALL project that was at the same time suitable for the purposes of our study and practical for our students. An app could have easily been chosen in order to carry out our research or review the most important apps in the market with our students. However, it was decided to build a new app using Java and HTML5 and our students enjoyed it, so this decision can be considered appropriate in this respect because they showed great motivation to use it.

Partly because of the many positive reviews of our app and lack of negative ones, some of the questions in mind were not answered. One of the aspects was to determine if there was a drastic difference in performance and use of the app between the experimental group (curriculum integration) and control group, yet they tested the app approximately for about the same amount of time. Also, they obtain similar results in response to gamification elements, availability of transcriptions, where and when they get connected and so forth.

However, as already explained, the experimental group had a strong preference for the topics (18 out of 18) while the control group did not show so much enthusiasm (6 out of 10). This information is useful because it partially answers one of our questions: “does curriculum integration make any difference?” Moreover, it was shown that the better top-down strategies are present the experimental group, which is also relevant for us. All in all, these two findings show that work in the right direction was made but more evidence is required to support it.

Another question was to see if ATP would make our students use the app whenever and wherever they wanted. All on the contrary, because of the requirement to have an

Internet connection available at all times, they mostly connected at home and only a few times out of this context. This is exactly the opposite of our target and it will be taken into account if work on this project continues in the future.

Regarding the importance of the mobile phone in their lives, it was surprising to find out that they prefer to use it all the time and for any purpose (learning included), a fact that, in our view, makes MALL research a very important aspect to consider in the future.

5.1 Future directions

There are many aspects to improve in this project, starting with the app itself. There are many aspects that could have been introduced but were not implemented due to technical or time limitations. Some of those aspects are included in the questionnaires and in the students' answers:

- improve visual aspect
- improve the responsive web design for the mobile phone screen
- more listening audios
- include C1 level
- more prizes
- possibility to check your score
- social network integration
- include audios with video and subtitles
- build an app for Android and iOS

Building an app would mean that students would not necessarily have to be online at all times in order to use ATP. However, an Internet connection would still be required to compete with other schoolmates, but it would be a very short connection with a very low amount of data transmission. Replacing a webapp with an app for Android and iOS would solve our students' most widespread complaint.

Also, the students should not be able to see any of the possible questions until they have finished listening to an audio for the first time. This would avoid being biased in their responses and would make them pay attention to the gist (top-down processing), whereas they could listen for details a second time with the questions in mind (bottom-up

processing). In this way, they could benefit from repetition and enhanced cognitive and metacognitive strategies.

Another aspect that could be interesting would be to introduce random audio files without repetition by using cookies. In ATP all the audio files go in sequential order, so you will always get the same audio first at each level. Our idea is to have random listens but having a cookie that prevents from previously played audio files. In our view, this would make ATP a more gamified experience, which is also an aspect of crucial importance to improve. There are not many gamification elements in the app apart from the top scorers list, encouraging messages, prizes after every activity and a final screen when you finish listening to all the contents.

The app could be improved by making it more challenging to the students, with a higher variety of levels and audio files. Also, it is required to make it less predictable, there must be surprise elements at all times, not only after completing the questions. It is necessary to make it more like a game if our students are to use it for a longer period of time without getting bored. Prizes do not necessarily have to be images: they can be videos linked from YouTube, music, information about a celebrity on a webpage, etc. In conclusion, the app needs to be much more gamified.

Regarding our research, the collected information might be fine for our target, which is a pilot test. However, if work in this direction continues, our results should be tested in a properly controlled experiment. Consequently, a larger randomised sample would be required as well as considering the level of the students as a dependent variable.

It is our impression that students who are not so strong in the language take more advantage of curriculum integration than those who have a higher level, who tend to be used to listening to authentic materials. That is why the idea of having two profiles for the app, that of the journalists who listen to news podcasts (like ANT) and that of the explorers who get more controlled practice (like ATP), would be very beneficial for both groups and would cater to the needs of most students. This functionality could be introduced in a new version of ATP.

All these ideas could be continued in a PhD, where all or at least some of these ideas could be put into practice. In our view, MALL has a great future ahead but, following Burston's criticisms (2014), MALL cannot be said to be a reality in every classroom today.

All on the contrary, there is still a lot to be done and we have to do it in a professional way. Hubbard's words (2008) about CALL could be applied to MALL today:

If CALL is to survive and prosper, then we need a dedicated cadre of graduate students, especially doctoral students, willing to select CALL as their area of specialization. The paths of CALL and language teacher education will increasingly be determined by such students and those they will educate in the decades to come.

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Annexes

Annex I: Initial Questionnaire

Este cuestionario se hace como parte de una investigación didáctica. El formulario no recopila ninguna información personal más allá de la que incluyáis, aunque me ayudaréis mucho si indicáis al menos qué nivel cursáis.

La forma más fácil de acceso es pinchar en el enlace desde vuestro correo corporativo. Solo podréis acceder una vez pero no se podrá saber quiénes de vosotros/as lo habéis hecho a no ser que voluntariamente me indiquéis vuestro nombre (no se citará en ningún estudio a no ser que explícitamente lo indiquéis). La única pregunta obligatoria es la primera y podéis dejar en blanco tantas como deseéis.

Me interesa y mucho que seáis totalmente sinceros y críticos. No siempre las respuestas que os propongo encajarán con vuestra opinión exactamente, pero intentad seleccionar la que más se aproxime.

¡MUCHÍSIMAS GRACIAS POR VUESTRA COLABORACIÓN!

*Obligatorio

Consentimiento informado.

En caso de ser menor de edad, debes haber entregado el formulario de aceptación de tus padres o, al menos, informarles de que vas a contestar este formulario. De no ser así, marca No en la siguiente pregunta y abandona el formulario.

1. ¿Son tus padres conocedores de que vas a responder a este formulario y no tienen el mayor inconveniente en tu participación? *

- Sí.
- No.
- Soy mayor de edad.

2. Nombre y Apellidos (opcional)

3. Nivel de estudios (recomendado)

- 1º ESO

- 2º ESO
- 3º ESO
- 4º ESO
- 1º Bachillerato
- 2º Bachillerato
- Grado Medio
- Grado Superior
- Licenciatura o Grado
- Estudios de posgrado

4. ¿Participas en el programa de bilingüismo?

- Sí
- No

Hábitos (8 preguntas)

5. ¿Trabajas el 'listening' fuera del instituto?

- Selecciona todos los que correspondan.
 - Sí, voy a una academia.
 - Sí, veo películas y series en inglés en casa.
 - Sí, escucho la radio o podcasts en inglés.
 - No, no me gusta/interesa el inglés tanto como para dedicarle mi tiempo.
 - Otro:

6. ¿Dónde tienes más exposición al inglés?

- En casa.
- En la academia.
- En la calle.
- En el instituto.
- Otro:

7. ¿Cuánto tiempo le dedicas aproximadamente a a la semana a escuchar inglés por tu cuenta?

- Nada
- Menos de 1 hora.

- Entre 1 y 3 horas.
- Entre 3 y 5 horas.
- Más de 5 horas.

8. Por favor, selecciona los recursos TIC que sueles usar fuera del centro:

- Selecciona todos los que correspondan.
 - Ordenador.
 - Tableta.
 - Móvil.
 - Proyector.
 - Libro electrónico.
 - Aplicaciones para aprender idiomas.
 - Páginas web para aprender idiomas.
 - DVD / Bluray
 - Televisión
 - Otro:

Expectativas (3 preguntas)

9. Por favor, selecciona los usos que le das a tu móvil más allá de lo que es estrictamente comunicación (llamadas y mensajes).

- Selecciona todos los que correspondan.
 - Comprobar las redes sociales.
 - Tomar fotos y vídeos con mis amigos/as.
 - Buscar información por Internet que me interesa.
 - Jugar.
 - Aprender.
 - Para que me dejen tranquilo/a cuando no me interesa la tertulia o situación en la que estoy.
 - Otro:

10. ¿Te planteas usar el móvil para ayudarte a aprender idiomas?

- Un móvil no es un ordenador, pero puede ayudar.
- Un móvil es genial para aprender idiomas porque lo llevo encima todo el tiempo.

- Un móvil es útil pero tiene sus limitaciones.
- Un móvil no es para aprender, pertenece a mi esfera personal.

11. ¿Crees que una aplicación móvil te puede "enganchar" y "picarte" con los amigos/as para sacar más puntuación?

- Sí.
- No en el formato actual.
- No.

Motivaciones (5 preguntas)

12. Si has utilizado alguna aplicación para aprender idiomas en el móvil, indica cuál te ha gustado más:

- Selecciona todos los que correspondan.
 - Duolingo
 - Busuu
 - Voxy
 - Wlingua
 - Otro:

13. En caso afirmativo, ¿puedes dar alguna razón por la que te guste esta aplicación?

- Me gusta porque es muy visual.
- Me gusta porque compito con mis amigos/as y me pico.
- Me gusta porque aprendo mucho inglés.
- Otro:

14. Por favor, selecciona el recurso con el que pasas más horas enganchado a la pantalla:

- Selecciona todos los que correspondan.
 - Ordenador.
 - Tableta.
 - Móvil.
 - Proyector.
 - Libro electrónico.
 - Aplicaciones para aprender idiomas.

- Páginas web para aprender idiomas.
- DVD / Bluray
- Televisión

15. Por último, ¿es para ti importante aprender idiomas y, en particular, inglés?

- Sí, es muy importante y se me da muy bien.
- Sí, es muy importante pero tengo dificultades con la parte escrita.
- Sí, es muy importante pero me cuesta la parte oral.
- Sí, es importante pero no me gusta.
- No, no es tan importante como dicen.
- Otro:

16. En caso de tener dificultades, ¿qué destreza es la que más te cuesta?

- Reading
- Writing
- Listening
- Speaking

Annex II: Final Questionnaire ATP

Son 30 preguntas en la que podéis marcar una sola opción a excepción de la penúltima pregunta, la 29, en la que podréis marcar varias opciones.

¡¡¡MUCHÍSIMAS GRACIAS POR VUESTRA COLABORACIÓN!!!

Consentimiento Informado

En caso de ser menor de edad, debes haber entregado el formulario de aceptación de tus padres o, al menos, informarles de que vas a contestar este formulario. De no ser así, marca **No** en la siguiente pregunta y abandona el formulario.

¿Son tus padres concedores de que vas a responder a este formulario y no tienen el mayor inconveniente en tu participación?

Marca solo un óvalo.

- Sí
- No
- Soy mayor de edad.

Nombre y Apellidos (opcional)

Nivel de estudios (recomendado)

- 1º ESO
- 2º ESO
- 3º ESO
- 4º ESO
- 1º Bachillerato
- 2º Bachillerato
- Grado Medio
- Grado Superior
- Licenciatura o Grado
- Estudios de Posgrado

¿Participas en el programa de bilingüismo?

- Sí
- No

Hábitos (8 preguntas)

1 ¿Cuánto tiempo le has dedicado a la aplicación semanalmente de forma aproximada?

- Menos de 10 minutos
- Entre 10 y 30 minutos
- Entre 30 minutos y 1 hora
- Más de 1 hora

2 ¿Desde qué dispositivo te has conectado con más frecuencia?

- Ordenador
- Tablet
- Móvil
- Otro:

3 ¿Dónde te has conectado con más frecuencia?

- En casa
- En la calle
- En ambos por igual
- Otro:

4 Con respecto a la pregunta anterior, ¿ha influido tener disponible una conexión wifi para el uso de la aplicación?

- Sí, me he conectado solamente si había wifi disponible.
- No, me ha dado igual. No tengo problema de datos en el móvil.
- He preferido conectarme con wifi pero no me ha importado conectarme con datos.
- Otro:

5 ¿Cuándo has usado la aplicación?

- Depende. Cualquier momento del día puede estar bien.
- Cuando me apetecía escuchar algo de inglés.
- Cuando estaba aburrido/a o bien en "ratos muertos".
- Otro:

6 ¿Cómo has realizado las audiciones normalmente?

- Utilizando el altavoz del móvil

- Utilizando los auriculares en el móvil
- Utilizando los altavoces de mi PC
- Utilizando los auriculares en mi PC
- Otro:

7 Cuando has realizado las audiciones...

- Prefiero que no haya ruido alrededor, no me concentro.
- Me da igual que haya ruido alrededor.
- Inevitablemente unas veces había ruido y otras no.
- Otro:

8 ¿Cuántas veces has escuchado las audiciones por lo general?

- Solamente una vez
- Dos veces
- Tres veces
- Otro:

Expectativas (3 preguntas)

9 En general, ¿dirías que la aplicación es lo que esperabas de una aplicación para mejorar el listening?

- Sí
- No
- Tal vez
- Otro:

10 Si tu respuesta es negativa, indica el motivo:

11 Si tuvieras que ponerle una nota a la aplicación, ¿cómo la calificarías?

	1	2	3	4	5	
Mala	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Excelente

Motivaciones (10 preguntas)

12 Después del primer uso, ¿has probado la aplicación varias veces después?

- Sí
- No
- Me he conectado alguna vez más.
- Otro:

13 ¿Han influido las fechas próximas a los exámenes en que te conectes menos?

- Sí
- No
- Han influido un poco pero no ha sido el factor más importante
- Otro:

14 ¿Te has cansado rápidamente de la aplicación?

- Sí
- No
- Tal vez
- Otro:

15 Si tu respuesta es afirmativa, indica el motivo:

16 ¿Como calificarías la pantalla que aparece tras comprobar el resultado?

	1	2	3	4	5	
Mala	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Excelente

17 ¿Qué es lo que más te ha gustado de esta pantalla?

- Mensajes de ánimo
- Imágenes
- Audio
- Otro:

18 ¿Te ha animado a seguir usando la aplicación?

- Sí, me gusta ver lo que me encuentro después de cada audición.
- Sí, aunque algunas imágenes (p.e., de broma) no me han gustado mucho.
- No, no me ha animado.

Otro:

19 ¿Te ha parecido bien el sistema de puntos?

- Sí
- No
- Tal vez
- Otro:

20 ¿Has competido con otros compañeros/as para obtener más puntuación?

- Sí
- No
- No directamente pero sí que me gusta sacar la máxima puntuación posible.
- Otro:

21 Con respecto a los temas de los listenings...

- Me han parecido que estaban bien.
- Me han parecido que no tenían nada que ver con lo que doy en clase.
- Me ha parecido que son un rollo.
- No han influido ni positiva ni negativamente en que haga las audiciones.

Aspectos Pedagógicos (6 preguntas)

22 ¿Sueles ver la transcripción tras las audiciones?

- Sí
- No
- A veces
- Otro:

23 ¿Te ha ayudado ver las respuestas correctas y la transcripción?

- Sí, me ha ayudado mucho.
- Sí, un poco.
- No, no me ha ayudado.
- Otro:

24 Si has contestado afirmativamente la pregunta anterior, ¿en qué sentido te han ayudado?

25 Con respecto a la calidad del audio de las diferentes audiciones...

- Creo que el sonido se escucha muy bien.
- Creo que se podrían escuchar mejor.
- Creo que se escuchan regular.
- Se escuchan mal.

26 ¿Qué elementos has 'pillado' con más facilidad?

- Datos concretos (fechas, nombres, números...)
- Idea general
- He comprendido ambos sin problema: datos concretos e idea general.
- Otro:

27 Si ves que eres un alumno/a que tiene ciertas dificultades con el inglés, usar la aplicación...

- Me ha ayudado un poco a mejorar en listening.
- Creo que necesito más tiempo para comprobar si he mejorado algo.
- Otro:

28 Si ves que eres un alumno/a que se te da bastante bien el inglés, usar la aplicación...

- No creo que me aporte mucho porque ya tengo un (muy) buen nivel de inglés.
- Siempre viene bien porque cualquier exposición al idioma es buena.
- Otro:

Aspectos mejorables (2 preguntas)

29 Selecciona todos aquellos aspectos que consideras que la aplicación podría mejorar:

- Selecciona todos los que correspondan.
 - Aspecto visual
 - Mejorar la adaptación del tamaño de la pantalla a los dispositivos móviles
 - Mayor número de audiciones
 - Nivel C1 en las audiciones
 - Mayor número de premios

- Audiciones con vídeo
- No depender de Internet para su uso
- Integración con redes sociales, tales como Facebook o Twitter
- Otro:

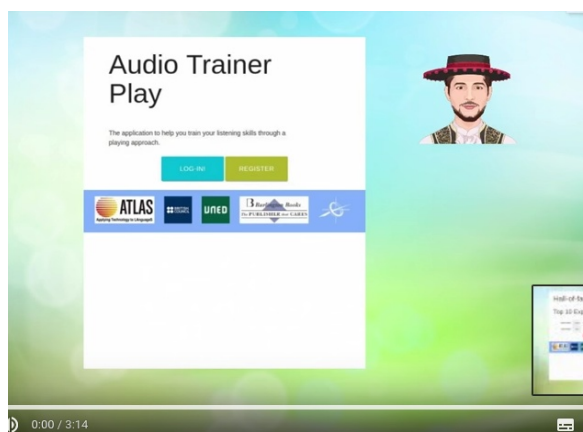
30 Añade cualquier sugerencia que estimes oportuna. Salvo que des tu consentimiento expreso más abajo, no se revelará ningún dato personal.

Colaboración

He facilitado mi nombre al inicio de este cuestionario y doy mi consentimiento expreso a que se cite mi nombre como colaborador/a en esta investigación de postgrado:

- Sí
- No

Annex III: Video about ATP



[https://youtu.be/ edsJsb5ptk](https://youtu.be/edsJsb5ptk)

Hola a todos, soy Juanjo, profe de inglés, muchos de vosotros me conocéis. Me he puesto esta vez más guapo, como podéis comprobar por mi aspecto. Os quería presentar esta aplicación, Audio Trainer Play, que es parte de una investigación que estoy llevando a cabo como Trabajo Fin de Máster, y que cuenta con la colaboración de de varias entidades, como podéis ver, que son el grupo ATLAS, la propia UNED, el British Council, Burlington Books y la Escuela Superior de Ingeniería de Sistemas Informáticos de la UPM.

La aplicación, como veis, tiene dos opciones de inicio, ‘login’ y ‘register’ y, lógicamente, lo primero que tenéis que hacer es registraros. Bueno, ya en la pantalla de registro, tenéis que rellenarme una serie de datos y aceptar que vais a formar parte de esta investigación. Una vez que tenéis vuestro usuario y contraseña, ya podéis entrar a la aplicación y la pantalla inicial es la que tenéis a vuestra derecha, en la que aparecen varias opciones:

- ‘Start’
- ‘Continue’

Son importantes porque la aplicación recuerda la última posición en la que os habéis quedado, entonces, no siempre os va a interesar empezar desde cero.

- ‘About’: una pequeña información sobre la aplicación
- ‘Hall of Fame’: donde saldrán las personas que tienen más puntuación
- ‘Log Out’ para volver a salir

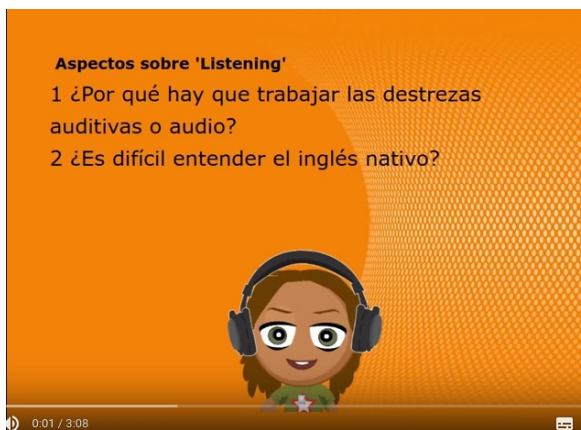
Luego ya, si habéis pulsado la opción de ‘start’, tendríais que elegir el nivel correspondiente, que va desde el A1 hasta el B2. Podéis poner el nivel con el que os sintáis más cómodos, pero podéis salir y volver si veis que es demasiado fácil o difícil. En cualquier caso, la aplicación os irá subiendo de nivel automáticamente conforme vaya viendo que lo vais haciendo mejor. Entonces, hacéis la audición, la escucháis y luego le dais a ‘check result’ para ver si las respuestas son las correctas o no.

En este caso, como podéis ver, las respuestas no han sido nada correctas y no hemos obtenido un premio especialmente bueno, pero siempre es con un poquito de humor y podéis volver a probar otra vez o, si ya os dais por vencidos, podéis ver la respuesta correcta haciendo clic sobre cada una de las distintas preguntas. También podéis volver a escuchar la audición así como ver la transcripción. Todas esas opciones se habilitan para que tengáis oportunidad de comprobar vuestros propios errores.

Ya finalmente deseamos que os vaya muy bien en la aplicación, que os guste y que saquéis mucha puntuación.

I like it, well done!

Annex IV: Video about pedagogical questions about ATP



<https://youtu.be/BTYSFQOhZSM>

1 ¿Por qué hay que trabajar las destrezas auditivas o audio?

Es porque es lo que más hacemos al cabo del día, más incluso que hablar, leer o escribir, no solamente si somos estudiantes.

2 ¿Es difícil entender el inglés nativo?

Sabéis que sí, entre otras cosas porque se hace a tiempo real normalmente y en la conversación no hay tiempo de consultar diccionarios, no se le puede estar pidiendo a nuestro interlocutor (la persona con la que hablamos) que repita. Además, el inglés tiene más sonidos que el español, tanto vocales como consonantes, no coincide la entonación, a veces no vocalizan mucho al hablar y hay unos acentos muy cerrados ¡Pero no te desanimes, así que empléate a fondo!

3 ¿Cómo se desarrolla el audio?

Lo ideal es que escuchemos sin ver las preguntas para que no condicionen nuestra respuesta. Debemos fundamentalmente intentar captar la idea general y ya profundizar más en una segunda audición si es necesario. Por cierto, en algunos dispositivos móviles no arranca el audio automáticamente, por lo que debéis darle al botón correspondiente.

En otro orden de cosas, fundamentalmente hay dos teorías relacionadas con el aprendizaje de listening: la que se basa en fonética y la que se basa en captar la idea

general. Ambas son complementarias y debemos trabajar los dos aspectos. Por otra parte, la aplicación se centra en lo que se llama el 'intensive listening', audiciones cortas que trabajamos en profundidad, pero también es necesario trabajar el 'extensive listening', por ejemplo viendo películas y series en versión original.

4 ¿Cómo sabemos cuál es nuestro nivel?

Teóricamente lo sabemos por nuestro nivel de estudios. En la práctica, esta cuestión es bastante más complicada, aunque es el propio alumno/a quien podrá comprobar la cantidad de información adquirida y el número de respuestas correctas acertadas. Si nos equivocamos en la mayoría de las respuestas, estamos en un nivel muy elevado.

5 ¿Cuándo sabemos cómo subir a otro nivel?

Cuando empecemos a darnos cuenta de que las audiciones de ese nivel no suponen ningún reto y que las saquemos, como diríamos, "con la gorra".

6 ¿Se puede bajar de nivel?

Sí, se puede y se debe si vemos que el nivel es excesivo.

7 ¿Cuántas veces conviene oír un audio?

Generalmente se recomiendan dos audiciones: una para captar la idea general y otra ya para entrar en los detalles.

8. Si no he entendido bien un audio una y otra vez, ¿qué hago? : ¿debo darme por vencido y pasar a otro?

Es preferible bajar de nivel a desanimarnos. La intención de la aplicación es que aprendamos, por lo que si no "pillamos" una audición en concreto, no pasa nada, es algo normal con la variedad de acentos y pronunciaciones del inglés. Si ya hay más de una audición en ese nivel que no entendemos bien, entonces es mejor que bajemos al escalón anterior para subir luego con paso más firme.

9 ¿En qué me tengo que fijar al escuchar: en el sentido general, en los detalles, los datos...?

En la primera audición en el sentido general y en la segunda audición en la información que aparece en las preguntas.

10 ¿Hay algo que convenga hacer en paralelo: tomar notas, estar en un lugar tranquilo y sin ruidos...?

Cuanta más tranquilidad y concentración, mejor. No obstante, la aplicación está pensada para usarse en cualquier situación, ya que entendemos que cualquier exposición al idioma es beneficiosa, por lo que se puede y se debe utilizar en cualquier contexto. Además, a medida que se está más cómodo con el nivel, se debe tratar de usar en entornos ruidosos como cualquier situación comunicativa del día a día.