English Vocabulary Development of Non-Linguistic Specialties Students using Mobile Application

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Abstract: The research findings indicate that most students are aware of the importance of systematic lexis learning, yet, the problem of students' poor vocabulary remains. Mobile application is a powerful and beneficial educational tool that can be efficiently used both by teachers and students. However, the issue of FL vocabulary development via mobile applications has received little attention in Ukraine, especially in the context of the university students' perception. Furthermore, there is no well-balanced vocabulary program in most Ukrainian universities. This paper, first of all, outlines the key points of the constructivist pedagogy and overviews literature regarding the use of technology in FL vocabulary teaching. It further describes the results of a survey conducted among Bachelor students of non-linguistic specialties regarding their interests and problems in learning FL. The research among students revealed that the main problems in learning FL concern mastering new vocabulary, speaking and listening. The authors attempt to refer the existing problems to students' abilities to remember words and their inability to recall known words. The article summarizes the following advantages of using "Vocabulary for International English Language Testing Service (IELTS)" mobile application through the students' perspective verified via teacher's evaluation: free access, ease to use, tailored to individual needs and style of learning, availability of useful spoken vocabulary and sound recordings. Some suggestions concerning possible improvements of the mobile application have been provided as well. The findings of the paper call for incorporation of technological tools in FL vocabulary teaching.

Keywords: *International English Language Testing Service; "Vocabulary for IELTS" mobile application; vocabulary development; Information Technology in Foreign Language vocabulary teaching; constructivist approach; word context.*

1. Introduction

The status of English in the postmodern society is much higher than just an educational issue. In Ukraine it has become a powerful tool of social change, personal advancement and sustainable national development. However, the Ukrainian system of education still has not overcome the problem of students' insufficient foreign language proficiency. Such situation can be explained by lack of generally accepted content, teaching strategies, assessment, designing and organization of courses in accordance with international standards (Bolitho & West, 2017).

In 2005 the National ESP Curriculum for Universities has been established by the Ministry of Education and Science of Ukraine and the British Council Ukraine. According to this document (English for Specific Purposes (ESP) National Curriculum for Universities, 2005), which is based on Common European Framework of Reference for Languages (CERF) (2010), Bachelor students of non-linguistic specialties are required to obtain linguistic competence, social, cultural and professional communication on the level B2 ("independent user").

The Ukrainian scholar N. Grytsyk suggests incorporation the International English Tests in the ESP programs for students of non-linguistic specialties, providing every Bachelor's graduate with equal amount of English classes, development of teaching resource etc. for meeting the European standards of ESP teaching (Grytsyk, 2016). Supporting N. Grytsyk's ideas, we can add, that students' interests and needs of their personal development should not be ignored as well. New realities such as distance learning, blended learning are making the educational process more student centered. A teacher is becoming more like a coach, mentor, facilitator while a student is getting more opportunities to choose the content and way of learning along with responsibility for his/her own studying.

A great deal of attention during the last years was given to the constructivist approach since it covers numerous important characteristics of cognitive activity and, in accordance with this, doubts the ability to teach all children in a class by using one and the same technique. According to the constructivist theory, each person has individually designed neurons structure and, on the path of this differentiation, creates her/his own rich and diverse reality (Edynak & Kojkoł, 2018). Moreover, from the constructivist perspective, "Education is a wide-ranging concept that may comprise training and formation, coaching in specialized competencies,

fostering the ability to think, promoting manners, culture, taste, and other accomplishments. Given this variety, it should be clear that the ways of teaching and learning cannot be the same in all its branches" (Glasersfeld, 2001).

In fact, there are two main types of knowledge according to the constructivist approach: knowledge that does not have a logical derivation and knowledge that can be generated through thinking. In the foreign language acquisition, for instance, when we learn new vocabulary, we just apply different techniques of memorizing. The question like "Why is it so called in English?" would sound senseless. This type of knowledge is more common in the early stage of learning foreign language.

The second type of knowledge, which we deal with on the next stages of the foreign language acquisition, the students construct by their own, but the importance of the teacher's guidance should not be neglected as well.

Improving ESP teaching requires special attention to some basic aspects of language. One of the essential part of language is vocabulary acquisition. Limited vocabulary prevents students from comprehending and producing the spoken and written language. Thus, vocabulary has been paid much attention with the purpose of finding the techniques of its development.

Taking the principles of constructivist pedagogy into account, the best an English teacher could do to promote students' vocabulary development is to use different resources and teaching techniques to create a learning environment and lead the students to self-constructed knowledge. Current digital era has provided a teacher with many different resources and applications in addition to the ordinary means used in the traditional classroom pedagogy.

The importance of promoting the FL vocabulary development along with the necessity of implementing European standards in the ESP curriculum contributed to our research of the educational mobile application input on FL vocabulary development. We focused on smartphone application called "Vocabulary for IELTS" due to its following features, which could have possible positive effect: the mobile application includes words of different topics which are asked in International English Language Testing Service (ILTS) exam; expands the restricted amount of English classes, takes out learning beyond classroom, turns vocabulary learning into a lifelong process; provides students with independency of learning, flexible curriculum and a timetable.

2. Literature Review

The analysis of recent studies and publications has shown a significant increase of literature regarding the use of technology in FL vocabulary teaching. The importance of FL vocabulary learning along with revision the trends in the area of teaching FL vocabulary have been highlighted by Alqahtani (2015), Hyso and Tabaku (2011), Moghadam et al. (2012), Pan and Xu, (2011), and others.

Current publications have indicated that Computer-Assisted Language Learning (CALL) and Mobile-Assisted Language Learning (MALL) are effective ways to promote FL vocabulary acquisition. In particular, M. Pun points out such advantages of using multimedia technology to English language teaching in the non-native speaking countries as increasing students' motivation, development of their communicative, social and cultural competence, invigorating interaction, opportunities for teaching English beyond the classroom etc. (Pun, 2013).

According to some authors the effective teaching tools that motivate students to learn vocabulary are Pixton (Cabrera et al., 2013), QUIZLET (Dizon, 2018), an iPad application (Clark, 2013), MyVocab.cz online application (Rambousek, 2014), Power Vocab Word Game, SAT Vocab – Mindsnaks, SAT Word Slam, Shahi – A Visual Dictionary, uVocab Vocabulary Trainer, Vocab Ahead, Vocabulary.com, Word Hippo (Lynch, 2018), "Kik" application (Rajayi et al., 2018) etc.

Such scholar as I. Bloshchynskyi revealed the significance of informational and communication technologies usage during independent foreign language professional training of future Border Guard officers on the basis of specialized mobile flashcard application Anki. (Bloshchynskyi, 2017). Some details on these issues, namely can be also found in the works of M. Karpushyna, I. Bloshchynskyi, A. Nakonechna, K. Skyba dealing with the enhancement of Ukrainian would-be border guards' training, and using some computer programs to intensify the learning process of these military specialists (Bloshchynskyi, 2017; Karpushyna et al., 2019).

Such scholars as Melnychuk, Rebukha, Zavgorodnia and Bloshchynskyi revealed organization of distance learning in the English language on "Nursing" specialty: methodological and legal aspects (Melnychuk et al., 2018). Other scholars, namely Bloshchynskyi et al. (2018) described the electronic educational software packages usage in training of "Philology" students for state examinations on such disciplines as "Operational-service application and management of the actions of state border guard units" and "Major foreign language" (Bloshchynskyi et al.,

2018). The issues of creating content-based warm-ups in the English class with the second year cadets of "Law" specialty were presented in the work of (Karpushyna et al., 2019).

The previous studies focused on using particular mobile applications in learning a language, exploring the possibilities this app offers for learning English (Fučeková & Metruk, 2018; Mospan, 2018; Nushi & Eqbali, 2018). Ebadi and Bashiri (2018) investigated EFL learners' perspectives about their vocabulary learning experiences via a smartphone application called Vocabulary Flashcards 2016 (Ebadi & Bashiri, 2018). The participants were selected through English teaching public Telegram messenger channel called @drebaditoefl. They were both male and female, aged from 20 to 45 years, and all of them had university degrees in different fields of education. The results of this study have shown that all participants held positive perspectives about Vocabulary Flashcards 2016. However, the following suggestions for improving the efficiency of app were elicited: adding more elements in words' presentation and more test types, increasing the amount of contextualization of words, adding words' pronunciation, adding challenging quizzes.

The **objective of this paper** is to examine the impact of Vocabulary for IELTS educational mobile application on the English vocabulary development.

3. Research Methods

In this study a mixed method approach has been employed: theoretical and practical. Analysis and synthesis of philosophical, pedagogical and psychological literature helped to identify how far the examined issue is developed and to outline directions for further research. Questionnaire before using mobile application contributed to understanding students' interests and problems in mastering English, which enabled us to choose topics for vocabulary learning. Post-questionnaire has revealed the advantages and disadvantages of learning new words by means of Vocabulary for IELTS mobile application through the students' perspective. Interpretation of the research results have demonstrated students' preferences in English topics and learning activities, their attitude towards using the learning mobile application and possible ways of its improvement.

4. Findings and Discussion

Traditionally teaching the new vocabulary includes two main stages. The first stage involves introducing to students definitional and contextual

information about a lexical unit. The second stage is students' active vocabulary learning. The efficiency of Vocabulary for IELTS educational mobile application has been evaluated according to its capacity of covering these two stages, as well as to fit students' personal learning styles, time needs and interests.

The study was conducted in Khmelnytskyi Humanitarian Pedagogical Academy in Khmelnytskyi. The participants comprised of 55 intermediate Ukrainian EFL students from five academic groups of different qualification. They are both male and female aged between 17 to 26. Participants' background information is represented in the following table (Table 1).

Table 1. Participants' background information
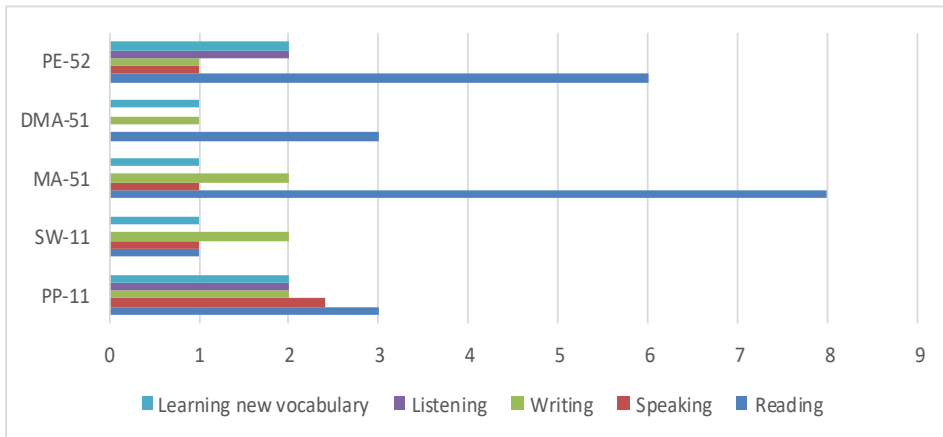Source: Authors own conception

Name of the group	Amount of students	Specialty	English hours per academic session
PP-11	12	Practical Psychology	30
SW-11	7	Social Work	30
MA-51	15	Musical Art	30
DMA-51	5	Musical Art (distance form)	8
PE-52	16	Primary Education	30

Effectiveness of Vocabulary for IELTS mobile application has been studied for three months. The main instrument for collecting data was a questionnaire, which has been distributed to the participants.

A pre-questionnaire has been employed for the accomplishing two tasks:

1) Students' strong and weak points in learning English were asked to confirm the necessity of improving their vocabulary.

2) Students' interests were examined in order to make a topic list for vocabulary learning.

Firstly, the students were asked to rate the English learning activities (reading, speaking, writing, listening, learning a new vocabulary) from 1 to 5 according to their likes/abilities (1 – they like doing/are good at the most; 5 – they like doing/are good at the least). The following diagram shows (Figure.1), that they can cope successfully with reading. Meanwhile, learning new vocabulary is not among their favourite activities.

Figure. 1. Students' strong points in learning English
Source: Authors own conception

Secondly, the students rated the English learning activities (reading, speaking, writing, listening, learning a new vocabulary) from 1 to 5 according to their dislikes/difficulties (1 –they do not like doing/have difficulties the most; 5 – they do not like doing/have difficulties the least). According to this diagram (Figure. 2), the students have difficulties mostly in speaking. Moreover, they think they do not perform well at listening and learning new vocabulary.
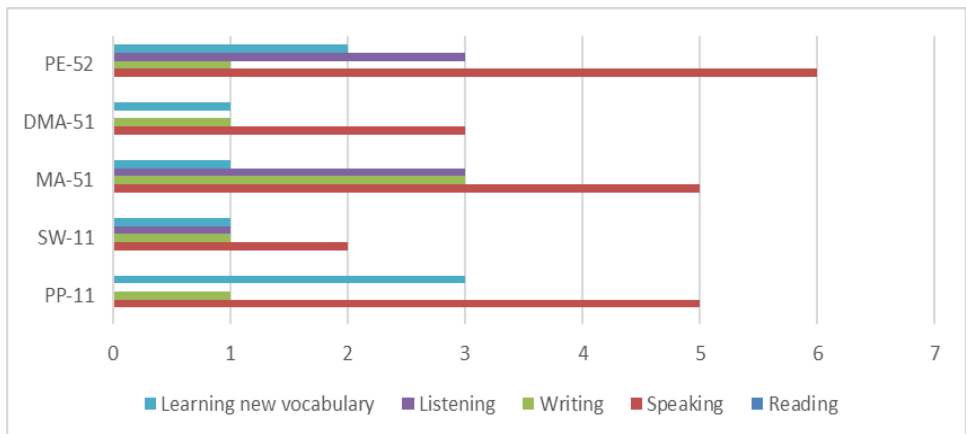
Figure. 2. Students' difficulties in learning English
Source: Authors own conception

The main reason of students' failure in comprehending and producing spoken language can be explained by their abilities to remember words and their inability to recall known words.

Finally, the students were asked to rate the following topics from 1 to 12 according to their preferences: Physical Appearance, Personality, Relationships, Town and City, Environment, Health, Sport, Music, Education, Work, Business, Holidays (1 – they are interested in the most; 12 – they are interested in the least). Pre-questionnaire results indicated the following differences in the topic preferences (Table 2).

Table 2. Students' English topics list
Source: Authors own conception

| Topic	PP-11	SW-11	MA-51	DMA-51	PE-52
Physical Appearance	66,7%	60%	50%	75%	50%
Personality	77,8%	60%	16,7%	100%	66,7%
Relationships	44,4%	40%	66,7%	75%	91,67%
Town and City	44, 4 %	-	33,3%	-	16,7%
Environment	33,3%	-	16,7%	-	16,7%
Health	44,4%	60%	33,3%	25%	33,3%
Sport	11,1%	40%	25%	-	16,7%
Music	-	20%	66,7%	75%	-
Education	33,3%	40%	33,3%	50%	33,3%
Work	11,1%	20%	25%	25%	41,67%
Business	11,1%	20%	33,3%	25%	33,3%
Holidays	22,2%	40%	100%	50%	83,3%

Vocabulary for IELTS as the targeted vocabulary learning application has been installed on students' smartphones and used during one academic session. Vocabulary for IELTS is free off line application, so the students were able to learn IELTS words without any internet connection. Despite the name, Vocabulary for IELTS is not an application that specializes in vocabulary. It can help learners with IELTS writing, reading, speaking and listening as well, but in our research we focus exclusively on the vocabulary section (Figure.3).
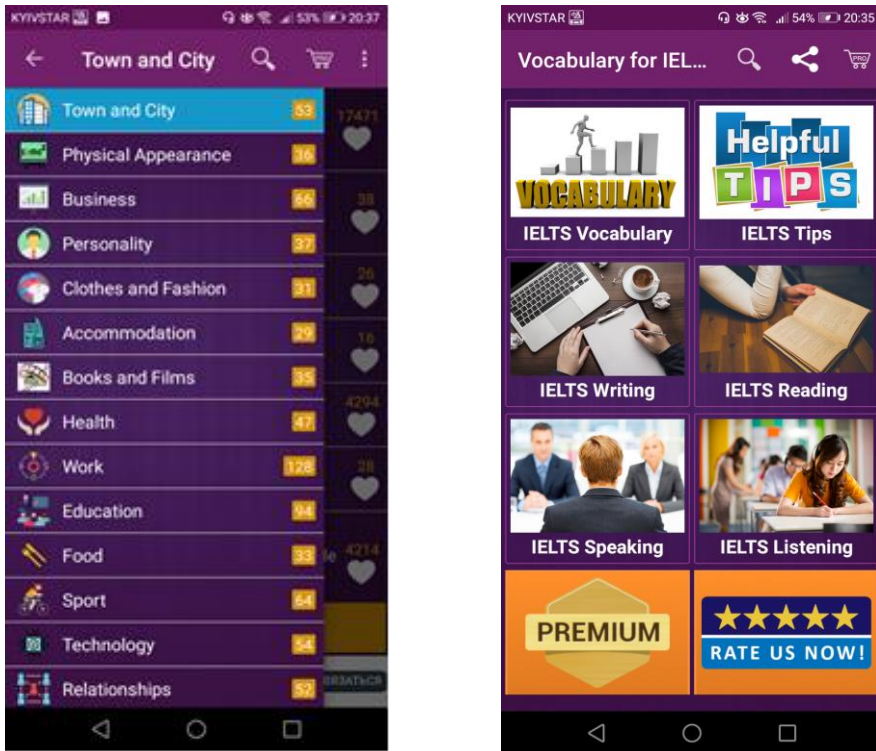
Figure. 3. Sections and topics of Vocabulary for IELTS mobile application
(screenshots of the author's smartphone)

The application operates only in English and does not rely on translation from one language to another. It has Academic and General IELTS vocabulary, organized in topics. Each topic includes words with their definitions and sound recordings. Moreover, students can record their audio and check their pronunciation. The majority of words is provided with their transcriptions and can be seen in a sentence or a longer text. After each word a student can make some notes, as well as practice on the word spelling. Each topic includes the vocabulary multiply test (Figure.4).
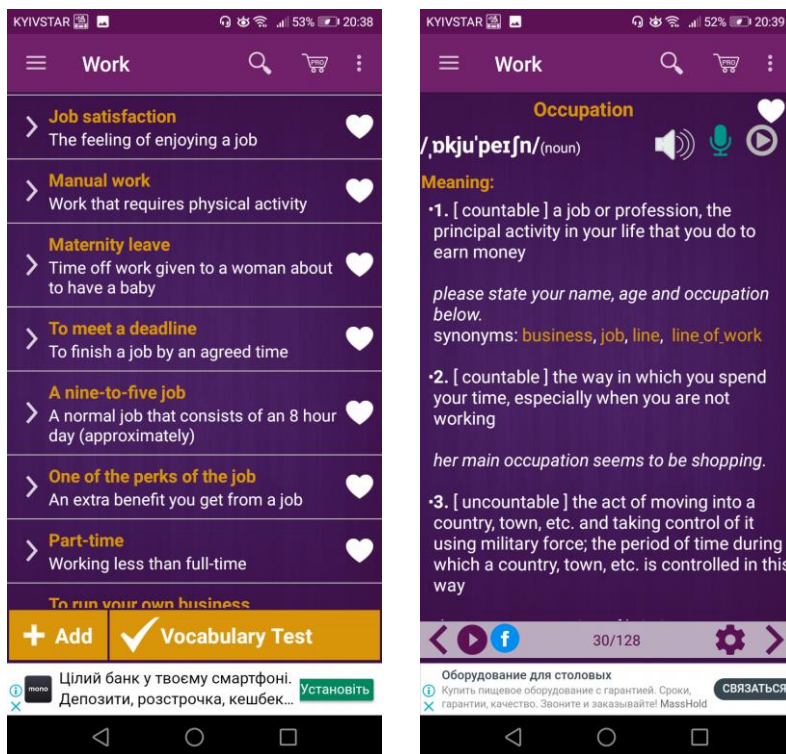
Figure. 4. Word list, definition and sound recordings (screenshots of the author's smartphone)

Vocabulary for IELTS mobile application has been practiced by the students as an on-line component of a blended course, originally designed for each group according to their interests. Since vocabulary development is a many-sided process which includes direct instructions combined with encouragement of independent learning strategies, the following classroom general strategies were provided: emphasizing learning vocabulary from context, using graphic organizers, emphasizing active processing by students.

An effective way to emphasize learning vocabulary from context is making knowledge checklist. In particular, during studying the vocabulary on the topic "Personality" students were suggested rate their familiarity with new words by using checklist such as the following (Table 3).

Table 3. Knowledge Rating Checklist on the topic "Personality"
Source: Authors own conception

Word	Can define	Have heard	Don't know
broad-minded		+	
easy-going	+		
self-assured		+	
thick-skinned		+	
Benevolent			+
Dedicated	+		
Discouraged		+	
Aggravate			+

These checklist encourages students' general awareness of words and help them pursue their own vocabulary development. However, using this strategy teacher should keep in mind that this is not always the efficient way to derive the meaning of new words.

Another technique that expands direct instructions of vocabulary is concept of definition maps. The graphic organizer illustrates the concept of pollution from the topic "Environment" (Figure. 5).
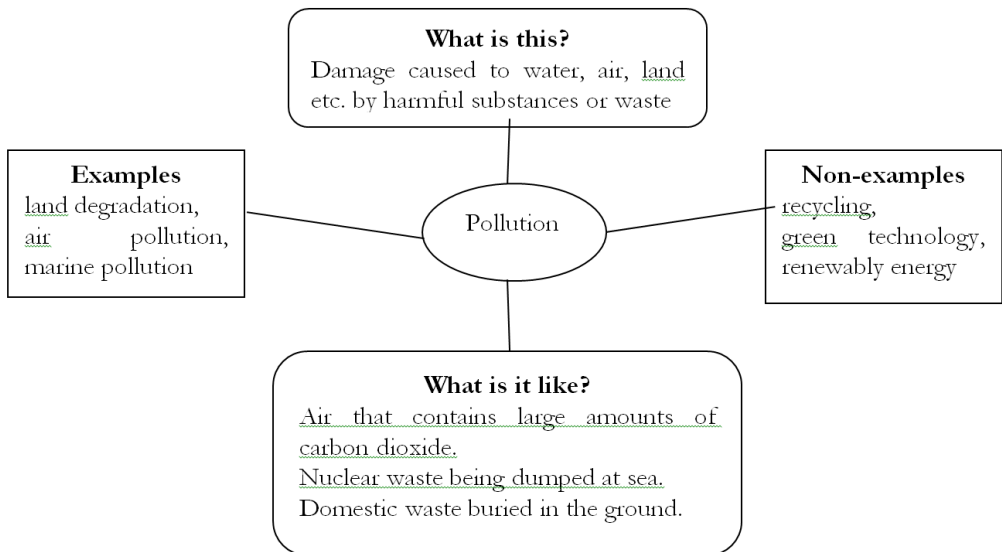
**Figure. 5.** Authors' concept of pollution

The graphic organizer includes a typical word definition from Vocabulary for IELTS mobile application (What is this?), description of the word (What is it like?), examples and non-examples. To complete definition maps learners use their prior knowledge, refer to context, use the definition from the mobile application and dictionaries. After finishing the map, they may write their own definitions and revise their definitions after looking them up.

Students benefit from using and applying the same word in different contexts several times. Since Vocabulary for IELTS mobile application has limited amount of texts in which the target vocabulary occurs, we employed the additional ways of encouraging students' active participation in their vocabulary learning. For instance, students were suggested produce antonyms and synonyms, rewrite definitions, create sentences or stories that contain the words. Each of these activities allows students connect new vocabulary to their prior knowledge as well as own the words for themselves.

After applying Vocabulary for IELTS mobile application during three months the students were asked to submit a post-questionnaire. The following questions were designed to determine the impact of Vocabulary for IELTS educational mobile application on students' English vocabulary development from their perspective, as well as to find out students' attitude towards mobile applications in learning:

1) What was something specific that you enjoyed about Vocabulary for IELTS mobile application?

2) What were some specific concerns or difficulties that you had during using this

vocabulary learning application?

3) Do you have any suggestions of Vocabulary for IELTS mobile application improvement?

4) Which of the following learning English vocabulary methods would you prefer: traditional which applies writing a list of vocabulary along with your native language equivalents or one that involves using mobile applications?

Post-questionnaire results showed that 100% of respondents would prefer practicing MALL to traditional ones. The following diagram illustrates the advantages of applying Vocabulary for IELTS mobile application in English vocabulary learning according to questionnaire participants' answers (Figure.7).
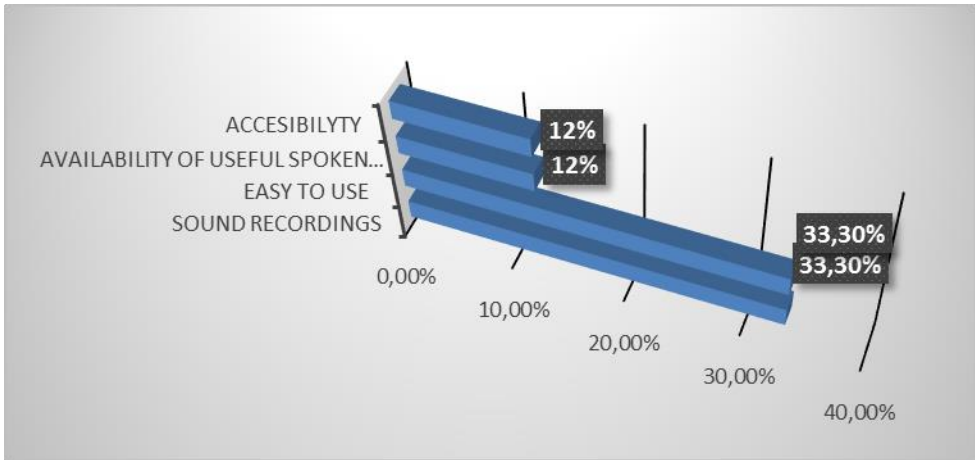
Figure. 7. The advantages of Vocabulary for IELTS mobile application
Source: Authors own conception

Along with the mobile application's positive effect on vocabulary development, post-questionnaire revealed that some improvements of the program could be done. This diagram shows students' suggestions for IELTS mobile application improvement (Figure.8).
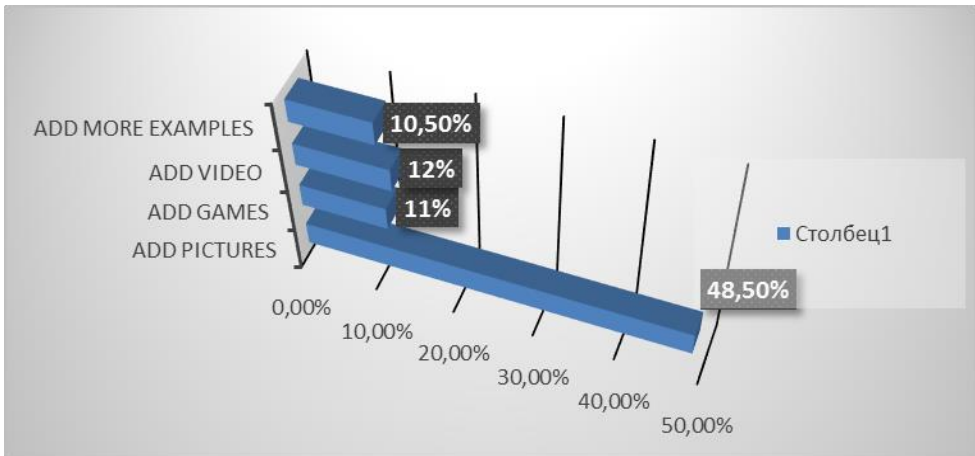
Figure. 8. Students' suggestions for IELTS mobile application improvement
Source: Authors own conception

5. Limitations of Study

It should be taken in consideration that our study has been limited by several factors, namely: Bachelor students of non-linguistic specialties, aged between 17 to 26, from Khmelnytskyi Humanitarian Pedagogical Academy in Khmelnytskyi. The research has been conducted during one term of 2018-2019 academic year. The research has covered only one section from Vocabulary for IELTS mobile application – vocabulary. The lexical material selection has been restricted by students' learning preferences.

6. Conclusions

Despite these limitations, we are able to put forward the following inferences:

1. In general, using Vocabulary for IELTS mobile application as a kind of language learning materials which are integrated with technology has received students' positive evaluation. The absolute majority of the questionnaire participants declared that they preferred using mobile applications due to its following advantages: free access, easy to use, flexibility to individual needs and learning styles, availability of useful spoken language and sound records. The results of our research has indicated IELTS mobile application's positive impact primarily on students' vocabulary. Most of the participants admitted their vocabulary expansion accomplished by the pronunciation improvement.

2. It should be also noted, that the students faced no difficulties using IELTS mobile application. However, some suggestions of the mobile application improvement were made. About a half of the respondents suggested including pictures. It has been also desirable to add games, more examples of using a word in different contexts, videos with native speakers applying a word in conversation.

3. Vocabulary for IELTS mobile application itself cannot fully supplement a teacher. To know a word, learners need to see how a word's context affects its meaning. A component of vocabulary learning via Vocabulary for IELTS mobile application which includes definitions and context should be extended by a teacher by giving some examples where a word is used in various ways. Regarding to exposures to a word in different contexts, Vocabulary for IELTS mobile application offers only vocabulary multiply test. So, a teacher should suggest students working with words in some additional ways. Each activity should give students a chance to construct their own vocabulary knowledge.

The findings from our research could be useful to FL teachers and researches for the examining the vocabulary development by means modern technologies. Further research conducted on Vocabulary for IELTS mobile application should involve a larger number of participants and could be focused on developing learners' listening, speaking, writing or reading skills.

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