**Exploring the Effect of Google Docs on Learning Specialized Vocabulary; A Case Study on Nursing Learners**

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**Abstract:**

Regarding the fact that most of the submitted official documents are written or translated in English, all ESP learners not only are required to learn professional knowledge but also need to know English technical vocabularies in their field of study. Therefore, expanding specialized vocabulary is one of the objectives defined by ESP learners. In this new digital era, various techniques facilitate vocabulary learning via using ICT. Due to the modern trends of learning and the vast advance of technology, learners are provided with the opportunity of using online and mobile applications in a very wide range to develop their English vocabulary knowledge. Accordingly, this study aimed to investigate the effectiveness of using Google Docs on the vocabulary development of ESP nursing learners. In other words, ICT was used as a means of learning ESP vocabulary. To this end, a quasi-experimental research design was employed for gathering quantitative data. In this regard, 40 Iranian ESP learners who were studying in the department of medicine at a university in Golestan province participated in this study. Then, they were randomly allocated as control and experimental groups each comprising of 20 participants. The control group participants were asked to use their personal traditional techniques for learning ESP vocabulary, while the experimental group was assigned to use Google Docs for vocabulary learning. Three data gathering instruments were utilized; first, an Oxford Placement Test (OPT) was employed for homogenizing the participants. Second, each group underwent a pretest and a posttest to assess their learning of the assigned vocabulary lessons that were extracted from their syllabus. Independent samples T-Test and content analysis were applied to analyze quantitative data. The obtained data revealed that both experimental and control groups were able to improve their vocabulary learning successfully. However, comparing two groups showed that the experimental group performed significantly better than their counterparts in the control group who used their practical traditional techniques for learning ESP vocabulary. From the pedagogical point of view, this study carries considerable implications for ESP learners and instructors who would like to teach or learn vocabulary effectively. However, there is a limited number of specific studies on ESP vocabulary learning via Google Docs. So, this research is an endeavor to provide insights to literature in this context.

**Key Words:** ESP, Google Docs, specialized vocabulary learning, ICT.

1. **Introduction**

Information and Communication Technologies (ICT) has modified almost everything in our lives which yields to producing incredible resources for teaching and learning process. Technology has led to the development of many techniques for distributing information. Being connected and interested in technological devices, the new generation of learners are called “digital natives.” The learners of the latest generation have a great comfort and high tendency toward using digital technology, such as short message texting, using communication applications (apps), or surfing on the internet since they were born (Banitt et al., 2013). Considering the fact that today’s learners learn differently than those a decade ago, the instructors must apply innovative techniques for better learning, particularly for learning technical vocabulary effectively by ESP learners in this research.

Learning new vocabularies is a crucial demand of studying any foreign or second languages. Mastering high amount of English words is essential for EFL/ESL learners, particularly for learners of English for specific purposes (ESP). Hornby (1995) defines vocabulary as "the total number of words in a language; vocabulary is a list of words with their meanings"(p.133). Due to the fact that vocabulary knowledge plays a pivotal role in efficient spoken and written interaction, interacting in target language effectively necessitates wide range of vocabulary competence. Furthermore, vocabulary learning is considered to be a central component for the development of language skills. (Blachowicz, 2006). Lacking sufficient vocabulary, it’s complicated to comprehend a text, to produce a piece of writing, to listen to people, and even to speak with them using the target language. Laufer (1998) announced that comprehending passages requires at least 5000 English words to be learned. Limited amount of vocabulary causes one of the major problems encountered for effective language learning. Therefore, there’s a rigorous demand for employing new techniques for learning vocabulary, especially for ESP learners.

It is believed that ESP is an approach to teaching and learning English as a foreign language (Hutchinson & Waters, 1987). Nevertheless, comparing ESP with other pedagogical approaches, its content and purposes are related to the specific needs of target learners. (Lesiak-Bielawska, 2015). With respect to the ongoing nature of language from one context to another, i.e. medical, engineering, politics, tourism and etc., employing an innovative technique for learning ESP vocabulary is of outmost importance for the learners of each specific field. Moreover, as international changes, interaction, globalization, and the need of qualified employees increase day by day, the need for ESP expands. Accordingly, people need not only to know general English, but also high amount of vocabulary competence and communicative use of the language with respect to their particular field of study or profession.

The current study deals with English vocabulary learning of intermediate nursing students at a university in Golestan, Iran. Students studying English at the department of medicine will learn vocabulary through using Google Docs. The research is an attempt to explore the effect of using Google Docs on ESP students’ vocabulary learning. This study also aims to find answers to the following research question:

1. Does Google Docs have an effect on ESP learners’ vocabulary learning?
2. **Literature Review** 
   1. **. Google Docs and vocabulary learning**

Google Docs (officially Google Documents) is one type of cloud software offered by Google Drive (Google, 2017). As the name recommends, it is an instrument for sharing and co-altering documents. It is for nothing for all Gmail holders and at the same time, unlimited number of people, can utilize.When Google Docs is implemented for teaching purposes, it suggests new occasion, beside facilitate work. For instance, in order to generating various types of student-created content Literature recognizes many regions in which this apparatus ended up being valuable, collaborative learning and community oriented composing being the most well-known (Bílová, Š. 2017). Various composers concentrated on effects of utilizing Google Docs for collaborative learning by contrasting the consequences of similar studies in two groups of students: one groups employing Google Docs, the other using traditional face-to-face setting. Liu at al. (2015) and Liu and Lan (2016) found out, apart from others, that dynamic cooperation in Google Docs emphatically influences vocabulary advancement as the Google Docs group demonstrated to have better vocabulary acquire. Google Docs can be likewise effectively utilized for making classroom glossaries or vocabulary logs (Bilov ́ Š, 2017).

**2.2. The Importance of Vocabulary Learning**

Vocabulary is means of communication and although it is not considered as the main skill in language learning, Fisher and Frey (2014) expressed that learning vocabulary is one of the key points in learning a language for ESL students. Since people use many words to communicate with each other they need to know connotations that provide different meanings besides denotations. Students need to learn vocabulary for better comprehension (National reading panel, 2006). According to the standards which are defined (department of national education, 2004) students need to know more than 3000 words including the category of advanced readers at the level of higher education to use language in both spoken and written. This is because the vocabulary limitation prevents students from understanding and producing language. The importance of having enough vocabulary is proven for learners (Berkenkotter & Huckin, 2016). That's why students Carry dictionaries instead of grammar books for their trip (Lewis, 1993). Knight (1994) states that using dictionaries can help develop students’ vocabulary as the same as comprehension. Accordingly, by acquiring enough words learners will be able to confront understanding difficulties. Schmitt (2008) states learners need to be exposed 7-10 times with a word and then a learner can learn it and understand the principle from meaning connection. Consequently, learners need to be provided opportunities to practice words outside the classroom and they should be responsible for their education.

**2.3.** **Vocabulary Learning for ESP Learners**

English language teaching is an umbrella term that includes English for specific purposes (ESP), and English as a Second Language (ESL). Therefore, the purpose of language learning clarifies the terms of the study. Dragoescu and Sandra (2010) define ESP as “an essential training operation which seeks to provide learners with a restricted competence to enable them to cope with certain clearly defined purposes, which the ESP course is designed to meet.” Meanwhile, ESP can be defined as specific rules that are prepared for learners who are in special education or professional work situation (Rahman, 2018). ESP learners need to learn to communicate in different activities in a particular or professional occupation in Society (Cummins & Davison, 2007). So they encounter some difficulties in learning specialized vocabulary that mostly is low frequency and is used in a particular area of study or used professionally (Chi, 2019). Additionally, some of these difficulties are because of insufficient exposure and infrequent vocabulary (Amiryousefi, 2015). It can be concluded that vocabulary learning is essential for both EFL/ESL and ESP learners (Brooks, 2014), and lack of vocabulary can be considered as an important obstacle to student success. By taking learners’ demands into account, Jiangmen (2011) by expressing many researchers’ ideas, introduced five categories for specialized vocabulary; spoken and written vocabulary, core and non-core vocabulary, discourse structuring vocabulary and procedural vocabulary, technical, semi-technical, and general vocabulary, and academic vocabulary. In recent, classification vocabulary divided into three types (Mohammadabadi. A & Mohammadabadi. Z, 2012): core vocabulary or common core which refer to frequency vocabulary that is used by English learners widely, semi-technical vocabulary that followed by core vocabulary, and technical vocabulary which are frequent in specific field or domain much more than other fields (Jordan,1996). Hence ESP students are dealing to be professional in their field they need to learn technical vocabulary which is one kind of specialized vocabulary. Finally, it is worth mentioning that although there are many strategies for learning vocabulary for ESP learners Gu(2003) and Atey & Oybulgan(2007) maintained that learner and learning context are the most important factors that must be taken into consideration and we are not allowed to only search for the best vocabulary learning strategy.

**2.4.** **Using Technology in Learning Vocabulary**

We are living in an era in which using technology is deniable. So ICT engagement has a visible impact on daily activities. Moreover, ICT boosts some opportunities for our students to learn a language (Yunus, 2007). One of the new and challenging ways for learning new vocabulary is integrating technology in the learning process. Incorporating technology in learning is one of the beneficial ways of language learning that motivates students (Wieking, 2016). Therefore, students who are motivated, easily engaged in learning activities, and besides learning language willingly, have self-control over the learning (Vargas, 2011). In line with these studies (Myers, 2010, p.443) states that “to a psychologist, a motivation is a need or desire that energizes behavior and directs it toward a goal”. According to the technology acceptance model (TAM) which is conducted for measuring learners’ acceptance or rejection of technology, Alhabahba, Mahfoodh, Pandian, Mohammad, Ahmed, Albdour, & Al Bazar have done a study in 2014 that proves the hypothesis attitude, perceived usefulness and perceived ease of use is positively related to vocabulary development and also it was revealed that those factors had a significant effect on vocabulary learning. By referring to this study, in the educational system, interacting with technology can be a motivator for students who are a fan of using electronic devices. In specific, computer-assisted language learning (CALL) can be considered as an innovative way of language learning and a term of ICT. CALL by developing more opportunities for practicing skills (listening, reading, speaking, and writing) and various options in terms of learning language components (pronunciation, vocabulary, grammar) brought light into language learning. Moreover, by using CALL not only students will be able to control their learning speed but also they will have various choices for practicing a new language (Yunus, Lubis, Lin & Wekke, 2009). Moreover, Martin and Bolliger (2018) by surveying 155 online students concluded that online communication tools are the most practical engagement strategy. One of the realizations of CALL which is one of the beneficial tools for vocabulary learning is Google Docs, found in 2010, it comes with the features of Google Docs which can help teachers and learners promote vocabulary learning. Google Docs provides a nice situation for collaborative learning and as it is free of charge and can be used by unlimited learners at the same time, facilitates learning (Bílová, 2017). Accordingly, another study has been done by Lai, Lin, Lin, and Tho (2019) that revealed by being in an online learning community, learners can be engaged in process of learning and perform better. Many other studies have declared learners perceive Google Docs as a positive tool for collaborative learning (Lin and Yang 2013; Zhou, Simpson, and Domizi 2012). Considering all the above information Bilová (2018) came to the conclusion that one of the efficient tools for learning vocabulary is using Google Docs because it can be a collaborative and individual learning facilitator.

1. **Methodology**

The present research aimed at investigating the effect of an independent variable, i.e. Google Docs on technical vocabulary learning of nursing students, the dependent variable.

**3.1 Participants**

The original pool of participants was 40 female intermediate ESP nursing learners studying medicine at a university in Golestan, Iran. Prior to the intervention, an Oxford Placement Test (OPT) (Edwards, 2007) was administered to a total number of 60 ESP learners for selecting a homogenized target sample. According to Edwards (2007), the test takers whose scores are “above 31” on this test, are at the intermediate level. After interpreting the scores, 40 ESP learners with intermediate level of language proficiency were randomly assigned into two groups: an experimental group, (n= 20) and a control group (n=20).

**3.2 Instruments**

3.2.1. *Oxford Placement Test (Edwards,2007)*

The Oxford Placement Test (OPT) is one of the most famous and standard tests used for placing the learners into an appropriate level for a language course. In other words, this test was administered in order to homogenize the participants according to their level of English language proficiency. Oxford Placement Test consists of 50 multiple-choice questions evaluating the language components of grammar and vocabulary. It also has two optional parts assessing the two skills of reading and writing.

*3.2.2. Pre- and post-tests of vocabulary*

The first instrument used for collecting quantitative data were pre- and post-tests. Pre- and post-tests, which were similar to one another, included 35 target technical vocabularies that were chosen from the participants’ English course book. The mentioned tests comprised of two sections: the first section had a 25-multiple choice close, the second part had 10 matching questions for which the test takers were asked to match the words with their definitions. Pre- and post-tests were administrated to both control and experimental group before and after the treatment sessions.

* 1. **. Design**

The current quantitative study adopted a quasi-experimental pre-test treatment post-test design to explore the effect of using Google Docs on ESP students’ vocabulary learning. Gathering data through quantitative research design, quantitative data were collected. Considering the experimental nature of the research, the participants in the experimental group received treatment, while the control group received no treatment. To put it in another words, the experimental group learned technical vocabularies through using Google Docs, however, the participants of the control group practiced new vocabularies through traditional ways of learning, such as note-taking and creating vocabulary lists in their notebooks. Quantitative data were collected through implementing pre-and post-tests in both experimental and control groups.

**3.4.** **Procedure**

Regarding ethical issues, first, permission for the current research was taken from the English department of the university in Golestan. The participants in both experimental and control groups were asked to attend the study voluntarily. A quasi-experimental study design was employed for investigating the effectiveness of Google Docs and its probable effects on ESP students' vocabulary learning. The research started in early August 2021 by means of taking an Oxford Placement Test (OPT) in order to include homogenized participants in the study. Regarding pre-test development, first, some words were selected from Career Paths English: Nursing book. Second, given the lack of a valid test for purpose of the present study, a vocabulary test was developed with the focus on the target words selected from the textbooks. Care was taken into consideration to include item formats which would suit their level of language and cognition. Third, the test was piloted and validated on 100 EFL young learners, similar to the participants in the main study; both content and construct validity were checked. Afterwards, the developed validated test was administrated as the pre-test to both experimental and control groups to determine whether they had equal knowledge of target vocabulary or not. In order to avoid inter-rater effect, each paper was separately investigated and marked by two teachers, then the mean of the two scores was considered as the final score. The participants in two classes were randomly assigned as the experimental (Google Docs technique) and control (traditional technique) groups. Then, the treatment sessions started and lasted for six weeks. The chosen similar target ESP words were taught and practiced by the same instructor in both groups, however, the applied vocabulary teaching techniques were different. At the beginning of the intervention, the participants of the experimental group were instructed how to use Google Docs for learning and practicing technical vocabulary related to their field of study, i.e. nursing. During the experimentation period, the 20 learners in the experimental group used Google Docs for learning technical words inside and outside the class, while 20 learners of the control group used traditional techniques for learning the technical vocabulary. The post-test was administered to both control and experimental groups again on the same day, with a proctor other than their own English teacher to avoid the differences in exam condition in both groups. The exam papers were scored by two English teachers and the mean of the two scores was considered as the final score.

**3.5.** **Data analysis**

Relevant data in this study were collected through quantitative data gathering tools. Data were analyzed by using T-test series formula in SPSS software. Two paired and two independent samples t-test were utilized to find the answer of the research question. First, two paired samples T-tests were employed to find out the within group differences before and after the treatment in each group. In other words, a paired samples t-test was employed for analyzing the pre-test and post-test scores of the control group, besides another paired samples t-test was used for the analysis of the experimental group's pre-test and post-test scores. Second, two independent samples t-tests were run to find out the effectiveness of the treatment between the experimental and the control groups in terms of ESP vocabulary learning. Comparing the results of pre-test scores between control and experimental groups was done through an independent samples t-test. Moreover, the results of post-test scores of the two groups were analyzed by another independent samples t-test. The first independent samples t-test was used for ensuring the homogeneity of the learners before the intervention. Another independent t-test was used to check the differences in the post-test scores of the two groups.

1. **Results and Discussion**

This paper contributes to the topic of the effects of the Google Docs and traditional vocabulary learning practices on ESP students to see if any differences occurred between the two methods.

The pretest results of the control group who learned vocabularies with traditional paper-based activities in the classroom can be seen in Table 1. Findings revealed that the participants in the control group achieved significant improvement (p<000.5) on their vocabulary knowledge when the results of pretest (M=10.2400) and posttest (M=17.0458) were compared. This means that after six weeks following the start of the study, participants in the control group experienced significant vocabulary knowledge gains, suggesting that traditional activities were effective in teaching target vocabulary in the study.

*Table 1. Paired Samples t-test Results Within Group*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | t-test | | |
|  | N | M | SD | *t* | *df* | Sig.  (2-tailed) |
| C. G. Pretest | 20 | 10.2400 | 5.5387 | -3.920 | 24 | .001 |
| C. G. Posttest | 20 | 17.0458 | 7.0386 |

The results of the pretest of the experimental group who learned vocabularies with the website out of the classroom hours can be seen in Table 2. Findings revealed that the participants in the experimental group achieved significant improvement (p<000.5) on their vocabulary knowledge when the results of pretest (M=12.482) and posttest (M=18.551) were compared. This means that after six weeks following the end of the treatment, participants in the experimental group also experienced significant vocabulary-knowledge gains, indicating that the use of website was effective in teaching the target vocabularies in the study.

*Table 2. Paired Samples t-test Results Within Group*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | t-test | | |
|  | N | M | SD | *t* | *df* | Sig.  (2-tailed) |
| E. G. Pretest | 20 | 12.4828 | 9.4005 | -7.713 | 28 | .001 |
| E. G. Posttest | 20 | 18.5517 | 4.9618 |

The study aims to determine whether the use of website was more effective than the traditional activities in teaching the target vocabularies. It is clear from Table 3 that both groups had significant vocabulary-knowledge gains after the 6-weeks-long study, demonstrating that the students in both groups improved their vocabulary-knowledge significantly independent of the group they were in and the activities they were supposed to do. However, as seen in the table, the experimental group achieved significantly better results on the posttest than the control group. In other words, when compared to the control group, vocabulary-knowledge gains of the experimental group were significantly higher than those of the control group, suggesting that the treatment was successful in teaching vocabularies.

*Table 3. Independent Samples t-test Results Between Groups*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | t-test | | |
|  | N | M | SD | *t* | *df* | Sig.  (2-tailed) |
| C. G. Pretest | 20 | 10.2400 | 5.5387 | -1.143 | 52 | .261 |
| E. G. PREtest | 20 | 12.4828 | 9.4005 |
| C. G. POSTtest | 20 | 17.0458 | 7.0386 | -5.318 | 52 | 0.001 |
| E. G. Posttest | 20 | 18.5517 | 4.9618 |  |  |  |

Vocabulary learning is one of the most significant parts of language educating. Vocabulary plays a focal role in language learning, and Language students should know an enormous number of words to be fruitful in language learning or to have an effective correspondence in it. It also has a vital role in the 4 skills (speaking, reading, writing and listening (Alemi et al., 2012). However, Nababan (1993) mentioned that the vocabulary component is the focal center of various ESP programs. Vocabulary is the most conspicuous component of a register, and words have specific implications relying upon the particular register in which they are utilized. Nonetheless, ESP Vocabulary consistently presents a significant linguistic hindrance to nonnative English-speaking learners. ESP vocabulary learning strategies and storage should be emphasized in ESP classes. Therefore, there is an entryway of chances for establishing suitable conditions to instruct vocabularies, especially with the utilization of comprehensively accessible technologies, one of which is through online websites. Many studies demonstrated that SMS messages and other computer programs adjusted to be used in computers can be successful for vocabulary instructing. Nonetheless, there might be a few impediments of utilizing SMS because of its expense (Cavus & Ibrahim, 2009) and other computer programs due to the adjustment problems of these programs to computer devices, causing low quality (Thornton & Houser, 2005). Therefore, using the computers applications that are already well-functioning and popular among users could facilitate the technology learning practices considerably. A genuine illustration of these websites is Google Docs, a free computer application that permits its clients to trade texts, just as mixed media both in one-to-one and group discussions, and settle on decisions.

This study aims to investigate the use the effectiveness of this computer application on teaching 40 figurative vocabulary learners by CALL application compared to traditional activities.

As to the research question, which is does Google Docs have an effect on ESP students’ vocabulary learning, based on the results shown in Table 1, there was significant difference between the pre-test and post-test of control group [t = -3.920, sig-value .05]. In other words, the control group performed better after the treatment in answering the vocabulary questions on posttest. In this regard, Table 2 illustrates the difference between mean scores in pre- and post-test for the experimental group after the 6-week treatment. To find the supporting details, the pair sample t-test showed that the gained t was −7.713 and sig-value was 0.001. This indicated that there was a significant difference between the performances of the experimental group in pre- and post-test. As to the answer to the research question, it was found that Google Docs instruction had a significant effect. So, the null hypothesis presented in this study was “there is not any significant relationship between Google Docs instruction and ESP learners’ vocabulary learning”. There was a difference between mean scores of the experimental and control groups in their performance in post-test although they were not in the pre-test. Also, this difference between the mean scores was statistically significant (P < 0.0001); thus, using technological as well as Google Docs instruction had a great effect on the experimental group which was not seen in the control group. Hence, the null hypothesis in the present study was rejected. This study has highlighted the importance of technological instruction and the potential of using Google Docs to improve vocabulary knowledge of ESP learners.

1. **Conclusion**

In conclusion, considering the effect of using Google Docs on vocabulary learning revealed that Google Docs supports the students as an extremely helpful tool, and empowers them to expand their vocabulary information, and update vocabulary effectively by engaging them. Moreover, contrasted with different strategies for vocabulary learning, not only does Google Docs provide more learning options and greater autonomy to students, but also, teachers can obtain more feedback and insights into student learning. Google Docs can promote and facilitate both collaborative and individual work. To sum up, the participants got completely involved and effectively noticed the whole course of the examination, and generally shared positive comments about the Google Docs application. The findings of this study can provide some guidelines for both teachers and ESP learners. Students will be able to promote  
their vocabulary knowledge autonomously and in a shorter time. Furthermore, technological materials which are generated by students could be used to increase engagement and student-centered learning Also ESP instructors can benefit from CALL in the classes, in face they have more insight on students and also, using innovative instruments help them to be more updated. Finally, ESP syllabus designers can also get benefit of this method, since This method helps them to simultaneously acquaint students with the meanings of words, synonyms and antonyms and increase the speed of learning.

Based on the results of this study, several suggestions for future researches arise. First of all, as only effect of Google Docs on technical vocabulary learning was measured in this study, further research is needed to investigate the effect of Google Docs on ESP learners’ motivation. Second, since the findings of the study suggested that using Google Docs significantly improves ESP learners' vocabulary knowledge, it is important to explore the learners’ perceptions in terms of learning vocabulary with Google Docs for ESP vocabulary learning.

All in all, although the data revealed that Google Docs flashcard programs are effective for vocabulary learning, necessary changes to the design of the dictionary should be made and further research is recommended to be carried out with a larger sample size so that the findings can be generalized to the population.

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