International Conference on Machine Learning and Data Engineering

Mobile application for foreign language learning by cognitively unimpaired seniors

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Abstract

The goal of this paper is to analyze what features and content a mobile application (app) for foreign language learning, in this case, English, by cognitively unimpaired seniors should possess. The methodology was based on an online questionnaire survey, which was conducted among 113 cognitively healthy Czech seniors, who ranged in age, gender, and place of residence. The survey was conducted between 29 January 2021 and 31 March 2021 using Google forms. The findings reveal that the potential users of such a mobile app are seniors belonging to the age group between 50 and 69 years. They also indicate that a substantial majority of the elderly own a smartphone with the Android operating system. In addition, although some of them (39%) have already used mobile apps for learning English as a second language, there are those (27%) who have never exploited them. The positive features that seniors appreciate, in the tried educational language learning apps most often include clarity, ease of use, intuitiveness, the appearance of the user interface, and gamification features. On the contrary, they dislike a lack of clarity, lack of content, poor usability, and small fonts. Seniors generally use these apps once a week, and mostly at home. They usually use a mobile app for translating individual words, vocabulary learning, and practicing grammar. The findings of this survey study can be of interest to all stakeholders involved in the development of such mobile apps. In the future, there should be more research targeted at the examination and evaluation of mobile apps for elderly, taking in consideration their individual needs to improve quality of their life.

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1. Introduction

At present, about 82% of the Czech seniors older than 65 years own a mobile phone [1]. However, three-quarters of them prefer a mobile phone without an operating system [2] since they find it less expensive and easier to use [3]. As a survey shows [4], seniors in the Czech Republic are more likely to connect using Wi-Fi, but a significant group of them also uses data connection. Around 200,000 of them use Wi-Fi networks, and data tariffs are used by up to 150 thousand seniors. As it has been already pointed out, seniors are generally more in need of money, and therefore up to 77,000 of them connect to the Internet using Wi-Fi only. This shows that seniors use the Internet mostly at home or in places with a freely accessible wireless network.

Currently, only 27% of the Czech seniors own and use a smartphone [1]. In fact, the Czech seniors are the last in the European Union in terms of smartphone use. In Sweden, for example, 67.4% of older people were found to be using smartphones with the Internet. This is also true for other countries, such as Denmark, the United Kingdom or the Netherlands [4].

Nevertheless, older generation X, who is said to be able to adapt to the change of time, learn quickly and apply the instructions given to them, might soon enrich the number of older smartphone users. The reason is that some of them are innovators of personal computers and creators of technology that millennials, generation Z, and generation alpha are now enjoying [5]. Generation X is now on the point of retiring, which means that more and more seniors will be using a smartphone in the near future.

Seniors most frequently use smartphones for reading news and being on social media [6]. However, smartphones and their applications can bring older people many more other gains, such as managing their medications, social networking, the Internet banking, or easier navigation with Google maps [7]. In addition, elderly people also exploit the mobile applications (apps) to improve self-study, including learning foreign languages. Although there are a few mobile apps for learning English on the Czech market, such as LinGo: Play or Duolingo, none of them is explicitly targeted at older people, who have very specific needs with regard to the use of mobile apps for English language learning [8], which is a bit unfortunate since older people might exploit such apps for training their cognitive skills and competences and thus delay and/or maintain the delay of their cognitive functions [9-10].

Therefore, the main contribution and novelty of this paper is to indicate the fact that smartphones can be used as a tool to maintain cognitive functions, as well as possibly delay cognitive decline among older people if they are designed to meet the specific needs of this target group. In addition, older people should be provided training on how to handle smartphones.

The purpose of this article is to analyze what features and content a mobile application for learning English as a second language by cognitively unimpaired seniors should possess.

2. Methodology

The methodology was based on an online questionnaire survey because the COVID-19 pandemic made it impossible to visit seniors' homes. Groups of seniors were therefore reached online. Specifically, the following groups of seniors were addressed: Active Seniors from Prague and its surroundings, Seniors to Seniors, Active Seniors of West Bohemia and Joy for Seniors. Other senior respondents were found with the help of acquaintances and one school reunion after fifty years. A total of 113 respondents, who ranged in age, gender and place of residence, submitted the questionnaire. The survey was conducted between 29 January 2021 and 31 March 2021 using Google forms. The questionnaire contained a total of twelve questions designed to effectively identify the diversity of the group surveyed and the individual requirements of seniors for a potential mobile application for learning English.

The main research question was as follows: *What features and content should a potential mobile app used by cognitively healthy seniors for English language learning possess?*

3. Results and Discussion

The results include two questions on demographics of the target group, i.e., gender/sex and age. The demographic results show that 52% of respondents were females, 47% males and 1% other (Fig. 1). The use of such mobile apps for English learning is thus quite balanced as far as the gender is concerned.
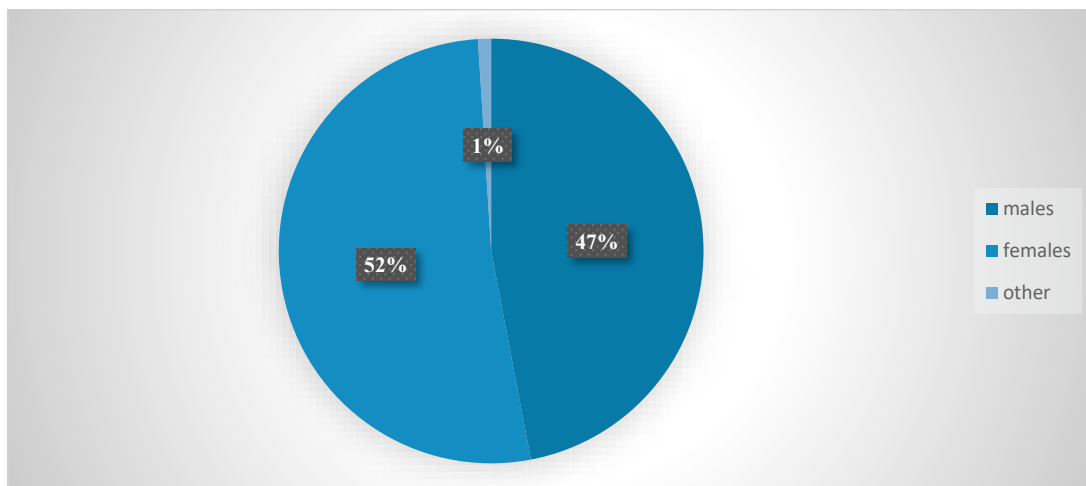
Fig.1. Sex of the respondents.

Figure 2 below then indicates that most seniors belong to the age groups between 50 and 59 years and 60 and 69 years, which confirms the findings of other research studies that younger elderly between 55 years and 74 years seem to be able to use these mobile devices for learning purposes more often than older elderly aged 75+ years [8, 11]. However, in the future, with an incoming generation X into the retirement age, this age border might be slightly prolonged.
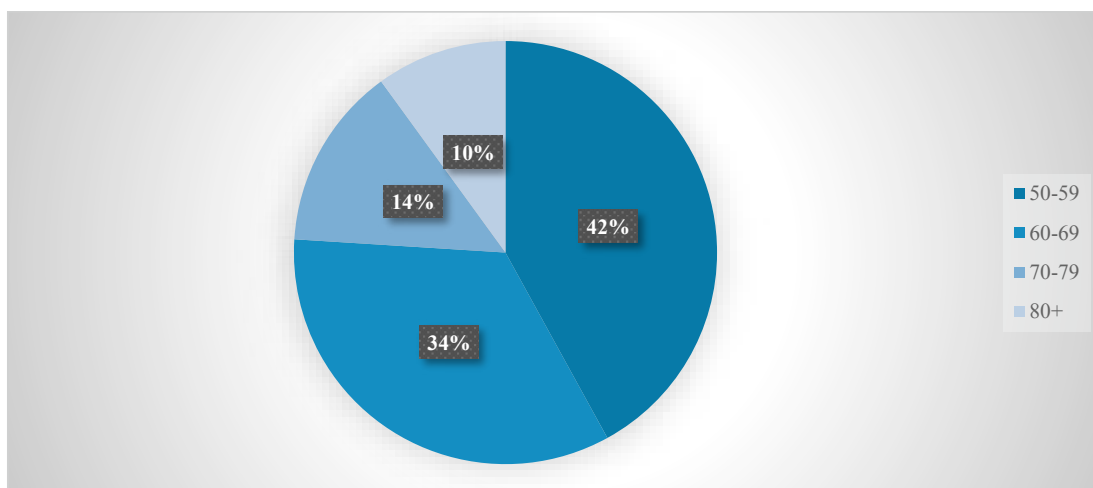

Fig.2. Age groups of seniors.

Furthermore, the technical findings reveal that most of the seniors (84%) own a smartphone with Android operating system, 4% uses iOS, 3% of respondents Windows Phone and 9 % of the seniors uses some other operating system. This is not surprising since the Android operating system appears to be more user-friendly with an appealing user interface [8, 12].

The results reveal that seniors use some of the mobile English learning applications. In most cases, it was Duolingo (35%), which was then followed by Mobiteach LLC, Language Course S.L., or FunEasyLearn. 28% of respondents also reported that they had not used any such mobile app yet, which is very common among this target user group [10].

The findings also generated 24 responses about seniors' likes and dislikes about these mobile apps for learning English, which is summarized in Fig. 3 below.

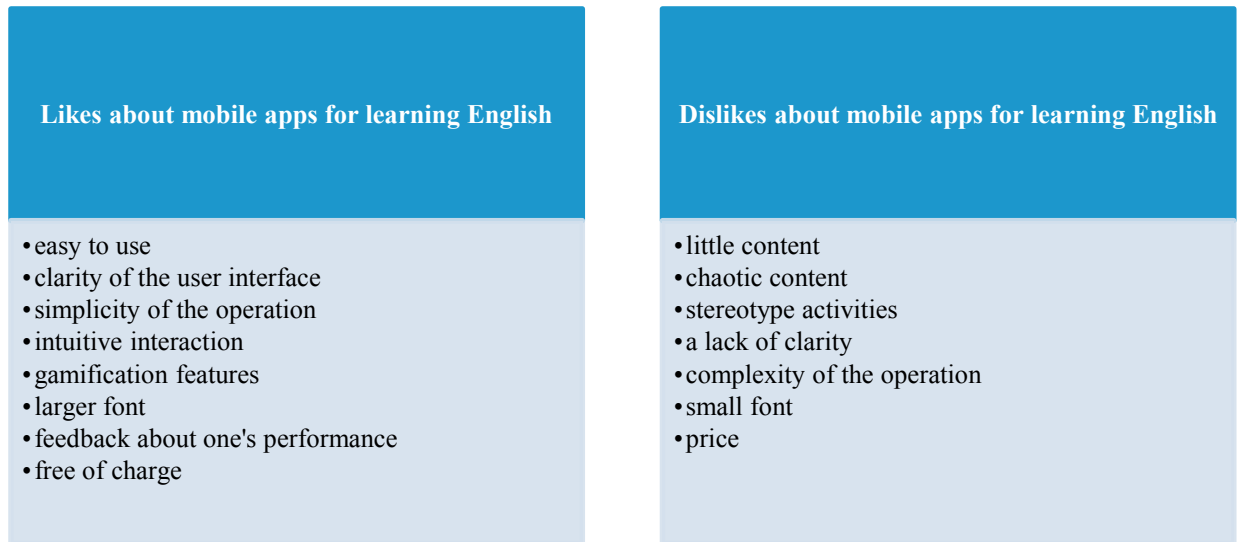| Likes about mobile apps for learning English	Dislikes about mobile apps for learning English
• easy to use • clarity of the user interface • simplicity of the operation • intuitive interaction • gamification features • larger font • feedback about one's performance • free of charge	• little content • chaotic content • stereotype activities • a lack of clarity • complexity of the operation • small font • price

Fig.3. Seniors' likes and dislikes about these mobile apps.

According to results of the survey, seniors most often use the above-mentioned educational apps once a week (47%), followed by once a month (17%) and only 10% of the respondents use them every day. On the contrary, 26% of seniors have never used any of these mobile apps. A vast majority of them use them at home (72%), which is then followed by their use outdoor (17%) and eventually, at work (11%). Again, these numbers might change in the future since the retirement age of the Czech seniors is now 65 years, which means that generation X will use these apps at work, as well as while commuting to work.

Figure 4 below then illustrates the language areas for which the mobile apps mentioned above are exploited most often. The figure reveals that seniors most often use it for translating individual words, learning English vocabulary, and practicing grammar. The translation technique is quite typical of the older generation since they want to know the exact meaning of the word, respectively the whole sentence, in their native language and tend to translate word by word. In addition, they welcome specific guidelines on how to do the tasks in their native language [8]. Moreover, younger students use their smartphones as electronic dictionary translators [13]. As far as vocabulary learning is concerned, smartphones with their smaller screen are ideal and effective, as findings of many research studies confirm [14-20].
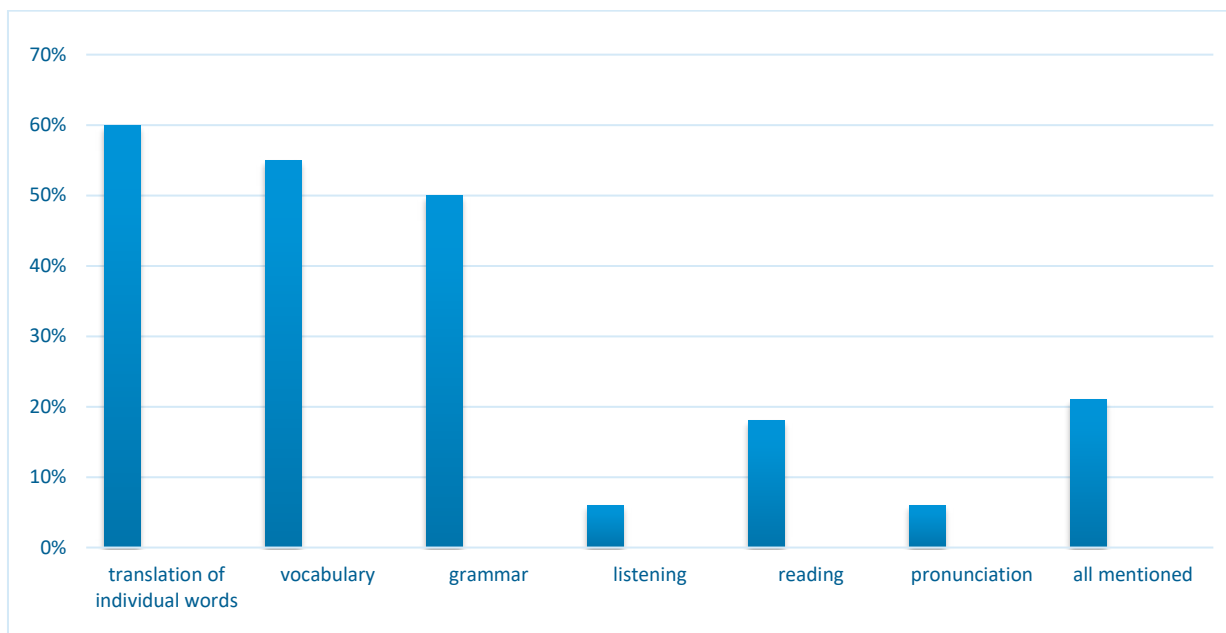
Fig.4. Language skills and structures practiced with the help of mobile apps by seniors.

The seniors were also asked if they would prefer online or off-line versions of the mobile app. The findings show that 57% of respondents have no preferences, 32% would use an online app and only 11% would prefer its off-line version (Fig. 5).
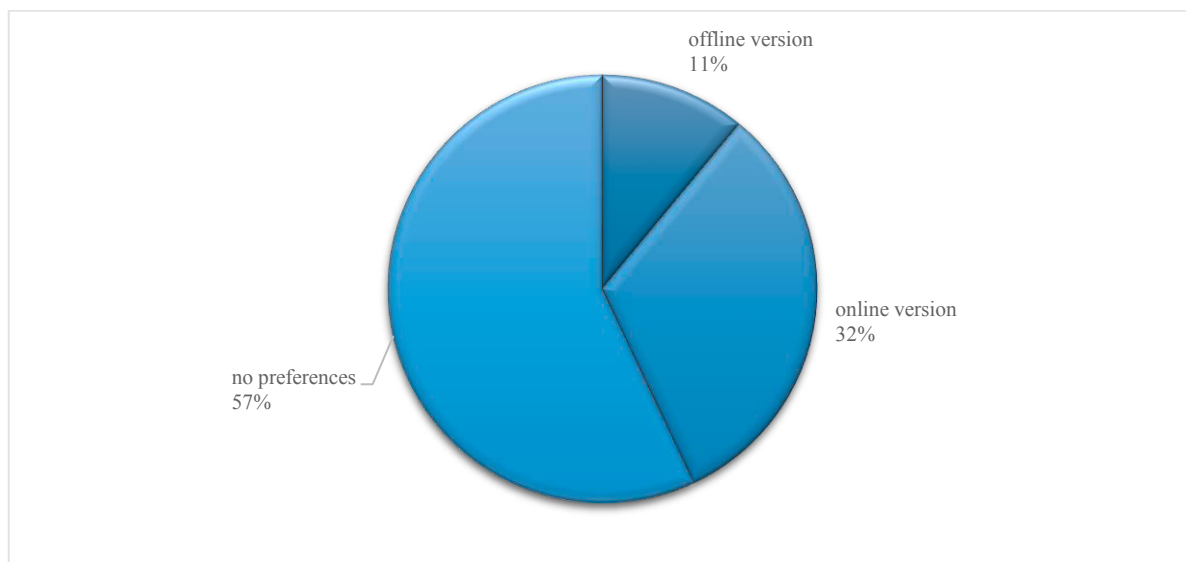

Fig.5.Preferences for the type of mobile app by seniors

Figure 6 below then indicates how much time they spend on the mobile app for learning English. As the results show, most of them (39%) are involved in learning English via a mobile app for a few minutes and 21% of them tried to learn for half an hour, while 27% of seniors have never tried it.
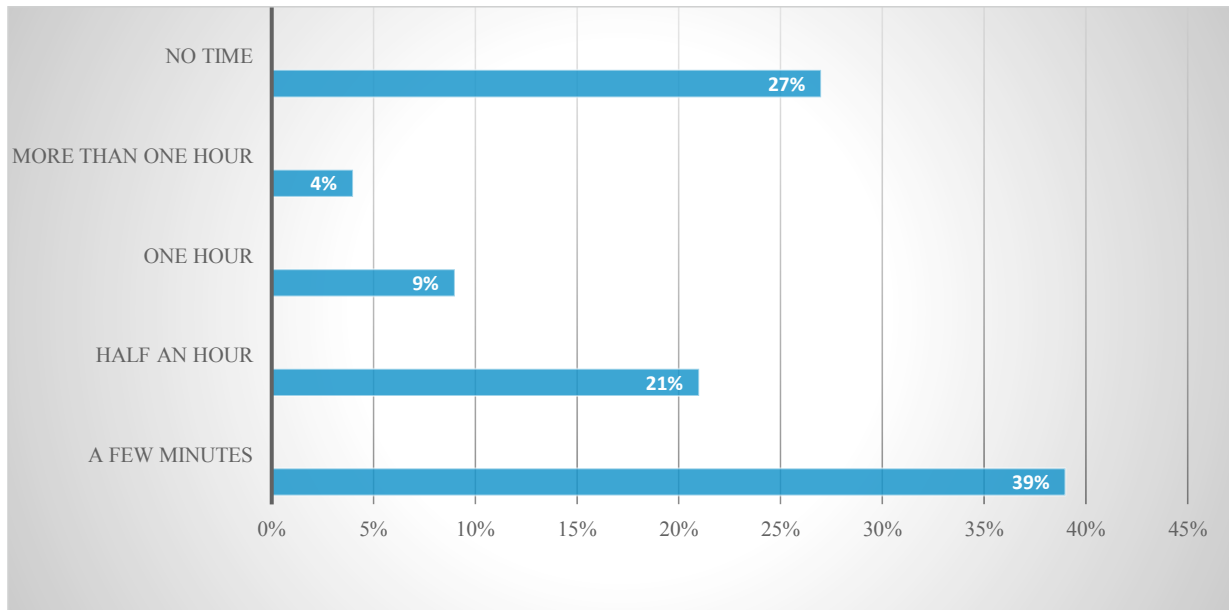
Fig.6. Time spent on the English learning mobile app.

To summarize the overall findings from the questionnaire, it is obvious that the distribution of respondents was on the basis of gender approximately equal. Furthermore, the respondents are more likely to be classified on the basis of their responses into the age groups 50 to 59 years and 60 to 69 years.

The findings also reveal that a substantial majority of respondents own a smartphone with Android operating system. Duolingo: Learn English is the most used application, but there is also a big number of those who do not use any English learning mobile app.

The positive features that seniors appreciate in the tried educational language learning apps most often include clarity, intuitiveness, the look of the user interface, as well as gamification features. On the contrary, they dislike a lack of clarity, lack of content, poor usability, and small fonts.

Respondents generally use educational apps once a week, and mostly at home. If they do use the apps to learn English, they spend on them between a few minutes and half an hour. In addition, they usually use a mobile app for translating individual words, vocabulary learning, and practicing grammar. The preferred type of mobile app is an online app. In the additional comments, they mention that there could be scores in the app and the possibility of larger fonts.

Nevertheless, as implied throughout this article, due to the aging of the baby boomer generation, more older adults will use smartphones in future and therefore, their uptake will significantly increase, as many research studies confirm [21-22].

4. Conclusion

Thus, in conclusion, one can state that potential app for English learning by seniors should meet the following key criteria. It should address both males and females, use the Android operating system, be targeted at the elderly between 50 and 69 years, include such activities which could be completed in a few minutes and done once a week at home, be accessible online, focus on word translation, vocabulary learning, and grammar practice, be easy to use, simple, intuitive, with a clear user interface, gamification features, and larger font, and should be free of charge.

Furthermore, as Klimova and Sanda [8] in their study claim, seniors' needs must be carefully assessed and they must be offered special treatment. They should be provided with detailed methodological guidelines in form of an audio-recording, which would help them in implementing and working with the mobile app. Elderly also have a different pace of learning, which must be carefully considered.

The findings of this survey study can be of interest to all stakeholders involved in the development of such mobile apps.

In the future, there should be more research targeted at the examination and evaluation of mobile apps for elderly, taking in consideration their individual needs to improve quality of their life.

Acknowledgments

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