

**UNIVERSIDADE FEDERAL DO ESPÍRITO SANTO  
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**MOBILE ASSISTED LANGUAGE LEARNING: AFFORDANCES AND  
LIMITATIONS OF DUOLINGO**

**ROBERTA GOMES LEÃO**

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Roberta Gomes Leão

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LIMITATIONS OF DUOLINGO**

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Orientadora: Prof<sup>a</sup>. P.h.D Kyria Rebeca Finardi

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## **ABSTRACT**

This study aimed at analyzing how mobile assisted language learning (MALL) may be used to aid foreign language (L2) learning. So as to reach this goal the Duolingo platform, one of the most popular apps among L2 learners, was analyzed. With that aim, a study was carried out with 80 participants, 45 of whom were L2 learners who answered an online survey about their preferences for L2 learning and 25 MALL users and 10 L2 teachers who were interviewed. Data analysis used a mixed methods design with predominantly qualitative data. Results of the study showed that participants recognize the relevance of MALL to L2 learning, but agree that a teacher is necessary to foster interaction and the development of production skills. Based on these results the study concluded that L2 teachers should consider using blended approaches combining MALL in traditional classes.

Keywords: Mobile Technology; MALL; Duolingo

## TABLE OF CONTENTS

<b>1. INTRODUCTION.....</b>	<b>6</b>
<b>2. RATIONALE.....</b>	<b>7</b>
<b>1.1.2. AIMS.....</b>	<b>8</b>
<b>1.2. General.....</b>	<b>8</b>
<b>1.3. Specific.....</b>	<b>8</b>
<b>2. Review of Literature.....</b>	<b>9</b>
2.1 Technology and L2 teaching/learning .....	9
2.2 MALL.....	11
2.3 Duolingo.....	14
<b>3. METHODOLOGY.....</b>	<b>17</b>
<b>4. ANALYSIS.....</b>	<b>17</b>
4.1 Quantitative Analysis.....	17
4.2 Qualitative Analysis.....	20
4.2.1 L2 Learners' Perceptions.....	22
4.2.2 Analysis of Duolingo.....	23
4.2.1 L2 Teachers' Perceptions.....	25
<b>2. DISCUSSION.....</b>	<b>26</b>
<b>5. CONCLUSION.....</b>	<b>29</b>
<b>6. REFERENCES.....</b>	<b>30</b>
<b>6. APPENDICES.....</b>	<b>34</b>

## 1. INTRODUCTION

Since the development of digital technology with its easy access to information, the offer of tools such as web pages, communities in social networks and applications for mobile devices have become popular and appealing to generations born in and conditioned by digital stimuli (REILY, 2012; FINARDI; PREBIANCA; MOMM, 2013). In this scenario, teachers struggle to keep students motivated by trying to adapt traditional methods that may not be sufficiently attractive to young students (REILY, 2012). However, it is not easy for teachers to compete with all the information and stimuli available at a simple click. Another issue to consider in class management and planning in terms of the use of technology is that it is very difficult to trace a line between activities aimed at learning and/or at entertainment.

Mobile learning makes educational contents available in a flexible form in terms of time and place, changing the relationship between learning and learners (BOY; MOTTERAM, 2013). In the case of additional language<sup>1</sup> (L2) learning, mobile devices used in mobile assisted language learning (MALL) have been seen as tools to guide users to an easy access to word meaning in digital dictionaries and free educational apps. MALL is becoming popular among people who are interested in learning an L2 and it has been used to learn vocabulary, to access grammar exercises, to improve writing skills and to increase reading comprehension (FINARDI; PREBIANCA, in press; KIM; KWON, 2012; KULKUSKA-HUME, 2009; LAN; SANG; CHANG, 2007).

Duolingo is an app used in MALL which offers many activities for practicing structural aspects of different L2. It is available for free for smartphones and tablets and is also a social media which connects people who are learning languages, showing how advanced they are in relation to one another in the language chosen. This feature of Duolingo resembles a game and as such may engage learners in the learning process.

The Duolingo platform also offers activities for language teachers to work with their students and it was selected for this study because of its affordances for independent and ubiquitous forms of learning. Given its possibilities, the present study aims at reflecting on the possibilities and limitations of Duolingo for L2 playful learning through technology to achieve what Arruda (2013) calls the erasing of borders between learning and entertainment.

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<sup>1</sup> In this work the term additional language will be used to refer to any language but the first or native language (L1).

## **1.1. RATIONALE**

Research has already emphasized the importance of looking at the potential of technology for education (BLAKE, 2013; FINARDI; PORCINO, 2014, PREBIANCA; FINARDI; CARDOSO, 2015), and how the attention of contemporary students is more likely to focus on visual and kinesthetic stimuli rather than on traditional stimuli because of the intensity of the contact students have with technology outside the class (REILY, 2012). Mobile devices are changing the relationship between content and learner and between learning and entertainment (ARRUDA, 2013) and they mediate interactions between technology and people (KULKUSKA-HULME, 2009).

The analysis of MALL is the target of some researchers who want to understand the implications of using this form of learning for L2. MALL is considered a form of being close to learners' reality and a way of reinforcing a spontaneous learning process. In order to understand the potential of MALL and contribute to future studies about affordances and limitations of this modality of learning, the Duolingo application (app) for language learning was selected as the object of this study, which aims at analyzing the implications of using this app for L2 learning.

## **1.2. AIMS**

### **1.2.1. GENERAL**

As the use of mobile technology is increasing and people are getting access to information more easily, this study aims to analyze affordances and limitations of MALL in general and of the Duolingo in particular for L2. With that aim the study reviews studies on MALL and analyzes affordances and limitations of the Duolingo platform for L2 learning as perceived by L2 learners and teachers.

### **1.2.2. SPECIFIC**

The Duolingo platform was selected because of its popularity and its potential for L2 learning and it will be analyzed in terms of its activities, layout, sequence of the lessons and learning plan and methods.



## 2. REVIEW OF LITERATURE

Arruda (2013) suggests that it is better to analyze the effects of the use of technology in people's lives than isolated contexts such as in social networks and the like. Young learners are so exposed to contact with ubiquitous information that traditional L2 classes may not provide the ideal scenario to motivate and engage learners (REILY, 2012). Teachers have a hard time developing strategies that can compete with all stimuli students get in and out of their classes (REILY, 2012). That is one of the reasons why MALL is becoming an option to connect content to learners' reality. But, before delving into the concept of MALL, and how other researchers consider the role of the Duolingo for L2 learning, it is important to understand how the presence of technology is affecting L2 learners and teachers in general.

### 2.1 Technology and L2 teaching/learning

Despite several attempts to understand the role of technology in L2 learning for example, Prebianca, Finardi, Cardoso (2014) that emphasizes its presence in contemporary generation and how technology could help schools to be connected to this reality. Schools keep their source of information in very traditional sources. It makes schools a static place in a society in movement.

Arruda (2013), states, that people probably will not get a complete understanding of this subject because studies on the use of technology in education are never in their final form, since technology, and to a lesser and slower degree, its incorporation in education, are always changing. However, schools and traditional methods are losing ground due to the easy access to information that technology offers, usually outside classroom walls.

Arruda (2013) understands entertainment gadgets (such as media players) as a product of the media culture and society, which is geared at having fun and pleasure. As such, these technological gadgets offer a space to connect people (DEBORD, 1976, cited in ARRUDA, 2013). This connection afforded by technology has been appropriated for other purposes besides entertainment, as shown in the many popular movements organized via social networks which had been originally created for entertainment (ARRUDA, 2013; FINARDI; PORCINO, 2016). Finardi and Porcino (2014) understand that this access to internet changed the form of using, teaching and learning L2. And it also changed the way people deal and position themselves in relation to issues that surround society.

Regarding the role of games and apps in society, Arruda (2013) suggests that games and apps are builders of concepts, culture and relationship among their users because of their integration in contemporary life. Reily (2012) adds that teachers should explore more the use of games in classrooms, once games can be used as tools for negotiation in the classroom in such a way that students can get more motivated to do what is required if they know that they will get more "entertainment time" after "time on task".

Arruda (2013) raises the issue that some media devices are not rightfully considered tools for learning since they do not always offer potential for learning despite their playful nature. Teixeira and Finardi (2013) have shown the resistance of some teachers to the inclusion of technology in education and in the case of mobile learning, teachers still face many challenges in the incorporation of mobile phones and tablets and usually frown at the use of mobile devices in the classroom (BOY; MOTERRAM, 2013). Despite this resistance, technologies nowadays are not only developed for entertainment, but also for work, education and other aspects of social life not always incorporated by schools (BOY; MOTERRAM, 2013, p. 269). In the case of mobile technologies, the multitask feature of mobile devices enable the access to many functions at the same time and place and so can be said to permeate all aspects of people's lives.

Schools could (and should) incorporate this form of learning instead of letting it be commercialized and used by society outside schools only. That way schools could coordinate multitasks in order to engage students and improve performance in virtual and physical environments. It is important that schools start to integrate technology in their curriculum, because education needs to be close to the learners' world in order to make sense for them. The school environment is a place to discuss and develop the sense of using new technologies in benefit for one's own development and for the world (ARRUDA, 2013).

In Brazil, there was an economic opening of the national market to increase the production of microinformatic objects. This opening stimulated the production and distribution of computers available in schools and succeeded in expanding the discussion about the implications of using computers in education. Another consequence of this opening was the expansion of teaching/learning strategies (ARRUDA, 2013). Dias and Bocorny (2014), claim that internet access has increased in Brazil since its first access. Currently, Brazil reached the ranking of the "fifth-largest contingent of internet users" (p. 47), but these authors contrast this situation with the fact that Brazilian people are still limited by the cost of broadband wifi service. In spite of scientific

evidence that internet is a useful tool for L2 teachers (for example FINARDI; PREBIANCA; MOMM, 2013), not all institutions can afford this type of service.

According to Dias and Bocorny (2014), Finardi, Prebianca and Momm (2013), Fadini and Finardi (2015a, b) and others, the internet offers a myriad of possibilities L2 teaching/learning. However, Dias and Bocorny (2014) suggest that English as Foreign Language (EFL) teachers would rather work with online games than other activities such as puzzles or video conferences because of limitations of time and computer facilities. All participating teachers in Dias and Bocorny's study (2014) agreed that there is a rich environment for English learning on the internet. It is easy to find teaching materials on the web and most teachers in Dias and Bocorny's study (2014) believe that it is possible to improve English skills by using the internet because students may be more motivated to use the internet. Differently to findings in Teixeira and Finardi (2013), most teachers in Dias and Bocorny's study (2014) claimed to know how to integrate internet resources in the classroom and said they did not need training to improve internet literacy skills.

As can be seen in the scenario just described, mobile devices may offer more opportunities for students than other types of technology, mainly because of their portability, social interactivity, connectivity, individuality, among other aspects. When it comes to L2 learning, MALL offers immediate feedback as other teaching strategies mediated by computers (ATTEWELL; WEBSTER, 2004; CHINNERY, 2006; SOLOWAY; NORRIS; BLUMENFELD; FISHMAN; KRAJCIK; MARX, 2001; FINARDI; PREBIANCA in press). Moreover, "the mobile device acts as a bridge between different sites of learning, some of which are "formal" whilst others are more "informal" (KULKUSKA-HULME, 2009, p. 101).

## 2.2 MALL

In Boy and Motteram's (2013) study, mobile devices are considered a flexible form of learning which is altering the relationship between learner and learning. Yet, the incorporation of MALL demands a series of changes in learning and teaching. Boy and Motteram's (2013) found that teachers have been using tablets and mobile devices in their classroom to practice vocabulary, motivate learners and teach curricula contents. However, Boy and Motteram's (2013) observed that some teachers need to improve their management levels of these devices. It is not only related to the performance of use, but also to the fact that some students get easily distracted by games and other entertainment functions of their mobile devices. To counteract these negative effects, Boy and Motteram's (2013) suggest that some teachers use the content of these games in their students'

mobile devices to promote language learning and practice. Boy and Motteram (2013) conclude that it is important to analyze whether teachers are receiving effective training to deal with the potential that those devices may bring to classroom.

According to Kulkuska-Hulme (2009), it is still difficult to offer a definition for the term mobile learning, whether it is related to mobile devices or to the concept of learner mobility. But it is possible to assume that mobile learning can happen everywhere, and it is not determined by the classroom environment (FINARDI; PREBIANCA, in press). Although there is not an agreement about the definition of mobile learning, it is commonly agreed that it relates not only to mobility in terms of spatial position, but also to how this mobility affects time and space boundaries (TRAXLER, 2009; KAKIHARA; SØRENSEN, 2002 cited in KULKUSKA-HULME, 2009).

MALL is seen as a form of assisting “learners at the point of need and in ways that fit in with their mobile lifestyles” (KULKUSKA-HULME, 2009, 162). It is a form of reinforcing spontaneity and continuity in the access of content without teachers’ interference. In this sense, Kulkuska-Hulme (2009) defends that MALL belongs more to students than to teachers though it helps teachers to understand better their students’ preference and as such can take learning out and beyond classroom walls.

For Kulkuska-Hulme (2009), the devices that people use are important for learning though not all devices are configured to support learning materials, for some devices are developed for specific purposes. It is important to observe which activities may be adequate for each device, and it is also necessary to pay attention to the behavior of learners in relation to these devices. For instance, if the device used for learning is borrowed, it may probably alter the performance of the user as the circumstances are modified.

Kulkuska-Hulme, Norris and Donohue (2015) suggest that teachers and learners shape the language learning process and that the presence of a teacher to guide learners in the activities is still very important. As it was observed in Finardi and Prebianca (in press), some users of MALL still feel the need for teacher mediation to complement and support their learning process. Moreover, learners need help to select what type of app is better for each learning purpose. This is one of the reasons why this study aimed at analyzing an app used in MALL from the point of view of teachers and students.

Kulkuska-Hulme, Norris and Donohue (2017), also state that learners and teachers share responsibilities for the learning process and mobile devices strengthen this co-responsibility. Mobile devices help teachers make language learning meaningful because its features are easy to access (photos, videos, voice recordings, etc) and they can be easily shared. Finardi and Prebianca (in press) add that MALL is a low-cost alternative with an expressive number of options to offer in terms of activities for L2 students.

Most students who participated in Kim's (2013) study showed preference for materials that did not require too much attention. Materials that were short and contained some fun and easy tasks, called 'light' (KIM, 2013). In general, participants preferred contents that offered many possibilities of use such as podcasts and news. Students in Kim's (2013) study also resorted to scaffolding devices such as dictionaries and bilingual scripts. Teachers can make use of MALL to try to fill in the gap between learning and entertainment tasks (ARRUDA, 2013; FINARDI; PREBICANCA, in press).

Kim's (2013) study also shows that people choose MALL for several reasons depending on their goals and reputation. In general, the apps chosen by students were related to grammar, vocabulary, proficiency tests, famous journals, etc. But, the absence of engaging elements such as timely or field-dependent information, or fun stories were one of the major factors for students to discontinue using the apps in MALL.

Nevertheless, teachers need to pay attention to students' devices, whether all of them have internet connection, capacity to support an educational app, whether the app is available for all operational systems (IOS, Android and Windows) or whether there is a free internet connection for all students in the institution. It is also very important to observe whether students know how to manage their devices. Likewise, it is better to check if all students turned off the push of notification so as to avoid disturbing the development of classroom activities (KULKUSKA-HULME; NORRIS; DONOHUE, 2015).

Another factor in relation to the teachers' role in MALL is that according to Kim's (2013) research "In general, students seemed to prefer audio-lingual methods, such as repetition, memorization, or drill practice. Most of them took MALL as an activity for input building or fluency development" (p. 139). Probably, students use MALL mostly for language development in terms of vocabulary and grammar, however, it is important to stress that language development also requires practice in language in interaction (FINARDI; PREBIANCA; SCHMITT, 2016).

Despite of the possibility of existing a lack of interaction in some MALL activities. It seems that MALL offers a lot of possibilities for L2 learning though most of them are focused on the lexical level which offers few opportunities for real interaction. In general, the sources found in MALL for developing L2 include memorization and reading comprehension tools, such as dictionaries or list of words (FINARDI; PREBIANCA, in press).

Kulkuska-Hulme, Norris and Donohue (2015), give some ideas to guide teachers in the use of mobile devices in class. They suggest that it is possible to offer a variety of selected input through different medias (videos, podcasts, etc.) in and out class, and learners may get more autonomy in searching for other medias to get adequate input of different sources. Teachers may use students' devices to send homework and ask for answers via e-mail, sharing in cloud data storages (Google Drive, One Drive or Dropbox). The use of mobile devices is also a possible way to give feedback to students. Besides that, learners can bring to class cultural and language communication problems, by recording in their devices situations of language in use.

### 2.3 Duolingo

It is not easy to design an app for a specific purpose. In the case of L2 learning it needs to give opportunities for social engagement, in order for it not to be disconnected from reality (CULBERTSON; WANG; JUNG; ANDERSEN, 2016). LEFFA (2014), states that Duolingo was very successful in terms of design, but not in terms of adaptation for use in classroom by teachers. And its methodology is not flexible enough to meet students' needs.

The Duolingo is a free platform for L2 learning; it is available in 19 languages, namely: English, Czech, German, Dutch, Greek, Spanish, French, Hindi, Hungarian, Indonesian, Italian, Korean, Polish, Portuguese, Romanian, Russian, Turkish, Ukrainian and Vietnamese. The Duolingo is not meant for the learning of all these languages. If a Portuguese speaker intends to learn Dutch as an L2, for example, this speaker would have to use another language, for example English, as a bridge to have access to Dutch.

Duolingo is accessed through a website or an app for smartphones or tablets. It contains activities for reading, writing, listening and oral practice in the target language. In the end of each module the user wins a type of reward, such as a medal, that allows the user to advance to the next level. Quadros (2014) considers this feature as a characteristic of the gamification phenomenon. However in the present study Duolingo is considered a form of MALL and not of game because in a deep

analysis conducted by Gunter, Campbell, Braga, Racilan and Souza (2016) Duolingo does not match the game category, although it contains features of a game. Culbertson, Wang, Jung and Andersen (2016) suggest that Duolingo uses this game features to keep users engaged according to the RETAIN (Relevance, Embedding, Transfer, Adaptation, Immersion, Naturalization) evaluation model (GUNTER; KENNY; VICK, 2008 cited in GUNTER; CAMPBELL; BRAGA; RACILAN; SOUZA, 2016). These authors observed the weakest and strongest aspects of this app, however the evaluation was somewhat affected in some points because this model is meant for analyzing games for educational purposes not apps. Each stage of evaluation is detailed in the following table:

Table 1: RETAIN Evaluation Model

Relevance	Embedding	Transfer	Adaptation	Immersion	Naturalization
It is related to the connection between the game's content and learners' lives. And how the instructional levels are connected to each other.	It considers the way that learning, fantasy, and game play are integrated in a way that one does not exceed the other during the course of the game.	It mirrors the way content knowledge is transferred to diverse situations	It has to do with the deepen of the transfer where assimilation and accommodation take place, in order to lead the building of learning.	It highlights the games' fully immersive qualities	It analyzes the automaticity of thinking

Source: Adapted from Gunter *et al.* (2016)

For Gunter, Campbell, Braga, Racilan and Souza (2016) Duolingo did not get a high score in the RETAIN model mainly because it did not fit all parameters that a real game contains. The RETAIN model pointed Transfer, Adaptation and Naturalization as the strongest features of Duolingo. Regarding Transfer it got a good mark because of the organization of the progression of learner through the levels, the vocabulary and the pictures that represent its starts, very simple through the progression of levels. Yet, Duolingo offers feedback to only a few activities and it also does not have post-activities for practicing what was learned. Regarding Adaptation, Duolingo contains a repetitive structure of activities; this aspect makes learners apply these patterns of handling the task even with words or structures that they do not know. As was already mentioned, this app does not

offer reflexive, critical or contextualized activities, yet the repetitions help users to develop a cognitive sense of solving the task proposed. Besides that, what made Duolingo get a good score in the Naturalization category was the possibility of learners doing extra tasks based in their weak points.

The lowest scores of Duolingo were related to the categories of Relevance, Embedding and Immersion. In the Relevance category it was observed that the sentences elaborated by the app are disconnected from reality, e.g. “The dogs drink wine” is a scrambled sentence that the user has to organize in one of the levels, it has no sense for learners. The goals and purposes of each level are clear and well organized. Duolingo also obtained a low score in the category of Embedding because it showed focus more on memorization that on emotional, physiological, physical and intellectual levels, and it showed an absence of communicative characteristics and both the lexical and the grammatical parts are isolated from reality. Also, it has “no story for content to be embedded in” (GUNTER *et al.* 2016). In the Immersion category, Duolingo showed elements such as progress bars that according to students' right or wrong answers increase or decrease, providing visual support to make learners aware of their performance. Besides the indication of wrong or correct answers with a red and green flag, the app also offers a small feedback indicating the reason the answer was appropriate or not, and there is also an icon that leads users to a small forum where other users share comments and doubts about the lessons. Duolingo may be used for vocabulary acquisition in class when teachers conduct students to do more of what is required by the app.



## **METHODOLOGY**

The aim of the study is to reflect on affordances and limitations of MALL in general and of Duolingo in particular. With that aim, a mixed methods design (DORNEY, 2007) was used to triangulate quantitative and qualitative data. Quantitative data was collected through an online questionnaire with close questions regarding the use of mobile technologies and L2 learning (Appendix I)<sup>2</sup> sent to approximately 19.000 students of the Federal University of Espirito Santo (UFES) and answered by 45 participants. Qualitative data was gathered through a questionnaire (Appendix II) with close and open questions answered by 25 participants that use mobile devices for L2 learning. Data was transcribed, coded and triangulated for the analysis of learners' perceptions. A second phase of the study involved the analysis of the activities proposed by Duolingo so as to answer the main research question of whether this app enables L2 learning only through human-device interaction. Finally, a third phase of the study was carried out with 10 L2 teachers through an interview (Appendix III) to answer the other research question, namely: Are L2 teachers aware of the possibilities of using this app with their students? Results of the study will be reported separately first and then triangulated for data discussion.

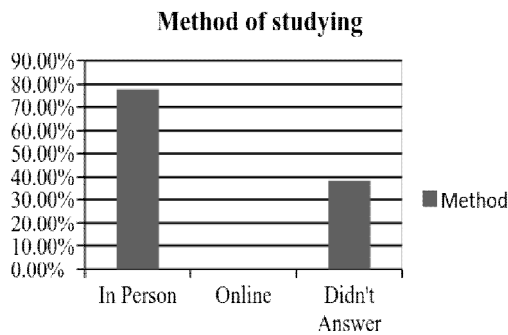
## **4. ANALYSIS**

### **4.1 QUANTITATIVE ANALYSIS**

A questionnaire was built in Google forms and sent by email to almost 19000 people (students, professors and staff) at UFES and it was answered by 45 participants. Regarding the L2 learning profile of this population and as can be seen in Graph 1, only 17 of the 45 participants were studying an L2 at the time of data collection, 19 have already studied and L2 and 9 did not answer this question.

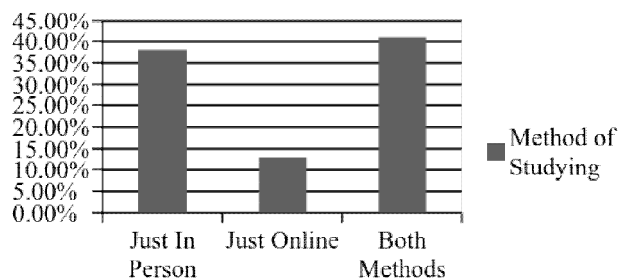
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<sup>2</sup>The surveys of this study were launched in Brazilian Portuguese, the native language of the participants. Then, all appendices were not translated to English. As the data collected were very extensive for being transcript to this paper. A link for an online document with the results will be available at the end of each appendix.



*Graph 1*

Regarding participants preferred method for L2 learning, data shows that participants prefer to have face to face classes since 77,7% of participants checked this option while only 8,3% opted for the online method, and 38,8% didn't inform what was their preferred method for learning an L2. As suggested by Finardi, Prebianca and Schmitt (2016) one of the L2 learners' need is to have structured feedbacks with pedagogical orientation, in order to, avoid fossilization of errors and to find solutions to the problems presented in their production in the target language. This may be an indication for most people answered that still prefer the mediation of teachers in face to face interactions. However, it was also perceived that some participants checked the two options, corroborating suggestions in studies that analyzed students' perception of blended or hybrid approaches to L2 learning (for example, PREBIANCA; FINARDI; CARDOSO, 2015).

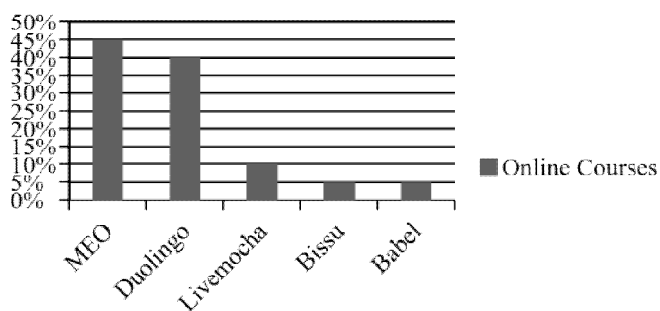


*Graph 2*

Data in this study corroborates data in previous studies that sought to analyze students' perceptions of hybrid or blended approaches to L2 teaching/learning where most people claimed to prefer a combination of traditional classes with face-to-face interactions and online activities with a total of 41,6% of participants marking this option in this study. A minority of 13, 8% of participants use only the online method, and 38, 8% of them claimed to study only in traditional face-to-face

courses. These numbers show that L2 students might not feel confident about using only online resources to learn an L2 and may need the mediation of the teacher and face-to-face interaction so as to fully develop L2 skills, corroborating data in Finardi, Prebianca and Schmitt (2016).

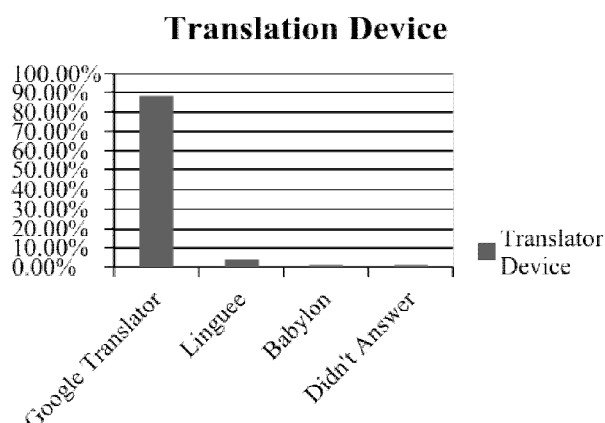
Participants informed what kind of online courses they used to learn an L2. Since the research happened in a public university, most people claimed to use the My English Online (MEO) course, a free course offered by the English without Borders program. MEO helps students get a reasonable proficiency level in order to participate in internationalization programs. Besides MEO, only Duolingo, Livemocha, Babel and Bissu were mentioned by participants.



Graph 3

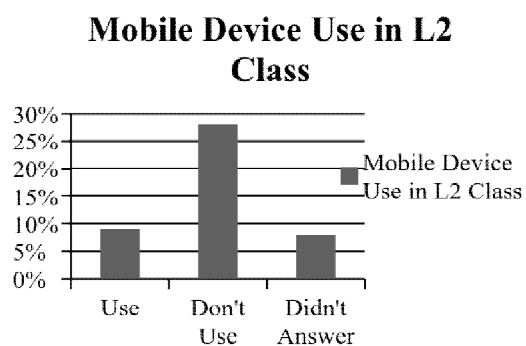
MEO was the option for 45% of the participants, while 40% checked that they use Duolingo. Livemocha, Bissu and Babel were mentioned, but were not popular in this academic community. Only 10% of the participants used Livemocha and 1% of them used Bissu and Babel. These results do not put in question the efficiency of these online courses; it might show that they just do not offer what this specific public is looking for. It is important to mention that MEO is not available in a mobile version as an app and since study focused on mobile learning, MEO was discarded and Duolingo was selected for this study.

The present study attempted to find out what scaffolding material students used as an extra help in their learning process. In order to narrow down the collected data, the survey inquired the types of translation tools participants used. The participants that never attended L2 classes were able to answer the question about translation tools together with the others who had. The participants mentioned only three translation tools: Google Translator, Linguee and Babylon. Google Translator was chosen by the vast majority, 88,8% of the participants while only 4% opted for Linguee and 1% for Babylon suggesting that Google Translator is used by most of this population.



*Graph 4*

The study also attempted to find out whether participants used their mobile devices with internet connection during L2 classes. Although learners seem to be aware of the possible uses of MALL, only a minority of participants in this study use mobile devices in L2 classes. It reflects to the fact that the activities done inside the classroom are not requiring the use of those devices that are constantly present in students' context.



*Graph 5*

#### 4.2 QUALITATIVE ANALYSIS

In order to triangulate data so as to broaden the analysis, an interview with 28 people was carried out so as to better understand their views on MALL. Only one participant claimed that he had never studied an L2 before. The other participants have already studied, or are now studying an L2. English was mentioned by 20 out of 28 participants as the target language, followed by Spanish,

studied by 8 people and French and German with 5 participants each. Hebrew by 2 participants while Italian and Dutch were studied by one student respectively.

When asked about the use of the internet in participants' L2 performance in class only 16 participants answered that they use the internet to solve doubts, study, practice conversation, translate words or sentences, and to do online exercises. Six participants answered that they only study on the internet, and they are not enrolled in any face-to-face classes. Finally, 6 participants reported not using the internet for L2 practice/learning.

The following questions in the interviewed focused on the use of mobile devices. It was observed that 24 (out of 28) participants use their mobile devices to practice/learn an L2. These results indicated that the participants use more than one learning/practice option to improve L2 such as web dictionaries, translators and apps. Table 1 shows the sources that participants reported using with their corresponding frequency of use.

Table 2: Resources and Frequency

<b>Resource</b>	<b>Quantity of Times mentioned</b>	<b>Resource</b>	<b>Quantity of Times mentioned</b>
Duolingo	13	KIK	1
Omegle	2	Viber	1
Google Translator	9	Skype	1
Linguee	1	MaKore	1
Youtube	2	Chinese skill	1
Busuu	3	Babbel	1
Tanden	2	Memrise	1
Dictionaries	6	Speak English	1
IMO	1		

Source: research data

The participants used these resources for different reasons. Nine people indicated that they used MALL to study, 8 claimed to use MALL to increase vocabulary and 7 didn't mention the reason, 7 participants use MALL for translation, 6 to use it to communicate in social networks and one participant stated that he uses nothing. It recalls what was already enlightened by KIM (2013), that people choose the MALL according to their needs, goals and MALL's reputation. When

participants were asked about how they had found out about those resources and 11 of them stated it had been through a friend. It emphasizes the idea that MALL's reputation has a high value for learners' choice. Other 9 people reported it had been in online search, 7 didn't mention how and one got the information about the resource through advertisements.

Most of the participants could not remember how long they had been using those resources in MALL. Among the ones who could, 6 of the participants were using MALL for less than 6 months, and 12 participants for one year or more. Seventeen participants stated that they believe in the efficiency of these resources while 10 participants didn't answer this question. One participant said that MALL is not efficient for L2 improvement and another participant added that MALL needs to improve voice recognition functions in cell phones in order to aid L2 learning more effectively.

Participants were also required to suggest ways in which MALL could be improved. Only 5 participants answered this question and stated that the most important improvement is in terms of real time conversation, 2 people said that MALL needs to improve their translation systems and dynamism, while providing offline access, better explanations, and options for monitoring activities. One participant mentioned that MALL needs to offer more security against viruses.

#### 4.2.1 L2 LEARNERS' PERCEPTIONS

Participants were asked to express their opinion about the use of apps, technology and internet to learn L2. Most of the participants interviewed said that the learning process through internet resources will depend on the person. They pointed motivation, personal discipline and dedication as the features that enable people's learning without guiding. It can be seen in the excerpts below, translated for analysis:

*P1: "Each person has a need. For me, they are enough, because I practice a lot in the websites that I know...These websites where I practice with native speakers are fundamental because I learn variations of the standard language and the way that native speakers communicate."*

*P6: "...Many people learn outside the classroom. I'm not one of them, I also need a moment inside the class, but I think it is possible to learn a language with the internet assistance, since it offers several ways for learning, for example, games, videos, movie, series, etc."*

*P13: "...It is possible to learn in MALL as long as the person is motivated and disciplined to always study the language chosen. It is worth remembering that there are also free virtual classrooms. But if the person does not have discipline to study by him/herself the best way is to attend language classes in a traditional course."*

It was also observed that some participants resisted the idea of a future where contents are learned only via internet. Their speeches were based in the value of the interaction for learning. For these participants interaction is the major reason for L2 learning and so they believe that teachers play an important role in the learning process. They see the presence of the teacher as the form of mediation and guidance as can be seen in the excerpts below:

*P3: "...These gadgets (referring to phones) must be seen as helpful tools but the experience inside a classroom is much richer. A classmate's doubt may contribute to others in the classroom. Besides that, teachers monitor the performance in exercises, the presence and the engagement in activities and conversations. In case the world reaches a future where kids learn everything through the internet and their online devices, we will be a robotized society, inhuman and it will be impossible to get work done in a team."*

*P21: "I believe that the technological advances facilitate L2 learning a lot, however, having a teacher to solve students' doubts and to direct conversation is even better."*

*P22: "I think that they (mobile devices) are very important tools for learning, but nothing will substitute the teacher because we need to have interactivity for learning and development to happen."*

Yet, some participants believe that people can learn L2 only via MALL. They claimed that learning through MALL is something that is happening now around the globe and they did not deal with it as it were a future possibility only. These participants also mentioned that the flexibility of getting access to information contributed to the increase of autonomous learners in society.

*P4: "The internet provides us with a huge contact with the language and the culture through websites and apps which give a huge support for students who are interested in learning. Currently, the number of self-taught people has increased a lot and surely the internet and its technologies act as a great facilitator in this process."*

*P19: “Due to its flexibility, MALL can aid learning as the opportunity of studying in the moment you’re available. Combined with discipline, apps in mobile devices are great allies. Maybe, the best ones.”*

*P24: “One day we will reach this point of learning only or mainly online. Actually, it is already a reality... I know people that learned several languages by self-teaching themselves. But every human being is different from another. Each person learns in a different way. So, although the number of people frequenting language courses decrease, it will be difficult to extinguish the teacher and the classroom, ‘coz some people still prefer traditional methods.”*

#### 4.2.2 ANALYSIS OF DUOLINGO

Duolingo has a well elaborate design with a clean and intuitive surface that may help learners find what they need more easily. It has a section with the modules of lessons, organized by levels, resembling the structure of a textbook. If a user already knows a specific content, he/she can click in a type of shortcut in order to advance faster in the modules. Duolingo evaluates users according to their frequency of doing the exercises. In the app there is a section that shows a percentage that is considered as fluency of the user. It is measured by Experience Points (XPs); these points are connected with the frequency and the level that the user reached. The maximum level is the 25 that is equal to 30,000 XPs. Duolingo contains another section to reinforce all content studied by the user and it has a system that does not allow the user to conclude without giving all the correct answers.

There is also a section where it is possible to add friends who are also Duolingo users, following their progress, but it is not possible to interact with them through a chat or any other tab. There is only a link that takes learners direct to the forum session in Duolingo’s website. During the lessons only a green owl mascot interact with users through automatic messages. In the Duolingo’s app there is a store where it is possible to buy tools such as new outfits to the mascot with Lingots. The Lingots is the virtual coin of the Duolingo; it is acquired through the users’ achievements during the lessons.

In the Website option of Duolingo the options are the same as the ones offered in the mobile app. Nonetheless in the Website version of Duolingo there are two options to discuss the answer of a task or to report a problem. There is also a section on tips and notes where the user can have access to grammar explanations of the target language. So they do the task only by deduction, but they are



instructed about how to do it correctly. Another section contains the words learned by the user, and it also shows levels of strength, measured by the number of hits and misses. Besides this section there is a link to flashcards where users can review the words studied and their translations. Duolingo offers a discussion forum too. In some forums, users can create rules, for example. Users can also find answers to common doubts in these forums.

More recently Duolingo is offering a space for teachers to invite students via computer or smartphone to enroll in their classes through a code that is generated when the classroom is created. It is possible to use the activities proposed by the platform following their proposed curriculum or personalize the lessons according to their needs. Teachers can contribute by creating assignments and discussing with other teachers in their own forum. These options allow the opportunity to observe students' progress in a detailed way. According to the information given in the site, a version of "Duolingo for school" is constantly updated with teachers' contributions via email for teachers' feedback.

Most of the activities proposed by Duolingo are about translating sentences from a source language to a target language. Most activities can be said to be mainly structural where the learner fills the blanks with the correct article, preposition, verb or noun. However the options of answering the tasks are limited, so there is no space for creation or interpretation. Oral exercises are also structural and focused only on pronunciation, for users have to speak the sentences required clearly and slowly, in order for the voice recognition system to check pronunciation. But the possible phonetic and phonological variations are not shown and there is not even a direction to the proper intonation of the suggested sentence. There are no activities for texting, which could be used to practice written production, and in that sense, Duolingo users only reproduce what is suggested by the lessons of each module. In general and as previously mentioned, these sentences are not connected to the reality of learner. As such, the methodology used in this platform needs to improve in terms of language in use and so as to allow more interaction, feedback and language production in context.

#### 4.2.3 L2 TEACHERS' PERCEPTIONS

One of the aims of this study was to find out how teachers deal with the popularity of Duolingo among their students and whether they know the possibilities afforded by this platform for teachers. With that aim, an interview with two questions was carried out with ten English teachers. The first

question in the interview was whether teachers encouraged students to use the Duolingo or not. The second question was whether they were aware of Duolingo's possibilities for teachers.

Results of this interview showed that only one teacher (T3) was aware of the possibilities of Duolingo for teachers and thinks it is possible to use this function with his students. T3 was in favor of using the app to recognize students' needs and preferences. It was clear that, although T3 did not use the Duolingo virtual class yet, the teacher is listening to the voice of the students.

The other teachers were not aware of the possibilities of using Duolingo with their students. It was found that each teacher deals differently with the popularity of what is offered by the app.

*T2: "I have already listened to some students mentioning Duolingo, but, me, myself, have never taken time to see how it works; how the website is or how it is used. So, I can say that I don't encourage them to use Duolingo."*

Most of the teachers interviewed agreed that the use of Duolingo is very helpful for their students. However, they instruct students to use it as a support and not as the only resource to learning. It shows that L2 teachers also perceive the efficiency of a blended or hybrid approach for L2 learning nowadays as suggested by Prebianca; Finardi; Cardoso, (2015). The following three speeches illustrate the general opinion of the teachers about Duolingo platform:

*T5: Yes, I encourage my students to use Duolingo. I see that it works for me, so I always encourage them to log in and to study through it, and to use it to cope with the class content. I ask them not to stop. To keep studying here [at the language institution] and online too. I was not aware of the update, but I'll search about it, it sounds very nice.*

*T7: Yes, when they [students] talk about the app, I encourage them to continue using it. But I didn't know that I could enroll my classroom in the app.*

*T9: Yes, I encourage them. But I explain that they [students] can't be limited only to Duolingo.*

## 4.2 DISCUSSION

After reporting and triangulating the data in this study, it was noticed that the participants do not want to learn an L2 only through MALL. Most of the participants still prefer a combination of in

person courses with the use of MALL. It was also perceived that teachers also do not orient their students to use MALL as the only resource of learning, but blend it with the class instruction.

Duolingo was the most cited MALL app by the participants in this study. Though Duolingo has a clean layout, it does not offer opportunities for creative production or real-time conversations/interactions. Though Duolingo's website offers forums for discussing topics, such as how the app works, these forums are not organized for practicing L2 though Duolingo users can apply the rules about the language that should be used in the forums. Questions or statements in the forums run the risk of not being answered or being ignored by other users. Moreover, the disconnected sentences in Duolingo, is another disadvantage of this platform.

Although some users stated that people are learning only through MALL and quitting the classroom experience, specific aspects of L2 development, such as oral interaction, is not catered by this app. If such factors were to be considered, significant variations would be found from learner to learner and MALL to MALL. The current study considered the potential benefits of using MALL for the development of L2, and it was suggested that Duolingo can only reinforce structural and lexical aspects of language, but not language in use. That aspect of Duolingo requires another scaffolding device as a complement or a teacher supervision to explore communication, interaction, pragmatics and other aspects of L2 communication. Most of L2 teachers interviewed recognized the importance of the app as a booster for vocabulary and grammar learning, but they did not recommend using it as the only resource for L2 learning, they emphasize to students that Duolingo should be seen as a complement rather than as a course.

Another issue observed was that most teachers interviewed were not aware of the Duolingo possibilities for teachers. Moreover, some of them had never tested the app even after they heard about it through their students. If these teachers do not know how Duolingo works, how can they encourage and instruct students about its use? That is a confirmation of the loss in the centrality of the school in contemporary society (ARRUDA, 2013) because teachers may not be aware of what sources their students are accessing in order to engage in L2 learning.

This position was clearly expressed in the speech of the learners interviewed who stated that the development of a language only through MALL is not a possibility for the near future but a reality for our society nowadays. Because of their experience with MALL, these learners could state that the number of self-taught learners is increasing.

Teachers should not resist the possibilities afforded by the internet; instead they should work with it to afford more opportunities for learning by filling in the gaps of MALL in terms of feedback and interaction. As it was well observed by some users of MALL, interaction is a key factor for language learning and cannot be left out. For them, the presence of a teacher can guide learners to a better direction, so students can follow a clear path among the amount of information that they can find in the internet and MALL.

## 5. CONCLUSIONS

This study aimed at analyzing affordances and limitations of the Duolingo platform. Results of the study suggest that Duolingo fosters vocabulary and grammar development. However it fails to develop language development in a broader sense because of its lack of interaction and contextualized language production. The L2 learners who participated in the study highlighted the possibility of learning an L2 only through mobile devices, though they claim that the presence of a teacher is still relevant to foster interaction and to guide them in their learning process. Teachers were not as enthusiastic about the possibilities of MALL in general and of Duolingo in particular for L2 as the L2 learner participants.

Society has reached a point that it is not possible to avoid the presence of technology and through this study, it was possible to see that MALL should be seen a complement rather than as single solution for L2 learning. MALL is in the increase and so language teachers should listen to their students' voices, helping them use MALL to boost L2 practice engaging learners in L2 classes through the use of MALL in blended approaches.

Platforms such as Duolingo, for example, offer possibilities for L2 learners to use activities oriented by a teacher. However, the fact that only one teacher participant was aware of this update and had never experienced it, shows that maybe teachers are losing opportunities to combine MALL with their classes. Because Duolingo does not provide a space for interaction with other L2 speakers in real time, teachers could fill in this gap by creating Whatsapp, Facebook, Skype groups which allow instant messaging through mobile devices.

Hence, this study showed that despite the potential of MALL in general and Duolingo in particular, there is still room for improvement and adaptation to use mobile devices out of class and inside classes as additional support to L2 learning. Overall, schools and teachers need to find their place among this new connected and mobile reality to promote interaction and learning in and with MALL.

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## APPENDIX I

## Pesquisa sobre Tecnologia Móvel e Aprendizagem de Inglês

Informe o seu gênero

F  M

Informe sua idade

entre 20 e 25 anos

entre 26 e 35 anos

entre 36 e 45 anos

mais de 46 anos

Informe sua situação neste IES

Aluno

Professor

Técnico Administrativo

Você estuda alguma língua estrangeira? Caso afirmativo indique qual ou quais.

Sim. Estudo \_\_\_\_\_

Não

Caso estude ou tenha estudado alguma língua estrangeira na universidade, indique onde estudou(a).

Centro de Língua da instituição

NucLi do programa Inglês sem Fronteiras

Curso particular

Curso online

Caso já faça ou já tenha feito algum curso de língua estrangeira online, indique qual foi e caso tenha feito mais de um, marque todas as alternativas que se aplicam ao seu caso.

Duolingo

My English Online (MEO)

Outro. Qual? \_\_\_\_\_

Você usa algum site de tradução na internet? Caso use mais de um, marque todas as alternativas que se aplicam a seu caso.

Google Translator

Babylon

( ) Outro. Qual? \_\_\_\_\_

Você fala alguma língua estrangeira? Caso afirmativo indique qual ou quais. \*

( ) Sim, falo \_\_\_\_\_

( ) Não.

Você usa tablet ou telefone celular com conexão à internet para fins acadêmicos? Caso afirmativo, indique os sites/aplicativos que mais usa.

( ) Não

( ) Sim, uso.

Você já participou de algum programa de intercâmbio estudantil? Caso afirmativo indique qual ou quais.

( ) Sim. Participei do programa \_\_\_\_\_ e fui para (país) \_\_\_\_\_

( ) Não.

Caso faça aulas de línguas estrangeiras, você usa o tablet ou telefone celular com conexão à internet durante as aulas?

( ) Sim

( ) Não

Indique aqui os sites/aplicativos que mais usa

\_\_\_\_\_

## APPENDIX II

Gênero:

Idade:

Qual sua profissão/curso?

Você estuda ou já estudou recentemente alguma língua estrangeira?

Qual idioma estuda ou estudou recentemente?

No seu curso de idiomas você utiliza a internet em algumas atividades propostas? Caso sim, explique em que situações a internet é utilizada.

Você possui algum dispositivo móvel como smartphone ou tablet?

Caso sim, você utiliza algum desses dispositivos para estudar e/ou praticar a língua estrangeira na qual você está se aperfeiçoando?

Caso você faça uso desses dispositivos móveis para estudar uma língua estrangeira, indique quais aplicativos você utiliza. Indique também quais os tipos de atividades que você realiza com o uso de tais aplicativos.

Como você conheceu os aplicativos que utiliza para estudar a língua estrangeira? Há quanto tempo os utiliza?

Como você avalia os aplicativos que utiliza? Você acha que são úteis para o aprendizado da língua estrangeira? Por quê?

Você acredita que os aplicativos possam ou devam ser melhorados? Como?

Na sua opinião, os avanços tecnológicos como a internet, os dispositivos móveis e os novos aplicativos para estes dispositivos podem contribuir para o aprendizado de uma língua estrangeira sem a necessidade de frequentar cursos presenciais? Explique.

Link for the raw data of learners' view:  
<https://docs.google.com/document/d/1dSZrs7n4Gsgv3TyJoBCjhUwbh7I2pFpZwrMvYciIs5Y/edit?usp=sharing>

## APPENDIX III

## Entrevistas com professores de L2

Você incentiva seus alunos a usarem o Duolingo?

Você estava ciente da nova expansão do Duolingo para professores e que neste espaço é possível inscrever seus alunos para formar uma sala de aula virtual com as atividades da plataforma?

Link for the raw data of teachers' interview with transcriptions:  
<https://docs.google.com/document/d/1XPOwGHBWK1ucxuaDM7YsA8nmtbSpNscBhOPDKX3DiZk/edit?usp=sharing>