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## **The Impact of Using Gloss-Mediated Vocational Vocabulary Learning on the Oral Authentic Use of Vocational Vocabularies Among Iranian ESP Learners**

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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 authentic oral vocabulary production. The study used five different majors (anesthesiology, software, civil engineering, architecture, and electronic science); 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 researchers used a pretest to select the target vocational vocabulary items. For the glossed groups, all vocational vocabulary items were taught through glosses, whereas the non-glossed groups did not receive any glosses. After the treatment session, the participants were asked to participate in the pictures description task and describe 15 pictures orally. For the first research question, an Independent Sample t-Test, and for the second research question, Two-way ANOVA was used to analyze the collected data. By reviewing the inferential statistics, the significant difference between the glossed and non-gloss conditions was revealed, it can be concluded that using multimodal glossing can lead to more authentic oral production of the L2 ESP learners. Moreover, L2 teachers can use computer-based glossing information as an L2 vocabulary learning facilitator to help learners have more authentic production.

**Keywords:** Authenticity, CALL, Multi-Glossing, Vocational Vocabulary, Oral Performance, ESP

### **1. INTRODUCTION**

Both L2 vocabulary learning and effective interaction in an L2 are two of the most problematic areas in the realm of second language acquisition. As a matter of fact, many L2 learners face many crises, such as comprehension and production, while they are attempting to interact in L2, and this is because of their inadequate vocabulary competence. In fact, vocabulary learning has a vital role in the realm of L2 learning; therefore, the investigation of the new effective techniques for increasing learners' L2 vocabulary competence should receive continuous attention. There is still a wide range of controversies on the best vocabulary learning techniques, but it is noted that the most crucial way of acquiring effective L2 vocabulary learning is incidental vocabulary learning during reading (Hulstijn & Laufer, 2001). But dealing with unknown vocabulary items is a challenging issue, and it can demotivate L2 learners. Guessing the new vocabulary items directly depends on many criteria, for instance, the range of unfamiliar vocabulary items in the passage, learners' proficiency level, their vocabulary competence, and the employed strategies by the learners (Abraham, 2008). To this end, one possible solution for this issue is to make different forms of glosses for the target vocabulary items and provide learners with these glosses as mediation for acquiring L2 vocabulary items for both general and vocational lexical items.

Thus, glossing not only helps learners for incidental vocabulary learning and reduces the ignorance of the unfamiliar words while doing reading by learners (Qian, 2004); but also reduces the false guesses, interpretations, and inferences of unknown words (Kondo-Brown, 2006).

Considering the growing attention in the computer-mediated implementation of multi-modal glosses for enhancing L2 vocabulary competence, an issue that should be tapped is to be addressed is the investigation of the effectiveness of using multi-modal glosses for the acquisition of the L2 vocational vocabulary and its impact on the authenticity of the vocational vocabulary production in an oral format. So, this study intends to observe whether ESP learners with multi-modal glosses can outperform no gloss condition.

So, the researcher used Microsoft PowerPoint Presentation to make multi-modal glosses for teaching vocational vocabulary items. The glosses consisted of Pictorial gloss (an appropriate picture of the target word), auditory gloss (the mp3 format of the pronunciation of the word), and textual glosses (L1 meaning of the word, phonetics format of the pronunciation, L2 definition, and L2 native-like examples) for five different majors including Anesthesiology, Civil Engineering, Architecture, and Electronic Science, Civil Engineering students. Glosses can be presented in two formats; they can be delivered based on the contiguity principle (simultaneous displaying of the glosses for a word) or successively/interactively (separated in time). So, they can be displayed one after another or in a concurrent format (Mayer & Fiorella, 2014; Moreno & Mayer, 2000a, 2000b). This study presents the multi-modal glosses for the glossed condition one after the other; first, the pictorial gloss is presented, then the audio gloss, and finally, the textual glosses.

### 1.1. Glosses and L2 vocabulary learning

Reading passages is a great source for L2 learners to expand their vocabulary knowledge (Hulstijn & Laufer, 2001). Due to the fact that students' processing resources are restricted to correspond to the lower and higher cognitive processes entailed in reading, affording different forms of print-based and computer-based glosses can support students do reading comprehension and simultaneously acquire unknown vocabulary items faced in a passage.

Many studies investigated the effectiveness of textual glosses in the realm of L2 vocabulary learning; some of them focused on the effectiveness of using L1 and L2 glosses circumstances compared to no gloss situation. These studies proved the positive effects of employing L1 and L2 glosses for incidental vocabulary acquisition (Hulstijn, Hollander, & Greidanus, 1996; Jacobs, Dufon, & Hong, 1994; Laufer, 1998; Laufer & Shmueli, 1997; Yoshii, 2006). Some studies emphasized the effectiveness of L1 glosses than L2 glosses (Laufer & Shmueli, 1997; So, 2010; Yee, Bailenson, & Ducheneaut, 2009), whereas other studies showed no significant difference between these two types of textual glosses (H. Chen, 2002; Jacobs et al., 1994; Yoshii, 2006). The third group of studies indicated the effectiveness of employing L2 glosses than L1 glossed in the process of L2 vocabulary acquisition (Miyasako, 2002). Many other studies have been done to investigate the role of different forms of L1 and L2 glosses (C. Grace, 1998; C. A. Grace, 2000); multiple-choice versions of gloss (Duan & Yan, 2004; Watanabe, 1997); dictionary like glosses (Gettys, Imhof, & Kautz, 2001) on L2 vocabulary items acquisition. All the above-mentioned studies shed light on the fruitfulness of using glosses in the process of L2 vocabulary learning.

Another passion in the recent studies belongs to the use of technological aids for the demonstration of multi-modal glosses- known as the combination of pictorial, visual, auditory, and textual glosses. These studies indicated that using the multi-modal glossing is more fruitful and effective than the solo modality of the gloss for the L2 vocabulary learning (Al Seghayer, 2001, 2003; I.-J. Chen, 2016; Kim & Gilman, 2008; Kost, Foss, & Lenzini Jr, 1999; Ramezanali, 2017; Ramezanali, Uchihara, & Faez, 2021). Many studies also reported the effectiveness of using multi-modal glosses in the classroom context as a motivator and as a means of anxiety reducer with providing the learners with the opportunities for the negotiation of meaning and for interacting effectively (Brinton, 2001; Syodorenko, 2010).

Reviewing the literature also showed the large focus on the effects of employing various forms of single modes of glosses (Miyasako, 2002; Yoshii, 2006) or different modalities of the glosses- including textual, auditory, and visual glosses (Al-Jabri, 2009; Al Seghayer, 2001, 2003; Kim & Gilman, 2008; Syodorenko, 2010) non of them did not focus on the effectivity of the multimodal glosses on the authenticity of the vocabulary used more specifically the authenticity of the vocational vocabulary use. Moreover, one limitation on the history of using multimedia glosses and vocabulary learning is to investigate to what extent multi-modal glosses in the process of vocational vocabulary learning can enhance the authenticity of the oral vocational production.

Some studies stated that ESP must be intended to meet the learners' (Dudley-Evans & St John, 1998); ESP could be defined as a deliberate process; it contains specific language and content (Robinson, 1991). The most vital facet of vocabulary learning strategy (VLS) is comprehending the structural facet of ESP and exploring the vocabulary meaning from the text (Esfandiari, 2015); Consequently, ESP vocabulary teaching is a backbone for production improvement, intentions, and storage.

Thus, much research has been done and sheds light on the effectiveness of using glosses for learning and teaching target words (H. Chen, 2002; Hulstijn et al., 1996; Marefat, Rezaee, & Naserieh, 2016; Qian, 2004; Ramezanali, 2017; Ramezanali et al., 2021; Rassaei, 2017; Samian, Foo, & Mohebbi, 2016; Yanguas, 2009; Yoshii, 2006). Nowadays, scholars have concentrated on what type and forms of glossing are more effective for vocabulary learning (Yoshii, 2006). Moreover, scholars also have paid more attention to the effectiveness of the computerized multi-modal glosses, that is, using the combination of the textual, auditory, and visual glosses while teaching new vocabulary items (Abraham, 2008; Al Seghayer, 2001, 2003; Plass, Chun, Mayer, & Leutner, 2003; Ramezanali, 2017; Ramezanali et al., 2021; Rassaei, 2018; Syodorenko, 2010; Yanguas, 2009; Yoshii, 2006). The result of one meta-analysis study showed that using multi-modal glossing can be more fruitful than paper-based or traditional glosses in L2 vocabulary acquisition (Plonsky & Ziegler, 2016).

This paper was conducted to examine the efficiency of multimedia and multimodal glossing on L2 vocational vocabulary acquisition in terms of authentic use. So, the study uses all textual formats (L1 equivalent, L2 definition, corpus-based examples) and the glossed word pronunciation with a picture.

## 1.2. Authenticity

Literature reveals various definitions for describing authenticity, but the notion of authenticity has remained controversial. One of the major studies on authenticity (Alexander Gilmore, 2008) reviewed the related literature and introduced some inconsistencies in authenticity. He also took one step further and asked about the usefulness or vagueness of authenticity in language education? And he remarked on those as mentioned above eight vital definitions of authenticity.

1. Authenticity is the native speaker's language production for another native language speaker in the target language association (Little, Devitt, & Singleton, 1989; Porter & Roberts, 1981).
2. Authenticity is the act of conveying a real message by a real speaker or real writer for the real audience (Benson, 1997; Morrow, 1977; Nunan, 1989, 2002; Porter & Roberts, 1981; Swaffar, 1985).
3. Authenticity is the attribute that a recipient confers on a text because it is not considered intrinsic as something in the text but is transmitted to it by the reader or listener (Breen, 1985; MacDonald, Badger, & Dasli, 2006; Widdowson, 1978).
4. Authenticity is the learner-teacher interaction (Van Lier, 1996).
5. Authenticity is the type of task chosen (Bachman, 1991; Benson, 1997; Breen, 1985; Guariento & Morley, 2001; Lewkowicz, 2000; Van Lier, 1996).
6. Authenticity is the social circumstances of the classroom (Arnold, 1991; Breen, 1985; Guariento & Morley, 2001; Lee, 1995; Rost, 2002).
7. Authenticity relates to testing and assessment (Bachman, 1991; Bachman & Palmer, 1996; Lewkowicz, 2000).
8. Authenticity is the capability to think and behave and be competent about the target language culture in a way that can be comprehended and validated by them (Kramsch, 1998).

Regarding the definitions mentioned above of authenticity, it can be concluded that authenticity should be placed in the text/speech itself, in the social/cultural context, in the participants, in the purpose of the interaction. Going through many meanings or senses accompanying authenticity, it is clear that a deeper perception of language and learning has become a slippery slope.

Again, the question is still there, should we leave the notion of authenticity because it is too intangible to be useful? The researcher desires to restrict the notion to believable criteria since when dealing with mental concepts such as learner authentication, any discourse is probable to be entitled valid and authentic, so the concepts and notions become meaningless. To this end, the study uses (Morrow, 1977) definition of authenticity. Authenticity is a natural language produced by a tangible negotiator for a real audience and intended to carry an actual message.

For this research, the researcher described vocabulary authenticity as the usage of the oral layout of the vocabulary in the course of the actual communication among the actual speaker (the learner) and the actual assistant or audience (teacher) for passing on the actual message (doing the photograph description task) in an actual imitated context (simulated higher-education-test and interview context) (Benson, 1997; Morrow, 1977; Nunan, 1989, 2002; Porter & Roberts, 1981; Swaffar, 1985).

Frequent studies have shed light on using glosses in general English courses (Golonka, Bowles, Frank, Richardson, & Freynik, 2014), as far as the researcher knows, there is a less tapped area of using multi-glosses into ESP instruction and authentic oral production. So, this study aims to tap and investigate the role of using multimodal glosses on authentic oral production.

### Porter & Roberts' Framework (1981)

No.	Item	Yes/No
1	Recognizing the vocabulary	
2	Accurate Dictation/Pronunciation of the vocabulary	
3	Defining the vocabulary	
5	Use the word in a native-like example	
6	Contextualized vocabulary use	
7	Going on the follow-up interaction about the word	

Considering these principles makes it conceivable to illustrate whether the vocabulary production is authentic or not. The framework's validity can be supported by the very prominent study (Porter & Roberts, 1981), where they stated that native speakers usually recognize the authentic production with slight hesitation and significant

accurateness. Additionally, by characterizing authenticity, researchers can distinguish the surface traits of authentic discourse and assess how much learners' output resembles it (Bachman & Palmer, 1996; Alex Gilmore, 2004; Trickey, 1988).

### 1.3. Vocational vocabulary learning

It has to address why learning, understanding, and using vocational vocabulary items are crucial. The reason for this importance is that usually, all vocational 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.

It seems that university teachers consider two ways for ESP learners. First, learners must already have sufficient knowledge and linguistic information about vocational vocabulary. Second, learners must recognize the meaning of words through reading skills' techniques. Therefore, the study used the multi-modal glosses technique during the instruction in the treatment session.

### 1.4. Task-Based Language Teaching (TBLT)

Task-based language teaching (TBLT) is an approach to instructing L2 language and easing language education by provoking the L2 learners in interactionally authentic language use. Hence, learners are provided with the required materials to reach the outcome interactionally rather than using linguistic terms; that means learners need to use implicit knowledge rather than explicit knowledge (Rod Ellis, 2009; Rod Ellis & Loewen, 2007; Han & Ellis, 1998).

Moreover, Doing tasks can lead to authentic language production; since the interactors, by focusing on meaning and using both linguistic and nonlinguistic knowledge, tries to solve the existing gap and reach the communicative outcome (Rod Ellis, 2018; R. Ellis, Skehan, Li, Shintani, & Lambert, 2019). So, the study used the photograph description task, follow-up question, and oral interaction to check whether participants could authentically use the L2 vocational vocabulary items.

The current study aims to investigate:

Q1: Is there any significant difference in the authenticity of the oral vocabulary use among control and experimental groups?

H1: There is no significant difference in the authenticity of the oral vocabulary use among control and experimental groups.

Q2: Is there any significant difference in the authenticity of the oral vocabulary use among different ESP major groups?

H2: There is no significant difference in the authenticity of the oral vocabulary use among different ESP groups.

## 2. MATERIALS AND METHODS

### 2.1. Design of the study

This study included two independent variables (gloss-mediated and vocational vocabulary) and one dependent variable (oral authenticity of the vocabulary use). The study tends to find out whether there is a causal relationship between the independent and dependent variables. This study is quasi-experimental research as the study lacks random assignment.

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 for assigning control and treatment conditions. The study employs the learners of five different majors in different universities; therefore, there are five control groups and five experimental groups. There is one control and one experimental group for each major (majors are Anesthesiology, Software, Civil Engineering, Architecture, and Electronic Science). A teacher-made vocational 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, the treatment session was held in the next session. Then, at the end of the treatment session, the learners were asked to participate in a post-test. The experimental group has received the multi-glossed vocational vocabulary learning procedure. In contrast, the comparison group received the teacher's explanations in a no-gloss condition. Furthermore, to obtain concise results, the study used the pretest-posttest design.

### 2.2. 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). 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.

**Table 3.2: Number of participants in each group**

Major	Group Type	No. Participants
Anesthesiology	Non-glossed	15
	Multi-glossed	18
Software	Non-glossed	38
	Multi-glossed	32
Civil Engineering	Non-glossed	19
	Multi-glossed	23
Architecture	Non-glossed	18
	Multi-glossed	19
Electronic Science	Non-glossed	16
	Multi-glossed	12

All the participants were male and 19 to 26 years old. They had experienced 6 or 7 years of learning English as a foreign language in their school years. Moreover, they have studied English at institutes for 2 to 6 years and are ESP learners in their universities.

### 2.3. Materials and Instruments

The current study used the universities' assigned books. All of the ESP books are designed based on the readings. The researcher selected a list of a word for the pretest 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 (which have been explained previously), finally, the researcher asks the learners to participate in a picture description task. Learners were provided with 15 pictures.

In order to check the level of learners' vocabulary knowledge and the authenticity of the vocabulary used, the study used the Vocabulary Knowledge Scale (VKS). VKS has been proposed by Paribakht and Wesche (1993) and is based on the self-assess of their vocabulary knowledge.

The Vocabulary Knowledge Scale Paribakht and Wesche (1993):

- (1) I don't remember ever seeing this word.
- (2) I have seen this word before, but I don't know what it means.
- (3) I have seen this word before, and I think it means \_\_\_\_\_.
- (4) I know this word. It means \_\_\_\_\_.
- (5) I can use this word in a sentence. For example: \_\_\_\_\_.

After answering the questions mentioned above, if they assigned "yes, I know this word," they were asked to talk about: what the picture is; what are they for; what problems can follow them? Moreover, what are the caring way to avoid or solve these problems? To check the answers to be native-like and authentic, the researcher checks whether the learner recognized the vocabulary, accurate dictation, defined the vocabulary, producing contextualized examples/follow-up questions. Learners' knowledge can be interpreted as a continuum that shows that some aspects are learned before others (Schmitt, 2010). This also indicates that passive vocabulary knowledge cannot be led to communicative language use because active communication or authentic language use requires deep vocabulary knowledge (Freebody & Anderson, 1981; Schmitt, 2010). This means that the meaning and form relation should be made for active language use.

This scale has been used repeatedly in various studies on the condition of vocabulary development (File & Adams, 2010; Yang, Shintani, Li, & Zhang, 2017; Yun, 2011). It is a five-point Likert type. Therefore, the scoring system is presented as follows:

Item1: no score

Item 2: it seems the word is just familiar, so 20 were assigned and awarded.

Item 3: 40- in the condition of producing wrong, meaning the score was 0.

Item 4: 60- in the condition of producing the wrong synonym or definition, the score was 0.

Item 5: 80- in the condition of no sentence, the score was 0. And in the conditions of false interaction or incomplete interaction, the participant lost some scores.

Finally, the obtained scores were summed up and divided into 15 (number of assigned tasks) to achieve each participant's final score.

## 2.4. Data collection procedure

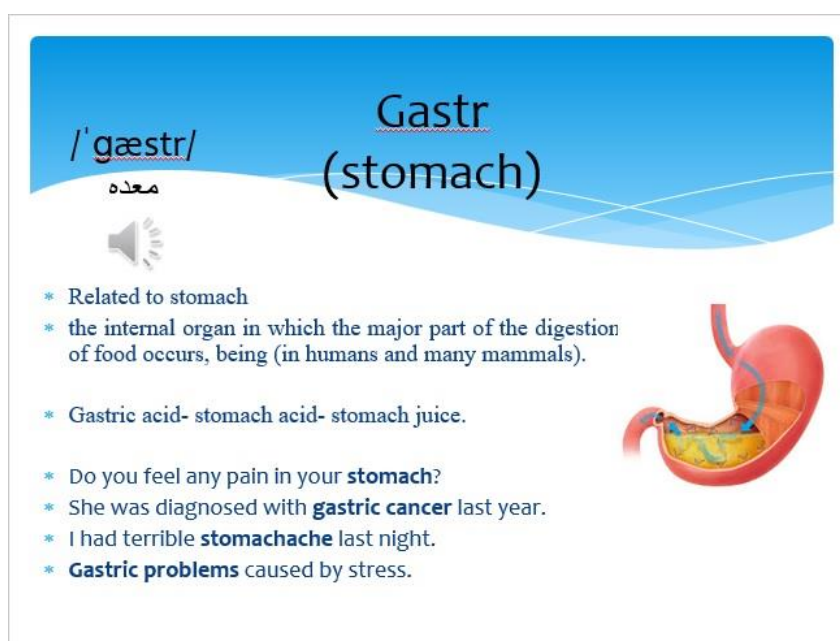
In the no gloss groups, the researcher only provided the explanations and target word-related information in a no gloss condition and in a traditional way. However, in multi-gloss groups, the class was equipped with a computer, a large LCD, and a speaker.

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 multi-glosses groups, the researcher typed the passage in a Microsoft Word Document, and the target vocabularies were italicized. Moreover, the researcher used Microsoft PowerPoint Presentation Document and prepared multi-glosses slides for each vocational vocabulary item (for target 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.

Glosses were designed to appear 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. The first click makes the picture demonstrate; then, after the researcher pronounced the word, the word appeared by the next click. The teacher clicked to present the vocabulary pronunciation audio format in the next step. After that, the learners were asked to repeat the correct pronunciation. Then the word definition and the native-like examples have appeared. The researcher read and covered them until the learners' comprehension.

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. After that, the participants were asked to answer the picture description task orally. 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

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

(a) Learner(s): Yea, we call it food box. (laughing)

Teacher: What is the box made of?

(a) Learner(s): It's not definitely a wooden box

Teacher: Yep, it is made of tissue, but not the tissue you usually use to clean your hand.

A surprised learner: You mean دستمال teacher?

Teacher: oh no, are you kidding? I'm sure you know tissue as بيافت. And all your body is made of a particular tissue, muscle tissue, heart tissue, as well as stomach tissue. We, the people, call this FOOD BOX as stomach. But the funny part is that your major introduces another name, which is ...???

(A) Learner(s): Gastr...

Teacher: played the pronunciation of the word.

(A) Learner(s): (repeated the word) Gaster...

Teacher: Ok, what is the stomach/Gaster for?

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

Teacher: Yes, and to digest the loaded food into your food box, your body should release stomach juice or gastric acid.

(A) Learner(s): When we are full of stress, the gastric acid balance changes, and it causes a problem for us, a bad problem, a very bad problem.

Teacher: What should we do when too much stomach acid is released?

(A) Learner(s): Take an anti-acid (laughing).

Teacher: The teacher reads the examples in the slide and translates them into Persian if needed.

Then the reading continued to be covered.

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

## 2.5. Data analysis procedures

For the sake of the post-test, the research used the picture description task to check the learners' authentic vocabulary use performance. The selected task type is the picture description task. The researcher selected some pictures and asked the learners to talk about the picture. Learners of each field were provided with a set of 15 pictures from the target sample. As they received the pictures, they pronounced the description and explained the picture and what it represents. Based on the vocabulary type, some more questions.

The researcher calculated the validity and reliability of the test. About the oral test reliability, inter-rater reliability was used to avoid subjectivity was used. 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 (oral authenticity), two-way ANOVA was used.

## 3. RESULTS

Q1: Is there any significant difference in the authenticity of the oral vocabulary use among control and experimental groups?

Table 4.1. shows the descriptive statistics on the participants' performance regarding the first research question. The mean score for the control group is 36.63, whereas the mean score for the experimental group is 55.20. The mean scores indicate the difference between the control and the experimental group performances. The significant level for Levene's test is 0.59 and more extensive 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=.005); 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 more authentic oral production of vocational vocabulary use.

**Table 4.1: Descriptive statistics and t-test results for the performances of the non-glossed and multi-glossed groups**

	Group Type	N	Mean	SD	Levene's Test	t	df	Sig. (2-tailed)
Oral Test	Non-glossed	106	36.63	15.09	.595	-9.32	208	.000
	Multi-Glossed	104	55.20	13.70				

In order 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:

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

The obtained eta squared score is 0.29 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 authenticity of the oral vocabulary use among different ESP major groups?

**Table 4.2: Descriptive statistics for different majors' performance on the authentic oral test**

Major	Group Type	Mean	SD
Anesthesiology	Non-glossed	53.3	9.1
	Multi-glossed	67.8	6.8
Software	Non-glossed	45.3	12.3



	Multi-glossed	65.2	7.9
Civil Engineering	Non-glossed	28.2	9.7
	Multi-glossed	43.8	7.2
Architecture	Non-glossed	23.3	6.7
	Multi-glossed	46.4	10.3
Electronic Science	Non-glossed	24.9	7.8
	Multi-glossed	45	12.4

Table 4.2. descriptive statistics on the performance of participants in the authentic oral test. It shows the group types, majors, mean scores, and SD of the test scores.

**Table 4.3: Interaction effect**

Source	df	Sig.
Major	4	.000
Group Type	1	.000
Major * Group Type	4	.246

Table 4.3. depicts the interaction effect; the table indicates that the interaction effect is not significant because the significant value is .246, 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 presents the statistical data to find out where the significant difference is.

**Table 4.4: Between majors' comparison**

(I) Major	(J) Major	Mean Difference (I-J)	Sig.
Anesthesiology	Software	6.86*	.020
	Civil Engineering	24.55*	.000
	Architecture	26.12*	.000
	Electronic Science	27.80*	.000
Software	Anesthesiology	-6.86*	.020
	Civil Engineering	17.79*	.000
	Architecture	19.26*	.000
	Electronic Science	20.94*	.000
Civil Engineering	Anesthesiology	-24.55*	.000
	Software	-17.68*	.000
	Architecture	1.57	.968
	Electronic Science	3.25	.732
Architecture	Anesthesiology	-26.12*	.000
	Software	-19.26*	.000
	Civil Engineering	-1.57	.968
	Electronic Science	1.68	.972
Electronic Science	Anesthesiology	-27.80*	.000
	Software	-20.94*	.000
	Civil Engineering	-3.25	.615
	Architecture	-1.68	.953

Table 4.4. presents the Tukey Honestly Significant Difference test. In order 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). In contrast, 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 0.96 and 0.73 (significant levels are larger than the p-value 0.05).

The Architecture group and Electronic Science are similar to 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. The results yield a significant difference between the students' level of performance on the authentic oral test with the use of multi-glosses in the control and the experimental groups.

#### 4. DISCUSSION

This study aimed to ascertain the role of multi-modal glosses on the process of vocational vocabulary learning and to investigate whether using multi-modal glosses can result in authentic oral production or not. So, this issue was considered into two distinct parts. First, the study measured the overall performance of all control groups (non-glossed condition) and experimental groups (glossed condition). The first important consequence of the study is that implementing the computer-mediated glosses in multi-mode format boosts vocational vocabulary acquisition and authenticity of vocabulary production in an oral format; as all the participants in multi-glossed groups irrespective of their majors outperformed the participants in non-glossed groups. Consequently, with regard to the first research question, the study indicates that glossing is effective for the authenticity of oral 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.

These findings are in stark contrast with the two studies. One of them identified no significant variances between glossed groups vs. control groups in vocabulary production (Yanguas, 2009); the second one presented no significant differences in the performances of no gloss and L1 gloss circumstances (Ko, 2005). The results regarding this research question are in line with the current literature, which indicates that incorporating CALL-based multi-modal glosses provides a necessary instructive basis for the incidental acquisition of the L2 vocabulary while doing reading (Abraham, 2008).

Thus, the findings of this part of the study added to the values of the previous studies in this area. Similar to the current study's findings, the previous findings showed that electrical glossing could vindicate active vocabulary acquisition in English for Academic Purposes (EAP) (Lenders, 2008). He identified that language learners are principally interested in using glosses if the words seem as applicable to their upcoming careers. As soon as authentic texts are allied with supplementary tasks, glossing empowers active vocabulary learning.

A growing body of relevant studies indicates that glossing gives learners many required extra information for comprehension of the vocabularies and texts; therefore, using glosses is a beneficial technique for accelerating vocabulary learning and words retention (AbuSeileek, 2011; Akbulut, 2007; Al Seghayer, 2001; Bowles, 2004; I.-J. Chen, 2016; Gettys et al., 2001; Ghahari & Heidarolad, 2015; Golonka et al., 2014; Hong, 2010; Khezrlou, Ellis, & Sadeghi, 2017; Kim & Kim, 2012; Ko, 2005, 2012; Rassaei, 2018; Varol & Erçetin, 2016; Yoshii, 2006, 2014).

Another finding of the study is that glosses can help learners to deeply process the words and, therefore, can produce the vocational vocabulary items in an authentic manner. This positive effectiveness of processing the new vocabularies has shown in the literature that glosses by encouraging the L2 learners to process the meaning of new vocabulary items direct learners' attention to the unfamiliar words, and this issue is the result of input enhancement and consciousness-raising (Ghahari & Heidarolad, 2015; Yoshii, 2014).

The results of the current study indicated that glossing is beneficial to authentic vocabulary use, and the reason might be because of the fact that as soon as learners faced new glossed vocational vocabulary, their attention was elevated through different modalities of the glosses, so it led to result in better processing of vocational lexical items in mind. Thus, the vocabulary items processing might have powered learners' awareness of the new items and fortified vocational vocabulary learning.

#### 5. CONCLUSION

The purpose of the study was to examine the effect of gloss-mediated vocational vocabulary use and its impact on Iranian ESP learners' vocabulary authentic oral production. The results indicated that the gloss-mediated group outperformed the non-glossed group. This finding reinforced the importance of the computerized gloss use method in vocabulary learning and authentic oral production of ESP words. The results might encourage

teachers to make the computerized atmosphere in ESP classes. Moreover, using multi-glosses could be a beneficial aid for ESP students to acquire vocational vocabulary and use them authentically. For instance, as the learners lack vocational vocabulary knowledge and vocational contexts, they need some motivation for better comprehension of the new vocational vocabularies. The results showed that in the absence of gloss-mediated vocabulary learning context, ESP learners could not use vocabularies authentically. The study can be useful in the promotion of ESP vocabulary knowledge. Moreover, it can be used as an alternative to traditional techniques in ESP contexts. Based on the current pandemic circumstance, it is suggested that the researchers can calibrate the use of multi-glosses in their online instruction and check its effectiveness on language learning. It is also worthwhile to investigate the role of multi-glosses on the acquisition of grammatical structure, or to evaluate the level of glosses effectivity for the different learners with various age ranges in an academic situation. The university instructor can use the study results to use teacher-made or learner-made multi-glossed hints in their instruction to facilitate the L2 learnings in an ESP context.

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