The Combined Effect of Task Complexity and Task Condition through Collaborative Activities on EFL Learners' Vocabulary Learning: A Focus on L2 Proficiency

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Abstract

The present study probed into the combined effect of task complexity and task condition through collaborative activities on EFL learners' vocabulary learning with a focus on the role of L2 proficiency. To this end, 121 female Iranian EFL learners from Safir Institute in Babol were initially given Oxford Placement Tests (OPTs) to select homogeneous participants in terms of language proficiency. Then, 80 female pre-intermediate and intermediate Iranian EFL learners were selected and randomly divided into four groups: two experimental groups and two control groups. Each group consisted of 20 learners. There were a vocabulary pretest and a posttest. The experimental groups benefited from two complexity tasks, namely a "fill-in task" and a "sentence writing" task with different derivatives of the words. The two experimental groups were required to perform the tasks collaboratively. However, the control groups were not exposed to any complexity tasks and followed their conventional vocabulary learning individually. Results revealed that task complexity and task condition had a statistically significant impact on the

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learners' vocabulary learning in both experimental groups (i.e., pre-intermediate and intermediate) compared with their control group counterparts. Practical implications and directions for future research are also discussed.

Keywords: L2 Proficiency, Task complexity, Task condition, Vocabulary learning

Introduction

English learning requires a range of qualifications that together enable EFL learners to learn English language efficiently and functionally. Perhaps, the most important qualification is vocabulary learning and the "guest of honor" is vocabulary (Miralpeix & Muñoz, 2018; Sun et al., 2023). In other words, vocabulary is indispensable from any aspect of language learning and language without vocabulary could not be learned; that is, it is almost impossible to listen, speak, read and write without vocabulary. In this regard, Wilkins (1972, pp. 110–111) believed "while without grammar very little can be conveyed, without vocabulary *nothing* can be conveyed."

Along this line, Sun and Zhang (2021) maintained that it is impossible to teach vocabulary in a simple way. Although presentation, explanation and activities are essential for the process, they must eventually be placed within a sociocultural context. Thus, teachers should use innovative techniques to introduce new words to EFL learners or to invoke passive vocabulary in their minds. In the same vein, Naci and Raside (2011) emphasized the need to move beyond definitions and to establish deeper understanding of vocabulary in particular. Meaningful words are easier to learn and maintain than just memorized words. Therefore, it is advisable that we utilize a lexical item in various

contexts and to incorporate it with what we already know provided that we know it well beyond its definition.

Considering the importance of vocabulary education, researchers proposed that a task-based curriculum is a good alternative for a language course (Ellis, 2017; Fasih, 2022; Maiguashca, 1993; Robinson, 2011; Rupley & Nichols, 2005). Generally speaking, a task is regarded as an exercise in which significance is essential; there exists some kind of connection to the real life; task completion has priority; and task evaluation is the output of the task (Skehan, 2018). In addition, Robinson (2011) stated that a task-based program should feature pedagogical tasks sequenced to increasingly meet the demands of a real-world target task. Due to the importance of task-based vocabulary learning, scholars have tried to determine which task-related factors contribute more to vocabulary learning (Skehan & Foster, 2012). In this regard, they have realized that the ease of performing tasks depends on a number of factors one of which is the intrinsic characteristics of the task itself, namely task complexity, task conditions, and task difficulty (Robinson, 2011).

That being said, the academic success among language learners was recognized as a strong predictor of their proficiency in English (Cummins, 2008; Mahon, 2006; Solorzano, 2008). In this regard, Sun et al. (2023) found L2 proficiency as the most robust predictor of vocabulary knowledge and arrived at close relationships between vocabulary knowledge and task-related factors. Besides, Jimenez (2022) revealed that an increased L2 proficiency was correlated with a more frequent use of approximators and faster lexical acquisition. Similarly, Solorzano (2008) noticed that factors such as low levels of proficiency have been used in language instructional programs to determine

whether a learner is competent with limited English. Thus, it stands to reason that language proficiency has some influence on students' knowledge of language including vocabulary knowledge.

All in all, to provide fresh insights into the educational practices, policies and theories, it is essential to study variables that could affect the academic students' learning outcomes. To this end, previous studies that mostly explored student level variables rarely extended beyond data sets available in school districts and state education departments, thereby narrowing down academic performance predictor to demographic and language data (Yoko, 2007). Second language research hardly ever investigated how these variables had an effect on the vocabulary achievement of the learners in content areas outside the language classroom and was usually performed in post-secondary situations.

Besides, the SLA researchers and applied linguists are interested in investigating the impacts of task complexity in teaching/learning second or foreign languages. In this regard, the combined effect of task complexity and task condition through collaborative activities on vocabulary learning with a focus on L2 proficiency, if documented, can have useful consequences for the development of teacher training and vocational training courses and instructors working with teachers of the English language. To the best of our knowledge, the combined effect of task complexity and task condition on vocabulary learning with an emphasis on L2 proficiency has not been systematically measured within an empirical study. Thus, the present empirical study is an attempt to fill this research gap, which will provide fresh insights into the current understanding of

task-based vocabulary instruction, vocabulary learning, task-related factors, and L2 proficiency.

The main significance of the present study lies in the fact that task-based vocabulary instruction plays a major role in any instructional field and paves the way for honing other language skills. Therefore, EFL teachers need to find appropriate ways to assist the EFL learners with bolstering this crucial language component, which can help alleviate much of their comprehension problems and ease the whole learning process. Therefore, they along with all the other stakeholders can gain valuable insights from learning how to implement incidental vocabulary instruction by for example adjusting the task-related factors (e.g., task complexity, task condition, etc.) for the overall betterment of their EFL learners' vocabulary knowledge.

Review of the Related Literature

In the past few decades, L2 researchers have sought to identify what a language learner needed to successfully acquire in a foreign language (henceforth FL). They realized that vocabulary was the core feature of the language, language teaching and vocabulary education. Although vocabulary was not adequately attended to when teaching FL, the relevance of vocabulary in language learning and teaching became much pronounced later such that the literature regarded the vocabulary acquisition as an important competency in SLA (Sun & Zhang, 2021). Besides, it was thought that vocabulary teaching would assist learners with comprehending and communicating in English more efficiently (Maftoon & Bagheri, 2013; Schmitt, 2014).

Therefore, implementing an effective vocabulary teaching technique was thought to aid learners with remembering words, developing ideas, and making sentences more easily (Malmir & Parhizkari, 2021). In this regard, there has been a wide array of methods and instruments to teach vocabulary. Although vocabulary teaching, including the assignment of a corpus of words by the teachers, and vocabulary learning, including memorization and use of these words or phrases by the learners, seem systematically repetitive and enervating, it is important to glance at the words in a meaningful way in order to learn and retain them (Munir, 2016). In this regard, some scholars argued using realia (i.e. using photos and visual images) among various methods of teaching vocabulary.

However, although researchers generally concurred that incidental learning was responsible for a great deal of L1 vocabulary acquisition (Laufer, 2001; Laufer & Paribakht, 1998; Nation, 2001; Schmitt, 2014; Webb, 2008), some scholars suggested that explicit task-based vocabulary learning may be responsible for the bulk of L2 vocabulary knowledge (Hunt & Beglar, 2005; Nation, 2001; Schmitt, 2014; Waring & Takaki, 2003). The same sense is also emphasized in a task-based syllabus, wherein "a task seeks to engage learners in using language pragmatically rather than displaying language and it seeks to develop L2 proficiency through communicating" (Ellis, 2017, p. 27). Besides, tasks have been used to make teaching more communicative.

As emphasized by Schmitt (2014), when one uses tasks, the meaning of target lexical items is best acquired. Research in different EFL contexts has shown that using tasks was more feasible than giving L1 equivalents in teaching new L2 vocabulary. Similarly, Munir (2016) noted that there is now a broad consensus for a more task-based

vocabulary instruction in the core curriculum. Thus, it stands to reason that EFL teachers need to employ proper task-based vocabulary instructional techniques to facilitate the vocabulary learning process.

Robinson (2011) further proposed three major aspects of a task, namely task complexity, task conditions, and task difficulty. The first dimension, task complexity, refers to the intrinsic cognitive needs of a task and can be manipulated in the form of tasks from different aspects. The second dimension, task conditions, describes the functions of interaction based on the involvement a task might need. It encompasses the flow of information in the classroom and grouping of participants in terms of, for example, gender or closeness. The third dimension, task difficulty, refers to learners' perceptions of the problem level of the task including the ability and emotional responses of the learners.

Along this line, Mashhadi and Saki (2018) explored the effect of task-based vocabulary instruction on the vocabulary learning performance of Iranian EFL learners. The experimental group received the task-based vocabulary instruction while the control group followed the conventional vocabulary instruction. Results revealed that the intervention was more effective in terms of teaching the target technical vocabulary items. Also found was that learner-learner interaction or collaboration while performing the vocabulary learning tasks provided ample opportunities for the participants to exchange information and monitor their vocabulary learning process.

Regarding the effective role of tasks in EFL vocabulary learning, research revealed that both first- and second-language learners (Abdollahzadeh & Fard Kashani, 2011; Hulstijn, 1992; Naci & Raside, 2011; Pitts et al., 1989; Waring & Takaki, 2003)

may acquire significant vocabulary knowledge through an inclusion of the task complexity variable. To support the findings, Malmir and Parhizkari (2021) examined the effect of L2 definitions, fill-in-the-blanks, and sentence writing tasks on the acquisition, retention, and production of lexical versus grammatical collocations. Results of their study indicated that the EFL learners who underwent sentence writing treatment significantly outperformed those who received vocabulary learning tasks, such as fill-in-the-blank and definition tasks, in terms of the acquisition of lexical items including grammatical collocations. Also found was that the fill-in-the-blank tasks assisted the EFL learners with learning, retaining, and remembering both types of collocations significantly more than the L2 definitions.

Besides, the task condition variable was also the subject of a number of studies, such as Peters (2007), who examined the combined effect of task complexity (i.e., single vs. dual task) and task condition (i.e., individual versus collaborative) on certain foreign language learners, concentrating on the learners' performance on vocabulary acquisition and reading comprehension. Results showed that the group that tackled a single task was better able to learn the target vocabulary items and comprehend the reading text. However, the task condition variable did not function as a good predictor of vocabulary learning. Notwithstanding, these studies did not consider L2 proficiency as a moderating variable influencing the effectiveness of task-based vocabulary instruction in improving the EFL learners' vocabulary learning.

Thus, another strand of the vocabulary learning research has recently probed into the relationship between L2 proficiency and vocabulary learning. For example, Sun et al. (2023) explored the factors affecting L2 vocabulary learning and found that L2

proficiency was the most robust predictor of vocabulary knowledge. In addition, they found that metacognitive learning strategies, such as self-regulated and self-aware learning, were among the strategies easing the vocabulary learning process. In another study, Jimenez (2022) examined how lexical knowledge of approximators was gained by EFL Spanish learners during oral interviews. Results of their study revealed that an increased L2 proficiency was correlated with a more frequent use of approximators and faster lexical acquisition. Finally, Paez (2002) studied English proficiency predictors for a sample of 209 secondary school language students through her dissertation research. The ultimate multiple regression model explained approximately 52% of the variance in English. The L1 skills of the participants were not included in the final model. The best predictors of English skills were parental education, and English exposure and use. The skills and age of parental English did not play any roles in the final result.

Theoretical framework

Skehan and Foster's Limited Attention Capacity Model (LACM) (Skehan, 2018; Skehan & Foster, 2012) is a well-established task factors model that delineates the attention-related requirements of tasks performed by L2 learners. Notably, LACM offers three elements of task complexity, task condition, and task difficulty. According to the model, the resources available for learners as individuals are restricted and this limitation means that learners cannot process the entire L2 input they obtain. However, their language learning process can be facilitated provided task-related factors are adjusted accordingly.

Besides, academically speaking, the conception of language proficiency as either a structural expertise or a functional competence suggests two conflicting theoretical perspectives. The structural skills (also called syntactic skills) referred to the mastery of

disagreeable aspects of language, while the functional skills were associated with the ability of the learners to use language in a specific circumstance of use (e.g., academic understandings and classroom type vocabulary knowledge). In this regard, tests of proficiency highlighting the definition of the latter English proficiency commonly include "status tests" rather than explanatory tests for academic subject matters (Solorzano, 2008).

To explain more, Cummins (1981a, 1981b) distinguished between social and academic language skills. For this purpose, he has initially defined a terminology, called Basic Interpersonal Communicative Skills (BICS), as the skills needed to be engaged in and sustain social conversations. These skills can be observed through "visible speech, basic vocabulary and grammar skills" (Cummins, 1981a). Further, Cummins (2005, 2008) proposed a more comprehensive definition of skills that progressively directed language policy, research and practice (and more recently, the development of skill tests), namely Cognitive Academic Language Proficiency (CALP). Cummins (2005) proposed the abstract concept of CALP, as opposed to BICS, which primarily referred to the ability of the educators to know and convey ideas and concepts, which are of relevance to the success of schools in terms of both oral and written productions of their students. Language learners have the chance to make repeated use of the characteristics of daily language and thus become automatic. Automaticity, in turn, makes the language production less taxing and places almost no burden on the cognitive and attentional resources of a learner (Bozorgian et al., 2022).

In particular, tasks and activities linked to CALP are decreased in context. These tasks are largely based on the references of the language and need a clear understanding

of the language itself. In addition, academic activities are completed less frequently, allowing the learner to establish automation less effectively. Therefore, it is necessary to increase linguistic skills and a wider degree of cognitive engagement in order to provide sufficient academic work. Results of a number of studies conducted in the U.S revealed that language learners can acquire social language skills within three years and academic language abilities up to seven years (Thomas & Collier, 2002). Accordingly, L2 skills can have an immediate effect on the students' academic output in the areas of content through the development of academic language skills. The study of the content area of particular vocabulary and syntax is one example of the application of L2 to the learning of languages.

The present study

Although the above studies considered the role of proficiency, they did not consider it in the realm of task-based vocabulary instruction. Nor have they considered the task complexity variable along with the task condition variable. Thus, it remains largely unexplored whether and to what extent the task complexity and condition variables can play a role in task-based vocabulary instruction across various proficiency levels. Consequently, the role of task complexity, as the heart of the task-based language learning process, has been the subject of a host of studies in SLA (Abdollahzadeh & Fard Kashani, 2011; Gilabert, 2005; Robinson, 2011; Yuan & Ellis, 2003). However, there is a dearth of empirical studies exploring the combined effect of task complexity and task condition variables through task-based vocabulary learning activities on EFL learners' vocabulary learning with respect to their L2 proficiency (Skehan & Foster,

2012). To bridge this pronounced gap, the present study arrived at the following research questions and hypotheses.

RQ1. Do task complexity and task condition through collaborative activities have any statistically significant effect on pre-intermediate EFL learner's vocabulary learning?

RQ2. Do task complexity and task condition through collaborative activities have any statistically significant effect on intermediate EFL learner's vocabulary learning?

Besides, the researcher posed two null hypotheses according to the research questions.

$H_0$1. Task complexity and task condition through collaborative activities have no statistically significant effect on pre-intermediate EFL learner's vocabulary learning.

$H_0$2. Task complexity and task condition through collaborative activities have no statistically significant effect on intermediate EFL learner's vocabulary learning.

Method

Participants

The main participants of the current study were 80 pre-intermediate and intermediate Iranian EFL learners studying English in the English department of Safir Institute in Babol. They were only female and were between 23 and 31 years of age. Out of 121 participants who initially took part in the Oxford Placement Test (OPT) as a test of homogeneity, 58 of them whose scores were between 51 and 59 were identified as the

intermediate learners and 63 of them whose scores were between 40 and 50 were identified as the pre-intermediate learners. Then, they were divided into four groups randomly: two experimental groups and two control groups. Each group consisted of 20 participants.

Instruments

In order to conduct the current study, three instruments were used, as dealt with below.

The first instrument was the Oxford Placement Test (OPT), used as a homogeneity test. OPT is comprised of 200 multiple-choice items divided into two sections, namely listening and grammar. Each section contains 100 items, which requires the participants to choose what word they hear ('oarsman' or 'hoarseman'?). Besides, they are required to tick the correct grammar-related choice with regard to the verb tense or sentence structure. Participants were given 60 minutes to complete the test. Also, the Cronbach's alpha for the reliability of the test was calculated at 0.83, which is indicative of a high internal consistency of the test items. According to the OPT results, the participants whose scores were within the pre-intermediate and intermediate proficiency levels were selected as the main participants.

The second instrument was a Preliminary English Test (PET) was utilized in order to assess the learners' proficiency level. Due to the researcher's limitation, only the reading section of this test (30 items) was administered. The administration of the whole test took around 50 minutes. The total score of the test was out of 30. The reliability of the PET calculated for the study was 0.89, using KR-21, which is

considered "very good". Also, the validity of the test has been confirmed by two subject-specific panels.

The third instrument was a vocabulary test used as both the pretest and posttest. The target words were chosen from the Passages Book Series 1 and 2 and the target word tests were taken by the vocabulary tests at the end of each passage. This ten-item test was out of 10 and it was a matching vocabulary test. The participants were given 20 minutes to complete the tests. The Cronbach's alpha for the vocabulary test was calculated at 0.92, which is considered "excellent". The content validity of the vocabulary tests were approved by two professors in the subject-specific field.

Materials

The main material of this research was the passages which were taken from the British Council's texts. The passages were used for the main treatment of the study which was task complexity.

Data Collection Procedure

The first step of the study was conducting the OPTs, tests of homogeneity, in order to determine the learners' proficiency level as EFL pre-intermediate and intermediate learners, and afterwards dividing them into four groups, i.e., two experimental groups and two control groups, each having 20 participants. Before the start of the treatment, all four groups were given a vocabulary pretest. Then, the main tasks were given during the treatment phase, which were as follows.

The experimental groups were exposed to two complexity tasks in their treatment. One of them was “Fill-in task”. It was a vocabulary exercise with fill-in task. The task required the participants to read the text, find the proper vocabulary from the text and then write the proper form of the target vocabulary items. Also, they had “Sentence Writing” task with different derivatives of the words. It was a vocabulary exercise with sentence writing. The participants had to read the text, find the proper vocabulary, and make a meaningful sentence. They were required to write sentences with different parts of the speech words. Besides, the two experimental groups were required to perform the tasks collaboratively, considered as the task condition.

On the other hand, the target words in control groups were taught conventionally by giving definitions, synonyms, antonyms, etc. There were no complexity tasks given to the control group and they followed their conventional vocabulary learning individually. At the end of the treatment, all four groups received a vocabulary posttest. It is worth noting that the total score for vocabulary tests was out of 10.

Results

The researcher conducted a series of calculations and statistical analyses by using SPSS (Version 24) in order to test the raised hypotheses in this study. Then, both descriptive and inferential statistics were presented. Besides, to examine the research questions, two separate paired samples *t*-tests and independent samples *t*-tests were run. Needless to say that the test statistics for the OPT equaled .07 and the *p*-value was found to be $p < .09$, which indicated that data was normal. Initially, to find out whether the gathered data with regard to the pre-intermediate groups were normally distributed, One-Sample K-S test was run, whose results are reported in Table 1.

Table 1

One-Sample Kolmogorov-Smirnov Test for Pre-Intermediate Groups

		Experimental Pretest	Control Pretest	Experimental Posttest	Control Posttest
N		20	20	20	20
Normal Parameters[a,b]	Mean	6.35	5.92	7.28	6.00
	Std. Deviation	1.00	1.43	1.06	.78
Most Extreme Differences	Absolute	.21	.19	.17	.21
	Positive	.21	.19	.17	.21
	Negative	-.16	-.11	-.17	-.21
Test Statistic		.21	.19	.17	.21
Asymp. Sig. (2-tailed)		.09[c]	.15[c]	.20[c,d]	.08[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

As shown in Table 1, the scores of *pre-intermediate* experimental and control groups in their pretest and posttest were normally distributed; that is, the Asymp significance level was greater than the observed value ($p < .08, .20, .15, .09$).

Also, Table 2 depicts that the scores of both *intermediate* groups in their pretest and posttest were normally distributed; that is, the Asymp significance level was greater than the observed value ($p < .08, .08, .09, .08$). Accordingly, the criteria for running parametric statistics were met.

Table 2

One-Sample Kolmogorov-Smirnov Test for Intermediate Groups

		Experimental Pretest	Control Pretest	Experimental Posttest	Control Posttest
N		20	20	20	20
Normal Parameters[a,b]	Mean	7.00	6.35	8.00	7.00
	Std. Deviation	.78	1.00	.78	.78
Most Extreme Differences	Absolute	.21	.21	.21	.21
	Positive	.21	.21	.21	.21
	Negative	-.21	-.16	-.21	-.21
Test Statistic		.21	.21	.21	.21
Asymp. Sig. (2-tailed)		.08[c]	.09[c]	.08[c,d]	.08[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

The researcher performed the independent samples *t*-test for the first null hypothesis, that is, L2 proficiency does not have a statistically significant impact on EFL pre-intermediate vocabulary learning through complexity tasks. The test was run to show that the sample was comparable in both the experimental and control groups in terms of their English proficiency and their ability to understand the targeted terms. A major difference in the results suggests that the analysis was inconclusive. The results are given in the Table 3 below.

Table 3

Group Statistics of the Pre-Intermediate Pretests

Groups		N	Mean	SD	T	Sig
Pretest Scores	Experimental	20	6.35	1.00	1.04	.30
	Control	20	6.00	.78		

The results revealed that there was no significant difference ($t = 1.04$, $p > 0.05$) between the pretest scores of the experimental group ($M = 6.35$, $SD = 1.00$) and the pretest scores of the control group ($M = 6.00$, $SD = .78$). This shows that both the experimental and control groups at pre-intermediate proficiency level were at the same level before the treatment began, and thereby indicating that the sample of the population chosen for the study was fair.

Furthermore, an independent samples *t*-test was conducted to compare the posttest scores of the experimental and control groups in pre-intermediate proficiency level. The results revealed that the posttest scores of the learners in the experimental group ($M = 7.28$, $SD = 1.06$) were significantly higher ($t = 2.83$, $p < 0.05$) when compared to the scores of the learners in the control group ($M = 5.92$, $SD = 1.43$). This indicated that the integration of task complexity had a powerful effect on the learners' ability to recognize and understand the target vocabulary. The findings are illustrated in Table 4.

Table 4

Group Statistics of the Pre-Intermediate Posttests

	Groups	N	Mean	SD	T	Sig
Posttest Scores	Experimental	20	7.28	1.06	2.83	.00
	Control	20	5.92	1.43		

In order to find out whether the pre-intermediate learners made significant improvement in their vocabulary learning through complexity tasks as a result of their treatment in this study, a paired-samples *t*-test was run, comparing the means of the

vocabulary test. The findings indicated that there was a significant improvement (t = -2.23, $p < 0.05$) in vocabulary learning among the pre-intermediate learners.

Table 5

Paired-Samples T-Test of the Pre-Intermediate Posttests

	Groups	N	Mean	SD	df	T	Sig
Pre-Intermediate Scores	Pretest	40	6.82	1.12	27	2.82	.00
	Posttest	40	5.96	1.13			

Concerning the second research hypothesis of the current study, that is, L2 proficiency has no statistically significant impact on EFL intermediate learner's vocabulary learning through task complexity, the researcher carried out another independent samples *t*-test. This test was implemented to ensure that the sample in both groups were similar in their proficiency of English. A significant difference in the result would lead to the conclusion that the study was inconclusive. Table 6 shows the group statistics.

Table 6

Group Statistics of the Intermediate Pretests

Groups		N	Mean	SD	T	Sig
Pretest Scores	Experimental	20	7.00	.78	1.83	.07
	Control	20	6.35	1.00		

As the table indicates, there was no significant difference (t = 1.83, $p > 0.05$) between the pretest scores of the experimental group (M = 7.00, SD = .78) and the pretest scores of the control group (M = 6.35, SD = 1.00). This confirms that both groups

at intermediate proficiency level were at the same level before the treatment began, and as a result indicating that the sample for the current study was fair.

Moreover, another independent samples *t*-test was performed to compare the posttest scores of the experimental and control groups at the intermediate proficiency level. The findings revealed that the learners' posttest scores in the experimental group (M = 8.00, SD = .78) were significantly higher (t = 3.37, $p < 0.05$) compared to the learners' posttest scores in the control group (M = 7.00, SD = .78). This confirmed that the integration of task complexity had an impact on the learners' vocabulary learning. The results are depicted in Table 7.

Table 7

Group Statistics of the Intermediate Posttests

	Groups	N	Mean	SD	T	Sig
Posttest Scores	Experimental	20	8.00	.78	3.37	.00
	Control	20	7.00	.78		

In order to probe whether the intermediate learners made significant improvement in their vocabulary learning through task complexity, a paired-samples *t*-test was run. The findings showed that there was a significant improvement (t = -3.56, $p < 0.05$) in their vocabulary learning through complexity tasks among the intermediate learners.

Table 8

Paired-Samples T-Test

	Groups	N	Mean	SD	df	T	Sig
Intermediate Scores	Pretest	40	6.67	.94	27	-3.56	.00
	Posttest	40	7.50	.92			

Discussions

The present study examined the combined effect of task complexity and task condition through collaborative activities on EFL learners' vocabulary learning with a clear focus on the role of L2 proficiency. Our findings suggested that the experimental EFL learners with pre-intermediate and intermediate levels of language proficiency improved significantly in terms of task-based vocabulary learning from the pretest to the posttest as a result of the task-based vocabulary treatments. It can therefore be deduced that in a complex task-based experimental group, the treatment of controlling the complexity of a vocabulary learning task and adjusting the task condition was more effective than in the control group where the degree of vocabulary-learning complexity was not kept under control. Since almost no previous studies of a similar framework has been conducted with an inclusion of different proficiency levels, the studies drawn upon in the present paper might support the present reported findings; however, the present study can be considered to be of considerable support in substantiating their results.

To explain the findings, task-based language teaching (TBLT) is a meaning-centered approach to language instruction. Ellis (2017) maintained that this meaning-oriented approach provides an authentic context for EFL learners to comprehend and use the target language, which makes it all the more encouraging and motivating. However,

the conventional vocabulary instructional method emphasized memorization and translation of target vocabulary items presented in a decontextualized manner. That being said, one of the main reasons for the outperformance of the experimental group learners undergoing the task-based vocabulary instruction, as juxtaposed with the conventional vocabulary instruction, was the collaborative and interactive nature of the task-based approach in which the EFL learners had the opportunity for context-based language learning and use while receiving feedback from their peers during their vocabulary learning task performance.

The cooperative nature of the vocabulary learning instruction, including the planning and reporting stages, assisted the EFL learners of different proficiency levels to receive feedback from their peers and the teacher. However, the conventional vocabulary instruction method required the control group participants to accomplish the tasks individually. Therefore, they did not receive any feedback from their peers and the teacher was considered the only authority for judging their task performance accuracy. It appeared that the presence of feedback provided a more relaxing and less threatening atmosphere for language learning to take place (Sun & Zhang, 2021). Thus, the positive and statistically significant results could be due to variables, such as learner-centered communication and negotiation of meaning, which led to a meaningful non-linguistic outcome fostering better vocabulary acquisition (Mashhadi & Saki, 2018).

Generally speaking, the results of the present paper are in agreement with those of the previous studies (e.g., Javanbakht & Yasuj, 2011; Mashhadi & Saki, 2018). For example, our findings lend support to those of Javanbakht and Yasuj's (2011) study. Working with Iranian EFL students, they assessed the impact of various tasks on

learning vocabulary. They further stated that the use of tasks with different degrees of engagement had dramatically improved the by-product of the vocabulary training. Although Javanbakht and Yasuj's (2011) study is somewhat different from the current one as the key variable of their study was only male participants and complex tasks were not used, the overall positive effects of task-based instruction on vocabulary learning can be supported by both results.

In this regard, the complexity of vocabulary learning tasks was also controlled using tasks to enhance the EFL learners' vocabulary learning, as also reported in Neyadi's (2007) study. Similarly, her study revealed that task-based vocabulary instruction enhances the ability of EFL learners to effectively memorize words. In fact, tasks provide comprehensible input as EFL learners communicate in a group collaboratively so that they can understand the definitions of the words in these situations.

On the other hand, considering the role of L2 proficiency, several studies were conducted to examine its effect on EFL learners' vocabulary learning (Jimenez, 2022; Malmir & Parhizkari, 2021; Sun et al., 2023). However, they did not include various complexity tasks developed for different proficiency levels so that they could control the complexity of the vocabulary learning tasks. For example, Malmir and Parhizkari (2021) compared the use of two vocabulary learning tasks, called fill-in-the-blank and L1 definition tasks. Results suggested that the fill-in-the-blank tasks assisted the EFL learners with learning, retaining, and remembering two types of collocations significantly more than the L2 definitions. Also, Sun et al. (2023) explored the factors affecting L2 vocabulary learning and indicated that L2 proficiency was the most robust

predictor of vocabulary knowledge. Finally, Jimenez (2022) suggested that an increased L2 proficiency was correlated with a more frequent use of approximators and faster lexical acquisition.

In the same vein, there are other studies confirming a close relationship between the EFL learners' L2 proficiency and their vocabulary size and breadth (Miralpeix & Muñoz, 2018; Schmitt, 2014). They also found that the reverse relationship also exists. Besides, these studies revealed that the role of L2 proficiency is more significant when it comes to high-frequency words, for which form-meaning connections influence collocational knowledge of the participants. Overall, there are factors affecting the vocabulary learning of EFL learners, such as L2 proficiency, input, exposure, age of acquisition, vocabulary learning strategies (e.g., metacognitive strategies), to name a few, which are interconnected. However, to unravel their interconnections, future studies need to examine them in tandem.

Conclusions

A review of the related literature shows that sequencing tasks in terms of complexity and condition has been regarded as a main pillar contributing to the provision of comprehensible input for learners. Although a large body of studies examined the individual impact of controlling task complexity or task difficulty on EFL learners' vocabulary learning, the present paper might be considered as a unique study in its own right as it elaborates on aspects of task-based vocabulary instruction that have been left untouched in the previous literature, such as L2 proficiency.

In this regard, the present study probed into the effect of task complexity and task condition through collaborative activities on EFL learners' vocabulary learning with a focus on the role of L2 proficiency. Results indicated that task complexity and task condition had a statistically significant effect on the experimental group EFL learners' vocabulary learning; that is, both the pre-intermediate and intermediate experimental groups outperformed their control group counterparts when given tasks whose complexity was determined.

Task complexity has to do with the inherent cognitive demands of a task and can be adjusted through task design. Thus, the complexity of a task is determined by its inherent features, influencing learners' cognitive performance during the implementation of a task. Varied levels of task complexity can result in alterations in the quantity and quality of language input. Robinson (2011) further suggested that task complexity involves manipulating the cognitive demands of tasks through task design. As these demands are not fixed, syllabus designers can adjust task complexity to enhance or reduce cognitive load in task-based syllabi for learners (Robinson, 2011).

The complexity of tasks has always been seen as a key determinant in understanding learners' input. Although much was done on the impacts of controlling the complexity of a task for learners' success during the learning process, the present study could be considered a single study, which shed light upon some aspects of task-based instruction, chiefly from its noteworthy orientation towards the effects of task complexity-based instruction.

This research has many implications for different stakeholders in teaching, namely language teachers, learners, curriculum designers, test developers, educational

institutions, and many others in education and training ministries. The key value of the findings acquired is that vocabulary education plays a critical part in any learning field and thus provides the necessary means to improve the basic element of language in students, which relieves a large part of the learners' difficulty in the entire learning process.

The principal implications of the present investigation for the curriculum designers can be to draw attention to the importance of sequential and complicated design of educational materials, which in turn improves individual learning. When designing the tasks, test developers may also be stimulated with regard to the primary task sequence. The results of this research, in particular, for the vocabulary field of both teachers and learners, could enable us to better integrate task-based training driven by observational task complexity.

In conclusion, vocabulary teaching in L2 learning is considered to be of utmost significance. For the learner to use the learned words meaningfully, vocabulary training should then be successful. One explanation is that if they become directly engaged, students learn more and they become more activated, involved and heavily engaged in teaching and learning activities. However, we need to remember that besides L2 proficiency and age of acquisition, there are other variables, such as quality and adequate classroom exposure together with self-regulation that are of paramount importance in vocabulary learning.

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