International Journal of Research in English Education (IJREE)

Original Article **Published online: 30 June 2024.**

The Effects of Growth Mindset Intervention on Iranian EFL Learners' Vocabulary Development

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Received: 28 October 2023
Revision: 1 February 2024
Accepted: 1 May 2024
Published online: 30 June 2024

Abstract

As a possible and influential factor in academic success, student growth mindset has recently received attention. However, the number of the studies concerning the effects of growth mindset on language skills in the context of Iran is not considerable and no study has specifically examined the influence of growth mindset on Iranian EFL learners' vocabulary development. To fill this gap, this study was conducted in order to investigate if the intervention has any significant effects on Iranian EFL learners' vocabulary development compared to those who do not receive such intervention. A quasi-experimental design in the form of pre- and posttest was used in this study. To homogenize the participants in terms of their proficiency, OQPT was used. Subsequently, out of 78 learners, sixty Iranian intermediate language learners were randomly assigned into two groups of control group receiving conventional vocabulary training and experimental group receiving a growth mindset intervention besides the conventional method for vocabulary learning. Vocabulary knowledge of the students was tested with the help of a vocabulary knowledge test that was specifically prepared and developed by researchers. To investigate if using growth mindset intervention had positive effects on learning English vocabulary by the learners in each control and experimental groups, two sets of paired-samples t-test were conducted. Afterwards, to explore which method had been more effective, the mean scores of the posttests of the control and experimental groups were compared by executing an independent two-sample t-test. The results revealed that implementing growth mindset intervention had positive effects on vocabulary development of EFL learners. Accordingly, this study has pedagogical implications for EFL teachers and students, as well as material designers.

Keywords: EFL learners, fixed mindset, growth mindset, implicit theories, vocabulary learning

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1. Introduction

An individual with a growth mindset believes that their abilities may be enhanced via learning and practice (Dweck, 2006). An attitude like this is similar to a fixed mindset, which holds that a person's intelligence and talent remain unchangeable throughout their lives. Many fields, including business, athletics, academia, and even love relationships, have been investigated by Dweck and others to determine the role of mindset in determining success. Realizing one's potential is at the heart of Dweck's study, which shows that the theory is relevant for people of all ages (Dweck, 2006). The effects of a growth mindset on students have been the subject of a growing body of research in recent years (Sarrasin et al., 2018; Sisk et al., 2018). Students range in age from elementary schoolers to seniors in college. Researchers have examined the effects of a growth mindset on parents and babies as young as ten months old, all within the context of first language acquisition (Rowe & Leech, 2019).

Teachers and professors have utilized a variety of strategies to learn more about the growth mindset and to help their students understand it. During an intervention, children may gain knowledge about the brain's learning processes, the consequences of making errors, or effective strategies for overcoming obstacles via positive self-talk. The intervention's goal may be to implement the growth mindset in STEM fields (Bifulco, 2017; Lin-Siegler et al., 2016), boost students' motivation (Baldridge, 2010; Burnette et al., 2018), or improve students' overall academic performance (Baldridge, 2010; Burnette et al., 2018). Additionally, you may find growth mindset-related educational programs online, including Brainology (Rhew et al., 2018; Saunders, 2013).

Other psychological theories of self-concept may also be involved in some of the research that have examined growth mindset and its impacts. Concepts including stereotype threat (Good et al., 2003), incremental theory (Blackwell et al., 2007), and self-affirmation (Good et al., 2003) may also have been used in studies (Sherman et al., 2013). Growth mindset and incremental theory of intelligence both refer to intellect that can be developed via learning. A fixed mentality is in line with an entity theory of intelligence, which holds that an individual's intellect is unchangeable (Dweck, 2006). The term 'stereotype danger' describes the possibility that someone would confirm a disapproving stereotype about their social, ethnic, or gender group (Steele & Aronson, 1995). According to the self-affirmation hypothesis, these risks may be reduced when people are reminded of their worth, basic principles, interpersonal connections, or even the insignificance of specific stresses (Sherman et al., 2013). Understanding these ideas is crucial since they often make up a significant portion of the relevant research and are directly tied to the ideas of fixed and development mindset. Knowing about and examining the possible impacts of growth mindset open new ways in front of those who aim to learn or teach.

Vocabulary development is interrelated to all language skills, including listening, speaking, and writing. In addition, one aspect of reading accomplishment that is crucial to take into account with regard to particular reading abilities is vocabulary growth. Research on vocabulary growth and growth mindset is few if nonexistent. Therefore, this study will fill this gap in the literature. The studies conducted worldwide mainly have focused on the application of growth mindset in the domains of math and science, as well as its impact on general academic success and attitudes toward learning. Relatively few studies have been done with language learners, as most of the research has been done in other areas (e.g. Macnamara & Burgoyne, 2022). Yet, there is a far smaller corpus of research that examines the role of growth mindset in vocabulary development. Further research is required in this area before we can fully comprehend how growth mindset instruction may benefit EFL learners' vocabulary development.

Yet, investigating the impact of growth mindset in the realm of second language acquisition is still under-researched. Teaching students how to adopt a growth mindset and persevere through challenging activities may aid in their acquisition of word learning techniques. Accordingly, this study will utilize a cloze approach similar to that employed by Sampson et al. (1982) and Griffin (2020). The goal of this research is to learn more about the impact of growth mindset on Iranian EFL learners' vocabulary development. To do so, the following question and hypothesis were formed:

RQ: Does using growth mindset intervention have any significant effects on vocabulary development by Iranian intermediate EFL learners?

H_0: Using growth mindset intervention does not have any significant effects on vocabulary development by Iranian intermediate EFL learners.

2. Literature Review

The benefits that may be gained from having a growth mindset have recently been an important topic of discussion in the field of education. The idea of mindset caught the attention of teachers who were looking for a means to keep their pupils interested and motivated while they were learning. Dweck and Leggett (1988) made the discovery that underlying personality qualities may be seen in motivational processes. These processes, in turn, create certain patterns

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of thinking, attitudes, and behavior that are geared toward the accomplishment of objectives. Moreover, individuals acquire opinions based on their experiences in the past, and these beliefs may inspire people and impact the conduct that they exhibit (Dweck & Yeager, 2019). Duco (2016) identified a positive association between having a growth mindset and a belief in the effectiveness of effort in a poll of high school students. This means that the students thought that making an effort would bring outcomes that were to their liking. In addition, there is evidence that a growth mindset may be able to predict academic achievement independent of the student's socioeconomic status (Claro et al., 2016). According to the findings of Claro et al. (2016), the academic performance of kids living in poverty in Chile was comparable to that of students from substantially wealthier socioeconomic backgrounds who had fixed attitudes. It's possible that having a growth attitude helped buffer some of the detrimental effects that having a financial disadvantage had on academic achievement. It's possible that having a fixed mentality might make these negative consequences of poverty even more apparent in terms of accomplishment (Claro et al., 2016).

There is research on the growth mindset among children and young adults in the literature. According to Dweck (2006), it is crucial to use language that places more of an emphasis on work than it does on skill or intellect when attempting to help a young child develop a growth mindset. In addition, the research of Mueller and Dweck (1998) found that fifth graders who were praised for their intellect were less invested in learning and showed less perseverance and pleasure while working on a task compared to their classmates who were praised for their effort.

The idea of mindset in English language acquisition is considered to be challenging (Lou, 2019; Lou & Noels, 2019). As a consequence of this, a singular definition of mindset becomes challenging when certain elements are taken into consideration, such as challenges, obstacles, effort, criticism, and the accomplishments of others, for example (Dweck, 2006). For instance, Puvacharonkul and Wilang (2020) observed that graduate students who were enrolled in basic English courses saw challenges, failures, and the achievements of others as examples of growth mindset settings. In addition, pupils who had a fixed mindset condition or were not predisposed to have it when it came to other factors such as effort, criticism, and evaluations of their own capabilities were less likely to have it. Since language learners might have either a fixed or a developing mindset to varied degrees, mindset shouldn't be considered a categorical or unidimensional notion, as stated by Lou and Noels (2017).

Griffin (2020) studied the efficacy of combining standard vocabulary teaching with a growth mindset. Though the impact sizes were modest, the intervention did imply that development mindset may have a practical link with self-perception. In another study, Hassanzadeh et al. (2020) evaluated the mediating effects of self-regulation and engagement to determine if EFL learners' attitudes may predict their English competence. The findings showed a strong correlation between the EFL learners' linguistic attitudes and their English proficiency. Also, the learners' participation and self-control considerably moderated this link. Based on the research's results, educators have the task of helping kids develop mindsets that place an emphasis on potential and progress rather than limitations and stagnation.

Bai and Wang (2020) investigated the contributions of intrinsic motivation, self-efficacy, and growth mindset to students' self-regulated learning (SRL) and English language acquisition in Hong Kong primary schools. The results indicated that intrinsic motivation and self-efficacy were not as good predictors of SRL as growth mindset. As Lou et al. (2022) have shown, accomplishment objectives, language-use anxiety, reappraisals of problems, and perseverance are all related to language learners' mindsets—their views on whether language is a fixed ability that is unchangeable or a flexible talent that can be acquired. Lou et al. (2022) merged these mindset-related dimensions to define mindset-system profiles among language learners who are not native speakers. Students in the development profile were consistently the most engaged and obtained the greatest marks, indicating that mindsets work as a system in conjunction with related elements, even if mindsets alone did not predict grades.

As the review of the related literature shows, there is a rich body of literature on growth mindsets worldwide. Yet, in Iran, few studies have explored mindset growth in the context of language learning, and particularly no study in the literature has investigated the impact of growth mindset on learners' vocabulary development. As Qin et al. (2021) note, context should be considered a crucial factor in investigating growth mindset. Therefore, this present study, through investigating how growth mindset instruction may benefit Iranian EFL learners' vocabulary development, aims to fill a gap in the literature.

3. Methodology

3.1 Design of the Study

This research employed a quasi-experimental design (Rogers & Révész, 2019), as it investigated the manipulation of one independent variable (growth mindset intervention) with the careful measurement of the dependent variable (Iranian EFL learners' vocabulary development), in the form of pre- and post-testing with random assignment of

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control and experimental groups. The reason for choosing this design was to make sure that any improvement in both the experimental group and the control group could be attributed to the presence of the growth mindset intervention.

3.2 Participants

In the first step, OQPT was given to 78 participants aging between 14 and 18 learning English at a private language institute to identify their English language proficiency. Afterwards, 60 participants with scores of 30 to 47 indicating an intermediate level of proficiency (Allen, 2004) were chosen. Participants were randomly allocated to two control and experimental groups, each consisting of 30 pupils.

3.3 Instruments

3.3.1 Placement Test

Oxford Quick Placement Test (OQPT) was used to homogenize the subjects. This test helped the researchers assess the levels of proficiency of the participants. The test of 60 multiple-choice questions evaluating the participants' reading, vocabulary, and grammar abilities.

3.3.2 Vocabulary Knowledge Test as Pre-test and Post-test

Vocabulary knowledge of the students was tested with the help of a vocabulary knowledge test that was specifically prepared and developed by researchers. The test had syllabus-based 40 multiple-choice items each having .5 points. This test served both as a pretest and a posttest for all the participants and was paper-based. The content validity of the vocabulary achievement test was assured through being checked by two experts in the field of ELT and the reliability index was found to be .84 through K-R21.

3.3.3 Growth Mindset Intervention

The interventions were 20–25-minute sessions. The researcher prepared lessons based on Dweck's (2006) theory of mindset. The teacher utilized resources from Ricci's (2015) *Ready-to-Use Resources for Mindsets in the Classroom* to provide guidance. Every class ended with a group or individual exercise that strengthened the concepts of growth mindset.

3.4 Data Collection

The researcher picked an inventory of 80 words from the chosen books. These words were likely to be new to the students since they are academic terms with substantial importance across disciplines (e.g., Beck et al., 2002). The participants in the control group participated between two and three times per week for a total of 4.5 hours throughout the course of four weeks. The experimental group got the same amount of vocabulary education two to three times per week as the other groups, but in addition, they received additional growth mindset instruction. The intervention for cultivating a development mindset was carried out on a biweekly basis for a total of three hours over the course of a period of four weeks. The 30-minute vocabulary education sessions had a consistent format based on tactics from Baumann et al. (2005) and Puhalla (2011). Three new vocabulary terms were introduced by the instructor at the start of the lecture, along with their definitions. Each term was chosen from Beck et al. (2002) *Text Talk Books and Vocabulary Words* and was taken from a book that the instructor read out to the class.

3.5 Data Analysis

The collected data was analyzed using SPSS (version 28). For investigating the normality of data, One-Sample Kolmogorov-Smirnov Test was computed. To investigate if using growth mindset intervention had positive effects on learning English vocabulary by the learners in each control and experimental groups, two sets of paired-samples t-test were conducted. Finally, to explore which method had been more effective, the mean scores of the posttests of the control and experimental groups were compared by executing an independent two-sample t-test.

4. Results

The previous section discussed the methodology and the evaluation instruments and teaching strategies used during the intervention, and this section presents the results and evaluates their significance. The data gathered by the test scoring were imported into SPSS (version 28). The steps in doing the analysis as well as the final results related to the scores will be explained in this section. Finally, the results will be analyzed in relation to the research questions and hypotheses.

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Table 1. Descriptive statistics related to pretest and posttest of the groups

		Pretest of Control Group	Posttest of Control Group	Pretest of Experimental Group	Posttest of Experimental Group
N	Valid	30	30	30	30
	Missing	0	0	0	0
Mean		13.083	13.483	13.467	14.217
Std. Error of Mean		.3071	.3283	.3682	.2772
Std. Deviation		1.6820	1.7979	2.0169	1.5182
Variance		2.829	3.232	4.068	2.305
Skewness		-.131	.205	-.444	-.136
Std. Error of Skewness		.427	.427	.427	.427
Kurtosis		-.768	-.259	-.696	-.861
Std. Error of Kurtosis		.833	.833	.833	.833

As it can be seen from the Table 1, the mean score of pretest and posttest for the control group were 13.083 and 13.483 respectively. The same values for the experimental group were 13.467, 14.217, respectively. For investigating the normality of data, One-Sample Kolmogorov-Smirnov Test was computed. Table 2 shows the results of the tests. Since critical value in all tests results was higher than significance level of alpha ($p > .05$), the tests results were not significant. This indicated that the variables were normally distributed. Having determined the normality of distribution of the data, parametric tests were used.

Table 2. One-Sample K-S test results

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Pretest of Control Group is normal with mean 13.1 and standard deviation 1.6820.	One-Sample K-S Test	.200[a,b]	Retain the null hypothesis.
2	The distribution of Posttest of Control Group is normal with mean 13.5 and standard deviation 1.7979.	One-Sample K-S Test	.200[a,b]	Retain the null hypothesis.
3	The distribution of Pretest of Experimental Group is normal with mean 13.5 and standard deviation 2.0169.	One-Sample K-S Test	.200[a,b]	Retain the null hypothesis.
4	The distribution of Posttest of Experimental Group is normal with mean 14.2 and standard deviation 1.5182.	One-Sample K-S Test	.200[a,b]	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .050.
a. Lilliefors Corrected
b. This is a lower bound of the true significance.

The research hypothesis is restated and analyzed here and according to the analysis, the answer to the question is found and subsequently hypothesis is accepted or rejected:

H_0: Using growth mindset intervention does not have any significant effects on vocabulary development by Iranian intermediate EFL learners.

Tables 3 and 4 are taken into consideration to test the null hypothesis.
Table 3. Results of paired t-test for the pretest and posttest of the experimental group

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Paired Differences							
			95% Confidence Interval of the Difference				
Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	df	Sig. (2-tailed)
-.75	1.48	.27	-1.30	-.19	-2.76	29	.01

As it can be seen from Table 3, the value of sig. (2-tailed) is lower than 0.05 (0.01 < 0.05). Therefore, the hypothesis is rejected and using growth mindset intervention has had positive effects on learning English vocabulary by the learners in the experimental group and the treatment has been effective.

Table 4. Results of paired t-test for the pretest and posttest of the control group

Paired Differences							
			95% Confidence Interval of the Difference				
Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	df	Sig. (2-tailed)
-.4000	1.0537	.1924	-.7935	-.0065	-2.079	29	.047

As it can be seen in Table 4, the value of Sig. (2-tailed) is higher than 0.05 (0.047 < 0.05). Therefore, the learners who received the traditional method for learning English vocabulary have also progressed in their learning and the method has been effective. To explore which method has been more effective, the mean score of the posttests of the groups have to be compared.

Table 5. Results of independent t-test for posttests of experimental and control groups

Levene's Test for Equality of Variances		t-test for Equality of Means						
							95% Confidence Interval of the Difference	
F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
.11	.74	2.51	58	.015	1.20	.47	.24	2.15
		2.51	57.29	.015	1.20	.47	.24	2.15

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As it can be seen from the table, the value of the Sig (2-tailed) is lower than 0.05 (0.015 < 0.05). Therefore, there is a significant difference between the means of the posttests of the two groups which indicates that the treatment which the experimental group members have received has been more effective and the hypothesis is rejected.

5. Discussion

This study was conducted in order to investigate if the intervention has any significant effects on Iranian EFL learners' vocabulary development compared to those who do not receive such intervention. The results showed that implementing growth mindset intervention had significantly positive effects on vocabulary development of EFL learners. This finding is in line with the wide range of studies which assert the positive impact of implicit theories on students' achievement (e.g. Blackwell et al., 2007; Burgoyne et al., 2020; Li & Bates, 2019). In addition, the current study's findings align with those of some prior investigations conducted by Puvacharonkul and Wilang (2020), Griffin (2020), Hassanzadeh et al. (2020), Bai and Wang (2020) who found growth mindset intervention to be positively effective in improving language skills. Mercer (2018) states that learners should think that they can get better at a foreign language by participating in language learning activities that they have some control and influence over. If the learner does not do well, they may feel like they wasted their time and money even if the topics and assignments were interesting.

In the same vein, Oxford (2016) has claimed that having a growth mindset is better than having a fixed mindset when learning a second language. This is because a growth mindset sees the learner as someone who can actively improve their abilities, while a fixed mindset doesn't believe in using strategies or taking control. In concert with Oxford (2016), it can be maintained that having a growth mindset is helpful in language learning. This might be related to the impact of growth mindset in making learners more motivated and helping them deal with challenges and mistakes as shown in previous studies like Bai and Guo (2019). It is noteworthy that the finding in this study is contrary to the finding in Li and Bates (2019) who conclude that the relationship between a growth mindset and educational achievement is either nonexistent or has a negligible negative impact. On the other hand, the results of the present study point to the merits of growth mindset in achievement of EFL learners with regard to their vocabulary development. This difference in the results might be related to the different contexts in which the studies have been conducted.

The results found here align with the findings of studies such as Pepi et al. (2004), Law (2009), and Petscher et al. (2017). These studies all discovered improvements in reading comprehension in relation to growth mindset or an incremental theory of intelligence. The findings of the present study are contrary to the findings in Saunders (2013), as the intervention used in the research of Saunders (2013) did not have any impact on reading achievement. This difference might be related to the implementation of the intervention as in the same study participants believed a growth mindset program did positively affect their views about intelligence.

6. Conclusion and Implications

Recent research has focused on implicit theories of beliefs. Yet, there is a scarcity of research examining these ideas in the realm of EFL/ESL learning among students (Bai & Wang, 2023).

Accordingly, this present study examined if growth mindset instruction could enhance Iranian EFL learners' vocabulary development. The results revealed that implementing growth mindset intervention had positive effects on vocabulary development of EFL learners. Based on the results, it could be concluded that growth mindset intervention is positively effective in improving the performance of EFL learners regarding their vocabulary learning. In other words, learners with growth mindset did significantly affect vocabulary learning and made the teacher more aware of the students learning styles and their preferences for the way of learning new words.

This study emphasizes the potential of a dynamic mindset system, which integrates mindsets and pertinent constructs, to supplement the current body of literature on mindset theory in order to gain better vocabulary achievement among language learners. Finding that growth mindsets have a positive and significant effect on the vocabulary acquisition of EFL students suggests that EFL instructors through creating effective interventions, reducing fixed mindset and promoting growth mindset can help learners to in achieving their objectives. In the same vein, this result suggests that mindset growth can assist Iranian students in overcoming their failures when learning a foreign language. Overall, by modifying teaching strategies, learning environments, and textbook content, fixed mindset levels among Iranian learners can be decreased while improving vocabulary achievement.

Notwithstanding the merits of this study, its limitations, point to interesting suggestions for further study. One limitation of this study is related to its context. Future research could take into account the environment in which they function. By doing this, academics may improve their understanding of contextualized patterns of intervention effects. In the same vein, the role of other moderating factors could be investigated in future studies. Further research could

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investigate factors that can amplify or reduce the impact of interventions, such as actions of instructors and administrators (Wang et al., 2020). Furthermore, future studies could take into account demographic information of the participants in their analysis. To completely comprehend the effectiveness of an intervention and use resources effectively, it is necessary to grasp the specific details of how treatments operate in different situations for various learners (Qin et al., 2021).

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