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Teaching vocabulary through mobile applications: A methodological classification of vocabulary applications on Google Play

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Abstract

With the invention of smartphones, education has undergone a radical change in terms of its nature, techniques, principles and education policies. Smartphones are regarded as a distinctive milestone in the history of education. Mobile applications act as the main tool in the integration of smartphones into education. Among all mobile applications, the ones created for educational purposes, especially language instruction holds the lion's share in number. Similarly, among all language instruction applications, vocabulary applications significantly outnumber the others both in number and functionality. However, one of the main problems with vocabulary applications in application markets is that there is no exact classification of published applications and no set of methodological criteria in the publication process of applications, resulting in the emergence of a learning environment that lacks methodological background. The main objective of this study is to offer a methodological classification for the vocabulary applications in Google Play.

Keywords: Vocabulary, application, classification, MALL, Google Play.

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1. Introduction

The invention of computers, the emergence of Web 2.0 technology and the integration of smartphones into learning environment are the significant milestones in the evolution of education. As Niemi and Gooler (1987) stated, with the invention of computers, the spatial restrictions of education process were removed to an extent. After the emergence of Web 2.0 technology, education adopted an autonomous and individual identity and the integration of smartphones into learning and teaching process resulted in removing the borders in time and place by adding up a 'mobility' specification into characteristics of the learning process.

After 15 years that the first functional private computer was introduced, computers effect started to be seen in the education field. This integration ended up with a method that is called Computer Assisted Language Learning (CALL) originated by Levy (1997). CALL offered a rich learning and teaching atmosphere for both learners and teachers. After the emergence of Web 2.0 technology, the Internet turned out to be more user-oriented and this shift reflected education, too. Along with this reflection, new concepts in education such as autonomous learning, mobile learning, situated cognition, etc., started to gain importance. Also, teaching and learning process started to be scaffolded by taking these new concepts into consideration.

The last and one of the most significant impacts on education in recent period was the invention of smartphones and the integration of smartphones into education. Meeting all the functions of a computer, smartphones not only replaced computers in education but also created new terms, techniques and approaches. Mobile Assisted Language Learning (MALL) has taken the lead from CALL in a short period of time and regarded as one of the main concepts of education in recent years.

1.1. Problem

Vocabulary learning is one of the most significant processes of language instruction since it starts at the very beginning of language instruction. When it is about production in language learning, more specifically production in speaking and writing, vocabulary instruction acts as the main area to be worked on because vocabulary is the source of the production that is expected to take place. Both from the learners' perspective and teachers' perspective, vocabulary holds a significant place. From the learners' perspective, vocabulary learning is the first step of language learning process and classically vocabulary learning is the first motivation of beginner learners. From the teachers' perspective, vocabulary instruction prevails the whole teaching process and to be worked on in detail.

For such a significant process, many methods, techniques and approaches have been generated and the issue has been discussed by many scholars and researchers. Contemporarily, vocabulary instruction gained an autonomous characteristic that does not require a systematic guidance or supervision such as a teacher, a school or a course. Unlike main skills such as reading, writing, listening and speaking, learners feel more confident to learn vocabulary with their own efforts. The reflection of this tendency can be seen in application markets. Among the language learning applications, vocabulary learning applications outnumber others both in quantity and in download counts. Although there are many reasons behind this statistic, the contribution of the above-mentioned learner tendency to this situation cannot be ignored. However, this popularity of vocabulary apps and the autonomous tendency of learners caused a significant problem in vocabulary instruction. The tendency of autonomous vocabulary learning created a demand to vocabulary learning sources. In this context, this source can be regarded as the mobile applications. This demand was mainly met by people who have no methodological background knowledge on how to teach vocabulary but has certain skills to develop an application for smartphones. Another problem is in the requirements of application markets to publish an application. These requirements are mainly on technical issues rather than the content and the background of the applications. Thus, this means that any application

that meets the technical requirements of the application markets can be published. This methodologically unsupervised system resulted in the emergence of a learning environment that is far from language methodology.

1.2. Purpose of the study

The importance of teaching vocabulary in language teaching cannot be denied. In the context of the above-mentioned problems, the aim of this study is primarily to provide theoretical information on vocabulary instruction and mobile applications, then to provide information about the sample studies from the literature, and finally to introduce classification models for vocabulary applications on Google Play.

1.3. Significance of the study

Technology has been an influential factor as a tool for education for years but now it has turned out to be a factor that is completely changing the nature of education. One of the best supporting ideas for this assumption is application markets. Contemporarily, application markets have turned out to be a material environment in which users can download and use any type of educational apps. Methodologically, it is believed that the learning materials should be prepared by specialists (teachers, instructors or material developers) and be based on methodological principles. Application markets, which are the biggest and the most-used material environments now, do not have scientific concerns in the publication process of educational applications. This study aims to show the 'pseudo' nature of application markets.

1.4. Research questions

- This study aims to find out the answers to the following questions: What's the aspects of Google Play as a material environment?
- How can the vocabulary apps be classified methodologically in Google Play?

1.5. Limitations

This study aims to offer a classification to vocabulary apps in Google Play. The first limitation of the study is that it only takes the apps in Google Play into consideration. Also, another limitation is the statistics given such as the number of apps, download counts and publication policy of Google Play belongs to the date of the study.

2. Vocabulary teaching

2.1. The nature of vocabulary teaching

In English language teaching (ELT), vocabulary instruction has a special place and all methods or approaches develop special principles or strategies on how to teach vocabulary. Every method has its own perspective on vocabulary instruction. The importance of vocabulary changed from period to period in ELT history. In traditional methods, vocabulary had a significant position, but grammar instruction dominated the vocabulary instruction. With contemporary methods, grammar instruction started to lose its effect and vocabulary is emphasised over grammar. Vocabulary started to be thought as a prerequisite of oral production. As Wilkins (1972) stated, 'Without grammar very little can be conveyed, without vocabulary nothing can be conveyed'.

Vocabulary learning is a cognitive process that relies on cognitive and metacognitive skills along with appealing both conscious and subconscious brain. It is far more complicated than it is thought to be. The basic principle of vocabulary learning is moving the learnt words from short-term memory to long-term memory using special cognitive techniques. In this process, various factors such as teaching techniques, individual differences, motivation and anxiety level have a positive and negative effect on vocabulary teaching.

2.2. The role of vocabulary in EFL

Vocabulary instruction is one of the most important components of EFL. According to Barcroft (2004), vocabulary acquisition can be accepted as a core component of second language acquisition and claims that studies on vocabulary instruction have been on rise in recent years. Vocabulary knowledge has a significant role in four skills: speaking, writing, reading and listening. In productive skills, vocabulary is essential in production and in receptive skills vocabulary is needed to help learners comprehend the input. In the early period of language instruction, grammar instruction was in the core of instruction but with the emergence of contemporary methods, communicative function of language was accepted as the primary objective of language instruction. The reflection of this shift could be seen in vocabulary instruction. When grammar instruction was on the basis, vocabulary was neglected. After communicative methods, vocabulary was emphasised over grammar. Krashen (1989) regards vocabulary as a significant part of language instruction and supports this idea with an observation that learners carry dictionaries with them, not grammar books. Also, Krashen's (1985) input hypothesis proves the importance of vocabulary knowledge in making the input comprehensible. According to this hypothesis, for a successful language acquisition, input should be made comprehensible. In the attempt of making input comprehensible, vocabulary knowledge plays a crucial role by helping learners recall, interpret and infer the input.

2.3. Methodological perspective on vocabulary instruction

From the beginning of language instruction, every method or approach specified principles for vocabulary instruction. In some methods, the importance of vocabulary is praised and in some methods, vocabulary is kept minimal. The perspective of methodologies to vocabulary instruction is as follows (Larsen-Freeman & Anderson, 2013). Since the main objective of grammar translation method (GTM) is being able to read in the target language and translation is a significant technique, vocabulary is emphasised. Vocabulary is mainly introduced by bilingual word lists and memorising the literal meanings of words is the main technique in GTM. Direct Method rejects the notion of literal vocabulary learning and claims that learning vocabulary means learning in a context which can be regarded as contextual vocabulary instruction. Audio-lingual method (ALM) adopts the principles of behaviourism and regards learning process as a habit formation by using specific drills. ALM emphasises structures over vocabulary and vocabulary is presented in dialogues. Silent way reacts ALM's behaviourism and highlights linguistic structures and pronunciation. Vocabulary is restricted at the beginning level. The ultimate aim of total physical response (TPR) is helping learners communicate in the target language by blending cognitive and kinaesthetic nature of learning. Using imperatives is the main technique of TPR and vocabulary is mainly presented by imperatives. Rather than memorisation of the words, TPR focuses on the learning of chunks that are activated with actions. In community language learning (CLL), unlike other contemporary methods, vocabulary is introduced with the bilingual word list. Also, rather than word instruction, CLL praises chunk instruction that the learners are familiar with. Suggestopedia is another technique that introduces vocabulary in texts by highlighting the important words and presenting the native language equivalents of the words. Since translation is an important technique in Suggestopedia and meaning is mainly made clear by translation, vocabulary has a significant role in this method. Communicative language teaching (CLT) focuses on communication and regards vocabulary knowledge as an important source of a successful

communication. CLT does not have a fixed vocabulary syllabus but it involves in line with learners' interests. Content-based instruction (CBI) is one of the methods that emphasises the vocabulary instruction most. Since CBI focuses on learners' needs and interests, vocabulary is formed specifically for each target group or learner. The Lexical Approach solely focuses on vocabulary instruction. Lewis and Gough (1997) reject the notion that language is composed of grammar and vocabulary but multi-word chunks that are lexical phrases such as phrasal verbs, compound words, collocations and idiomatic expressions. Here, the point is the teaching of lexical chunks rather than the words alone. The Contextual Approach opposed traditional techniques of literal vocabulary learning via memorisation and praised the contextual learning of words. Cunningham, Cunningham and Arthur (1981) define contextual approach as the attempt to be able to infer the meaning of a word using the contextual clues in a text.

As can be seen, vocabulary instruction has an important place in all of the theories or approaches and regarded as a significant factor affecting the whole language learning process.

3. Mobile applications

3.1. Mobile-assisted language learning

Language education has undergone major periods both theoretically and technically. Theoretically, behaviourism, cognitivism and constructivism had a deep influence on language instruction and resulted in the emergence of new principles, techniques, approaches and new perceptions. Technically, the invention of computers and mobile phones, particularly smartphones, were significant milestones in the evolution of language instruction. The invention of computers reflected language instruction as CALL and MALL emerged as a result of Mobile Phones. Before smartphones, MALL was limited to texting or calling but after the invention of smartphones, which can function as computer, MALL became more sophisticated. Valarmathi (2011) defines MALL as an approach to language learning that is assisted or enhanced through the use of mobile phones. Miangah and Nezarat (2012) expand the scope of MALL and add new attributes to MALL such as personalised, spontaneous, informal and ubiquitous. Also, Czerska-Andrzejewska (2016) stresses the borderless nature of MALL in terms of time and place. Along with these definitions, it can be said that MALL is a contemporary approach to language learning that uses mobile phones (currently smartphones) as the main tool to enhance and assist language learning or teaching process by creating a personalised, spontaneous and ubiquitous learning environment. With these attributes, MALL influenced the characteristic of teaching and learning process and four main skills which are speaking, reading, listening and writing. Among all, it can be said that MALL influenced the vocabulary instruction most. Vocabulary instruction, historically, has two major periods: the literal period and contextual period. Methodologically, contextual instruction has always been praised over literal instruction because it is believed that literal instruction does not promise a permanent learning. With contemporary approaches and methods, contextual instruction dominated the literal instruction. Surprisingly, MALL started to promote the literal instruction as a result of the literal applications provided in application stores. This can be accepted as the inevitable and negative aspect of MALL on language instruction.

3.2. Google Play as a material environment

Google Play (play.google.com) is the official application platform for mobile devices which run Android Operating System offering free and commercial applications to users. The platform is open to anyone who owns an Android OS device. Launched in October 2008, Google Play reached one million apps in July 2013 and by September 2017 there are around 3,300.000 apps in Google Play (Statista, 2017b). Similarly, the total download count of apps in Google Play is 65 billion by May 2016 (Statista, 2017a). These statistics show that there is a sharp increase in the number of apps and the download

count of apps, according to the use of smartphones. Among these apps, educational apps have a big portion. The study of Olmstead and Atkinson (2017) shows that in 2014 educational apps have the highest percentage (8.06%—83,885apps) among all other apps. Although games category has taken the lead in recent years, the number of educational apps gradually increased through years. It can be inferred that the majority of Android device owners refer Google Play as for educational purposes. Accordingly, Google Play can be regarded as a contemporary educational material environment which consists of plenty of educational materials. The problem with this material environment is that there is no methodological concern about released applications on Google Play. The content of the released applications is not supervised methodologically or the content restrictions of apps to be released in Google Play do not include methodological criteria. Anybody who is technically skilful to create a mobile app can release an educational app on Google Play. In this context, Google Play can be regarded as a pseudo-material environment that lacks methodological background.

4. Literature review

Vocabulary instruction has always been one of the core research fields in language learning. Many researchers attempted to make research on how to teach or learn vocabulary easily, the problems in vocabulary learning or the factors that affect vocabulary instruction. Lately, the effectiveness of mobile applications on vocabulary learning or teaching has been a favourable topic for researchers. Many researchers investigated how effective mobile applications are in learning vocabulary (Nisbet & Austin, 2013; Steel, 2012; Underwood, Luckin & Winters, 2014; Wang, Teng & Chen, 2015). However, there are very few studies that investigate the structure of Google Play or other application platforms. Holzer and Ondrus (2011) make a detailed research on mobile application markets from a developer's perspective and draw a significant conclusion on the structure of application platforms. They classify application platforms under four main titles as technology, portal, devices and integration, and they offer sub-divisions for each title; open or closed for technology title, centralised or decentralised for technology title, uniformity or variety for devices title and full, portal or device for integration title. Also, they explain the trends and implications on application portals. While this study approaches application portal's structure as a whole, the study by Viennot, Garcia and Nieh (2014) focuses on the applications on Google Play. With a web crawler that they created specifically for Google Play, they indexed and analysed over 1,100,000 applications on a daily basis. Their study indicates that education apps are the third most downloaded apps after personalisation and entertainment categories with a total app count of 89,475. Finally, the study by Cherner, Dix and Lee (2014) attempts to categorise the educational apps considering their purpose, content and value. Along with this consideration, they classify educational mobile apps into four major categories: Skill-based Apps, Content-based Apps, Function-based Apps and Educational Misfits. Also, they create sub-divisions for each category and offer specific app names for each sub-division and they draw significant implications of this classification. It can clearly be seen that mobile application platforms require a more methodological classification system that will appeal to every user.

5. Classification of mobile applications on Google Play

It is obvious that Google Play needs a more systematic categorisation system. For instance, under education category the only sub-categories are free and paid application categories. In this system, it is fairly difficult to find out the results of one specific sub-category of education (language, maths, chemistry, etc.) on one screen. The keyword search may not be functional all time because when you type the keyword 'language' and hit the search button, Google Play yields all results that are related the word 'language' including games, dictionaries and translation applications and users end up swamping with finding the appropriate application for themselves. This paper attempts to offer a classification for vocabulary apps on Google Play. As mentioned above, vocabulary apps outnumber the other language learning apps on Google Play. Currently, there is no specified category for

vocabulary apps on Google Play and when the keyword 'vocabulary' is searched, the only filters are free, paid and user ratings. When the structure and nature of the vocabulary apps on Google Play are examined, it can clearly be seen that functionally there are two types of vocabulary apps, the ones that intend to teach vocabulary literally and the ones that intend to teach vocabulary contextually. Accordingly, 'literal' and 'contextual' discrimination of vocabulary apps would be inclusive, functional and methodologic classification. Literal vocabulary apps focus on simply the presentation of native language equivalents of target vocabulary with the help of bilingual word lists or flashcards. Contextual vocabulary apps intend to teach words' dynamic meaning in a context referring cognitive and meta-cognitive skills.

Table 1. The number of mobile apps that intend to teach vocabulary contextually and literally and their download counts on Google Play (play.google.com, 2017)

16.08.2017	Number	Downloads
Number of apps that teach vocabulary literally on Google Play	141	40.618.000
Number of apps that teach vocabulary contextually on Google Play	51	8.515.000

As shown in Table 1, while there are 141 literal vocabulary apps on Google Play, only 51 of 192 are contextual vocabulary apps. Also, when the download counts are compared, the download count of literal apps is five times higher than contextual apps (Celik, 2018). It can be inferred that there is a high tendency on literal vocabulary apps on Google Play. Rather than using a traditional categorisation (download count, rating, age group, etc.), making a methodological categorisation makes more sense in terms of educational apps because relying on methodological principles in material selection is a crucial issue in education policies. Thus, for vocabulary applications, main categories can be defined as 'literal' and 'contextual' applications.

6. Conclusion & recommendations

This paper aimed to bring a methodological categorisation for vocabulary apps on Google Play. To do so, all vocabulary apps on Google Play are examined thoroughly considering the content, underlying principles and functions of the applications. As a result, two main categories 'literal' and 'contextual' are found to be methodologically functional. This paper also highlighted another reality that there is a high tendency on literal vocabulary apps on Google Play. Methodologically, it is believed that contextual vocabulary instruction is praised over literal vocabulary instruction because it grants permanent learning. But when the download counts and the number of app are taken into consideration, literal apps are preferred by the users (learners). As mentioned above, Google Play is the biggest and the most used language material environment, but it lacks methodological background which makes Google Play a pseudo-material environment. It promotes the rise of literal apps which doesn't grant permanent learning and also promotes memorisation technique which is methodologically not favoured. This process may yield harmful results for the nature of learning and teaching process. Consequently, in can be claimed that there is an urgent need for a methodological touch in Google Play.

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