

# Supporting listening comprehension by social network-based interaction in mobile assisted language learning

TIMOTHY READ

*UNED, Department of Computer Languages and Systems, Spain*

AGNES KUKULSKA-HULME

*Institute of Educational Technology, The Open University, UK*

ELENA BARCENA

*UNED, Department of English Language, Spain*

Received: 13 May 2020 / Accepted: 13 November 2020

DOI: <https://doi.org/10.30827/portalin.v0i35.15341>

ISSN paper edition: 1697-7467, ISSN digital edition: 2695-8244

**ABSTRACT:** Listening comprehension is challenging for students because it is more than just the direct extraction of meaning from sound. The literature reflects the need to develop relevant strategies. Teachers typically try to help students structure their learning into three phases: before (pre-), during, and after (post-) listening, emphasizing different cognitive and metacognitive processes. In this paper, the role of Mobile Assisted Language Learning (MALL) is proposed as a way to support this learning process and specifically to scaffold its third phase. A study was carried out with an app that the authors have developed for listening to audio news recordings. There are two versions of this app; the first is a standalone program which the students use on an individual basis. The second links to Facebook to enable students to summarize, share and discuss what they have listened to, thereby refining and consolidating their comprehension. A research question in this study addressed the role of a social network in a MALL app in terms of motivation and learning habits. The results of the study provide pedagogical insights into the answer and the value of including social network-based interaction in a MALL app for the development of listening comprehension.

**Keywords:** Learner autonomy, L2 listening, Mobile assisted language learning (MALL), Social networking, Audio News Trainer

## **Apoyo a la comprensión auditiva con interacción en redes sociales en aprendizaje móvil de lenguas**

**RESUMEN:** La comprensión auditiva es un reto para los estudiantes porque va más allá de la extracción directa del significado del sonido. La literatura refleja la necesidad de desarrollar estrategias relevantes. Normalmente los profesores intentan ayudar a los estudiantes a estructurar su aprendizaje en tres fases: antes, durante y después de la escucha, haciendo hincapié en diferentes procesos cognitivos y metacognitivos. En este artículo se propone el papel del *Mobile Assisted Language Learning* (MALL) como una forma de apoyar este proceso y proporcionar andamiaje en su tercera fase. Se realizó un estudio con una aplicación desarrollada por los autores para escuchar grabaciones de noticias en audio. Existen dos versiones de esta aplicación: la primera es un programa independiente que los estudiantes utilizan de forma individual; la segunda enlaza con Facebook para permitir a los estudiantes

resumir, compartir y discutir lo escuchado, perfeccionando y consolidando su comprensión. La pregunta de investigación se centra en el papel de una red social en una aplicación de MALL en términos de motivación y hábitos de aprendizaje. Los resultados proporcionan una visión pedagógica y el valor de incluir la interacción basada en redes sociales en una aplicación de MALL para el desarrollo de la comprensión auditiva.

**Palabras clave:** Autonomía del alumno, Comprensión oral de segundas lenguas, Aprendizaje de idiomas asistido por móvil, Redes sociales, *Audio News Trainer*

## 1. INTRODUCTION

The development of listening comprehension requires extensive practice and needs to be trained beyond the time-limited possibilities of language classes<sup>1</sup>. Such practice could make use of mobile technology to access the large amounts of audio material available on the Internet, outside of students' classroom periods. For this approach to be effective in a formal learning context, it needs to support and complement the face-to-face techniques used in class. Using smartphones and tablets for language learning (termed Mobile Assisted Language Learning, henceforth, MALL) could be an effective means of practice and improvement, since their use can increase learning opportunities, encourage active learning, enhance communication, promote learner feedback, emphasize task time, and provide easy access to content (Sharples, 2000). Language learners surveyed by Gimeno-Sanz, Morgana and Van de Vyver (2020) were in favour of using mobile devices for their language learning and just over half of them reported using their mobile devices for educational activities while commuting from one place to another. Furthermore, as the authors note in these studies, students frequently remark on the motivational properties of using mobile devices for learning. While progress has been made with MALL, as will be seen below it has had little effect on the day-to-day support of developing listening comprehension in foreign language students. Hence, the overall potential of this technology, reflecting the mobile and almost ubiquitous way in which people are connected today online is arguably still to be realised. Godwin-Jones (2018) laments the fact that when students enter the classroom "there is more often than not the expectation –or, in fact, the absolute requirement– that phones be switched off, or at least not used during class" (p.2).

## 2. LITERATURE REVIEW

### 2.1. The development of listening comprehension

In research on listening comprehension in a second or foreign language, both cognitive and metacognitive processes are frequently the object of investigation, although the contexts and precise focus vary considerably. For example, recently, Roussel, Gruson and Galan (2019) have compared students' low-level processes (e.g. segmenting a text) and their high-level metacognitive processes (e.g. predicting content) in the context of training students for listening comprehension of 'audio documents' available online and selected by the research team for the students. In a very different setting, Fung and Macaro (2019) investigated

---

<sup>1</sup> The research presented here was undertaken in the SWITCHED-ON project funded by the Spanish Ministry of Economy and Competitivity (FFI2016-80613-P).

students' linguistic knowledge in relation to their self-reported strategic behaviours (such as recall of prior knowledge, selective attention on difficult words, translation), in the specific comprehension task of listening to their teacher in class.

Historically, language teachers have helped their students improve foreign language listening comprehension skills by following an essentially behaviourally repetitive approach (e.g. Richards and Rodgers, 2014), where increasingly more complex oral input and/or task conditions are used over time. As research changed the way in which language teaching was undertaken, a more cognitive approach was adopted by focussing on the application of specific strategies to the listening process, which over time were separated into those that can be used before, during and after it takes place (Flowerdew and Miller, 2005). Teaching practice appears to support this approach and has shown that activities undertaken prior to listening help activate prior knowledge and provide context; those undertaken while listening help students focus on key information; and those undertaken afterwards, help by encouraging interpretation and reflection (Gilakjani and Ahmadi, 2011). In general, the application of these strategies by students can be used to some degree to differentiate between successful and unsuccessful listeners (Vandergrift, 2011). The role of the teacher here is, therefore, to help the students develop and apply them by providing the students with large numbers of authentic listening opportunities and relevant activities that help them learn the strategies and also reflect upon their performance (Gilakjani and Ahmadi, 2011).

While there appears to be consensus on the importance of developing relevant listening strategies to be applied in the different phases of the process, there is no consensus about the exact steps that students should be encouraged to follow when training their listening comprehension. Authors such as Goh (2008) place the emphasis for successful listening upon the metacognitive awareness of two different types of (top-down and bottom-up) processes, and go on to argue that successful learners need to develop metacognitive knowledge about how various types of information can be used to successfully form hypotheses about what is being said (Goh and Hu, 2014). Focussing on the development of metacognition has been reported to improve listening comprehension in experimental conditions, especially for less experienced students (Goh, 2008; Vandergrift, 2011). It appears, therefore, that both cognitive and metacognitive strategies are necessary for effective development of listening comprehension skills. The way in which students apply listening strategies is related to a series of personal factors (mental, physiological and affective abilities) and the preferred ways that they process and retain information in general. Such application cannot be ad hoc but should be the habitual response of a student when undertaking listening comprehension. Habits, in this sense, are defined by Butler and Hope (1995) to be repetitive behaviours, undertaken in an essentially subconscious way. Learning habits, therefore, can be defined to be routines for the acquisition of new knowledge, skills and competences (Zwiers, 2005). As Urh and Jereb (2014) note, the correct selection and implementation of relevant learning habits can lead to more effective and efficient knowledge collection.

The research evidence in the application of various cognitive and metacognitive models for the development of skills such as listening comprehension found in the literature suggests that it is justified to establish a three-phased approach: before, during and after, and that, given the progressive nature of syllabus design, the final stage is typically minimized, as the class moves to the next topic (cf. Grabe, 2004; Richards, 2005).

## 2.2. MALL and podcasting for the development of listening comprehension

MALL has been argued to support the development of oral skills and lead to significant improvements (Demouy & Kukulska-Hulme, 2010). This is also true for the development of listening comprehension (Rahimi and Katal, 2012). Furthermore, MALL can motivate students to increase the time they are actually exposed to the foreign language away from the classroom (Huang & Sun, 2010). This increment is argued to prolong learning (Jones et al., 2006), help integrate the learning process into their everyday life (Price and Rogers, 2004), and help establish learning habits and potentiate self-regulated learning (Kukulska-Hulme, 2009). However, care is needed when considering the use of MALL, since some studies report that students can sometimes substitute parts of their existing study with it, therefore, removing the benefits gained by supplementing their learning as intended (Copley, 2007).

The technology that is very often applied to the development of listening comprehension within MALL is that of podcasting (McGarr, 2009). While the literature contains studies of how listening comprehension can be improved using podcasting, the results can be seen to be limited, in an overall sense, since the students work well when they are coached or when their podcasting activities form part of a larger language learning course, but tend not to continue to practise once it has finished (Cebeci and Tekdal, 2006). Authors like Hasan and Hoon (2013) also note additional logistical problems that might explain why these types of learning activities are not more prevalent in language classrooms, such as the amount of time needed to prepare podcasts. Other related problems include the lack of any underlying pedagogic theory and the difficulty in getting students to follow up with additional or non-graded activities. Sundberg and Cardoso (2019) presented a principled design for an interactive, mobile music app that should support listening comprehension by organizing music content by the vocabulary level of the lyrics and allowing learners to listen to music based on their proficiency levels and interests.

## 2.3. Social networking in language learning

The possibilities for using social networks to support language learning have been discussed in the literature (Mills, 2011). Similarly, the way in which such networks can be used for learning when accessed from mobile devices (Al-Shehri, 2011), with emphasis on informal learning (Pooley et al., 2019) and opportunities for increased social interactions (Zou, Li and Li, 2018). The use of social networks seems to motivate students (Blattner and Lomicka, 2012), and social media can support motivation through social learning which relies on opportunities for interaction (Deaton, 2015).

There has been considerable interest the use of Facebook in education. A review by Aydin (2012) concluded that it can improve classroom practices and student involvement. The use of Facebook specifically in language learning has also been the focus of numerous studies (e.g., Barrot, 2018). However, no study has been undertaken on the inclusion of Facebook in a listening comprehension mobile app. The use of this social network with such an app might not only motivate practice but change the students' learning habits. Firstly, it would arguably introduce a social and collaborative dimension in listening comprehension, a traditionally individualistic type of training. Secondly, at a metacognitive level, it would

scaffold autonomous learning, which receives comparatively little attention in the classroom. To explore these possibilities, the authors designed and developed a MALL app which incorporated these features and is described in the following section.

### 3. THE AUDIO NEWS TRAINER APP

The ANT – Audio News Trainer app was created to help students develop aural English comprehension listening strategies via the use of different sources of audio news recordings. Audio news was selected here as the genre since previous experience has shown it to be of interest to students as it relates to what is going on in the world at the moment, it is therefore something that the students can relate to, and is continually updated (authors' experience). Three news sources, selected and graded for their different degrees of difficulty for non-native speakers, including factors such as speech speed and accents, are used in the app. These sources, which provide fresh news items on a continuous basis are not included in the app but are harvested from online sources. Students could choose which news source to listen to and pick items from that source.

Two versions of the app were developed, and a group of students were randomly assigned to use one or the other: an individual learning one, containing only general questions about what the student has understood during the listening process (henceforth, NFB group, meaning Non-Facebook Group), and one that includes a social learning component, namely a connection to the app's Facebook page (henceforth, FB group; meaning Facebook Group, see figure 1).

Following the three-phase cognitive and metacognitive model from the literature, the use of the app is structured as follows: in the first phase, a series of textual, audio and video guides are provided by email to help the students establish the listening strategies they should use. An example of these strategies that reflects a common problem for students is the need to formulate predictions based on real-world knowledge to guide the listening process, while at the same time maintaining the flexibility to relinquish them quickly if the recording being listened to does not meet expectations. Another example would be the need for students to keep listening to recordings at a level where they comfortably understand the majority of the information and not rush on to higher levels. In the second phase, the students listen to recordings at their chosen level, which are updated on a daily basis. Finally, in the third phase, they should answer a series of *general* introspective questions about their listening performance. Specific questions on informative data are deliberately avoided, following Shohamy and Inbar's (1991) evidence that they have more to do with memory than with listening comprehension and may, therefore, be misleading and, worse, create anxiety in the student.

In the Facebook-enabled version of the app, the students are requested to provide a summary of what they have understood, which is posted automatically to the app's page on the social network. Subsequent social learning activities are undertaken around the posts there to reinforce and extend the third phase of this learning process. The students are encouraged to search for supporting material on other social networks or Web sites that they can link into a given summary on the Facebook page. This scaffolded social process should help the students to extend the third reflection phase, thereby consolidating their learning.



Figure 1. Social interactions in Facebook

#### 4. RESEARCH QUESTION

A very preliminary analysis was undertaken by the authors (Read & Kukulska-Hulme, 2015), which suggested that the ANT app could help students engage with listening comprehension practice. The present analysis set out to investigate the effect of the inclusion of a social network, namely Facebook, in the ANT app on the practice of student listening comprehension. Specifically, the research question was:

Does the connection of a social network like Facebook in a MALL app motivate the practice of listening comprehension and help the students develop learning habits?

The authors hypothesised that FB group participants would listen to more recordings than those in the NFB group. If the FB group participants listened to more recordings, this would suggest that the MALL app was motivating. Furthermore, it could show that the FB group participants were developing more of a habit of practising listening via the app.

Two further hypotheses were formulated specifically in relation to participants in the FB group only. It should be noted that these hypotheses are not intended to contrast with theoretical aspects drawn from the existing literature but are formulated in the framework of exploratory data analysis (Behrens, 1997). Firstly, the authors hypothesised that FB group participants who listened to a greater number of recordings during the experimental period (compared to their FB group peers) would be more likely to agree that they intend to continue using social media after the experimental period (in the post-questionnaire: “*After using the app, do you intend to use social networks for learning?*”). This would suggest that those

who had listened to more recordings also saw value in social networks supporting learning, since they declared an intention to use them. The exploration of such data would serve as an indication that they had developed new habits supported by the functionality of social media.

Secondly, the authors hypothesised that FB group participants who liked or commented on a greater number of FB posts (compared to their FB group peers) would be ones who also listened to a greater number of recordings. These activities might reinforce each other. This hypothesis relates to support for motivation and habit-formation.

## **5. METHODOLOGY**

### **5.1. Participants**

This study was undertaken with students of the English language university access course at the Spanish distance university UNED (*Universidad Nacional de Educación a Distancia*). The English level of the students on the course ranges from A2 to C1, something evident in the results of the final exam on this course from over three decades, following the nomenclature of the Common European Framework of Reference for Languages (Council of Europe, 2001). A call for participation was prepared. Students were informed that they would be provided with an app that would enable them to practise their listening comprehension, anytime, anywhere, enabling them to make use of the free time that they had, and that its use was voluntary.

### **5.2. The study**

A group of 90 students signed up to take part in this study (without having seen the app or knowing how it would work or what the listening process consisted of). The students were randomly assigned to one of two groups of 45, one group for the Facebook enabled version of the app (FB group, henceforth) and one for the non-Facebook enabled version (NFB group, henceforth). Both groups of students were sent an email with instructions on how to download, install and configure their version of the app and a link to a questionnaire to be answered before starting to use it.

The audio links to the streamed recordings used for each of the three levels were not included a priori in the app for copyright reasons; they were provided as part of the configuration instructions. Once configured, the students were provided with guides (in textual, audio and video formats; one for the app interface and functionality and another on relevant cognitive and metacognitive strategies for the task in hand). The students were then left to use the two different versions of the app during a period of 10 weeks.

### **5.3. Data collection and analyses**

Three types of data were collected during this experiment. Firstly, the students were given two different questionnaires, one before starting to use the app (the pre-questionnaire), and one afterwards (the post-questionnaire). Both questionnaires consisted of a combination of 28

multiple choice questions, in Spanish and English, that were designed to elicit information about the students' profile and progress as listeners that could not be obtained directly by analysing the app usage data. Many of the questions were in both questionnaires, structured differently, to check to see if and how the study had changed their opinions, habits and behaviours. The students' email address was used as a key field in each questionnaire to align the answers. Secondly, both versions of the app were connected to the Internet via the project server, which logged all interactions between the students and the app. Thirdly and finally, all the data related to the posts on the app's Facebook page (including likes, comments, etc.) were subsequently downloaded as semi-structured data using the API Graph Explorer.

The analyses undertaken in this work were carried out using SPSS v.22. In order to explore the research question outlined previously, four analyses were undertaken. Firstly, given that the data gathered about the number of recordings listened to by the two student groups (FB and NFB, using the two different versions of the app) did not follow a normal distribution (a conclusion reached following a visual inspection of the frequency histogram), a Mann-Whitney U test was used to check if there was any significant difference between the two groups.

Secondly, for the FB group (and not the other group, since the students there had no access to the social network), a one-way ANOVA test was used to see if there was any significant relation between students' answers to a question in the post-questionnaire about their intention to carry on using social networks for learning and the number of recordings listened to by that student. Thirdly, a Pearson product-moment correlation was used, as a measure of linear association, to assess the significance of the relation between the number of recordings listened to by a given student and the number of likes/comments added by that same student on the app's Facebook page. Fourthly and finally, a Chi-Square test was undertaken to check the significance of the answers (categorical variables) to a given question, provided by the same students before and after the experiment. It should be noted that no pre- and post- language test could be undertaken, given the heterogeneity of the student population on the access course.

## 6. RESULTS AND DISCUSSION

Any students who listened to at least one recording were logged and their data entered in this study. The results were as follows: 33 students from the FB group used the app to listen to a total of 654 recordings over the ten-week period, in comparison with 9 students from the NFB group who used the app to listen to 121 recordings. It should be noted that a drop in student numbers from those who originally signed up to participate and those who actually used the app reflects the authors' experience for students participating in research in distance learning. Students quite often sign up to take part in a study and then, for many different reasons, such as a lack of time, dislike of the actual activity in question, apathy, etc., do not actually take part. Hence, the reduction in participants in general, in both groups, can be partially explained. It should be noted, in hindsight, that the installation process was a non-trivial task, and might have caused a few students to abandon the study before it started. Since the students who abandoned the study before it started also did not answer the final (post-) questionnaire, it is impossible to actually tell.

However, the differential reduction of 45 students to 33 in the FB group, and 45 to 9 in the NFB group is argued to be due to the motivational value of including Facebook in the app and the inclusion of related activities.

It is argued that the large standard deviation in each group (FB group  $SD=18.1$ , NFB group  $SD=19.1$ ) reflects the inclusion of all the data on student app usage, which includes cases of students who just tried the app only once. As noted above, to test the significance of the result, a Mann-Whitney U test was undertaken for these data. The asymptotic significance is below 0.05, so it possible to conclude that the FB group used their version of the app to listen to more audio recordings than the NFB group. Given that the only difference between the two apps was the use of Facebook for a purposeful activity, then regarding the research question formulated earlier for this work, we conclude that there is evidence to suggest that the inclusion of the use of social networks in a MALL app does both motivate the practice of listening comprehension and affect learning habits.

Given the previous result and the research question under study here, subsequent analyses focus on the FB group, their use of the app, their answers to the pre- and post-questionnaires, and their interactions on the app Facebook page (numbers of 'likes' and comments). Further evidence of the value that the students gave to using a social network as part of the learning experience can be seen by comparing the answer given by them to the question in the post-questionnaire on whether they would continue to use social networks for learning (for which three answers were available: Yes, No, Don't know), and the number of recordings listened to by them with the app. A one-way ANOVA was used for this analysis (with the answer to the question being the independent variable, and the number of recordings listened to being the dependent variable). The assumption of homogeneity of variance was tested and found tenable using Levene's Test,  $F(2,30) = 2.79$ ,  $p = .077$ . There was a significant effect of a student's intention to use social networks for learning languages in the future and how many recordings were listened to using the Facebook-enabled version of the app at the  $p \leq .05$  level for the three conditions [ $F(2,30) = 4.32$ ,  $p = .022$ ].

Post hoc comparisons using the Tukey HSD tests were undertaken on all possible pairwise contrasts. The following pairs of groups were found to be significantly different ( $p < .05$ ): groups Yes ( $M=27.05$ ,  $SD=19.99$ ) and No ( $M=9.8$ ,  $SD=9.67$ ). In other words, students who expressed an intention to continue using social networks listened to significantly more recordings than those who did not intend to do so. However, it was not possible to discern any significant difference between the students who answered Yes or No and those who answered Don't know, with respect to the number of recordings listened to by the corresponding students. Once again, regarding the research question, this result would seem to support the idea that the inclusion of a social network with the MALL app not only motivates the practice of listening comprehension but also helps establish relevant habits, since they are aware of the value of using online social interaction to prolong the third self-reflection phase in their own learning process.

A further exploration of the value given by the students in the FB group to interacting on the social network page of the app can be seen by analysing the relation between the number of recordings they have listened to with the app and the number of likes (236) / comments (116) that they subsequently added there. A Pearson product-moment correlation was computed to assess the relationship between the number of recordings listened to by

the FB group and the number of likes/comments added by these same students in Facebook (from the mobile device but not directly from the app; the instructions for the study stated that all social network interactions should take place using a mobile device and not from a desktop computer.). There was a positive correlation between the two variables,  $r=0.6$ ,  $n = 33$ ,  $p < 0.001$ . Hence, two aspects of the student's use of the social network with the app can be highlighted. Firstly, that the use was not just a passive checking of what other students had concluded about given news stories but, to some degree, interactive and required the students to evaluate what their peers had written, and either qualify it by giving it a like or add a comment to support and/or criticise it. Secondly, the relation between the number of recordings listened to and the number of likes/comments added by the students supports the idea that the interactive social process is motivating to the students, since they listened to more recordings, and arguably reflects a change in their learning habits, since they were not able to undertake this activity before the app was available. Each instance of listening to a recording can lead to engagement within the social network (to post a summary, to like someone else's summary, to comment, to add a link), but it can also work in the other direction: each engagement with the social network could motivate further listening.

The effect of using the app over the period of the study on the students in the FB group, and their perception of the value of using a MALL app linked to a social network for training their listening comprehension, can be considered by comparing the answers provided by the students to a related question (number 28 in the pre-questionnaire and number 27 in the post-questionnaire, see figure 2), before and after the period (concerning the effect of the information present in social networks upon students' knowledge, and whether it reinforces/changes their understanding, makes them think about a given topic in more depth, or has no effect).

**Pre-question 28:**

What is generally the effect of social media (Internet-based exchange of information and ideas) on your knowledge?

- I don't give much importance to it (No effect)
- It makes me think about what I thought I knew (Think)
- It reinforces and sometimes changes my knowledge (Reinforces/Changes)

**Post-question 27:**

After using the app, what is generally the effect of social media (Internet-based exchange of information and ideas) on your knowledge?

- I didn't use ANT
- I don't give much importance to it (No effect)
- It makes me think about what I thought I knew (Think)
- It reinforces and sometimes changes my knowledge (Reinforces/Changes)

*Figure 2. Pre- and Post- questions regarding the effect of using social media*

The answers given to these questions in both pre- and post- questionnaires for the FB group were analysed using a Chi-Square to detect whether there are significant differences in the values given by students to the use of a social network during the experimental period.

Figure 3 shows that, for example, of the 7 students who noted a general tendency to use information in social networks to reinforce or change their knowledge before undertaking the experiment, 5 of them still thought the same afterwards, in comparison to 2 who reported that they now thought about what they were reading (and not necessarily updated their knowledge). Similarly, of the 11 students who considered that such information made them think in more depth about a given topic before the experiment, 6 thought the same afterwards and 4 changed their opinion to note that they now used the information directly to reinforce or change their understanding. One student also decided that such information had little, if any, value in helping them make decisions. However, following the analysis using a Chi-Square, there does not appear to be any significant relation between the answers given in the pre-questionnaire and those given in the post-questionnaire,  $\chi^2(2, N = 33) = 6.51, p = .16$ .

		Post.Q.27.			Total
		Reinforces/ Changes	Think	No effect	
Pre.Q.28.	Reinforces/ Changes	5	2	0	7
	Think	4	6	1	11
	No effect	6	4	5	15
Total		15	12	6	33

Figure 3. Relation of responses to the same question in the pre- and post-questionnaires

When analysing data from this question, it should be noted that the accuracy or granularity of the data comes from how well a student is able to use introspection to report upon their own attentional and cognitive processes, based to a large degree upon what can be remembered about their own performance. Therefore, it could be argued that of the three possible answers to this question, it is reasonable for a student to be able to differentiate between the fact that they do not generally pay a lot of attention to information contained in social networks, or that they do stop to think/reflect about it (possibly updating any mental representations), but not to any further degree. Hence, this separation between the two possible types of answers can be reflected in the way in which the data are processed by grouping the answers into two sets, i.e., “No effect”, which stays the same, and “Thinking / Reflecting”, which groups together the other two possible answers. Furthermore, since the observed frequency of the relations between the pre- and post- answers presented in figure 3 gives rise to numbers of 5 or less in several places, then grouping the answers together to give larger numbers makes the results of the analysis more robust.

The results of analysing the data in this way can be seen in figure 4 which, following a McNemar test, shows a significant relation between the answers to the pre- and post-question,  $p = .02$ . Despite the fact that the expected and observed frequencies are in some cases below 5, the number of such cases is lower in figure 4 with respect to figure 3. It should be noted that this might affect the reliability of the results to some limited extent.

		Post.Simpl.Q.27.		
		Think/Reflect	No effect	Total
Pre.Simpl.Q.28.	Think/Reflect	17	1	18
	No effect	10	5	15
Total		27	6	33

*Figure 4. Relation of grouped responses between pre- and post- question*

It can be argued that of the 18 students who noted that they made use of information present in Facebook when understanding audio news, 17 felt the same after using the app during the experimental period and 1 did not. Of the 15 who made no use of such information, 5 stayed the same, while 10 had changed their opinion. Once again, this result would seem to support the argument that the presence of a social network in a MALL app affects some students' learning habits.

## 7. CONCLUSIONS

In this paper listening comprehension is conceived as being a combined top-down and bottom-up process that is best developed by students in terms of a set of cognitive and meta-cognitive strategies that can be applied before, during, and after listening takes place. This three-phase process highlights the role that can be played by learning habits when developing aural skills. MALL is argued to provide support for the development of listening comprehension, since it extends the practice out of the language classroom into everyday life, providing the students with the opportunity to diversify and contextualise their learning activities. Previous research supports its use in the shape of podcasts, but there is no evidence that students would decide to extend its everyday use beyond the end of their formal classroom period, thereby preventing further practice and consolidation.

A news-based MALL app was developed to address this problem, structuring the process of listening comprehension around a synthesis of previous research. Furthermore, it includes social network-based interaction after a listening activity as a way to maintain and enhance student engagement, and thereby extend the time and focus given by them to each recording, reinforcing the overall learning experience. A study was subsequently undertaken to explore how the effect of the incorporation of the social network to the app influenced student behaviour, habits and motivation. The various analyses undertaken showed, firstly, that significantly more students listened to more audio news recordings using the social network extended version of the app than the one without the possibility of social interaction. The conclusion here is that some students were more motivated to use the former version and changed their learning habits accordingly. Secondly, the relation between the students' view of whether they would continue to use a social network as part of their learning to help refine their language understanding and the use they made of the app was considered. A significant relation was found, whereby the students who expressed a desire to continue using Facebook for this purpose were those who had listened to more news recordings. This result was argued to reflect increased motivation and a more pro-active approach to

learning. Thirdly, a similar result was obtained by comparing students' contributions on the app's social network page with the number of news recordings listened to. This supports the previous conclusion and also serves as evidence for an active participation on the social network, and not just a passive consumption of information with little or no interaction. Fourthly and finally, a comparison was made of the answer given to the same question in the pre- and post-questionnaires about the way in which the students use others' opinions, arguments, and supporting evidence on Facebook. A correlation between the results reflected a significant change in the importance given to the value of such information when undertaking listening comprehension practice.

Hence, the overall results in this work support the initial assumption about the pedagogical value of including social network-based interaction into a listening comprehension MALL app, since evidence has been found that suggests that it improves the usage of the app by students in different ways, leading to more exposure to the target language and more guided practice in the development and application of the relevant strategies. This explicit, structured and mobile-assisted training process constitutes a promising learning scenario for the development of oral skills in a foreign language. This type of training requires theoretically-guided practice to be undertaken with adequate instruments which are deeply engrained in daily human activity, such as mobile devices and social networks all over the world.

## 8. REFERENCES

- Al-Shehri S. (2011). Mobile social networking in language learning: A transformational tool. *International Journal of Mobile Learning and Organisation*, 5(3-4), 345–359.
- Aydin S. (2012). A review of research on Facebook as an educational environment. *Educational Technology Research and Development*, 60(6), 1093-1106.
- Barrot J.S. (2018). Facebook as a learning environment for language teaching and learning: A critical analysis of the literature from 2010 to 2017. *Journal of Computer Assisted Learning*, 34(6), 863-875.
- Blattner G. & Lomicka L. (2012). Facebook-ing and the social generation: A new era of language learning. *Apprentissage des Langues et Systèmes d'Information et de Communication*, 15(1), 1-25. Available at: <https://journals.openedition.org/alsic/2413>
- Carter C., Bishop J. & Kravits S.L. (2011). *Keys to effective learning: Study skills and habits for success*. London: Prentice Hall.
- Cebeci Z. & Tekdal M. (2006). Using podcasts as audio learning objects. *Interdisciplinary Journal of E-Learning and Learning Objects*, 2(1), 47-57.
- Copley J. (2007). Audio and video podcasts of lectures for campus-based students: production and evaluation of student use. *Innovations in Education and Teaching International*, 44(4), 387-399.
- Council of Europe (2001). *Common european framework of reference for languages: Learning, teaching, assessment*, Cambridge: Cambridge University Press.
- Deaton S. (2015). Social Learning Theory in the Age of Social Media: Implications for Educational Practitioners. *Journal of Educational Technology*, 12(1), 1-6.
- Demouy, V. & Kukulska-Hulme, A. 2010. On the spot: Using mobile devices for listening and speaking practice on a French language programme. *Open Learning*, 25(3), 217-232.

- Flowerdew J. & Miller L. (2005). *Second language listening: Theory and practice*. Cambridge: Cambridge University Press.
- Fung, D., & Macaro, E. (2019). Exploring the relationship between linguistic knowledge and strategy use in listening comprehension. *Language Teaching Research*. Online First -Published 4 Sep 2019.
- Gilakjani, A.P. & Ahmadi M.R. (2011). A study of factors affecting EFL learners' English listening comprehension and the strategies for improvement. *Journal of Language Teaching and Research*, 2(5), 977-988.
- Gimeno-Sanz, A., Morgana, V., & Van de Vyver, J. (2020). Understanding learner and instructor attitudes toward and use of mobile-assisted language learning. In Alberto Andujar (ed.) *Recent tools for computer-and mobile-assisted foreign language learning* (pp. 1-34). IGI Global.
- Godwin-Jones, R. (2018). Using mobile devices in the language classroom: Part of the Cambridge Papers in ELT series. Cambridge: Cambridge University Press. Available at: <http://cambridge.org/betterlearning>
- Goh C. & Hu G. (2014). Exploring the relationship between metacognitive awareness and listening performance with questionnaire data. *Language Awareness*, 23(3), 255-274.
- Goh C. (2008). Metacognitive instruction for second language listening development: Theory, practice and research implications. *RELC Journal*, 39, 188-213.
- Grabe W. (2004). Research on teaching reading. *Annual Review of Applied Linguistics*, 24, 44-69.
- Hasan M.M. & Hoon T.B. (2013). Podcast applications in language learning: A review of recent studies. *English Language Teaching*, 6(2), 128.
- Huang C. & Sun P. (2010). Using mobile technologies to support mobile multimedia English listening exercises in daily life. Paper presented at the *International Conference on Computer and Network Technologies in Education*, Beijing. Available at: <http://nhcuer.lib.nhcue.edu.tw/bitstream/392440000Q/649/1/120.pdf>
- Jones A, Issroff K, Scanlon E, Clough G, McAndrew P & Blake C (2006) Using mobile devices for learning in informal settings: is it motivating? In Isaías P, McPherson M and Bannister F (Eds.) *Proceedings of IADIS International Conference on Mobile Learning*, 14-16 July 2006, Dublin: IADIS Press, pp.251-255.
- Mills N. (2011). Situated learning through social networking communities: The development of joint enterprise, mutual engagement, and a shared repertoire. *CALICO Journal*, 28(2): 345-368.
- Kukulka-Hulme, A. 2009. Will mobile learning change language learning? *ReCALL*, 21(2), 157-165.
- McGarr O. (2009). A review of podcasting in higher education: Its influence on the traditional lecture. *Australasian Journal of Educational Technology*, 25(3), 309-321.
- Pooley A.W. Midgley W. & Farley H. (2019). Informal language learning through mobile instant messaging among university students in Korea. *International Journal of Mobile and Blended Learning*, 11(2), 33-49.
- Price S. & Rogers Y. (2004). Let's get physical: the learning benefits of interacting in digitally augmented physical spaces. *Computers & Education*, 43(1), 137-151.
- Rahimi M. & Katal M. (2012). The role of metacognitive listening strategies awareness and podcast-use readiness in using podcasting for learning English as a foreign language. *Computers in Human Behavior*, 28(4), 1153-1161.

- Read, T. & Kukulska-Hulme, A. (2015). The role of a mobile app for listening comprehension training in distance learning to sustain student motivation. *Journal of Universal Computer Science*, 21(10) pp. 1327–1338. Available at: <http://www.jucs.org/doi?doi=10.3217/jucs-021-10-1327>
- Richards J.C. (2005). Second thoughts on teaching listening. *RELC Journal*, 36(1), 85-92.
- Richards J.C. & Rodgers T.S. (2014). *Approaches and methods in language teaching*. Cambridge: Cambridge University Press.
- Roussel, S., Gruson, B., & Galan, J.P. (2019). What types of training improve learners' performances in second language listening comprehension?, *International Journal of Listening*, 33:1, 39-52.
- Sharples M. (2000). The design of personal mobile technologies for lifelong learning. *Computers & Education*, 34(3), 177-193.
- Shohamy E. & Inbar O. (1991). Validation of listening comprehension tests: The effect of text and question type. *Language testing*, 8(1), 23-40.
- Sundberg R. & Cardoso W. (2019). Learning French through music: the development of the Bande à Part app. *Computer Assisted Language Learning*. 32(1-2): 49-70.
- Urh M. & Jereb E. (2014). Learning habits in higher education. *Procedia - Social and Behavioral Sciences* 116, 350-355.
- Vandergrift L. (2011). Second Language Listening. In Hinkel E. (Ed.), *Handbook of research in second language teaching and learning*, 2, New York: Routledge, pp.455-471.
- Zou B., Li H. & Li J. (2018). Exploring a curriculum app and a social communication app for EFL learning. *Computer Assisted Language Learning*, 31(7), 694-713.
- Zwiers J. (2005). The third language of academic English: five key mental habits help English language learners acquire the language of school. *Educational Leadership*, 60–63.

