International Journal of Social Science And Human Research

ISSN(print): 2644-0679, ISSN(online): 2644-0695

Volume 05 Issue 01 January 2022

DOI: 10.47191/ijsshr/v5-i1-30, Impact factor-5.586

Page No: 216-225

Learning Vocabulary in the App Store by EFL College Students

Reima Al-Jarf, Ph.D.
King Saud University, Riyadh, Saudi Arabia
ORCID ID: 0000-0002-6255-1305

ABSTRACT*:* This article gives examples of mobile vocabulary apps (MVAs) that can be downloaded from the Google Play or Apple App Stores and used as extension activities or a supplement to in-class vocabulary instruction in EFL such as English word study, advanced English vocabulary, test your English vocabulary, English vocabulary level I, II & III, 1000 TOEFL words and others. There are also mobile dictionary apps, graded vocabulary tests for assessing vocabulary knowledge and skills and vocabulary trainers for the TOEFL and IELTS test vocabulary. In addition, the article gives guidelines for searching for, selecting, and using MVAs, the phases of teaching with MVAs and the instructor's role. The instructor can help the students find and download relevant MVAs, give pre-questions, and follow the students up to make sure they are making the best use of them. Recommendations for using MVAs with EFL freshman students are given.

KEYWORDS: mobile apps, vocabulary apps, vocabulary acquisition, vocabulary learning, mobile learning

I. INTRODUCTION

Many young people spend a great deal of time interacting with their mobile devices. Smart phones feature an Android and Apple App Stores which have thousands of applications in a variety of subject areas and categories including language learning. Students of all ages and areas of specialties can use mobile apps to develop their listening and speaking skills (Al-Jarf, 2021f; Al-Jarf, 2021i; Al-Jarf, 2020b; Al-Jarf, 2012a). They can use reading and literature apps (Al-Jarf, 2021b; Al-Jarf, 2016; Al-Jarf, 2015; Al-Jarf, 2012b); writing and academic reading apps (Krause, 2018); dictionary skills apps (Al-Jarf, 2021g; Al-Jarf, 2020a); standardized test apps (Al-Jarf, 2021h); and general English language learning apps (Al-Jarf, 2020c; Cheng & Kim, 2019; Mindog, 2016). Children can use English an Arabic language learning apps on their iPads, and tablets (Al-Jarf, 2021c; Al-Jarf, 2021d). Similarly, special needs college students can use mobile Apps to learn English (Al-Jarf, 2021a).

In addition, the Android and Apple App Stores have a multitude of vocabulary applications that English as a Foreign Language (EFL) students of different proficiency levels can download and use for developing their vocabulary skills through mobile learning. A review of the literature has revealed numerous studies that utilized a variety of game-based vocabulary learning apps (Li, 2021; Redd & Schmidt-Crawford, 2011); a self-developed game-based smartphone app called "Saving Alice" for developing the TOEIC standardized test vocabulary and spelling (Yang, Wu & Wu, 2020); a *VocabularySpellingCity* app that provides users with activities to learn vocabulary, spelling, phonics, and writing (Krause, 2018); and *MEVLA-GF*, a novel mobile English vocabulary learning app designed with game-related functions (Chen, Liu & Huang, 2019). The researchers found that students who used those game-base vocabulary apps benefited more in vocabulary achievement, motivation, self-confidence, and made greater improvement in vocabulary retention. Game-based vocabulary learning apps enhanced students' vocabulary learning outcomes and vocabulary learning performance. The frequency of using game-based mobile apps correlated with vocabulary learning outcomes. The type of techniques in using the app showed that the "process of elimination" and "roots/word parts" are tools for helping students in mastering their vocabulary.

More studies in the literature designed special vocabulary apps for specific groups of primary and college students. In Taiwan, Chen, Chen and Yang (2019) developed an English vocabulary learning app with a self-regulated learning mechanism *(EVLAPP-SRLM)* to help 5th grade students improve their self-regulated learning abilities, in order to improve their learning outcomes and motivation in the mobile learning environment. Students who used the app exhibited significantly better learning performance and motivation than those who did not. In Selangor, Malaysia, Jalaluddin, Darmi, and Ismail (2021) analysed the effect of using Mobile Augmented Visual Reality on English vocabulary development of low-achieving primary school students enrolled in the LINUS program. Results of the British Picture Vocabulary Scale II given to the students revealed an increase in their scores and that the Mobile Augmented Visual Reality materials could be used as an interactive tool in learning EFL vocabulary by low achieving students. In a third study, at risk learning disabled third-grade English language learners practiced 36 vocabulary words selected from the third

grade Dolch Word List using the iPad application *Learning Touch, First Sight Words Pro*. The students' word recognition, word meaning, and word application scores increased. Using the iPad and iPad app helped the students learn English vocabulary (Xin & Affrunti, 2019).

At the university level, Makoe and Thuli (2018) designed and implemented a vocabulary learning mobile app named *VocUp* to enhance the English vocabulary teaching and learning in Open Distance Learning in South Africa. At Zayed University in the UAE, Bowles (2017) reported that the majority of female Emirati students had an insufficient receptive vocabulary size for beginning an undergraduate degree course taught in English. So, the researcher developed and customised a mobile app to address students' weaknesses and to help them reach the required vocabulary learning goal. Freshman students from two English conversation classes in a private university in central Taiwan reported that the *MEILA (My English Idiom Learning Assistant*), which is an animation, video-based-app developed by Wu, Lin, Marek, and Ou Yang (2021) significantly enhanced the learning outcomes of English idioms. The sequential analysis used showed English instructors an example of monitoring learning behaviors to improve teaching materials and methods. In Hong Kong, Kohnke (2020) and Kohnke and Ting (2021) designed a gamified, discipline-specific vocabulary learning app called *"Books vs Brains@PolyU* with 20 levels to help undergraduate students at an English-medium university improve their Second language (L2) receptive vocabulary. The students found it useful and motivating, and it helped busy undergraduates build and expand their knowledge of discipline-specific vocabulary. The students preferred mobile apps with gamified features.

Some other studies in the literature compared mobile vocabulary learning apps and other modes of vocabulary learning. A study by Lin and Lin (2019) reviewed 33 studies to compare the benefits and limitations of mobile-assisted L2 vocabulary retention and short message services (SMS), multimedia message service (MMS), and mobile apps. The results showed a positive and large effect of mobile-assisted L2 word learning interventions. The SMS and MMS modes were more beneficial for L2 word retention than the mobile application mode. In Turkey, EFL students at two state universities learned 40 collocations via the *CollocatApp* for 14 weeks, while the control group used worksheets. The post-test revealed a significant difference between the experimental and control groups in their receptive vocabulary knowledge. However, there was no difference between the two groups on the retention tests and no difference in the students' productive vocabulary knowledge. The researchers concluded that using mobile applications was an effective tool for improving receptive vocabulary knowledge for only short-term memory (Dagdeler, Konca, & Demiröz, 2020)

Further studies in the literature investigated the effects of using mobile vocabulary apps (MVAs) on developing students' vocabulary knowledge. EFL students at a state secondary school in Valencia, Spain in their A2 level of the Common European Framework of Reference for Languages (CEFR) used the mobile version of *Quizlet* to learn English vocabulary for a year. The findings proved that EFL students' vocabulary knowledge improved significantly as a result of using Quizlet for EFL vocabulary acquisition (Montaner-Villalba, 2019). Additionally, use of language learning apps as a didactic tool for vocabulary building in an EFL context for six-month fostered high school students' vocabulary building effectively (Guaqueta & Castro-Garces, 2018). Similarly, Computer Science students enrolled in English for Academic Purposes courses learnt specific academic English vocabulary from a mobile dictionary called *SPEARA*, that provided definitions and examples from authentic sources. The students' test scores, students' interview transcripts and essays revealed significant learning improvements in vocabulary knowledge. The students perceived leaning using mobile-assisted language learning (MALL) to be positive and rewarding (Simanjuntak, 2020).

Moreover, the literature showed that utilization of MVAs had positive effects on students' attitudes towards MVAs. For example, undergraduate engineering students at the South Westphalia University of Applied Sciences in Germany were interested in using Quizlet in language learning and found it a very efficient, convenient, and enjoyable learning method. It increased their motivation (Davie & Hilber, 2015). In Cheng and Kim's (2019 study, college students in Korea and China reported that mobile apps were effective for practicing pronunciation, vocabulary, listening, and reading skills. However, Chinese students had more positive attitudes because of convenience, ubiquity, and rich resources. In Iran, EFL students had positive attitudes towards the Vocabulary Flashcards 2016 app which they used for a month. The app had a positive impact on the students' vocabulary acquisition and provided them with instruction that focused on form and meaning (Ebadi & Bashiri, 2018). Chinese university EFL learners' who used a self-developed mobile app learnt more words, could retain more words. The mobile app was convenient and easy to use for vocabulary learning and was very useful and effective in their vocabulary learning and retention. They enjoyed using it in learning and remembering EFL vocabulary (Ma &Yodkamlue, 2019). MVAs helped students prepare for their final achievement test. They could learn anywhere and at any time. They appreciated the corrective feedback they were receiving and would opt for the implementation of the mobile app in other courses taught at the college (Klimova & Polakova, 2020).

Regarding the weaknesses of mobile vocabulary learning apps, Northrop and Andrei (2019) evaluated the instructional practices, types of instructional activities, and technology features of 53 vocabulary apps for English language learning and indicated that the overall app quality was poor. Visual features and the automatic translation to other languages that EFL students find beneficial were absent. In Simanjuntak's (2020) study, the students reported that MALL could not replace human interactions which could enrich their understanding and allow exchange of ideas. Iranian EFL students were dissatisfied with the Vocabulary Flashcards 2016 App's

levels and authenticity (Ebadi & Bashiri, 2018). Likewise, the students did not find MVAs very supportive in terms of communication performance. They did not find the teachers' notifications encouraging and did not use the pronunciation support much. The apps presented the words and phrases without context, and all the items were not tested in the final credit test (Klimova & Polakova, 2020). For college students in Korea and China, lack of communication and feedback was the main problem in using the vocabulary apps (Cheng & Kim, 2019).

Although mobile apps, in general, and vocabulary learning apps, in particular, are used in numerous countries to enrich students' vocabulary acquisition, there is lack of studies in Saudi Arabia that investigate the utilization of MVAs in first and second language learning at the primary, secondary and college levels. Furthermore, although many students own a smart phone, and are familiar with many mobile applications such as games, sports. and movies, they are nor familiar with language learning apps and teachers only focus on the assigned textbook and do not integrate mobile apps in vocabulary learning. Many freshman students majoring in languages, translation, linguistics, or literature find English idioms, collocations, word formation, grapheme-phoneme correspondences and others challenging to acquire and find the material and exercise in their textbooks insufficient for mastering English vocabulary. For these reasons, this study aims to show the following: (i) examples of MVAs that can be downloaded from the Google Play and/or Apple App Stores especially those that target specific vocabulary skills and specialized terminology; (ii) how to search for and select MVAs; (iii) advantages of using MVAs; (iv) criteria for selecting MVAs; (v) instructional stages with MVAs; and (vi) the instructor's role.

The current study is significant as MVAs provide students and instructors in language, translation, linguistics, and literature departments with an extra tool for vocabulary instruction that can encourage and enhance students' vocabulary skill in English. The study will show them how to locate mobile vocabulary apps, how MVAs can be integrated in EFL vocabulary instruction for freshman students, examples of mobile vocabulary app and activities used with selected MVAs and will introduce them to an instructional strategy with MVAs, in addition to the instructor's role in the mobile-assisted language learning environment.

II. WHY USE MOBILE VOCABULARY APPS

MVAs can be used as extension activities or as a supplement to in-class vocabulary instruction in language, translation, linguistics, and literature departments in Saudi Arabia. They are free, easy and quick to download, update and delete. Students can use their MVAs anywhere, anytime and as many times as they need. They can enrich their vocabulary repertoire as some MVAs contain thousands of words that help in improving the students' vocabulary. They can help the students prepare for the IELTS, TOEFL SAT, TOEIC and GRE vocabulary subtests. They target different proficiency levels: beginner, intermediate and advanced. They allow students to take advantage of short amounts of free time available to them during planned study sessions, during the day or week. They provide word meanings with examples. They help the students learn faster and remember more in a shorter time. Vocabulary items that are important or difficult to remember can be bookmarked and revised when needed. MVAs use different learning modes: *Study, Slide show, Matching, Memorize and Quiz. With the "Play" mode, in addition to look and read, look and listen, listen, and write, English Listen, read, and see*! the students can listen and learn, without having to look at the screen. The students can browse vocabulary items alphabetically, sequentially, or randomly. They can create and share MVAs on the go using the *Vocabulary Tutor*, free. They are a very effective self-testing technique. They simplify the task of preparing for the vocabulary section of any competitive exams. Different MVAs use different testing modes as well: Multiple choice tests, Group choice test and Word choice test. MVAs have customizable features, and the students can even create their own using some software and use them online or offline (See examples in the Appendix).

III. SEARCHING FOR APPS

The instructor may search the Google Play and/or Apple App Stores for English vocabulary apps targeting general or specific vocabulary skills by selecting specific search terms such as *"English vocabulary"; "homonyms"; "plurals"; "English idioms"; English collocations"; "IELTS vocabulary"; "SAT vocabulary"; TOEFL vocabulary"; "GRE vocabulary", "GRE wordlist"; "TOEFL vocabulary"; "SAT vocabulary 1000"; "TOEFL Essential Words", "prefixes and suffixes"* and so on, enclosing the search term in quotation marks, and using Boolean operators (&, or, not). It is important to add the word *English* to get more accurate search results and to avoid getting apps in other languages. Once a search term is entered in the search box, Google Play will suggest related search terms. The students can also locate, select, and suggest MVAs that are of interest to them.

Examples of MVAs are: *Idioms & Phrases-IP001 (a Vocabulary application with 4000⁺ difficult English words*); *1000 words; Abbreviations; Adjective & Adverbs; Phrasal verbs; Plurals, Collective Nouns; Prefixes & Suffixes; Sight Words; Synonyms; Thesaurus; Specialized Vocabulary (medical terms, business, accounting, insurance, economics, law, computer, pharmacy, physics, psychology, engineering, birds and insects, trees & flowers, cars, houses, cars, traffic, schools and universities, art & culture, weather, real estate); Vocabulary Quizzes and tests* such as *SAT, GRE, SAT, TOEIC, IELTS and TOEFL Vocabulary; GRE Vocabulary with WIDGET, High Frequency Words, SAT Word a Day prep & widget; Vocabulary Games; Vocabulary Trainer; Vocabulary Notebook* and others (See examples in the Appendix).

IV. CRITERIA FOR SELECTING APPS

The MVAs selected should be related to the subskill or topic the students are working on in class and in the textbook or they any vocabulary subskill they are interested in. They should focus on one topic or skill at a time. The MVAs chosen should provide definitions, explanations, examples, supplementary exercises for extra practice, instant feedback and should contain enough material, items, and exercises for practice. Take into consideration the MVA's material difficulty level, degree of familiarity of the content, complexity, and content details. Post several MVAs that target a particular skill to accommodate the students' different proficiency levels, learning styles, needs and interests of the students. Look at the MVA star ratings. Read the users' reviews and comments. Try a number of MVAs targeting a particular subskill or topic before deciding which ones are useful and assigning them to the students. Select those that are free and easy to use.

V. CONTEXT

Female students majoring in translation at the College of Languages and Translation, King Saud University, Saudi Arabia, take intensive English language courses in the first four semesters of the translation program, before taking specialized translation, interpreting and linguistics courses in semesters 5-10. In the first semester of college, freshman students take the following English language courses: Listening I (3 hrs a week), Speaking I (3 hrs), Reading I (4 hrs), Writing I (4 hrs), Grammar I (2 hrs), and Vocabulary Building I (3 hrs) courses. All of the students are Saudi, and they are all Arabic native speakers. Their age ranges between 17-19.

VI. CURRICULUM, MATERIALS AND TASKS

The textbook used in the Vocabulary I course is Stuart Redman's (2017) *"Vocabulary in Use: Pre-intermediate and Intermediate.* The textbook consists of 100 lessons but only 50 lessons are usually covered in class over the whole semester (14 weeks or 42 hours). The lessons covered inclass are as follows: *classroom language, prefixes, noun suffixes, adjective suffixes, nouns and verbs with the same form, compound nouns and adjectives, uncountable nouns, plural noun, idioms and fixed expressions, collocations, preposition & noun, verbs and adjectives followed by prepositions, some functions, phrasal verbs (form, meaning, grammar and style), uses and expressions containing have, have got, make, do, take, give, keep, break, leave, see, catch, let, go, get, the senses, partitives, the physical world, animals and insects, countries, nationalities and languages, the place where you live, around the home, the body and what it can do, clothes, food, cooking and restaurants, jobs, in the office, computers and the internet, money, physical injuries, and global problems.*

The Vocabulary I course aims to develop freshman students' ability to do the following: *(i) Connect spoken phonemes with written graphemes; (ii) connect a word with its pronunciation; recognizing silent letter, hidden consonants, double letters, words with the same vowel but different pronunciation and words with different vowels but same pronunciation, syllabication and stress; (iii) spell words correctly: recognizing spelling changes and spelling variants; (iv) distinguishing parts of speech; (v) distinguish count/non-count; (vi) distinguish singular and plural forms; (vii) distinguish American vs. British usage; (viii) give word synonyms and antonyms; (ix) give the English and Arabic meanings; (x) understand and apply word formation in English: prefixes, suffixes, derivatives and compounds; (xi) understand idioms and collocations;* and *(xii) group words into families.*

VII. INSTRUCTIONAL STAGES WITH MOBILE VOCABULARY APPS

Instruction with MVAs goes through 3 phases: *Pre-Task Phase, Task Phase, Post-Task Phase*. In the *Pre-Task Phase***,** the instructor tells the students which MVAs they need to locate, download, and use. She demonstrates how to search the Google Play or Apple App Stores for MVAs targeting a specific vocabulary subskill or topic. She gives them an idea about the MVAs to be used. She posts sample MVAs on any Learning Management System (LMS) such as Blackboard, Zoom or Microsoft Teams, a blog, an online discussion forum, Telegram, Twitter, Facebook, WhatsApp, and others. She states the objective of using the MVAs, i.e., tells the students what they are going to do, study or practice. She tells whether they are going to use the MVAs individually, in pairs or in small groups. She gives pre-questions that help the students focus on pronunciation, prefixes and suffixes, singular and plural forms, idioms…etc. She gives clear, specific, and detailed instructions on how to use an MVA and how a particular task should be performed. She tells the students what is expected of them, how many MVAs they need to complete and sets a time limit or deadline for completing the assigned MVAs (See examples in the Appendix).

In the *Task Phase*, the students work with the MVAs on their smart phones, tablet, or laptop at home or in class. They work on MVAs individually, in pairs or small groups. They post queries, comments, and evaluations of the MVAs used on the LMS or a social media network selected by the instructor. The instructor answers students' questions, provides guidance and supervision, and helps with difficulties. She sets a time limit or deadline for completing a task.

In the *Post Task Phase*, the instructor gives feedback and comments on the students' performance. She encourages the students to use the MVAs and gives credit for that. The students can correct their classmates and make comments on each other's responses. They keep a log of the mobile MVAs they have completed with their evaluation of and comments on each.

VIII. THE INSTRUCTOR'S ROLE

The instructor serves as a facilitator. She helps the students in locating and downloading relevant MVAs that meet the students' needs and purposes and match their proficiency level. She encourages the students to fully engage in the MVAs activities. She follows the students up to make sure they are making the best use of the MVAs. She encourages the students to locate and select MVAs of interest to them. She gives extra credit for using MVAs depending on how many each student has completed. The MVAs' material may be included on vocabulary interm tests and final exam to motivate the students to take the MVA activities seriously.

IX. RECOMMENDATIONS

EFL instructors teaching vocabulary to college students in Saudi Arabia should exploit latest advancements in MALL to help EFL/ESL students develop their vocabulary knowledge and vocabulary skills in English. MVAs allow the students to use their visual and auditory senses to learn difficult vocabulary. Instructors should always take into consideration that MVAs do not teach by themselves, and their use does not guarantee vocabulary acquisition and the automatic learning and recall of English vocabulary. EFL students should be required to actively engage in and respond to MVA activities. They should be supervised by the instructor and should receive feedback, guidance, and encouragement. The students may use MVAs of their choice according to their needs. Those who do not own a mobile phone may use vocabulary websites on Google on their laptop or desktop computer. English MVAs selected should inspire the students' learning interest and foster their autonomy.

To make the best use of MVAs, Chien (2013) recommended that different elements of word knowledge be integrated with online word activity designs. The students should receive direct instruction on specific technical terms and should be aware of word selection. The students may create their own vocabulary exercises using websites such as *Quizlet* to make vocabulary and content word learning more effective. Ebadi and Bashiri (2018) added that students' localized needs should be used as guidelines for customizing vocabulary mobile apps created by the instructor or the students themselves. Additionally, Chen, Chen and Yang (2019) advised that the students should be able to engage in self-regulated learning as it significantly affects their performance while autonomously learning English vocabulary using MVAs.

Moreover, the MVAs selected should enable the students to connect the printed form of the word (silent letters, hidden sounds, double letters and homophones) with its pronunciation, with its part of speech, singular or plural form, synonym or antonym, English and Arabic meanings, usage, component parts, and previously encountered words. They should also help the students acquire categorization, association, and visualization skills and use mnemonic devices in vocabulary learning (Al-Jarf, 2006). The students can use MVAs that focus on the following tasks: pre- and post-instruction self-assessment, production tasks, a daily vocabulary lesson, vocabulary remedial tasks, tasks that integrate vocabulary with the listening, reading, writing and grammar) skills, self-improvement tasks, and vocabulary study skills. MVAs that focus on those tasks can be posted on an Online Management Systems or social media network page for further discussions and feedback (Al-Jarf, 2007).

Finally, students' satisfaction, perceived difficulty, and level of control over MVAs affect their vocabulary acquisition. Students may be inclined to use different MVAs (digital, ready-made, self-created, tablet or m-learning) based on their perceptions of their difficulty level, ease of use, content coverage and so on. MVAs should be available in a variety of formats (Sage, Krebs & Grove, 2019). The utilization of different MVA formats, designs, content, and instructional strategies by Saudi college students majoring in English, translation, linguistics, or literature together with their preferences and views on their usefulness are still open for further investigation by Saudi researchers in the future.

REFERENCES

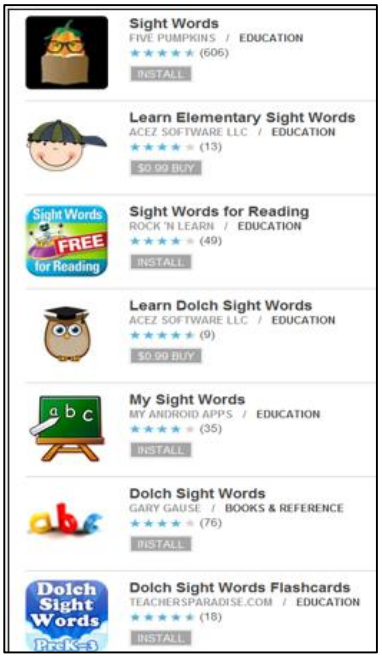
1) Al-Jarf, R. (2021a). Blind Saudi Female College Students and Assistive Technologies: A Case Study: A case study. *International Journal of Research in Engineering, IT and Social Sciences (IJREISS), 11*(4), 1-9. ERIC ED613224. http://indusedu.org/pdfs/IJREISS/IJREISS_3780_72724.pdf.
2) Al-Jarf, R. (2021b). Collaborative Mobile eBook Reading for Struggling EFL College Readers. *IOSR Journal of Research & Method in Education (IOSR-JRME), 11*(06), 32-42. DOI: 10.9790/7388-1106023242.
3) https://www.iosrjournals.org/iosr-jrme/papers/Vol-11%20Issue-6/Ser-2/D1106023242.pdf
4) Al-Jarf, R. (2021c). *Differential effects of the iPad on first and second language acquisition by Saudi children during the Covid-19 pandemic.* The 17th International Scientific Conference eLearning and Software for Education (eLSE), Bucharest, Romania. Vol. 1, pp. 96-105. DOI: 10.12753/2066-026X-21-013.
5) Al-Jarf, R. (2021d). Impact of the iPad on Saudi young children in the home environment as perceived by their mothers. *International Journal of Research in Engineering, IT and Social Sciences (IJREISS), 11*(2), 26-35. ERIC ED613057.

6) Al-Jarf, R. (2021f). Mobile audiobooks, listening comprehension and EFL college students. *International Journal of Research – GRANTHAALAYAH, 9*(4), 410-423. https://doi.org/10.29121/granthaalayah.v9.i4.2021.3868
7) http://dx.doi.org/10.2139/ssrn.3841694
8) Al-Jarf, R. (2021g). Specialized dictionary mobile apps for ESP engineering, business, and computer science students. *Journal of Humanities and Education Development (JHED).*
9) Al-Jarf, R. (2021h). Standardized test preparation with mobile flashcard apps. *United International Journal for Research & Technology (UIJRT), 3*(2), 33-40. https://uijrt.com/paper/ standardized-test-preparation-with-mobile-flashcard-apps.
10) Al-Jarf, R. (2021i). TED talks as a listening resource in the EFL college classroom. *International Journal of Language and Literary Studies (IJLLS), 2*(3), 256–267. ERIC ED615127.
11) https://doi.org/10.36892/ijlls.v2i3.691. https://ijlls.org/index.php/ijlls/article/view/691.
12) Al-Jarf, R. (2020a). Arabic digital dictionaries. *Eurasian Arabic Studies, 12*(Dec), 16-42. https://cyberleninka.ru/article/n/arabic-digital-dictionaries.
13) Al-Jarf, R. (2020b). *Integrating TED lectures in EFL college listening practice*. 25th TCC Worldwide Online Conference. April 14-16. https://www.researchgate.net/publication/356815037.
14) Al-Jarf, R. (2020c). Mobile apps in the EFL college classroom. *Journal for Research Scholars and Professionals of English Language Teaching (JRSP-ELT),* 4(22), 1-5. ERIC Number: ED613138.
15) Al-Jarf, R. (2016). Enhancing reading and speaking skills in EFL through multicultural literature. *Asian Academic Research Journal of Social Sciences & Humanities (AARJSH), 3*(7), 288–298. https://doi.org/10.2139/ssrn.3848464. ERIC ED610158.
16) Al-Jarf, R. (2015). *Enhancing reading and speaking skills in EFL through multicultural children's short stories.* 7th International Conference Building Cultural Bridges (ICBCB), Almaty, Kazakhstan, April 23-24. ERIC Number: ED610158.
17) Al-Jarf, R. (2012a). *Mobile technology and student autonomy in oral skill acquisition.* In J. E. Díaz Vera (Ed.) Left to My Own Devices: Innovation and Leadership in English Language Teaching. Brill. 105-129. https://doi.org/10.1163/9781780526478_007.
18) Al-Jarf, R. (2012b). *Reading in the app store*. IATEFL-Hungary 22nd Annual Conference, Eger, Hungary. https://www.researchgate.net/profile/Reima-Al-Jarf/publication/356833385
19) Al-Jarf, R. (2007). Teaching vocabulary to EFL college students online, *Call-EJ Online 8*(2), 1-16.
20) Al-Jarf, R. (2006). *Making connections in vocabulary instruction*. 2nd International ClaSic Conference. Singapore. ERIC Number ED497939.
21) Bowles, M. (2017). *Leveraging the affordances of mobile learning for vocabulary gains*. 14th IADIS International Conference on Cognition and Exploratory Learning in Digital Age, Vilamoura, Algarve, Portugal.
22) Chen, C., Chen, L. & Yang, S. (2019). An English Vocabulary learning app with self-regulated learning mechanism to improve learning performance and motivation. *Computer Assisted Language* Learning, *32*(3), 237-260.
23) Chen, C., Liu, H. & Huang, H. (2019). Effects of a mobile game-based English vocabulary learning app on learners' perceptions and learning performance: a case study of Taiwanese EFL learners. *ReCALL, 31*(2), 170-188.
24) Cheng, J. & Kim, H. (2019). Attitudes towards English language learning apps from Korean and Chinese EFL Student. *English Teaching*, *74*(4), 205-224.
25) Chien, C. (2013). *Perception and practice of Taiwanese EFL learners' making vocabulary flashcards on "Quizlet"*. International Association for Development of the Information Society (IADIS) Conference on e-Learning, Prague, Czech Republic.
26) Dagdeler, K., Konca, M. & Demiröz, H. (2020). The effect of mobile-assisted language learning (MALL) on EFL learners' collocation learning. *Journal of Language and Linguistic Studies, 16*(1), 489-509.
27) Davie, N. & Hilber, T. (2015). *Mobile-assisted language learning: student attitudes to using smartphones to learn English vocabulary*. The 11th International IADIS Conference on Mobile Learning, Madeira, Portugal.
28) Ebadi, S. & Bashiri, S. (2018). Investigating EFL learners' perspectives on vocabulary learning experiences through smartphone applications. *Teaching English with* Technology, 18(3), 126-151.
29) Guaqueta, C. & Castro-Garces, A. (2018). The use of language learning apps as a didactic tool for EFL vocabulary building. *English Language Teaching, 11*(2), 61-71.
30) Jalaluddin, I., Darmi, R. & Ismail, L. (2021). Application of mobile augmented visual reality (MAVR) for vocabulary learning in the ESL classroom. *Asian Journal of University Education, 17*(3), 162-173.
31) Klimova, B. & Polakova, P. (2020). Students' perceptions of an EFL vocabulary learning mobile application. *Education Sciences, 10*, Article 37.
32) Kohnke, L. & Ting, A. (2021). ESL students' perceptions of mobile applications for discipline-specific vocabulary acquisition for academic purposes. *Knowledge Management & E-Learning, 13*(1), 102-117.

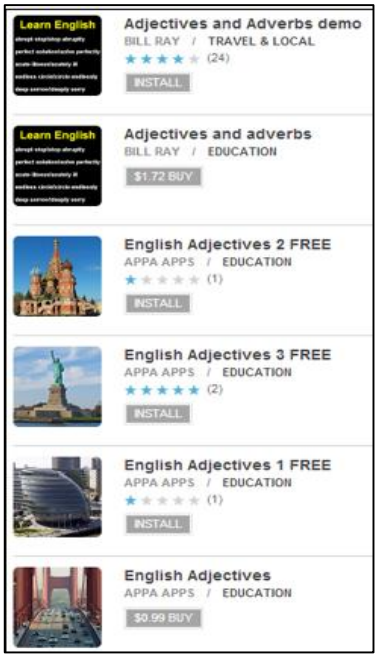
33) Kohnke, L. (2020). Exploring learner perception, experience, and motivation of using a mobile app in L2 vocabulary acquisition. *International Journal of Computer-Assisted Language Learning and Teaching*, *10*(1), 15-26.
34) Krause, T. (2018). Using VocabularySpellingCity with adult ESOL students in community college. *ORTESOL Journal*, 35, 43-46.
35) Li, R. (2021). Does game-based vocabulary learning APP influence Chinese EFL learners' vocabulary achievement, motivation, and self-confidence? *SAGE Open*, *11*(1), Jan-Mar.
36) Lin, J. & Lin, H. (2019). Mobile-assisted ESL/EFL vocabulary learning: a systematic review and meta-analysis. *Computer Assisted Language Learning*, *32*(8), 878-919.
37) Ma, X. & Yodkamlue, B. (2019). The effects of using a self-developed mobile app on vocabulary learning and retention among EFL learners. *PASAA: Journal of Language Teaching and Learning in Thailand*, 58, 166-205.
38) Makoe, M. & Thuli, S. (2018). Developing a mobile app for learning English vocabulary in an open distance learning context. *International Review of Research in Open and Distributed Learning*, *19*(4), 208-221.
39) Mindog, E. (2016). Apps and EFL: a case study on the use of smartphone apps to learn English by four Japanese university students. *JALT CALL Journal*, *12*(1), 3-22.
40) Montaner-Villalba, S. (2019). *The use of Quizlet to enhance vocabulary in the English language classroom*. 27th EUROCALL Conference, Louvain-la-Neuve, Belgium.
41) Northrop, L. & Andrei, E. (2019). More than just word of the day: vocabulary apps for English Learners. *Reading Teacher*, *72*(5), 623-630.
42) Redd, J. & Schmidt-Crawford, D. (2011). The potential for building high-school students' vocabulary using an iPod Touch and gaming app. *Journal of Open, Flexible and Distance Learning*, *15*(2), 55-67.
43) Sage, K., Krebs, B. & Grove, R. (2019). Flip, slide, or swipe? Learning outcomes from paper, computer, and tablet flashcards. *Technology, Knowledge and Learning*, *24*(3), 461-482.
44) Simanjuntak, R. (2020). Learning specific academic vocabulary using MALL: experience from computer science students. *Teaching English with Technology*, 20, 587-107.
45) Wu, V., Lin, I., Marek, M., Ou Yang, F. (2021). Analysis of English idiomatic learning behaviors of an audio-visual mobile application. *SAGE Open*, *11*(2), Apr-Jun.
46) Xin, J. & Affrunti, R. (2019). Using iPads in vocabulary instruction for English language learners. *Computers in the Schools*, *36*(1), 69-82.
47) Yang, F., Wu, W., Wu, Y. (2020). Using a game-based mobile app to enhance vocabulary acquisition for English language learners. *International Journal of Distance Education Technologies*, *18*(3), Article 1, 1-24.

APPENDIX

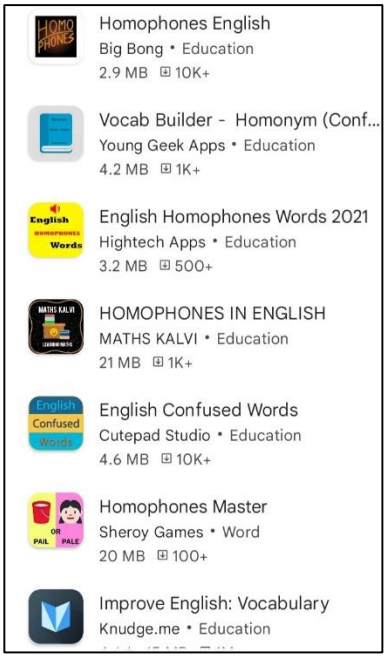
Sample Images of Mobile Vocabulary Apps focusing on Different Vocabulary Subskills



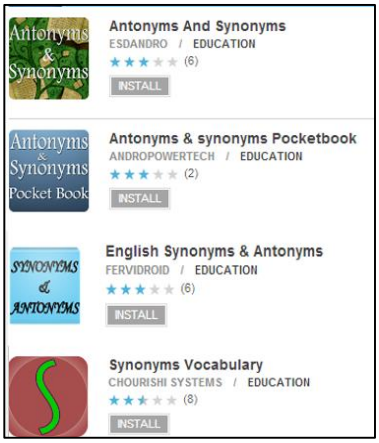
Sight Words



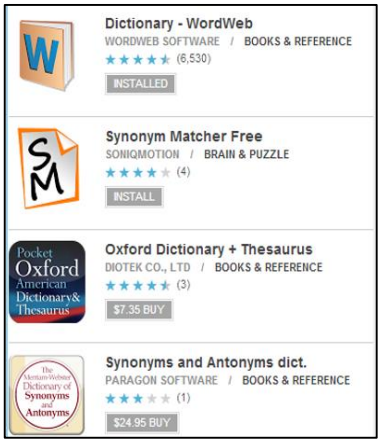
Adjectives



Homophones

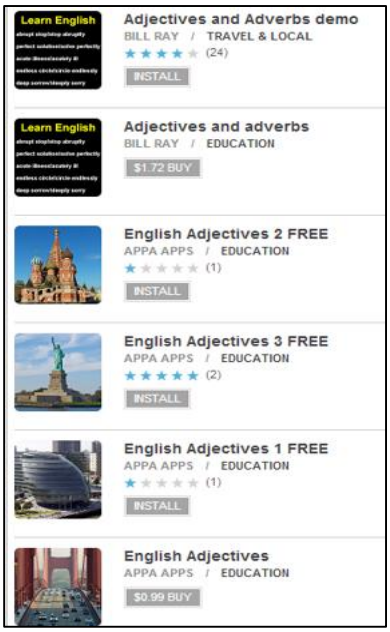


Synonyms & Antonyms

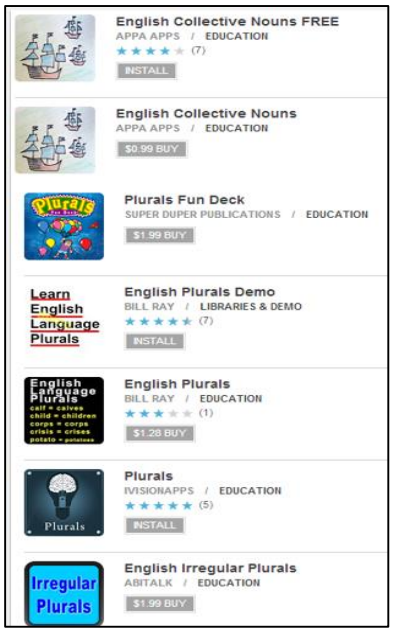


Synonyms

English Plurals

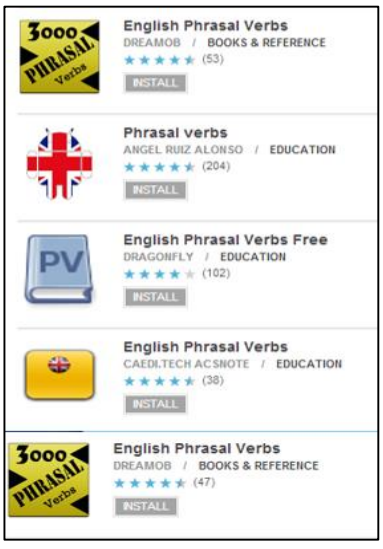


English Adjectives

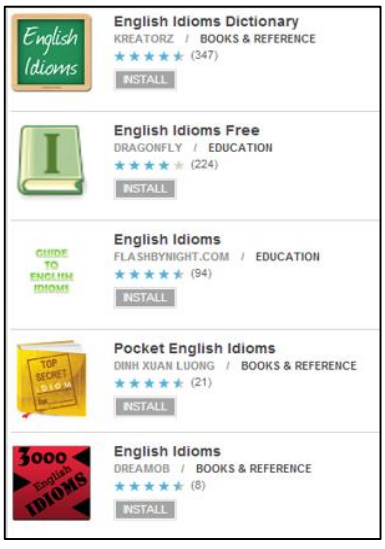


English Plurals

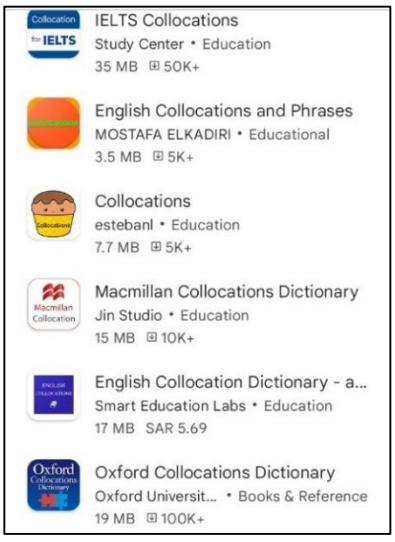
English Verbs



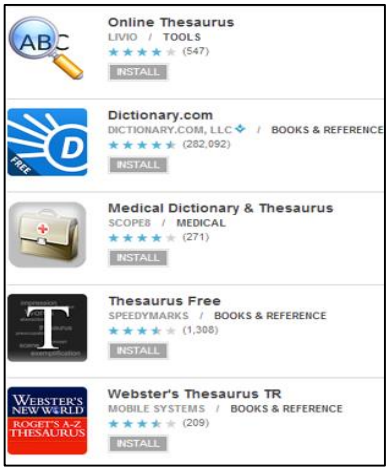
Phrasal Verbs



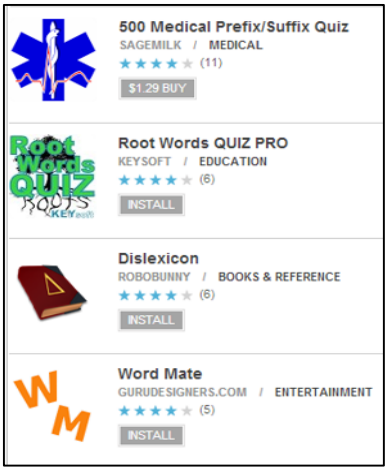
Idioms



Collocations

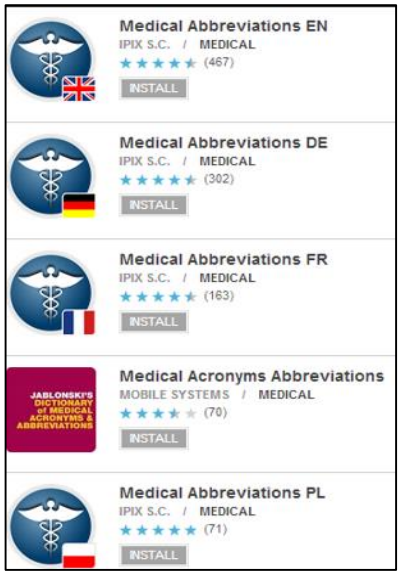


Thesaurus

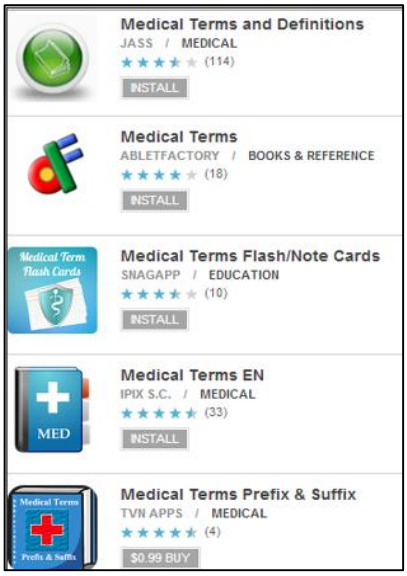


Prefixes and Suffixes

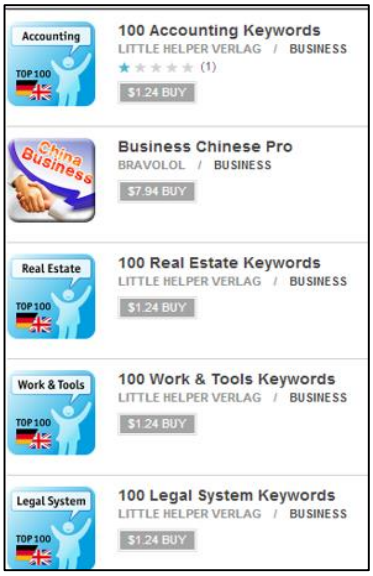
Verb Tenses



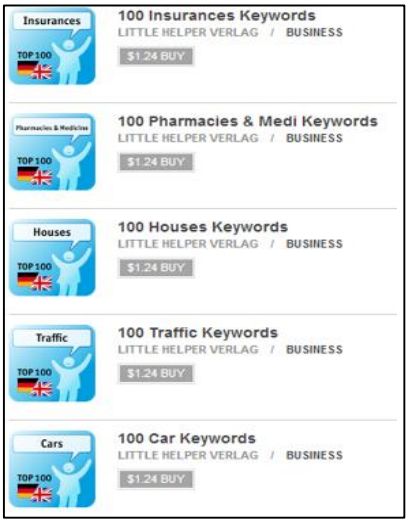
Medical Abbreviations

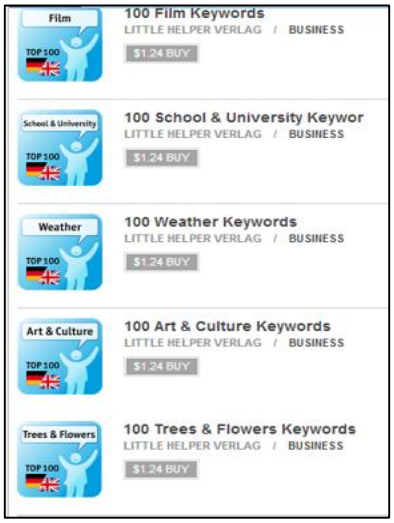


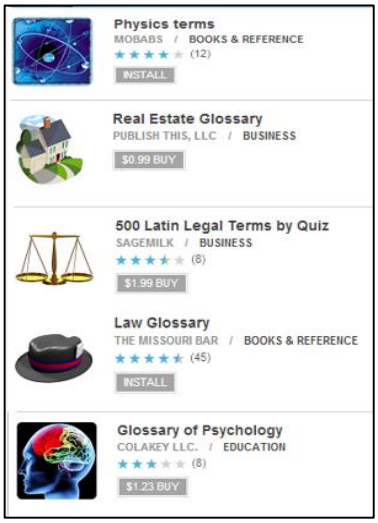
Medical Terms & Suffixes



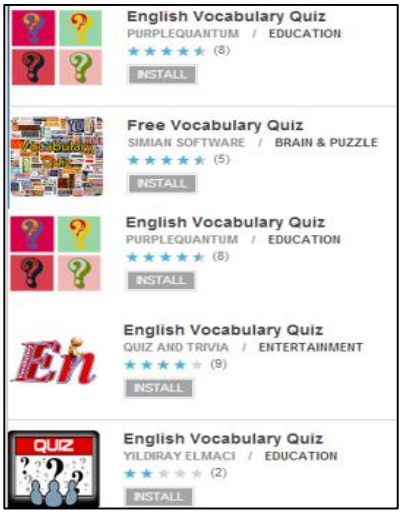
Business & Legal terms



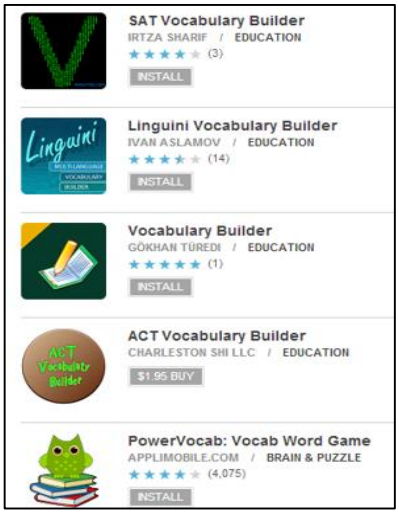




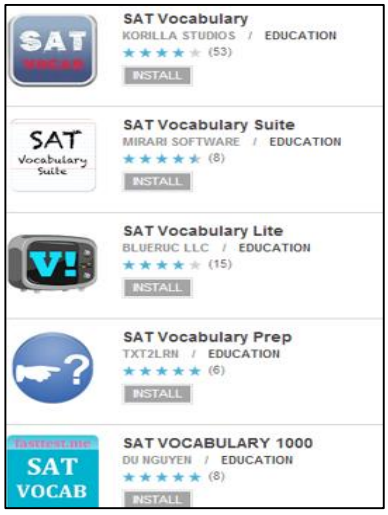
Specialized Vocabulary



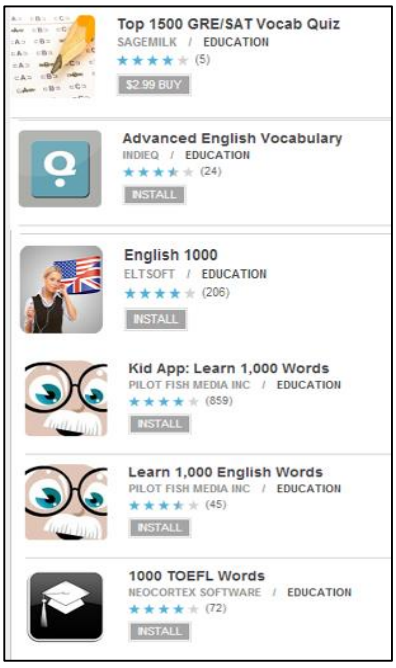
Vocabulary Quizzes



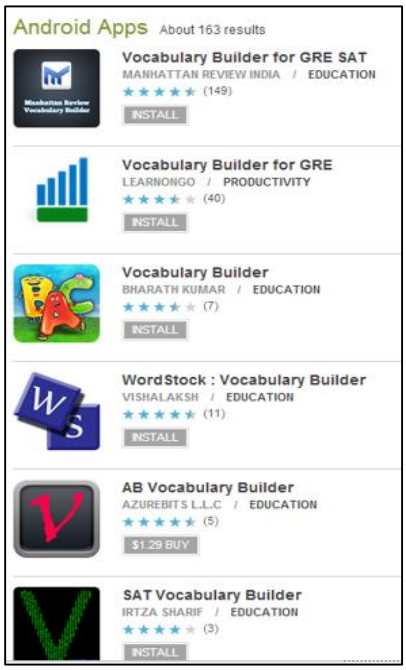
Vocabulary Builder



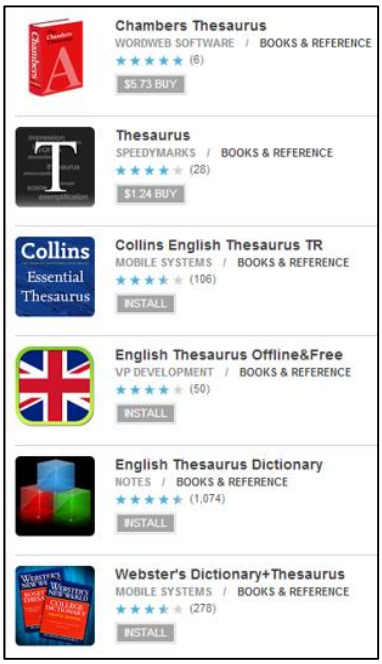
SAT Test Vocabulary



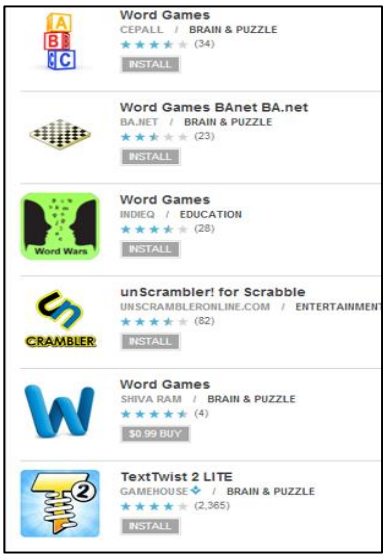
1000-Words Apps



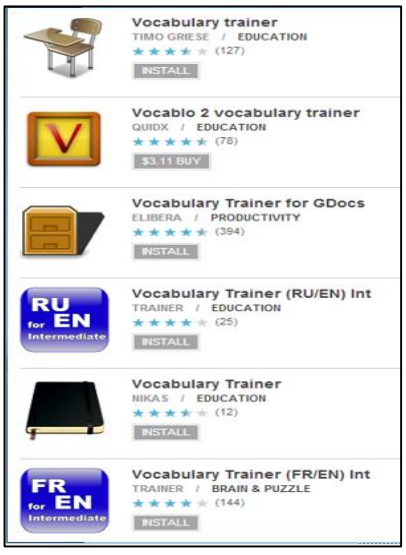
Vocabulary Builder Apps



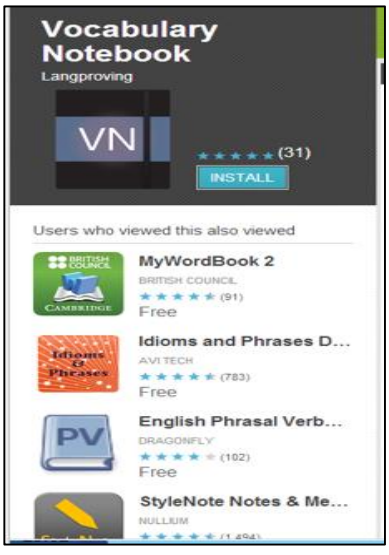
English Thesaurus Apps



Vocabulary games



Vocabulary Trainer



Vocabulary Notebook