GLOSS-MEDIATED VOCATIONAL VOCABULARY LEARNING AMONG IRANIAN ESP LEARNERS

APRENDIZADO DE VOCABULÁRIO PROFISSIONAL MEDIADO POR GLOSAS ENTRE ESTUDANTES IRANIANOS DE ESP

APRENDIZAJE DE VOCABULARIO PROFESIONAL MEDIADO POR GLOSS ENTRE ESTUDIANTES DE ESP IRANÍES

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ABSTRACT: This quasi-experimental study intended to consider the role of using CALL-based and gloss-mediated vocational vocabulary learning and its impact on vocabulary knowledge. The study used five different majors. For each major, there were two classes, so the researcher conveniently selected one class as the control group and the second class as the experimental group. Thus, five classes as the control groups (each field of study one class) and five classes as the experimental groups (each field of study one class). The total number of participants was 210, that 106 learners were in the control groups and 104 were in the experimental groups. The overall findings revealed that the treatment groups outperformed the control groups. Therefore, using computer-based glossing information leads to better performance in vocabulary knowledge and vocabulary retention.

KEYWORDS: CALL. Multi-Glossing. Vocational vocabulary. ESP.

RESUMO: *Este estudo quase experimental teve como objetivo considerar o papel do uso do aprendizado de vocabulário vocacional baseado em CALL e mediado por glosas e seu impacto no conhecimento de vocabulário. O estudo usou cinco cursos diferentes. Para cada curso, havia duas turmas, de modo que o pesquisador convenientemente selecionou uma turma como grupo de controle e a segunda turma como grupo experimental. Assim, cinco turmas como grupos de controle (para cada área de estudo, uma turma) e cinco turmas como grupos experimentais (para cada área de estudo, uma turma). O número total de participantes foi de 210, sendo 106 aprendizes nos grupos de controle e 104 nos grupos experimentais. Os resultados gerais revelaram que os grupos de tratamento superaram os grupos de controle. Portanto, o uso de informações de glosa baseadas em computador leva a um melhor desempenho no conhecimento e na retenção de vocabulário.*

PALAVRAS-CHAVE: *CALL. Multi-Glosa. Vocabulário vocacional. ESP.*

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RESUMEN: Este estudio cuasi-experimental pretendía considerar el papel del uso del aprendizaje de vocabulario vocacional basado en CALL y mediado por brillo y su impacto en el conocimiento del vocabulario. El estudio utilizó cinco carreras diferentes. para cada carrera, había dos clases, por lo que el investigador seleccionó convenientemente una clase como grupo de control y la segunda clase como grupo experimental. Por lo tanto, cinco clases como grupos de control (cada campo de estudio una clase) y cinco clases como grupos experimentales (cada campo de estudio una clase). El número total de participantes fue de 210, de los cuales 106 alumnos estaban en los grupos de control y 104 en los grupos experimentales. Los hallazgos generales revelaron que los grupos de tratamiento superaron a los grupos de control. Por lo tanto, el uso de información de glosado basada en computadora conduce a un mejor desempeño en el conocimiento del vocabulario y la retención del vocabulario.

PALABRAS CLAVE: CALL. Multi-Glossing. Vocabulario vocacional. ESP.

Introduction

Vocabulary expansion is a vital part of being educated in a foreign language (HUNT; BEGLAR, 2005; KNIGHT, 1994). Gaining the word knowledge is additionally the premise for interaction in L2 settings and a fundamental portion of acing an L2 (SCHMITT, 2010; SCHMITT; CUMMINS; DAVISON, 2007). In this respect, Wilkins (1972) and Milton (2009) stated that nothing could be conveyed without vocabulary. As such, Laufer (1998, 2005) declared no content understanding is conceivable, no matter in one's mother tongue or in the second language, without perceiving the manuscript's lexicon. Hence, creating a rich lexicon; simultaneously is a need and a threat for L2 pupils (RAMEZANALI, 2017). When L2 learners face a passage, their deficiency of vocabulary competence is a linguistic restraint. This limitation is their primary barrier to reading text grasp. Suppose that a text has too many new words (RASSAEI, 2017, 2018; YUSUF; SIM; SU'AD, 2014) in that case, L2 learners hurriedly deny proceeding to read the passage (GRABE; STOLLER; 1997; SCHMITT; JIANG; GRABE, 2011).

Furthermore, L2 users – whether learners or teachers – have faced a situation in which they cannot recall the newly encountered vocabularies or formerly acquired words, and the words elude as needed. So, as as Nation (2011) and Schmitt (2008) stated, in these circumstances, language users should face the target word in various passages or contexts via different strategies and techniques of vocabulary teaching.

Vocabulary learning strategies

Lexicon strategies can assist L2 learners in dealing with new words, reviewing them expeditiously over a long period, and administering the obtained words in interactive settings accurately (HARLEY, 1995; HIEBERT; KAMIL, 2005). Many scholars (HULSTIJN; HOLLANDER; GREIDANUS, 1996; HUNT; BEGLAR, 2005) noted traditional tools or mediums for the sake of easing the process of vocabulary instruction as dictionaries, teacher materials, vocabulary cards, word lists, workbooks. Moreover, — a short description or synonym, whether in a first or second language, which is afforded with the manuscript are called glosses (NATION, 2013). Besides these tools, dictionaries are powerful aid for vocabulary management. It would help learners to follow the passage and reduce the reading difficulty rate and deliver many different meanings to learners. However, it may confuse the learners by providing different meanings (LUPPESCU; DAY, 1993) and leads to false inferences (HULSTIJN, 1992).

Though many groundbreaking technology-based procedures and strategies are developing to ease the learning of second language vocabulary; new instructional strategies and contextual-based teaching and learning aids provide and develop for supporting the acquisition of the second language vocabularies (RAMEZANALI, 2017). There is a must for investigating beneficial and practical pedagogical techniques for L2 vocabulary training. In a way, L2 learners eagerly tend to deal with the vocabularies' meanings and boost their long-term remembrance of lexis (Al SEGHAYER, 2003). Glossing is a computerized strategy in which learners can contextually acquire L2 vocabularies (YANGUAS, 2009).

Reviewing the literature showed that glossing has many beneficiaries, namely: 1. It saves the learners' time and effort (JACOBS; DUFON; HONG, 1994; LOMICKA, 1998; ROBY, 1999); 2. It boosts comprehension (HULSTIJN, 1992; JACOBS; DUFON; HONG, 1994; LEFFA, 1992; WATANABE, 1997); 3. Glossing potentially can foster and ease vocabulary acquisition; 4. And it avoids using dictionaries (WEBB, 2010).

Thus, the innovative medium delivers a compelling L2 vocabulary learning setting in which abundant vocabulary acquisition resources from various sources are applied. Acquiring the vocabulary is a crucial piece of language development (SCHMITT; SCHMITT; CLAPHAM, 2001); it takes a fundamental part in cultivating interaction skills (ZAREI; MAHMOODZADE, 2014) increasing conception (NATION, 2001; WATANABE, 1997; ZANDIEH; JAFARIGOHAR, 2012). Moreover, it triggers acquiring other languages (NATION, 2001).

Multimedia vocabulary learning

Multimedia glossing demonstrates short explanations with pictures, sounds, and videos/animations in (non)computerized texts (BOWLES, 2004; SALEM; AUST, 2007). Multimedia glossing develops the extensive grouping of multimodal glossing (AL SEGHAYER, 2001; ERCETIN, 2003; LOMICKA, 1998; SALEM, 2007; TÜRK; ERÇETIN, 2014). Multimedia gloss offers definitions and justifications of target lexis through manifold properties (pictures, sounds, texts, and videos) in language laboratories or language classes, specifically where technological tools like computers or projectors are available. Interactive multiple-choice glossing displays simultaneously or successively multimodal facets of a glossed word definition is the other form of glossing (AL SEGHAYER, 2001; HULSTIJN; LAUFER, 2001; TÜRK; ERÇETIN, 2014).

This paper was conducted to examine the efficiency of multimedia and multimodal glossing on L2 vocational vocabulary acquisition. So, the study uses all textual formats (L1 equivalent, L2 definition, corpus-based examples) and the glossed word pronunciation with a picture. While frequent studies have shed light on using glosses in general English courses (GOLONKA *et al.,*2014), as far as the researcher knows, there is a less tapped area of using multi-glosses into ESP instruction. So, this study aims to tap and investigate the role of using multimodal glosses on vocational vocabulary knowledge.

Multimedia glossing or electronic glossing developed due to the improvements in the realm of media and computer technology (SALEM; AUST, 2007); and also due to the presence of glosses into various computer application software (ABUSEILEEK, 2011; AKBULUT, 2007; AL SEGHAYER, 2001; ARIEW; ERCETIN, 2004; CHEN, 2006; CHUN; PLASS, 1996a, 1996b; KOST; FOSS; LENZINI JR, 1999; MOHSEN, 2011; PLASS *et al.,* 2003; RUSANGANWA, 2015; SALEM, 2007; YANGUAS, 2009; YEH; WANG, 2003) to facilitate L2 vocabulary acquisition. Multimedia glosses grasp numerous vocabulary remarks in multimedia settings just as texts, audio, depictions, and videos.

The reason for the importance of the current study is that all specialized and academic vocabulary is clearly and seamlessly integrated into all academic contexts (NATION, 2001). By way of the vocabularies in Coxhead's Academic Word List (AWL) (2000) (JEMADI; IKU, 2019) are met routinely in the numerous disciplines, teaching on academic vocabulary items is pertinent, valuable, and furtherance for pupils in academic courses. Although pupils have been trained for the university entrance exam and have already qualified for their specialty, their content knowledge and procedural knowledge are still incomplete and should

be reinforced through ESP classes so that they can learn vocational expressions and concepts in their field.

The current study tends to primarily merge the 5 control groups into one control group (as each major has one control and one experimental group) and considers 5 experimental groups as one experimental group and compare the performance of the control and experimental group; and secondly, compare the performances of the different majors. So, the study's research questions are presented as follows:

Q1: Is there any significant difference in the vocational vocabulary knowledge among the control and experimental group?

H1: There is no significant difference in the vocational vocabulary knowledge among control and experimental groups.

Q2: Is there any significant difference in the vocational vocabulary knowledge among different ESP majors' groups?

H2: There is no significant difference in the vocational vocabulary knowledge among different ESP groups.

Materials and Methods

Design of the study

This study included two independent variables (gloss-mediated and vocational vocabulary) and one dependent variable (vocabulary knowledge). The study tends to find out whether there is a causal relationship between the two independent variables and the dependent variable. As the study lacks random assignment, the current study employs a quasi-experimental design. The experimental group has received the multi-glossed vocational vocabulary learning procedure, whereas the comparison group received the traditional procedure of vocabulary teaching; that is, the learners received the teacher's explanations in a no-gloss condition. And to obtain concise results, the study used the pretest-posttest design. Participants are selected conveniently; that is, the researcher used different ESP classes (the university education classes), and students in each field have chosen to enroll in a class. The researcher has not made any interventions, modifications, or changes in the classes and class members or any manipulation for assigning control and treatment conditions. The study employs the learners of five different majors of the study in different universities; therefore, there are five control groups and five experimental groups. For each major, there is one

control and one experimental group (majors are Anesthesiology, Software, Civil Engineering, Architecture, and Electronic Science).

In order to choose the target words, a teacher-made vocabulary knowledge test was administered in the first treatment session to identify the unfamiliar words for each major. The test consists of 35 items of vocational vocabulary with two possible answers (the vocabulary is familiar/the vocabulary is unfamiliar). After identifying the unfamiliar vocabularies, in the next session, the treatment session was held. Then, at the end of the treatment session, the learners were asked to participate in a post-test.

Participants

As mentioned above, 10 different ESP classes in different Iranian universities provided the participants for this study. The number of ESP learners that enrolled in ESP classes was 210. They were the different studying majors (Anesthesiology, Software, Civil Engineering, Architecture, and Electronic Science), and for each major, there are one control and experimental group. The university education deputy plans classes, and students in each field have chosen to enroll in a class. The researcher has neither made any interventions, modifications, or changes in the classes and class members nor manipulation for assigning control and treatment conditions. The total number of participants in the control group was 106, and 104 participants in the experimental group.

1. Anesthesiology: control group: 15, experimental group: 18, total number: 33.
2. Software: control group: 38, experimental group: 32, total number: 70.
3. Civil Engineering: control group: 19, experimental group: 23, total number: 42.
4. Architecture: control group: 18, experimental group: 19, total number: 37.
5. Electronic Science: control group: 16, experimental group: 12, total number: 28.

All the participants were male, and currently, they were ESP learners in their universities from which they were employed to participate in the study. They were 19 to 26 years old.

Materials and Instruments

The current study used the universities' assigned books. The books are all published by Samat Publications, one of the publishing houses of English language books for specific purposes. All Iranian universities use the books of these publications for ESP courses. All of

the ESP books are designed based on the readings. The researcher selected a list of a word for the pre-test to choose the target words for the investigation. Then, the researcher designed slides using Microsoft Office with multimodal glosses for all vocational vocabularies. Then, after the treatment sessions, the researcher asks the learners to participate in a multiple-choice vocabulary test.

Procedure

The researcher had the opportunity of having two classes for each major, one class assigned as control and the other class assigned as the experimental group. So, the study has five control groups (no gloss groups) and five experimental groups (multi-gloss groups). In the no gloss groups, the researcher only provided the explanations and target word-related information in a no gloss condition and in a traditional way. However, in multi-gloss groups, the class was equipped with a computer, a large LCD, and a speaker.

During the treatment session, as the new lesson began, the researcher started to talk about the lesson, used the lessons' main ideas, and tried to negotiate the general information mentioned in the unit. Then the researcher started to read the passage for the learners. In order to reduce the sensitivity and keep the secrecy of the target vocabularies, in the control and experimental groups, all vocational vocabulary items were identified and introduced to the participants.

In multi-glosses groups, the researcher typed the passage in a Microsoft Word Document, and the target vocabularies were marked by italicizing the word; moreover, the researcher used Microsoft PowerPoint Presentation Document for each vocational vocabulary and prepared multi-glosses slide for each vocational vocabulary item (consisting target words and nontarget words). The slides consisted of the vocabulary itself, a picture, an L1 meaning, phonetic format of the word, pronunciation of the vocabulary in MP3 format, an L1 definition, and 3 native-like examples for each word.

The order of presenting the glosses was designed so that each gloss appears one after the other and by the teacher clicks on the mouse. First of all, immediately after facing the vocational vocabulary, the teacher opened the PowerPoint and showed the related slide. By the first click, the picture is shown, and the learners are faced with the picture of the word; then, after the researcher pronounced the word and by the next click, the word appeared. In the next step, the teacher clicked to present the vocabulary pronunciation audio format. After that, the learners were asked to repeat the correct pronunciation. After that, the participants

faced the word definition and the native-like examples. The researcher read them and covered them until the learners comprehended them. The control group only received information that could be delivered without glosses. All learners in both control and experimental groups had the chance to ask their questions and continue their interaction in the teacher-learner dyad and learner-learner dyad to make all the possible vocabulary problems solved. The average time spent on each passage was about 1 hour. The time limitation for doing each task was 2 minutes. In the following, one sample of the multi-glossed words is shown:

Picture 1 – A Sample of the Gloss

Source: Prepared by the authors

Teacher: Ok, guys. Another word on the screen.

(a) Learner(s): Yea, we call it a bone.

Teacher: yes, looks more carefully?

(a) Learner(s): yea, there is something wrong with them.

Teacher: Yep, but can you identify what the problem is?

A learner: yes, one of them is filled with more wider holes, am I right teacher?

Teacher: yes, and it shows you a type of disease. Who knows the name of this depicted issue?

(A) Learner(s) try (ies) to read the slide name, osteo…

Teacher: played the pronunciation of the word.

Learners: (repeated the word) Osteoporosis

Teacher: Ok, so we know Osteoporosis as پوکی استخوان

(A) Learner(s): (read the definition provided in the slide.)

Teacher: Yes, and can you guess the reasons?

(A) Learner(s): aging, drinking soda, smoking, genetic factors, calcium deficiency, and …

Teacher: So, is there any way to avoid this issue?

(A) Learner(s): drinking milk, not drinking sodas…

Teacher: the teacher adds many other ways. What other problems can appear as the result of Osteoporosis? What are the symptoms of the issue?

Learners tried to produce some answers, and the teacher mediated the learners to find out the correct answer.

Then the reading continued to be covered.

On the other hand, in the control group, the teachers simply described the word and translated it into the learners' first language.

Regarding the above-mentioned procedure, the treatment sessions were handled as preceded.

Data analysis procedures

In the pre-test, for selecting the target words, the researcher asked learners to check an ESP vocabulary checklist; in such manner that they were supposed to indicate whether they had already known the words or not. Then, by reviewing the learners' answers, the study calibrated the target words.

For the sake of the post-test, the research used the vocational vocabulary test to check the learners' vocabulary knowledge. The post-test consisted of 30 vocabulary tests; for each correct answer, they received three marks. So, the exam was out of 60. All the test items were based on the covered content during their treatment sessions. Therefore, the test had content validity.

For analyzing the obtained data, the study used SPSS. All the collected data were placed into the SPSS, and both descriptive and inferential statistics analyzed the participants and their performance. For the first research question, Independent-sample T-test and the second research question, as there were two categorical variables (five different majors and two group types control and experimental group), the research questions and the study tend to investigate how the independent variable (gloss-mediated vocational vocabulary learning) affects and changes the dependent variable (vocabulary knowledge), two-way ANOVA was used.

Results

Q1: Is there any significant difference in the vocational vocabulary knowledge among the control and experimental group?

Table 1. Shows the descriptive statistics on the performance of the participants regarding the first research question. The mean score for the control group is 35.58, whereas the mean score for the experimental group is 52.76. The mean scores indicate the difference between the control and the experimental group performances. The significant level for Levene's test is 0.41 and larger than the alpha level (sig.=.05). So, equal variances are assumed. The 2-tailed significant level is 0.000. This value is smaller than the alpha level (p-value=.0.05); thus, it can be concluded that the multi-gloss group outperformed the non-gloss group since a significant difference between the performances of the control and experimental group is obtained. In other words, using multi-glosses can lead to vocabulary retention and the production of vocational vocabulary knowledge.

Table 1 – Descriptive statistics and t-test results for the performances of the control and experimental groups

	Group Type	N	Mean	SD	Levene's Test	t	df	Sig. (2-tailed)
Vocabulary Test	Non-glossed	106	35.58	15.65	.41	-7.94	-207.92	.000
	Multi-Glossed	104	52.76	15.66				

Source: Prepared by the authors

To find the magnitude of the obtained results between the non-glossed and multi-glossed groups, the test of effect size was run to calculate the eta squared. Eta squared formula is:

$$eta\ squared = \frac{t^2}{t^2 + (n1 + n2 - 2)}$$

The obtained eta squared score is 0.23 based on the guidelines proposed by Cohen (1988, pp. 284– 7) (.01=small, .06=moderate, .14=large effect), this result suggests a very large effect size.

Q2: Is there any significant difference in the vocational vocabulary knowledge among different ESP majors' groups?

Table 2 – Descriptive statistics for different majors' performance on the vocabulary test

Major	Group Type	Mean	SD
Anesthesiology	Non-glossed	52.2	12.4
	Multi-Glossed	68.8	5.6
Software	Non-glossed	44.7	13.1
	Multi-Glossed	65.2	6.9
Civil Engineering	Non-glossed	27.4	7.1
	Multi-Glossed	39.7	7.9
Architecture	Non-glossed	20.8	7.1
	Multi-Glossed	40	11
Electronic Science	Non-glossed	24.5	7.7
	Multi-Glossed	40.2	10.1

Source: Prepared by the authors

Table 2. Descriptive statistics on the performance of participants in the vocabulary test. It shows the group types, majors, mean scores, and SD of the test scores.

Table 3 – Interaction effect

Source	df	Sig.
Major	4	.000
Group Type	1	.000
Major * Group Type	4	.248

Source: Prepared by the authors

Table 3. Depicts the interaction effect; the table indicates that the interaction effect is not significant because the significant value is .248, and this value is larger than the alpha level (p-value is larger than 0.05) as the interaction effect is not significant, so the main effect can be safely interpreted. The main effect for both independent variables (Major and Group type) is significant because the significant level is below the alpha level (sig.=.000; and sig.≤.05). It means that there is a significant difference between the performances of the non-glossed and multi-glossed groups. Moreover, a significant difference between the performances of different majors is observed. Table 4. is a post hoc that presents the statistical data to find out where the significant difference is.

Table 4 – Tuckey test for different majors' performance on the vocabulary test

(I) Major	(J) Major	Mean Difference (I-J)	Sig.
Anesthesiology	Software	7.19*	.004
	Civil Engineering	27.09*	.000
	Architecture	30.60*	.000
	Electronic Science	30.05*	.000
Software	Anesthesiology	-7.19*	.004
	Civil Engineering	19.90*	.000
	Architecture	23.41*	.000

	Electronic Science	22.86*	.000
Civil Engineering	Anesthesiology	-27.09*	.000
	Software	-19.90*	.000
	Architecture	3.51	.474
	Electronic Science	2.96	.704
Architecture	Anesthesiology	-30.60*	.000
	Software	-23.41*	.000
	Civil Engineering	-3.51	.474
	Electronic Science	-.55	.999
Electronic Science	Anesthesiology	-30.05*	.000
	Software	-22.86*	.000
	Civil Engineering	-2.96	.704
	Architecture	.55	.999

Source: Prepared by the authors

Table 4. Presents the Tukey Honestly Significant Difference test. To find out where the significant differences are, the column labeled Mean Differences indicated the significant differences by an asterisk.

Taking both Anesthesiology and Software majors into consideration and comparing these two majors with the performance of other major groups, the statistics reveal that the significant level for all majors is less than the alpha level (p-value=0.05). Therefore, Anesthesiology and Software participants outperformed other major groups.

For Civil Engineering, the results indicate a significant difference compared to both Anesthesiology and Software majors as the significant levels are less than 0.05 (sig.= .000), whereas there is no significant difference in the performance of this group compared to Architecture and Electronic sciences. The significant levels for Architecture and Electronic sciences are respectively 0.47 and 0.7 (significant levels are larger than the p-value 0.05).

The Architecture group and Electronic Science are in the same vein as the Civil Engineering group. The finding specifies that by comparing the performance of these groups to the performances of the Anesthesiology and Software groups, a meaningful difference is obtained as the significant levels are 0.000.

To sum up, by comparing the different majors' performance, results announced a significant difference in the performance of the Anesthesiology and software groups with all groups. However, there is no significant difference between the performance of the Electronic Science, Civil Engineering, and Architecture groups. At the same time, the meaningful difference in the performance of the first set (Anesthesiology and Software groups) and the second set (Electronic Science, Civil Engineering, and Architecture) was observed. In other words, the first set outperformed the second set.

Therefore, the study's second hypothesis was rejected, and the results yield a significant difference between the students' level of performance on the vocabulary test with the use of multi-glosses in the control and the experimental groups.

Discussion

The research was formulated to examine and comprehend the effectiveness of using multi-glosses on vocational vocabulary acquisition and vocabulary knowledge. The study's hypotheses were rejected, and the results yield a meaningful and noteworthy difference between the students' level of performance on the vocabulary test with the use of multi-glosses in the non-glossed and the multi-glossed groups. The first significant result of this study is that employing the computer-mediated glosses in multi modes enhances vocational vocabulary learning and vocabulary knowledge as all the participants in multi-glossed groups irrespective of their majors outperformed the participants in non-glossed groups. Consequently, regarding the first research question, the study indicates that glossing is effective for vocational vocabulary use. The significant peripheral finding of the current study is that the students of the different majors perform differently compared to the other majors.

Thus, the findings of this part of the study added to the values of the previous studies in this area. Some scholars (JONES, 2004; KO, 2005) argued that because glossing is an option to make words and terminologies more salient, it directs the learners' consideration and motivates them as well to learn in an innovative way. They continued to say that attention and scrutiny are the foremost issues in vocabulary acquisition. They also concluded that glossing sets the ground for motivation, attention, and association, three essential aspects in vocabulary competence growth. It is crystal clear that students with high enthusiasm and the inner tendency to acquire would enjoy greater improvement.

Other scholars (HULSTIJN *et al.*, 1996; YANGUAS, 2009; YOSHII, 2006) shed light on the efficacy of employing glosses in the procedure of vocabulary learning. However, this should be kept in mind that this study examined the effect of using multi-glosses on L2 vocational vocabulary learning and vocabulary knowledge.

Furthermore, additional attention to the semantic facets of lexicons and associations that are shaped on the ground of the similarities and differences amid fresh and old pieces of evidence and information activate better retaining of fresh information. By the use of the glossing procedure, learners are permitted to focus on the glossed arguments as many times as possible. This recurrent exposure involves learners in the procedure of education and results

in deep learning. In the same vein, another investigation (MATSUOKA; HIRSH, 2010) clarified that glosses encourage learners to participate in the process of learning. In a rectilinear relationship between vocabulary competence and reading comprehension, the integration of vocabulary in the learners' minds leads to greater comprehension. Correspondingly, Ko (2012), by mentioning glossing as a powerful way to make words salient, noted that learners should perceive a form in the input for the forthcoming process of the exposed input and permute it to intake.

Additionally, Farvardin and Biria (2012) recited numerous studies to approve the effective and beneficial role of glossing in vocabulary education and reading comprehension (HONG, 2010; YOSHII, 2006). HONG (2010) stated that different approaches exist to boost incidental vocabulary learning. One is guessing and making use of marginal glosses. Glossing joins most of the influential features in vocabulary learning that were discussed formerly. Glossing also gathers learners' attention, which is the core aspect of vocabulary acquisition. Glossing also is a fruitful way for incidental vocabulary learning over extensive reading since it delivers learners with the chance of frequent exposure.

The obtained results indicated the distinct performances of different majors are a new issue because previous studies mostly investigated the effects of glosses on vocabulary learning. In fact, the possible effects of majors turned out to be effective in the realm of vocational vocabulary items. To the best of the researcher's knowledge, no preceding investigation has compared the effects of multi-glosses on L2 vocabulary knowledge and retention. It should be mentioned that in this study, all modes of glosses were used. So, it's not clear what mode of gloss can mostly enhance vocational vocabulary knowledge. One speculation for obtaining such results is that when learners face different modes of glosses, they will pay more attention to vocabulary and its use in a native-like context (than the non-glossed condition). In other words, using different types of glosses can trigger more attention to vocabulary learning.

Conclusion

Many major conclusions are available based on the obtained results. First, the results indicated that multimodal glosses are fruitful for fostering vocational vocabulary learning. Second, it was found that employing multimodal glosses into vocational classroom sessions would result in native-like performance. Moreover, the results shed the line on the emergence of using technology and bringing it into language instruction, so, in this way, the learners can

benefit more. In the meantime, the results showed that those groups who were more familiar with the means of technologies could gain more. The current study's implication is that educators should consider using multimodal and computerized teaching aids as a factor that directly affects the consequences of instruction. For further investigations, the researchers should focus on the role of using multi-glosses for different learning styles and their impact on vocational vocabulary use. Also, another issue that is worth researching is whether glosses can also be led to the use of proverbs and job expressions.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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