Mobile Application as Support of English on-Line Learning

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Abstract: Currently, mobile devices, respectively smartphones, are an inseparable part of everyday human activities, including education. The purpose of this article is to compare available language learning mobile apps on the market and discuss their pros and cons. In addition, the authors describe a newly developed mobile app focused on learning and practicing of English language vocabulary and phrases, tailored to the needs of its users. The findings show that this mobile app is user-friendly and students appreciate its interactivity.

1 INTRODUCTION

Nowadays, mobile devices are an inseparable part of everyday human activities. Research shows that especially young people at the age of 18-29 years are the main owners of smartphones (WHO 2016). As Saifi (2017) states, 52% of the time individuals spend on digital media is on mobile apps. In fact, the age group of 18-24 years spends about 94 hours per month on mobile applications (apps) (App 2017). According to the statistics, women spend more time on the mobile web and mobile apps than men. The statistics further reveal that people spend 43% of their mobile app time on games, 26% on social networking, 10% on entertainment, 10% on utilities, 2% on news and productivity, 1% on health fitness and lifestyle, and 5% on others (Saifi 2017)

In addition, young people often use mobile apps in the acquisition of their knowledge and skills. The reason is that smartphones are easy to carry and the Inter-net/Wifi connection is available almost anywhere in the developed countries. Thus, students can study anywhere and at any time (Oz 2013).

2 STUDENTS' NEEDS

Research indicates that the use of smartphone apps is effective in the teaching of language at a university, especially in the teaching of vocabulary (Luo et al 2015, Muhammed 2014, Shih 2015, Wu 2014, Teodorescu 2015, Balula et al. 2015, Lee 2014). The lack of vocabulary, according to a survey carried out among the students of Management of Tourism, Faculty of Informatics and Management, University of Hradec Kralove is one of the most serious weaknesses in their learning of English.

Therefore, this winter semester students had the opportunity to try out a new method of teaching, the so-called blended learning, which consisted of the traditional, contact classes and, as a support, they could exploit mobile learning targeted at the learning and practicing of English words and phrases discussed in the contact classes.

The research question is as follows: Will students appreciate a mobile app tailored to their needs in their English classes?

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3 MOBILE APPS FOR ENGLISH LANGUAGE TEACHING FOR ANDROID OS

In the initial phase, there was a comparison of currently expanded apps for language learning support. Some of the most popular (free) mobile apps for the Android operating system have been selected.

Each of these apps has been reviewed, commented, and reviewed by third-party users.

3.1 Duolingo: Learn English

The app is available for download at https://play.google.com/store/apps/details?id=com.duolingo. About 50,000,000 downloads and an average user rating of 4.7 confirm its popularity.

The following features were positively evaluated when tested by a group of testers:

- Application is translated into Czech (CZ localization).

- The application allows to translate the Czech sentence into English by selecting the words and sorting them correctly.

- Listening - listening to English phrases at two speeds (normal and slower), user writes what s/he has heard.

- If the typed answer is with an error (automatic keypad correction), the application detects it, warns the user of the typo, but still accepts the answer.

- If the user does not know the answer and skips the question, the question is evaluated as incorrectly answered and the correct answer is displayed.

- If the answer is correct, another translation variant will be displayed.

- Daytime target setting – reminders by notifications.

- Unlocking achievements - a great way to gamble.

- Several levels of the process (depending on complexity) - the ability to skip the level of a cumulative test from a given level.

- Initial User Testing and Levelling (Unlocking Previous Levels).

- Possibility to create an account (email, social network).

As negative, testers rated these features:

- Czech translations must be accurate - only one option is correct.

- Free translations are marked as incorrect (Example: He was the first president. -> On byl první president x Byl první president. – According to the application, this is an error.).

- Unclear menu icons; it is not clear what the icon means.

- Ads are displayed during the use.

Google Play users are generally happy with the application and are evaluating it positively, for example, "*Great apps. I use it for different languages and I recommend it mainly to beginners and intermediate students as support for learning English. A good system that motivates and it's free.*" "*Finally, something that coaches me every day, I find it positive. It's great that there's also an active teaching where people have to talk and write in English what a person hears.*" (Duolingo n.d.).

3.2 English Grammar Test

The app is available at https://play.google.com/store/apps/details?id=english.grammar.test.app, has more than 5,000,000 downloads and an average rating of 4.6.

The testers have positively evaluated that the tests are organized according to the language level, mixed or topic-specific, and after the test, there is an evaluation of the results - correct and incorrect answers with the possibility of checking and explaining the correct answers (in English).

Its negatives include the fact that application is only available in the English localization. Since the input of questions is in English, it is essential to have a certain level of vocabulary.

Google Play users rate the app positively, for example, "*Your purpose is perfect. If you make a mistake, the app will explain why and what was wrong. And a good English-speaking person can learn a bit.*" "*Very good for repetition and the explanation is perfect.*" "*Very good app with grammar explanation when you make mistakes.*" (English n.d.).

3.3 BBC – Learning English

The app is available for download at https://play.google.com/store/apps/details?id=com.dragonlab.bb

clearningenglish, has more than 500,000 downloads and an average rating of 4.6.

Testers appreciate the focus on listening through articles on different topics and a possibility of its transcription and vocabulary.

The negative is that only English localization is available. Because the vocabulary is explained in English, it is necessary to have a slightly higher level of vocabulary. While working with the app, the user is disturbed by a lot of ads.

Comments from Google Play - "*I'm trying briefly, it contains plenty of ads that go into playback without me being able to finish the first six minutes, so the app has dropped twice. Lenovo Vibe P1 Mobile. Stability is far away.*", "*Perfect English Exercises. I can choose what I want to read or listen to. Whether about current events or other interesting things. And the selected phrases are explained in English, which I very much appreciate.*" (BBC n.d.).

3.4 Learn 6,000 Words in English

The apps with an average rating of 4.5 and over 10,000,000 downloads is available at URL: https://play.google.com/store/apps/details?id=com.fu neasylearn.english.

The testers have positively evaluated that the application has Czech localization, although its quality is not the best, but it is more of a machine translation.

The quality of the localization, the fact that the control elements and the flow of the application are not very sophisticated and the user is difficult to orientate at the first startup has been negatively evaluated. The user is overwhelmed by a lot of advertising, sometimes it is not clear what the application control is and what the ad is. Individual tests/games are slightly chaotic – e.g. image search - the incorrect answer is marked in pink and the user can respond until s/he responds correctly - the application would benefit from a bit clearer and more distinctive layout. The application is very complicated on the navigation page and gaining points/levels of games/tests is not user-friendly – after unlocking more complicated test items, it is necessary to go through all levels.

Google Play users rate the app as fun - "*Fun, easy learn. It's a great application that really improves vocabulary. I have learned more than 50 words in 2 days.*", "*Great app. The only thing I have to say is the occasional mistakes in the Czech translation, but it is nothing. I did not mind purchasing the full version, better to invest in this app than in most paper tests.*" "*Again, only ads. I do not like this app.*" (Naučte n.d.).

4 MOBILE APPLICATION FOR THE TEACHING OF ENGLISH – ENGLISH TODAY

The use of smart mobile learning devices offers the opportunity to reach a larger group of students and to make learning more pleasant. The vast majority of educational mobile apps work on the principle of self-study. There is no relationship between the teacher and the students. This is a major weakness of these apps. There is no possibility of communication between the teacher and the students, and no feedback from the students themselves.

Our clever solution has two separate parts. Teacher applications and student applications. These two smart applications can easily communicate with each other in both directions. The teacher is able to get information on how students use the app, what makes them the biggest problems, how they react to the alert, and overall track their shift. Students' feedback and a comprehensive overview of the entire teaching process make it possible for the teacher to continually improve and adapt teaching to the benefit of their students.

The described solution is divided into two application parts and one server part. The first application part is designed as a web interface for the teacher and the second application part is presented with a mobile application for students. The server part is responsible for storing information, authenticating users, efficiently collecting large data, processing, distributing messages, and responding to events from both applications.

The main principle of the proposed solution is Firebase technology from Google, Inc. After a thorough analysis of all requirements and possibilities, this technology was identified as the most suitable. Firebase offers a variety of mobile and web application development capabilities, ranging from authentication, efficient data retention to communication.

The web application offers a number of features specifically for the teacher. Each teacher can manage several lessons. Each lesson defines individual lessons to which specific words and phrases fall. Teachers can register their students, distribute news or alerts through notifications, and respond to their comments. Using these options, the teacher can make contact with his/her students and draw attention to the upcoming events. The web interface also offers a key element, which is the visualization of the results of all students. Based on the visualization, it is possible to evaluate each student separately, to compare the results between several study courses or to modify the study plan.
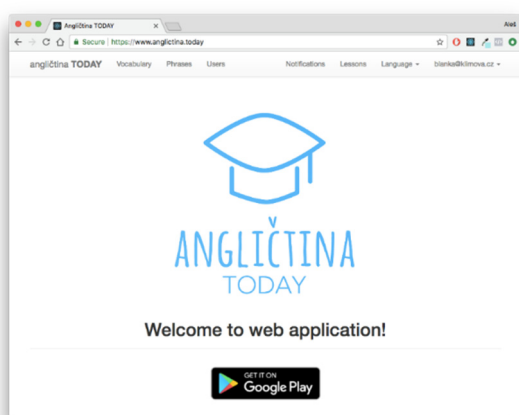
Figure 1: The web part of the app.

Students are assigned a mobile application. Through a mobile application, the student are enrolled into a specific course. The app offers the ability to study and test available vocabulary and phrases. The student chooses the lesson s/he needs to study and tests words and phrases in it. For each phrase or vocabulary, s/he can get a translation, while using TextToSpeech technology, as well as pronunciation. The application enables immediate communication with the teacher. At the same time, the application collects all user data and distributes it to the server part for subsequent research and evaluation by the teacher. The student is advised by his/her teacher by means of notifications, e.g., to study a certain lesson. Via the mobile application, the student is able to contact his/her teacher at any time to make contact and discuss the given problem.

5 USED TECHNOLOGIES

The best solution for this specific case was Firebase technology by Google Inc. This technology offers a wide range of options and many services it provides are used for the project.

5.1 Platform

The application part for the teacher was designed as a web application, primarily because of the simplicity of the teacher's input to the Internet browser. Javascript, specifically ECMAScript 6, was chosen as the programming language, and the ReactJS library by Facebook, Inc., a modern and highly perspective ReactJS library.

Considering the target group and the ratio of students using the Android operating system versus

other mobile operating systems, the project was firstly implemented for Android OS. All mobile application code is written in Java.

5.2 Authentication

A very important step was to design a way of authenticating teachers and students. A classic combination of email and password has been selected for logging in.

5.3 Real-time Database

All NoSQL technology has been chosen to store all the data and almost instantly accessed them using a cloud Real-Time database.

5.4 Notifications

The principle of notification was chosen as the core element of the platform, specifically for the communication between the teacher and the students. Google Cloud Messaging allows teachers to send short messages to all students. On the basis of the report, the mobile client generates a notification and alerts the student to study.

5.5 Statistics

Data retention, the so-called Big Data, allows the teacher to evaluate the student's achievement and examine the results within a certain timeline. One of the interesting cases of monitoring is, for example, the students' reaction to the notification from the teacher.

5.6 Feedback

Each student is able to react to a specific lesson, possibly a task assigned by the teacher via his/her mobile app. The teacher is able to react at any time and contact the student and discuss some issue with the student.

5.7 Implemented Solution

Once logged in, the teacher is able to enter the following screen.

In the web interface, the teacher can edit the content of individual lessons, the vocabulary and inform students about their results.
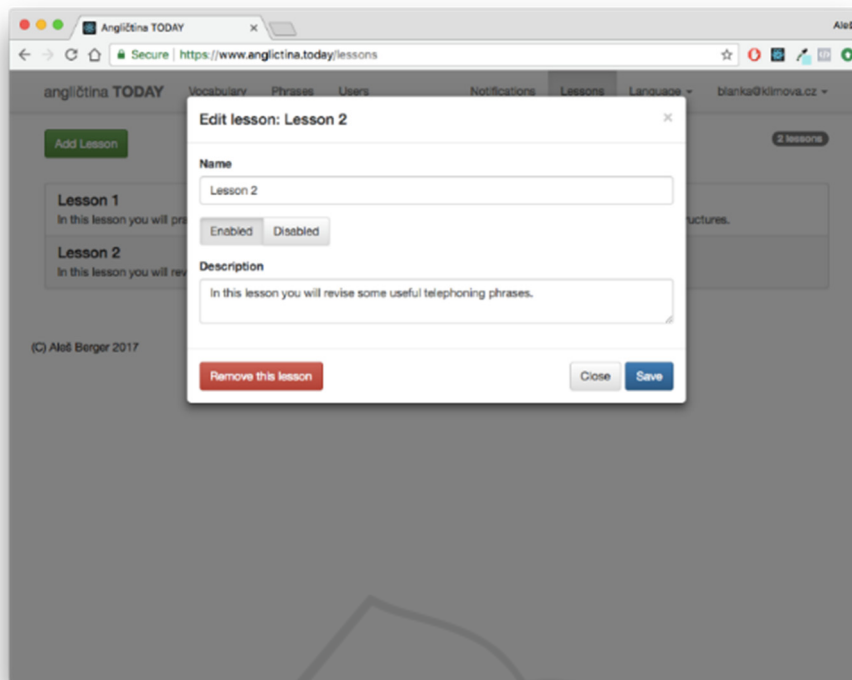
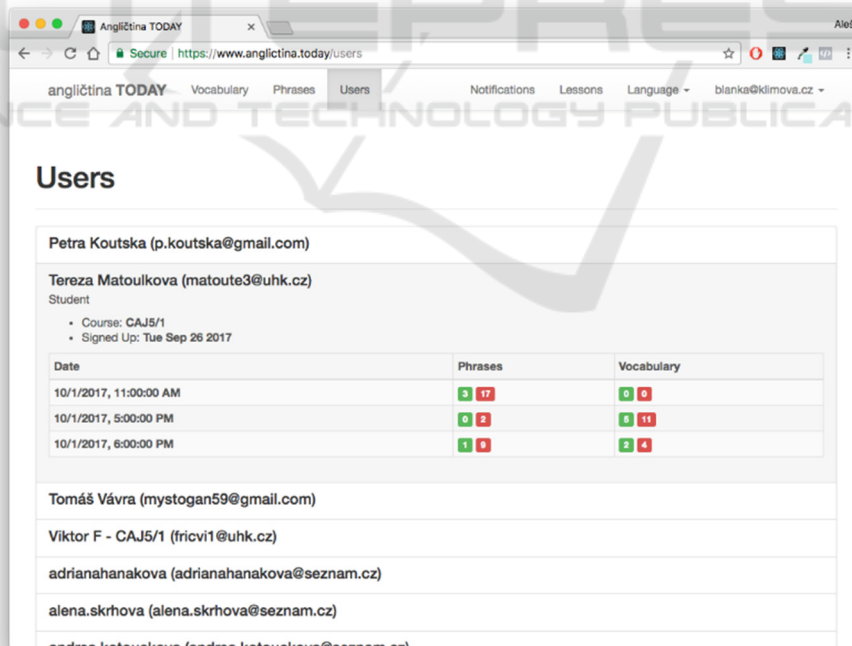Figure 2: Editing of individual lessons.

Figure 3: Detail of one of the students with his/her results.

A regular user (student) is able to access the app through the Google Play store and use the application on his/her smart mobile device.
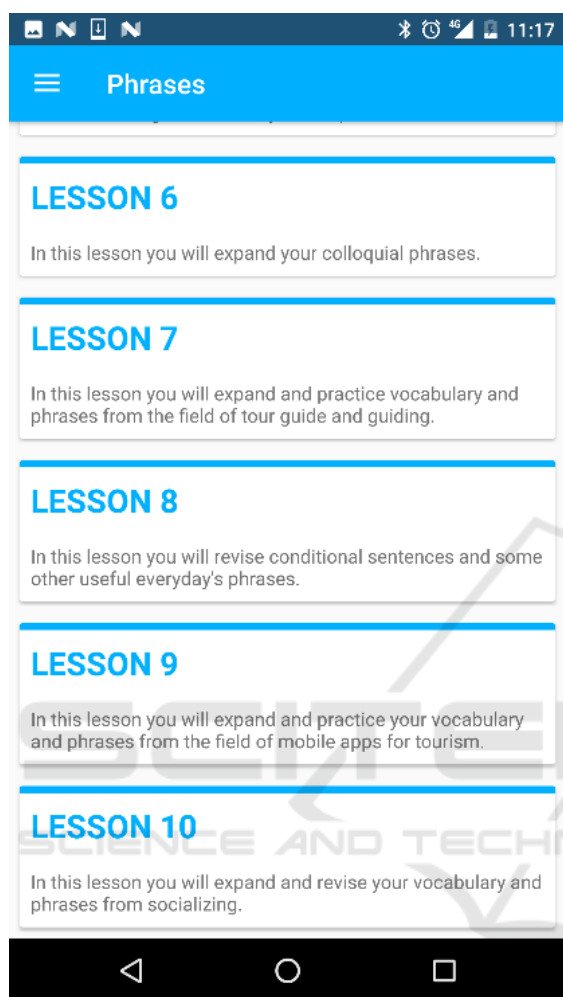

Figure 4: An overview of available lessons.

4 CONCLUSIONS

One of the principles of the mobile application is its simplicity. It is very important for the user to concentrate only on the studied issues. Many of the available mobile applications that focus on similar issues also offer possibilities and functionality that the student does not use and unnecessarily complicate the learning process through the application. This mobile application offers only what students really need and is designed to be as simple as possible for their users.

Currently, the proposed solution only offers an Android application, which is available for free at Google Play store. The reason was the ratio of students who use the Android operating system on their smart devices. Java was selected to develop the mobile application. The next step in the development of this mobile application will also include its expansion to the Apple's platform and iOS, as well as implement-ing this mobile app in companies to enhance their communication with foreign partners (Hola and Pikhart 2014).

The mobile application described above was in use both for full-time and part-time students of Management of Tourism in their third year of study from October 2017 till December 2017 as a pilot project. Overall, on the basis of students' evaluation, it was accepted positively. Students especially appreciated its interactivity. They also pointed out that they had been learning faster and more effectively since they could use it at any time and anywhere on the way home, for example, on the bus or train. The main thing was that they were forced to learn and revise new vocabulary because they were sent notifications by their teacher twice a week.

The next step is to analyse students' final tests and see whether the students who used the mobile application had better results than those who did not use it.

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