

Using mobile applications with augmented reality elements in the self-study process of prospective translators

Svitlana M. Amelina¹, Rostyslav O. Tarasenko¹, Serhiy O. Semerikov^{2,3,4} and Liying Shen^{1,5}

¹National University of Life and Environmental Sciences of Ukraine, 15 Heroiv Oborony Str., Kyiv, 03041, Ukraine

²Kryvyi Rih State Pedagogical University, 54 Gagarin Ave., Kryvyi Rih, 50086, Ukraine

³Kryvyi Rih National University, 11 Vitalii Matusevych Str., Kryvyi Rih, 50027, Ukraine

⁴Institute for Digitalisation of Education of the NAES of Ukraine, 9 M. Berlynskoho Str., Kyiv, 04060, Ukraine

⁵Anhui International Studies University, 2 Fanhua Ave., Hefei, 231201, Anhui, China

Abstract. The paper deals with the use of mobile applications for language learning in the self-study process of prospective translators. A comparative analysis was made of some mobile language learning applications. The capabilities of mobile language learning applications are summarised, which include learning vocabulary grammar, pronunciation training, and practice listening and speaking. Particular attention is paid to interactive tasks and gamification of learning. An experiment was conducted with students using the Duolingo mobile app. The advantages of using mobile applications with augmented reality elements in the self-study process of future translators are identified. The main ones are interactivity, accessibility, individual schedules, and the ability to learn anytime, anywhere. There has been a significant increase in motivation to learn a foreign language independently thanks to mobile apps. It is proposed that mobile applications should only be seen as additional opportunities for independent and autonomous learning.

Keywords: mobile apps, augmented reality elements, language learning, translator

1. Introduction

The professional training of translators implies the development of a number of competences, but language competence has remains the most important one among them. However, in today's environment, the long-established perceptions of the application of certain foreign language learning techniques are undergoing a significant change. This is largely due to the significant development of computer technology, a variety of gadgets and relevant software aimed specifically at supporting the process of adapting each individual to their new language environment, taking into account their level of language proficiency and individual needs. This

✉ svetlanaamelina@ukr.net (S. M. Amelina); r_tar@nubip.edu.ua (R. O. Tarasenko); semerikov@ccjournals.eu (S. O. Semerikov); 1954023795@qq.com (L. Shen)

🌐 <https://nubip.edu.ua/node/6245> (S. M. Amelina); <https://nubip.edu.ua/node/8833> (R. O. Tarasenko); <https://kdpu.edu.ua/semerikov> (S. O. Semerikov)

📞 0000-0002-6008-3122 (S. M. Amelina); 0000-0001-6258-2921 (R. O. Tarasenko); 0000-0003-0789-0272 (S. O. Semerikov); 0000-0001-7421-2899 (L. Shen)



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situation has significantly increased the possibilities for quality training of translators regarding language competence and, more importantly, has made it possible to plan and implement this process outside the classroom.

Working independently to improve one's proficiency in a particular language is an essential part of both the educational process and further lifelong learning, which implies continuous professional development for translators. The organisation of this process should focus on individualisation related to personal needs, pace of learning, availability of appropriate conditions (time and location). These requirements are best met by the offer of appropriate software developers offered in the form of mobile applications. They allow to plan and regulate language-learning process, to be flexible in terms of time, to learn anywhere. Such advantages are obvious even at first glance. However, a deeper analysis can reveal a number of other benefits that translators can gain by using mobile apps.

The *purpose* of this paper is to explore the possibilities and benefits of using mobile language learning applications in the process of self-study for prospective translators.

2. Literature review

The feasibility, role and place of mobile applications in learning have been the subject of research by scholars, predominantly from abroad, since the beginning of this millennium [5]. It has been reported that in Japan, the use of the mobile phone to learn foreign languages is so widespread among students that it is used by almost everyone, as "mobile technology offers many practical applications in language learning" [12]. The term MALL has emerged – Mobile Assisted Language Learning. With time and the development of new and improving existing information technologies over the last decade, more and more attention has been paid to mobile applications with integrated augmented reality elements that make language learning more appealing, easier and more convenient. In particular, Chinnery [3] suggests that such applications can be considered as learning tools, noting that "as with other technology-enhanced language learning environments, mobile learning environments can be face-to-face, remote or online".

Furió et al. [6] carried out a comparative study of traditional classroom learning and mobile learning, which was an iPhone app with several forms of interaction and combined augmented reality (AR) mini-games. The results of the study showed that the content was learned equally in both groups, the one with the traditional methodology and the one with the mobile apps. Nevertheless, the motivational effect was significantly higher in the second group. As evidenced by the experimental materials, researchers consider mobile applications not only in the aspect of independent work, but also as one of the tools for regular classroom learning. This supports the view that the use of mobile applications in the educational process is feasible.

Recently, there have been publications containing the results of comparative studies of mobile apps in the augmented reality aspect. For example, based on his analysis, Thompson [11] concludes "the Mondly app works better than any other when it comes to chatbots and augmented reality".

A number of practical studies on the use of mobile applications for learning foreign languages have shown their usefulness in terms of various aspects that have been studied by scholars. In

particular, Wang and Smith [13] emphasize the usefulness of mobile applications for practicing reading skills and learning the basic grammar of English as a foreign language. A study by Zhang, Song and Burston [15], conducted to determine the effectiveness of vocabulary learning through mobile applications, showed that the most effective method is a combined approach to vocabulary learning in terms of memorization and sustainable retention of learned vocabulary. Zhang and Song [14] point out that mobile phone technology can enhance learning, especially in situations where students do not have the ability to learn well offline .

Emphasising the importance of foreign language skills, Başıoğlu and Akdemir [2] state the growing popularity of mobile applications for language learning, in particular for vocabulary acquisition. The advantages of mobile applications are that they allow learning outside the classroom, at any time and at any place. The results showed that using mobile applications as a vocabulary learning tool is more effective than one of the traditional vocabulary learning tools [2]. Sweeney and Moore [8] have studied the application of mobile applications to smartphones for language learning, suggesting a categorization of different contexts and applications. In conclusion, the authors see high potential for their future use [8].

The use of mobile applications in foreign language learning has already become a subject of thesis by scholars. Al-Zahrani [1] states that since MALL facilitates language learning through mobile devices, many students seek to improve their English learning skills with this particular tool. He considers especially important the practical use and support functions of smartphones, mainly to improve listening and speaking skills. Al-Zahrani [1] predicts that in higher education, future generations are likely to be proficient primarily in mobile language learning technologies. The thesis of Cowan [4] focuses on the use of mobile applications in the education of adult learners of English.

It is also worth noting that many researchers and practitioners have noted the popularity of the mobile application Duolingo [7, 11] and point out that it is very well suited to begin learning one of the foreign languages on offer, i.e. for the novice category.

3. Result and discussion

3.1. Comparison of mobile language learning apps

In terms of the using of modern computerised tools to the training of translators, mobile phone applications for foreign language learning deserve particular attention. A key aspect in favour of using such applications is that the mobile phone has become an indispensable attribute of the modern man, and access to its functions and programmes allows a rational use of time and resources. The current market is quite saturated in terms of foreign language learning software offerings, which can run on both iOS and Android operating systems, making it virtually indistinguishable from users in terms of technical equipment. In fact, these applications play the role of virtual teachers of virtual foreign language courses, where the full cycle of activities envisaged by the language acquisition process is implemented. It should be noted that the general arsenal of such applications is differentiated according to certain categories, in particular, which is very important in the aspect of considering them as a tool in language training of a translator, with a basic level of foreign language proficiency or specificity of their use. In particular, they can be aimed at beginners, have a universal purpose or be aimed at a particular

Table 1

Comparison of selected mobile language learning applications (free).

Name of application	Learning activities	Languages
Drops	Visual vocabulary learning	24 languages
Memrise	Learning words and phrases. Vocabulary review. Pronunciation test. Listening practice. Gamified learning.	15 languages

level, for example, Intermediate+. The most popular, especially when it comes to learning English, are ED Words, LinguaLeo, Duolingo, Words, Easy Ten, Learn English, LingQ, Rosetta Stone, Polyglot 16, Babbel, Lexicon by Like Thought, Conversation English, EnglishPod-Learn English, Busuu etc. For those with some language skills, Learning English with New York Times, English at Work or similar programmes may be appropriate.

Close to language learning programmes, but with a certain specificity, are dictionary applications designed to achieve a more in-depth knowledge of the language, namely learning frequently used conversational phrases, phrases for public speaking, business phrases, aphorisms, etc. Such applications are also noteworthy in the aspect of language training for future translators using mobile phones. Quite popular among them are 15500 Useful English Phrases, WordBook – English Dictionary & Thesaurus, Advanced English Dictionary & Thesaurus.

The availability of the above range of language learning programmes creates favourable conditions for introducing them into the training process of translators. An important aspect is the possibility to use some of these applications free of charge.

Considering, on the one hand, the wide variety of mobile language learning applications and, on the other hand, the need to develop an effective technology to provide language training for translators using mobile technology and virtual reality, we aimed to review mobile applications to determine the feasibility and advantages of using them to provide a person-centred approach to foreign language learning for students.

A comparison of selected mobile language learning applications is presented in tables 1, 2 and 3.

Summarising the capabilities of the programmes under consideration, it should be noted that they include a rather wide list of functions, which can be effective in language learning, especially in a self-study environment. In particular, we have identified a number of basic functions that, in various combinations, can be combined in one programme or another. By using them, the user can obtain the following features:

- choose the right language to study,
- choose the right language to study,
- use a built-in set of courses specialised for different sectors,
- use a built-in set of lessons at different levels of difficulty (A1–B2),
- practice speaking, listening, translation, reading texts,

Table 2

Comparison of selected mobile language learning applications (free basic version / paid).

Name of application	Learning activities	Languages
Duolingo	Learning basic vocabulary. Learning basic grammar. Pronunciation training. Practice interactive exercises. Practice listening and speaking. Gamified learning.	35 languages
Mondly	Learning the phrases. Completion of summative weekly quiz tasks. Fulfilment of monthly tasks. Dialogue with the chatbot.	39 languages
Hello Talk	Communication with native speakers (online and offline). Listening. Using an interpreter dictionary during communication.	100 languages

- assess the correct pronunciation of words,
- memorise words using flashcards, quizzes, games, word recording and playback,
- use embedded dictionaries with thematic word division,
- learn words with the help of visualisation and audio support,
- use the phrase builder,
- receive notifications of errors and options for correcting them,
- create an own vocabulary,
- add transcriptions and voiceovers to words in an own vocabulary,
- monitor progress in learning the language,
- take tests to check your knowledge.

The above list indicates the wide range of possibilities that can be used by students if appropriate mobile applications are used. A number of virtual reality solutions can be particularly effective. These include, first, interactive exercises, online competitions with friends, word games, writing letters to conditional recipients, work on pronunciation simulators, language learning through associations, memorizing new words on an intuitive level and much more.

Apart from the general possibilities for learning foreign languages that are realised through almost all mobile applications (learning vocabulary, grammar, etc.), it should be noted that almost every programme has its own characteristics that can influence the decision of students to choose. For example, Babbel has the advantage of podcasts, Drops – learning vocabulary with visual support only, Memrise – practising words difficult to remember, Mondly – using chatbots to communicate, Rosetta Stone – specialised applications to check reading, Hello Talk – communicating with native speakers, also online. ED Words has successfully implemented the function of creating vocabulary. This is important in the aspect of training translators to master terminology in a certain field. This is particularly effective when combined with the use of

Table 3

Comparison of selected mobile language learning applications (paid).

Name of application	Learning activities	Languages
Babbel	Learning vocabulary. Learning grammar. Self-learning with the Vocabulary Trainer. Pronunciation training. Interactive dialogue. Listening to podcasts (not for all languages).	14 languages
Busuu	Performing exercises according to an individual learning plan. Practice speaking exercises. Practice written exercises. Learning vocabulary with the Intelligent Vocabulary Trainer.	12 languages
Rocket Languages	Performing reading exercises. Performing writing exercises. Reinforcement of vocabulary.	13 languages
Rosetta Stone	Pronunciation training. Vocabulary training. Grammar practice. Listening. Speaking. Practice reading.	24 languages
Yabla	Learning by video. Practising vocabulary from the video. Performance of dialogue exercises. Playful control of what has been learned.	6 languages
WordDive	Learning vocabulary (with voiceover). Learning grammar (with explanation).	12 languages

interactive semantic networks. Interactive semantic networks make it possible to find not only individual terms, but also their definitions, entity interpretations, additional information, etc [10].

Having analysed the available programmes, we have concluded, that there is no programme that meets the whole range of requirements for quality language training of future translators. In this case, it is advisable to recommend the use of several programmes that most successfully implement and combine the functions that are to be emphasised. In addition, the availability of a free version or the cost of a paid version is also important for choosing one or several programmes.

3.2. Experimental study on the use of the Duolingo mobile app

When choosing a mobile application to experiment with students, we considered that initially it should be a free, popular, fairly simple, but successful software development. Our choice was

the Duolingo mobile app.

In addition to its free use, Duolingo is also attractive because of its gamification, which, on the one hand, increases interest in the lessons and, on the other hand, makes it easier in some cases to understand the material being studied. A motivating factor is the offer to collect points by marking one's own progress. For some, an important aspect is the possibility to communicate in the forum with different members – those who are also learning and the developers. The positive characteristics of Duolingo include the constant updating of the courses.

To use Duolingo, it is necessary to create a profile and choose the language to study. When starting to study a course, each student first determines a pace of study that is comfortable for him or her, choosing from four suggested ones (see figure 1). The standard is to complete tasks within 10 minutes per day. Therefore, having determined his or her own pace of language learning, the student already starts to manage the learning process.

Alles klar, setze dir nun ein Tagesziel!

Entspannt	5 Min./Tag
Standard	10 Min./Tag
Ernsthaft	15 Min./Tag
Verrückt	20 Min./Tag

WEITER

Figure 1: Selection offer for the daily workload in Duolingo.

The main core of Duolingo consists of thematic lessons, each topic containing 3-4 lessons. The content material is provided according to the age category indicated in the profile. There are also several levels for each topic. After completing the first level of one topic, the following topics are opened. Each topic earns points, which can be accumulated and competed against by others. Gamification makes learning seen as an easy activity. For learning any new material, continuity of learning is important, especially for a foreign language. In order to keep the desire to learn every day, Duolingo applies a special continuity function for 10 days.

An interesting and relatively new feature of Duolingo is podcasts. To develop listening skills, it is useful to watch films, videos, listen to podcasts and then do the corresponding tasks. The Duolingo podcast contains easy to understand and interesting stories (see figure 2).

As students listen to stories, they can read the recorded phrases and be tested on their comprehension of the story they have listened to (see figure 3).

The development of writing skills is done through interactive tasks with appropriate assessment (see figure 4).

Duolingo Stories

Verbessere dein Lesen, Sprechen und Hören mit kurzen Stories!

Set 1



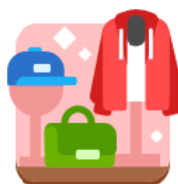
Der Reisepass

+14 XP



Doktor Eddy

+14 XP



Ein neuer Mantel

+14 XP




Der neue Schüler

+14 XP

Figure 2: Duolingo stories to listen to.



The Passport

 Vikram and his wife, Priti, are at the airport.

Wähle die richtige Lösung



 Oh no. _____ ?

Figure 3: Task after listening to the podcast.

The listening assessment proceeds in the same way. In the case of an incorrect answer, the correct answer is given with an explanation of the meaning (see figure 5).

After experimenting with students' use of mobile apps, we asked them to evaluate their use in independent learning. The questionnaire contained the following questions:

1. How do students rate their willingness to learn a foreign language through mobile

Schreibe auf Englisch

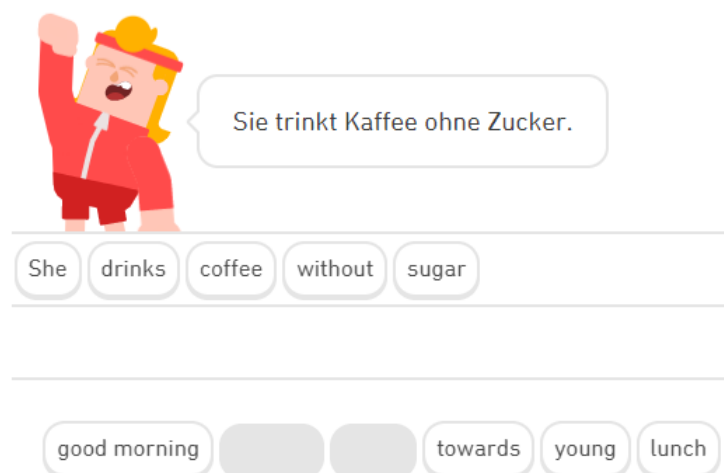




Figure 4: Assessment of a correctly completed writing task.


- applications on their mobile phones?
- High.
 - Medium.
 - Low.
2. For which material is mobile apps most preferred?
 - Vocabulary.
 - Grammar.
 - Pronunciation.
 3. What kinds of speech activities using mobile apps are most relevant to you?
 - Reading.
 - Listening.
 - Writing.
 - Speaking.
 4. Is vocabulary learning through a mobile app more effective than the traditional way?
 5. What advantages of mobile apps can you point out?
 6. What are the disadvantages, in your opinion, of learning a foreign language through mobile apps?
 7. What problems have been encountered when learning languages using mobile apps?
 8. Is it appropriate to use mobile apps in independent work?
 9. Can mobile applications be used in the classroom?
 10. Assess the level of usability of mobile app technology when learning a foreign language?
 - High.

Was hörst du?

I have heard on the radio


had tried him girl followed



Richtige Lösung:
I have heard him on the radio.

Bedeutung:
Ich habe ihn im Radio gehört.

WEITER

 MELDEN


 DISKUSSION

Figure 5: Reaction to an incorrect response when listening.

- Medium.
- Low.

Analyzing the results of the survey, in which 50 students took part, we got the following data on the readiness to learn a foreign language with the help of mobile applications on their phones: high – 40 (80%), medium – 7 (14%), low – 3 (6%) (see figure 6).

Regarding the level of appropriateness of learning material using the mobile app, most students mentioned vocabulary 28 (56%), followed by pronunciation 16 (32%) and lastly grammar 6 (12%) (see figure 7). At the same time, students do not consider vocabulary learning using a mobile app to be more effective than the traditional way, but tend to use mobile apps in independent work and partly during classroom sessions, in particular in combination with a set of tests on the university learning platform Elearn [9].

The relevance of certain speech learning activities through mobile applications was indicated by students as follows: listening 19 (38%), speaking 15 (30%), reading 9 (18%), writing 7 (14%) (see figure 8).

All students rated the level of usability of mobile technology in the study of foreign language as high. Among the advantages of mobile technologies, the participants of the evaluation considered accessibility, the possibility of self-regulation of the learning process, the playful way of presenting tasks and assessments, and the interactive nature of the tasks. Among the disadvantages – the lack of explanations when something is not clear or there is a clarifying question. This has been a problem with learning languages using mobile devices, as you have

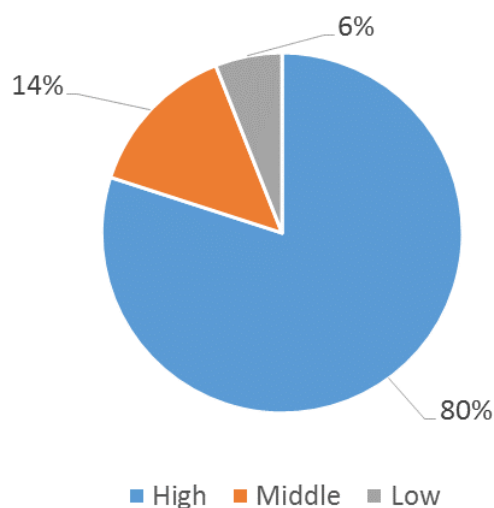


Figure 6: Willingness to learn a foreign language through mobile applications on mobile phones.

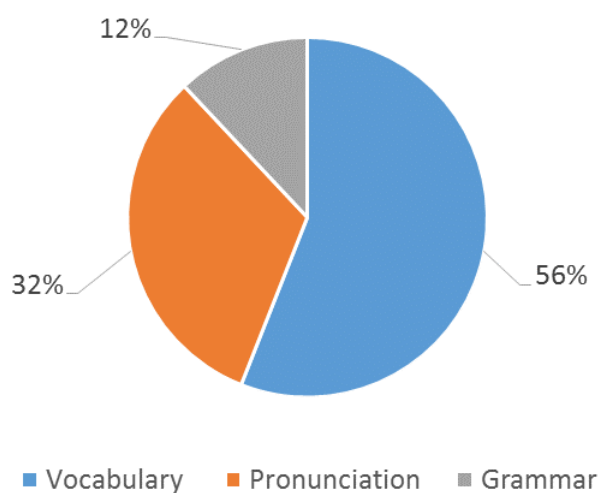


Figure 7: Level of appropriateness of learning material via mobile app.

to explain unclear words in other sources, which makes the learning process more difficult.

4. Conclusions

Based on the analysis, a number of advantages of using mobile applications with augmented reality elements in the self-study process of prospective translators have been identified, including:

- the possibility to create an individual learning schedule with self-monitoring of the learning process and results, and to adjust it if necessary,

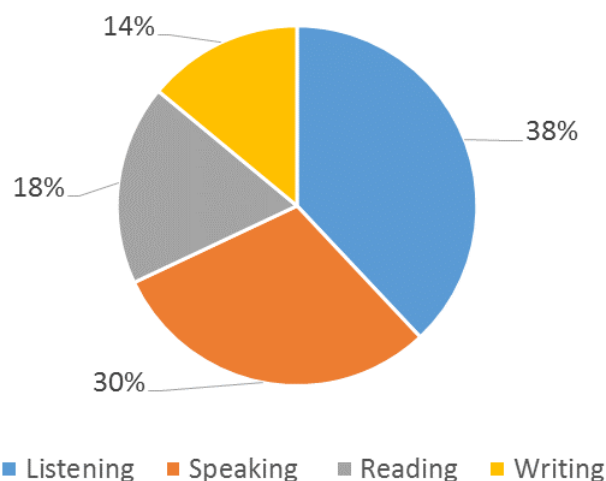


Figure 8: The relevance of certain speech activities for learning through mobile apps.

- the convenience of using own gadget that allows you to study anywhere,
- own time-management, thanks to which the student is free to regulate the pace of learning and choose the time of tasks,
- the motivating effect of augmented reality elements in mobile applications,
- the adaptability of some mobile applications to the level and capabilities of the user,
- the interactivity of the tasks in the courses offered on mobile applications,
- the presence of video and audio as a support for the acquisition of new vocabulary,
- visualisation of new concepts, which facilitates the understanding of their essence,
- the ability to monitor your own progress in four speech activities (reading, listening, writing and speaking),
- communicating with chatbots (where available), with native speakers, allowing you to continually train your speaking skills.

While praising the use of augmented reality mobile apps by future translators in the learning process and having received positive feedback from students about this way of learning, we should note that mobile apps should only be considered as additional options for independent and autonomous learning.

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