International Journal of Research in English Education (IJREE)

Original Article **Published online: 20 December 2023.**

Investigating the Impact of Learning Styles on Reading Comprehension Skills and Self-Efficacy Perceptions: Evidence from Iranian Intermediate EFL Learners

Zahra Yousefi Afshari[1] & Abbas Pourhossein Gilakjani[1*]

* Correspondence:
abbas.pourhossein@yahoo.com
1. Department of English Language Translation, Lahijan Branch, Islamic Azad University, Lahijan, Iran

Received: 11 August 2023
Revision: 8 November 2023
Accepted: 10 December 2023
Published online: 20 December 2023

Abstract

The present study investigated the impact of learning styles on EFL learners' reading comprehension skills improvement and self-efficacy perceptions. To this end, 60 intermediate male/female EFL learners at Pasargad Language Center in Langarud, Iran with the age range from 14 to 20 were selected based on the results of Michigan Test of English Language Proficiency. Next, they were randomly divided into two groups of 30. Then, the participants in both groups sat for a pretest of the English reading comprehension test, and answered the English proficiency background form, self-efficacy scale, and Maggie McVay Lynch learning style inventory. Next, the experimental group received learning-style-based activities, while the control group continued to work in the traditional way, with no regard for learning styles. Finally, the English reading comprehension test and self-efficacy scale were administered to both groups as posttests. The results of the study revealed that students' learning style preferences have significant effects on their reading comprehension skills and English self-efficacy perceptions. The results also indicated that there is a statistically significant difference in the post-test scores between the control and experimental groups. That is, the experimental group performed better than the control group in the post-test of reading comprehension skills and English self-efficacy perceptions, and the progress in the experimental group was more than the control group. The findings of the present study can encourage teachers to use learning style preferences in English language teaching to help EFL learners increase their level of reading comprehension skills and self-efficacy perceptions.

Keywords: learning styles, reading comprehension, self-efficacy perception, EFL learners

[Downloaded from mail.ijreeonline.com on 2026-11-19]

1. Introduction

People use different learning styles to adapt to different situations and learning styles affect learning outcomes. Many researchers found that students with multiple learning styles achieve greater learning outcomes (Sengsouliya, Soukhavong, Phonekeo, Sengsouliya, & Xaixanith, 2021; Soureshjani & Naseri, 2012). Nevertheless, learning styles are considered as an insignificant factor in the learning process and largely neglected. A trend in foreign language learning environments is to increase awareness of individual differences and their impact on individual learning processes (Sarabi-Asiabar et al., 2015). Learning style refers to the learner's individual ways of absorbing or receiving information in which the most convenient learning method is effect (Wintergerst & DeCapua, 2001).

A person's learning style determines the approach used to focus, process, internalize, and retain new information and is a fixed means of processing information (Awang et al., 2017). A learning style is a set of biologically and developmentally imposed characteristics that make learning more effective. Learners who various learning styles receive information in a way that matches their preferred way of acquiring and processing information (Naserieh & Sarab, 2013).

Studies have shown that learning styles depend on the context. The way of understanding, processing, and storing differs among people and is affected by the environment and past experiences. Learning styles are characteristic of various cultures; learners with different cultural backgrounds show diverse perceptual patterns of learning style preferences (Naserieh & Sarab, 2013). Liu, Hu, and Gan (2013) investigated the learning style preferences of students with different educational backgrounds and reported that the major differences in the four learning styles are dependent, analytical, holistic, and random. Naserieh and Sarab (2013) performed a research to explore the relationship between learning styles and background variables and found that technical students are significantly more tactile than social science students.

Researchers have studied the relationship between students' learning styles and academic performance. In the research conducted by Dalmolin et al. (2018), it was found that there is a positive relationship between learning styles and students' academic performance. Magulod (2019) also conducted a research on learning styles and academic performance and found a significant relationship between learning styles and students' academic performance. The study of Fatemeh and Camellia (2018) showed that students prefer learning with different learning styles, because it increases students' academic progress. Learning style relates to 'how' students learn, not 'what' they learn (Fardon, 2013). Awareness of students' different learning style preferences ultimately leads to more effective learning experiences. Alavi and Toozandehjani (2017) stated that students' learning styles can increase their learning.

Some researchers believe that by knowing students' preferred learning styles, teachers can help them learn better and achieve educational goals (Gilakjani, 2012; Mulalic, Shah, & Ahmad, 2009), this can make teachers understand students' strengths and weaknesses. Conversely, if teachers fail to analyze or recognize students' diversity in learning styles, mismatchs in teaching and learning styles are more likely to happen.

Reading plays an important role in our life. It is a significant part of daily life that cannot be imagined without it. Reading is an important skill that learners need to know. Learners read texts for a variety of purposes, from information to pleasure. It helps students to get familiar with the subjects of their fields and improve their language knowledge. Reading is an interactive process in which the writer and reader communicate through the text (Gilakjani & Sabouri, 2016). Reading comprehension skills are important for students to become effective readers. These skills allow us to read proficiently and learn effectively (Grabe & Stoller, 2002). Most EFL learners may encounter comprehension problems while reading a text, but skilled readers overcome these difficulties by using effective reading strategies to solve comprehension challenges (Tobing, 2013).

Many researchers found that students are quite weak in English in general and reading in particular, so they still have difficulty in reading comprehension. Al Ma'ani (2012) emphasized that there are two main reasons behind students' poor comprehension skills. Firstly, when teaching reading, most teachers focus on assessing students' comprehension at the word and sentence levels rather than concentrating on teaching reading comprehension. Secondly, students' lack of reading comprehension strategies is also one of the main reasons for their weak comprehension skills.

There are factors that hinder students' reading comprehension. Factors arise from students who have difficulty in phonological awareness, difficulty in recognizing the sounds of letters, and difficulty in recognizing words. It has also been found by other research that explains about the factor that makes the student to understand the text. Factors that involve poor working memory, poor general knowledge, and lack of vocabulary (Iqbal, Noor, Muhabat, & Kazemian, 2015).

[Downloaded from mail.ijreeonline.com on 2026-11-19]

Considering the challenges and difficulties of reading foreign language, it can be stated that EFL reading is much more difficult and complex than the L1. To help learners improve reading comprehension and solve reading comprehension problems, students should first identify their problems and then think about appropriate learning styles to improve their reading comprehension.

Self-efficacy has been one of the important issues in the academic growth of students. There is a clear relationship between using learning strategies and students' progress and skills. Consequently, it's not surprising to find that learners who frequently use learning strategies have high levels of self-efficacy (Alaçayir, 2011). Those studies found that learners with lower self-efficacy use random and uncontrolled strategies.

Self-efficacy plays a vital role for students in order to achieve their best. Yanar and Bümen (2012) revealed that it is important to consider influencing factors like attitude, motivation, and self-efficacy in language learning environments and educational programs. Ehrman, Leaver, and Oxford (2003) show that motivation, self-efficacy, tolerance of ambiguity, and anxiety are among the factors influencing the language learning-teaching process. According to Mills, Pajares, and Herron (2006), low self-efficacy affects students' performances in language classrooms.

In general, understanding learners' preferred learning styles contribute to teachers' teaching effectiveness, because teachers can understand students' strengths and weaknesses (Gilakjani, 2012; Razawi et al., 2011; Tai, 2013). Without knowing how students learn, it may lead to a mismatch in teaching and learning styles (Oxford, 2003), and this mismatch affects teacher-student relationship and student's confidence in learning. The study of Asba, Azman, and Mustaffa (2014) represented that there is a mismatch in styles between teachers and students in educational environments.

The above-mentioned issues have become one of topical subjects of language teachers on how to improve students' success in reading comprehension tasks and improve their self-efficacy perception in the classroom so that they can overcome the problems that may arise and create a dilemma for both teachers and students. Therefore, the present study tends to investigate the impact of learning styles on Iranian intermediate EFL learners' reading comprehension skills and self-efficacy perceptions. The main research questions that the researchers were seeking to answer in this study are as follows:

RQ1: Do learning styles have any effect on Iranian intermediate EFL learners' reading comprehension skills ?

RQ2: Do learning styles have any effect on Iranian intermediate EFL learners' self-efficacy perceptions?

2. Review of the Literature

2.1 The Notion of Learning Style

Individual differences have been a major topic of discussion, when it comes to language learning. Therefore, learning styles are one of the most important factors in research on language learning (Ehrman et al., 2003). A learning style is a way in which a person understands, conceptualizes, organizes, and remembers information and learners' learning styles are influenced by their genetic structure, previous learning experiences, culture, and the society they live (Banaruee, Farsani, & Khatin-Zadeh, 2022; Ellis, 1985). In this regard, Kozhevnikov (2007) argues that a learning style is an adaptive dynamic that is not affected by other variables. Increasing learners' awareness of learning processes, factors, and styles enables them to match their strategies to their assignment.

Learning styles and strategies are sometimes used interchangeably, but have various definitions. Learning styles are regarded as general approaches to learning, while learning strategies are specific systems adopted in a particular environment (Banaruee, Farsani, & Khatin-Zadeh, 2022). Additionally, the learning process means making cognitive changes in the individual's behavior (Othman & Amiruddin, 2010). It is necessary to pay attention to learners' learning styles and to combine teaching methods and strategies in the classroom (Becker et al., 2007). Thus, any teaching method should be considered necessary in the classroom to meet the needs of students. Therefore, teachers must provide a suitable environment that meets the academic needs of students in such a way that various learning experiences are integrated (Benitez-Correa, Vargas-Saritama, Gonzalez-Torres, Quinonez-Beltran, & Ochoa-Cueva, 2022).

Learners should know their learning strategies and strengths and develop their learning capacity, so they can benefit from learning styles by coordinating learning strategies with them. When educational activities are aligned with students' cognitive styles, their learning abilities increase (Alalouch, 2021). Learning styles are related to the personality characteristics of people and teaching according to the expectations of learners increases their mental skills (Bouiri, Lotfi, & Talbi, 2021), proficiency level (Derakhshan & Shakki, 2018), and listening skills (Zare-Behtash,

[Downloaded from mail.ijreeonline.com on 2026-11-19]

Bakhshizadeh Gashti, Khatinzadeh, & Banaruee, 2017). Teachers should also be aware of learners' preferences in order to provide them with the most effective corrective feedback (Banaruee, Farsani, & Khatin-Zadeh, 2022).

2.2 The Notion of Reading

Reading is one of the most important skills that determine success in educational and professional fields. It is an essential activity in the language classroom through which learners can acquire information, do enjoyable activities, and increase their language knowledge. Learners who read more, gain more vocabulary, and improve their grammar and writing skills (Benitez-Correa, Vargas-Saritama, Gonzalez-Torres, Quinonez-Beltran, & Ochoa-Cueva, 2022; Riazi Ahmadsaraei & Pourhosein Gilakjani, 2022). Furthermore, reading is an activity in which readers relate the textual information they read to their previous knowledge to make sense of it. When readers identify the purpose of reading, this leads to a positive attitude towards reading; and the process of combining information from the text with their background knowledge becomes easier (Nunan, 2003). Similarly, reading is a thinking process that can be done both consciously and unconsciously. It is conscious; because readers can use various strategies to make the meaning that the writer wants to convey. Reading is also unconscious; because readers perform reading tasks by contrasting information in the text with their prior experience (Mikulecky, 2008; Namaziandost, Razmi, Ahmad Tilwani, & Pourhosein Gilakjani, 2022; Razavi, & Pourhosein Gilakjani, 2020). Moreover, reading is a habit that leads people to success in their academic and life endeavors (Bayless, 2010). In this regard, Mikulecky (2008) stated that teaching reading is a necessary component of any second and foreign language training program.

.2.3 The Notion of Self-efficacy

Self-efficacy refers to beliefs about one's abilities to organize and perform the courses of action needed to achieve certain outcomes (Bandura, 1986). Self-efficacy has been reported as an important variable in student learning, because it affects students' motivation and learning process, the psychological paradigm of self-efficacy plays an essential role in educational psychology (Aghajani, 2018; Baherimoghadam, Hamedani, & Mehrabi, et al., 2021; Niloufari & Dastgoshadeh, 2019; Van Dinther, Dochy, & Segers, 2011). The evidence indicates the direct and indirect effect of learners' self-efficacy on their progress, and self-efficacy has a predictive role in students' success, motivation, and learning (Momeni Danaei, Azadeh, & Jafarpur, 2018; Tiyuri, Saberi, Miri, Shahrestanaki, Bayat, & Salehiniya, 2018). Instructional practices have been reported to have a significant effect on student efficacy guidelines. It is also hypothesized that overall cognitive engagement in learning is strongly related to perceived self-efficacy (Baherimoghadam, Hamedani, & Mehrabi, et al., 2021; Linnenbrink & Pintrich, 2003).

2.4 Learning Styles and Reading Comprehension

A number of studies have been conducted to clarify the effect of learning styles and students' achievement, but research on reading skills and learning styles is very limited. When comparing sensory learning styles and reading comprehension achievement, the findings showed that there is a relationship between kinaesthetic, auditory, and visual learning styles and comprehension levels (Erginer, 2014; Williams, 2010). Thus, considering students' preferences, involving environmental factors or learning styles, determines their progress (Çiftlikli, 2018).

Amiry and Mall-Amiri (2015) examined the relationship between field independence, reflectivity/impulsivity, and reading comprehension ability of Iranian EFL learners. 125 EFL undergraduate university students from the Islamic Azad University, Iran participated in this study. Findings represented that there is a statistically meaningful relationship between field independence and reading comprehension, and there is also a statistically meaningful link between reflectivity and reading comprehension. It was concluded that field independence and reflectivity meaningfully predicted EFL learners' reading comprehension ability.

Balcı (2017) investigated the impact of learning-style based activities on learners reading comprehension skills. The sample of the study involved 78 university learners, 39 in the control group and 39 in the experimental group. The experimental group worked with learning-style based activities; while the control group continued with conventional classes without any change. The results demonstrated that there is a significant correlation between reading comprehension achievement and self-efficacy. It was also indicated that learning-style based activities improved reading comprehension skills and the self-efficacy perceptions.

Ajideh et al. (2018) investigated the relationship between learners' learning styles and their reading strategies. 313 undergraduate students participated in this study. They completed two questionnaires: The perceptual learning style preference questionnaire by Reid (1984) and a survey of various reading strategies. The results showed that learners preferred kinesthetic, auditory, visual, and tactile learning styles. It was concluded that students favored the kinesthetic, as their major learning style. Considering the reading strategies in ESP texts, cognitive strategies were the most preferred for both Art and Science students.

[Downloaded from mail.ijreeonline.com on 2026-11-19]

Foroozandehfar and Khalili (2019) examined the relationship between EFL students' personality types, learning styles, and reading fluency. One hundred and thirty learners participated in this research. Three instruments were used for collecting the data: the test of Nelson to determine students' proficiency level, the Holland's questionnaire to identify the participants' personality types, Active Skills for the Reading approach to measure reading fluency, and Reid's Perceptual Learning Style Preference (PLSP) to determine the students' learning-style preferences. The results represented a significant relationship between individual personality types and learners' reading fluency. It was also found that personality types affected learners' reading fluency.

2.5 Learning Styles and Self-efficacy

Working on developing an awareness of learning styles can help students to know their strengths, recognize their weaknesses, and work more effectively, ultimately leading to effective collaboration with others (Provident, Leibold, Dolhi, & Jeffcoat, 2009; Rogers, 2009). There is a clear relationship between the use of learning styles and students' progress and skills. Consequently, it's not surprising that students who frequently use learning styles have high levels of self-efficacy (Zimmerman & Pons, 1986). Those studies found that students with lower self-efficacy used random and uncontrolled strategies (Chamot et al., 1996).

Ali (2006) examined the relationship between learning styles, self-efficacy beliefs, and academic fields in high school students. 399 female and male students participated in this study. In order to evaluate learning methods, Cob's learning style questionnaire was administered and Bandore's self-efficacy beliefs inventory was used to evaluate self-efficacy beliefs. The findings showed that mathematics and physics students have the divergent learning style, students of experimental sciences have assimilate learning style, and human sciences students have accommodate learning style. Mathematics and physics students have the highest self-efficacy compared to others. No significant difference was observed between learning methods and self-efficacy beliefs, and female students have higher self-efficacy beliefs compared to male students.

Peacock (2001) reports that a match between learning styles and teaching styles can promote a positive attitude towards foreign languages. Margolis and McCabe (2004) emphasize that students' perception of activities as interesting and valuable is one of the factors that can lead to an increase in self-efficacy. Rahimi and Abedini (2009) state that designing a learner-centered language curriculum can help language learners to develop positive self-efficacy perceptions. Dunn et al. (2009) indicated that knowledge of learning styles improves students' self-efficacy towards their abilities and enhances their learning as a result of their increased efforts. Hazır Bıkmaz (2006) and Senemoğlu (2009) argued that taking individual differences into account and adopting student-centered approaches will increase students' self-efficacy.

A study by Ozkan and Gulten (2013) explored the relationship between students' perceptual learning styles and their self-perceptions of success in courses. Independent group t-test, Kruskal Wallis, and Mann Whitney-U tests were used in the analysis of the data. The findings indicated that students who considered themselves successful in Turkish, Mathematics, Science, and Social Sciences courses had higher visual, audial, tactile, and kinaesthetic styles. The results of ANOVA test represented that there is a statistically significant difference in the visual, audial, and kinaesthetic scores, but there is no statistically significant difference in the tactile scores.

3. Methodology

3.1 Design of the Study

The current research design was quasi-experimental in which two non-equivalent groups were exposed to two different types of treatment. In a quasi-experimental research design, groups rather than individuals are randomly assigned to different treatments; nevertheless, the researcher still matches the participants in the experimental and control groups on certain variables (Fraenkel, Wallen, & Hyun, 2012). In general, experimental and control groups were used in this type of design. The experimental group was given the specific treatment, but the control group didn't receive it. However, the experimental and control groups performed similar tests in the form of pretest and posttest. Learning styles were used as the independent variable of the study, and reading comprehension skills and self-efficacy perception were used as the dependent variables.

3.2 Participants

The participants of the present study were 100 male/female Persian speaker students at Pasargad Language Center in Langarud, Iran with the age-range between 14-20 years old. In order to homogenize the sample population and make sure they were at the same English proficiency level, a Michigan Language Proficiency test (MLP) was administered to all participants, their papers were scored, and eventually 60 EFL learners who scored from 40 to 52 out of 100 (based on MLP score guide) were selected to participate in the main research. Then, they were randomly assigned into

[Downloaded from mail.ijreeonline.com on 2026-11-19]

two groups of control and experimental in order to investigate research questions of the study. The experimental group received treatment, while the control group received a placebo. The treatment group received a ten-session treatment, while the comparison group received an ten-session placebo. Participants in both groups took a pretest and a posttest before and after treatment to compare their reading comprehension skills and self-efficacy perceptions.

3.3 Materials and Procedure

In order to answer the two research questions, the following instructional and testing materials were used. The instructional materials of this research were based on the EFL learners' English book taught in the institute. In each session, participants in the experimental group were taught a learning style, while the control group received no specific treatment. Also, in materials testing, three tests were performed: MLP, reading comprehension skills test, and self-efficacy perceptions questionnaire.

3.3.1 Materials and Procedure for the Proficiency Test of the Study

The Michigan Test of English Language Proficiency consists of 100 multiple choice questions: 40 English Grammar questions, 40 Vocabulary questions, and 20 Reading Comprehension questions. If the test was taken at a timed site, the time required to complete the entire test was 75 minutes (One hour and fifteen minutes). After completing the Michigan Test, participants must submit a writing sample on an assigned topic.

The test used for this study was the shortened version of the original test, which included 10 English grammar questions, 10 vocabulary questions, and 5 reading comprehension questions. At the end of the test, there is an answer key that can be used to check students' answers to the Michigan Test. The Michigan Test consists of several tests that are useful for assessing the English Language proficiency of students whose first language is not English. Michigan Test scores serve as the basis for course placement. If the test results indicate deficiencies in standard and written English, the student is required to take an appropriate preparatory course. For this study, EFL learners who scored 40 to 52 were selected as intermediate language learners.

3.3.2 Materials and Procedure for the Pretest and Posttest of the Study

As a pretest and posttest, two reading comprehension tests were created to assess the reading comprehension abilities of the participants. Each of these tests consisted of three reading passages with 30 true/false questions, item matching, and comprehension questions. The passages selected for the reading comprehension test were similar in terms of difficulty, but included different topics such as literature, medicine, politics, and science.

The rationale for selecting reading passages from various genres was to eliminate the effect of theme as a variable due to limited reading, meaning that reading about the same topic in a number of texts allows learners to become familiar with vocabulary and concepts. Selection of true/false, item matching, and comprehension formats of reading tests were done to assess students' reading comprehension in order to increase instrument and rater reliability.

To test the second hypothesis, the Self-Efficacy Scale for English developed by Yanar and Bümen (2012) was used. There are 32 items that ask students about their abilities in English. Four subscales are included in the questionnaire, namely self-efficacy for listening, self-efficacy for speaking, self-efficacy for reading, and self-efficacy for writing. It is a 7- point scale in which the students are asked to respond to 32 items ranging from "Definitely I cannot" (1) to "Definitely I can" (7). The distribution of questions for each subscale in this questionnaire is shown in Table 1.

Table 1. Distribution of the subscales in the self-efficacy scale

Subscales	Items
Listening	1-3-9-10-15-22-24-27
Speaking	4-6-8-17-19-20-23-30
Reading	2-12-16-21-25-26-29-32
Writing	5-7-11-13-14-18-28-31

3.3.3 Material(s) and Procedure for the Treatment of the Study

The study conducted between January 20, 2021 and August 2, 2021 and lasted for ten weeks. This study was carried out on two groups: an experimental group and a control group. After the groups were randomly assigned to different

[Downloaded from mail.ijreeonline.com on 2026-11-19]

treatments, the participants in both groups participated in the pretest of the English reading comprehension test and answered the English proficiency background form, self-efficacy scale, and Maggie McVay Lynch learning style inventory. It should be noted that the English proficiency background form includes issues such as gender, age, attending a special course, taking private lessons, studying English abroad, living in English-speaking countries, and having parents who work in the field of English Language Teaching (ELT).

Maggie McVay Lynch Learning Style Inventory, adapted into Turkish by Dağhan and Akkoyunlu (2011), was used to determine participants' learning styles. It consisted of 30 questions used to represent the general behavior of each participant. The Inventory shows that most people can be divided into one of three preferred learning styles (i.e. visual, auditory, & kinesthetic).

After that, for the treatment process, the experimental group received activities based on learning styles, while the control group continued to work in the traditional way without regard to learning styles. For a total of eight weeks, both groups were trained in two one-hour sessions per week. In this research, "traditional reading comprehension activities" refer to activities in which students' individual learning styles are not considered. These activities are also described as teacher-centered, teacher- dominated, and routine process. They include reading the text by the teacher and some students, vocabulary exercises, and passively answering reading comprehension questions.

Finally, English reading comprehension test and self-efficacy scale were administered to both groups as a posttest. Participants were given 50 minutes to complete the English reading comprehension test, 30 minutes to complete the self-efficacy scale, and 30 minutes to complete the Maggie McVay Lynch learning style inventory and the English proficiency background form.

3.4 Data Analysis

Maggie McVay Lynch Learning Style Inventory and English Proficiency Background Form were analyzed using descriptive statistics (frequency and percentage). Descriptive results of self-efficacy scale and English reading comprehension test were also depicted in the descriptive analysis section. Since the Kolmogorov-Smirnov test showed that the self-efficacy scale and the English reading comprehension test scores had a normal distribution and the variances were homogeneous, parametric statistics were used to analyze the inferential data. Independent samples t-test was used to compare the self-efficacy scale and English reading comprehension pretest scores between treatment and control groups. Finally, two one-way ANCOVA tests were conducted to determine whether there was a significant difference in students' reading comprehension skills and self-efficacy scale between the experimental and control groups after treatment. All statistical analyzes were performed to evaluate the results of two research questions using SPSS 25.

4. Results

To perform statistical analyses, test results were summarized and descriptive statistics (including means and standard deviations) were followed by inferential statistics. Before that, the internal consistency of pre- and post-test items of English reading comprehension test, self-efficacy scale, and Maggie McVay Lynch learning style inventory was estimated through a pilot study on 8 EFL learners. In addition, the commonly accepted rule of George and Mallery (2003) was used to interpret the internal consistency in the items of the multiple-choice items of the tests. The rule for interpreting the reliability results is given in Table 2.

Table 2. Rule for interpreting the reliability results (Adopted from George and Mallery, 2003)

Cronbach's alpha	Internal consistency
$0.9 \leq \alpha$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

Cronbach's alpha results for pre-test and post-test are presented in Table 3.

[Downloaded from mail.ijreeonline.com on 2026-11-19]

Table 3. Reliability statistics for the tests

	Cronbach's Alpha	N of Items	N of sample
Reading Comprehension Test (pretest)	.92	30	8
Reading Comprehension Test (posttest)	.94	30	8
Self-Efficacy Scale (pretest)	0.88	32	8
Self-Efficacy Scale (posttest)	0.89	32	8
Maggie McVay Lynch Learning Style Inventory	0.88	30	8

Based on the rule given in Table 2, the reliability analysis of the tests showed that the internal consistency of the items for the pretest and the posttest for all of them was "acceptable," for this particular sample. The Michigan Language Proficiency test was administered to 100 EFL learners to select homogeneous participants for the study. The participants answered the grammar, vocabulary, and reading comprehension sections of the test with the maximum possible score of 100 points. The MLP results are displayed in Table 4.

Table 4. Statistics for the MLP results

N	Valid	100
	Missing	0
Mean		54.20
Median		52.00
Mode		48
Std. Deviation		10.535
Variance		110.990
Range		48
Minimum		40
Maximum		88
Sum		5420

Table 4 presented the results of the descriptive statistics for the MLP scores. Measures of central tendency including the mean (54.20), the median (52.00), the mode (48.00), and measures of dispersion, namely the range (48.00), the variance (110.990), and the standard deviation (10.535) were displayed for the MLP. The Cronbach alpha coefficient was found to be (α = .901) for the proficiency test. The learners had no problem answering proficiency test questions and the instructions were clear enough for them to understand the test items. This measurement yielded a high reliability estimate. Based on MLP direction, 60 intermediate level students with scores of 40 to 52 were selected as the main sample for this study.

4.1 Descriptive Analysis of the Data

Based on the results of English Proficiency Background Form, there were 30 students (24 female and 6 male) in the control group and 30 students (23 female and 7 male) in the experimental group, and a total of 60 students participated in this research. The average age of the control group was 16.33±0.74 years and the experimental group was 17.49±0.64 years and both groups were similar in age. In addition, both groups were similar in terms of characteristics that affect their English proficiency level (participating in a special course, taking private lessons, studying English abroad, living in English-speaking countries, and having parents working in the field of ELT). The results of Maggie McVay Lynch Learning Style Inventory for both groups are shown in Table 5.

[Downloaded from mail.ijreeonline.com on 2026-11-19]

Table 5. Learning style preferences of both groups

Learning Style	Control group		Experimental group	
	Frequency	Percent	Frequency	Percent
Visual Learning Style	21	70	19	63
Auditory Learning Style	3	10	4	13
Kinesthetic Learning Style	6	20	7	24

The results of Table 5 indicate that the learning style preferences were similar in both groups. Visual learning style was by far the most popular learning style, followed by Kinesthetic and Auditory learning styles in both groups. Visual learners learn best through sight, auditory learners learn best through hearing, and kinesthetic learners learn best through movement and touch. According to Ibrahim and Hussein (2016), visual aids such as pictures, charts, diagrams, and tables help visual learners; auditory learners prefer lectures, tapes and films, group activities, and individual conversations; and kinesthetic learners benefit most from field trips, role-plays, pantomime, and interviews. The results of pre-test and post-test of reading comprehension for both groups are presented in Table 6.

Table 6. Reading comprehension pretest and posttest results for both groups

		N	Mean	Std. Deviation
Pretest	Control	30	49.00	11.620
	Experimental	30	50.07	10.654
Posttest	Control	30	49.13	11.575
	Experimental	30	55.67	10.370

As Table 6 shows, reading comprehension pretest results for both groups showed no statistically significant differences ($p>0.05$) between the two groups, showing that the participants had similar reading comprehension performance before treatment. In comparison with the results of the pretest, the mean for the experimental group in the posttest was 55.67 and the mean for the control group was shown to be 49.13. Therefore, it can be said that the scores of the experimental group in the posttest were much higher than the control group. The pre-test and post-test results of the self-efficacy scale for each of the four separate subscales (i.e. listening, speaking, reading, and writing) and the total scale for both groups are shown in Table 7.

Table 7. Self-efficacy scale for English pretest and posttest scores for both groups

Test	Group	Control		Experimental	
		Mean	Std. Deviation	Mean	Std. Deviation
Pretest	Listening	2.30	0.222	2.28	0.243
	Speaking	3.26	0.194	3.17	0.206
	Reading	2.53	0.194	2.56	0.258
	Writing	2.69	0.204	2.72	0.199
	Total	2.71	0.106	2.71	0.108
Posttest	Listening	2.29	0.203	2.88	0.530
	Speaking	3.27	0.202	3.57	0.387
	Reading	2.55	0.199	3.12	0.520
	Writing	2.71	0.195	3.16	0.446

[Downloaded from mail.ijreeonline.com on 2026-11-19]

	Total	2.72	0.104	3.20	0.417

As Table 7 shows, the pre-test results of the self-efficacy scale for each of the four separate sub-dimensions and the total scale for both groups showed no statistically significant differences ($p>0.05$) between the two groups, indicating that the participants had similar levels of self-efficacy about the English before using the treatment. In comparison with the results of the pretest, the mean for the experimental group was 3.20 in the posttest, and the mean for the control group was 2.72. It can be stated that the scores of the experimental group in the post-test were much higher than the scores of the control group.

4.2 Inferential Analysis of the Data

The assumption of normality of the dependent variables (reading comprehension test and self-efficacy scale) was examined before the implementation of the specific tests selected to answer the research questions. The Shapiro-Wilks test, which is usually performed at the (=.01) level of significance, was used to test the assumption of normality. The Shapiro-Wilks test is a statistical test that determines whether the sample data from a population is normally distributed. The Sig. (p) values were compared with the alpha level of significance for the statistic before deciding whether to reject ($p <\alpha$) or keep ($p > \alpha$) the null hypothesis.

Table 8. Tests of normality for the pretest and the posttest scores of CAT and VK

	Groups	**Shapiro-Wilk**		
		Statistic	df	Sig.
Pretest	Control - Reading Comprehension Test	.924	30	.234
	Experimental - Reading Comprehension Test	.969	30	.519
	Control - Self-Efficacy Scale	.943	30	.108
	Experimental - Self-Efficacy Scale	.896	30	.107
Posttest	Control - Reading Comprehension Test	.906	30	.212
	Experimental - Reading Comprehension Test	.954	30	.312
	Control - Self-Efficacy Scale	.950	30	.168
	Experimental - Self-Efficacy Scale	.875	30	.202

The results of the Shapiro-Wilks test for the pretest scores of both groups in reading comprehension test and self-efficacy scale were .234, .519, .108, and .107, respectively ($p <\alpha$). When it comes to posttest scores, the values of (p) of both groups in reading comprehension test and self-efficacy scale were .212, .312, .168, and .202, respectively ($p <\alpha$). As a result, the assumption of normality of these samples was fulfilled. To answer the research questions, the results of reading comprehension test and self-efficacy scale were evaluated using independent sample t-test, paired sample t-test, and one-way ANCOVA. Independent-samples t-test was used to determine whether there is a statistically significant difference between the pretest scores of reading comprehension test and the self-efficacy scale for the control and experimental groups. The results are shown in Table 9.

Table 9. Results of the independent-samples t-test reported for the pretest scores of reading comprehension test and self-efficacy scale

	Levene's Test		**t-test for Equality of Means**						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence	
								Lower	Upper

[Downloaded from mail.ijreeonline.com on 2026-11-19]

Reading Comprehension Pretest	Equal variances assumed	.654	.422	-.371	58	.712	-1.067	2.878	-6.828	4.695
	Equal variances not assumed			-.371	57.568	.712	-1.067	2.878	-6.829	4.696
self-efficacy scale Pretest	Equal variances assumed	.010	.922	.078	58	.938	.00215	.02771	-.05332	.05762
	Equal variances not assumed			.078	57.980	.938	.00215	.02771	-.05332	.05762

As shown in Table 9, the two-tailed sig of reading comprehension test was "0.712," which is much higher than the assumed p value of "0.05," implying that there is no significant difference between the groups in terms of reading comprehension skill. The results of the independent-samples t-test for self-efficacy scale depicted that the two-tailed sig was "0.938" which was higher than the p value of "0.05". As a result, it can be concluded that there was no significant difference between the two groups in the pre-test. Next, another independent-samples t-test was conducted between the post-test scores of reading comprehension test and the self-efficacy scale for the control and experimental groups to show the difference between them at the end of the process. Table 10 shows the results of the independent-samples t-test.

Table 10. Results of the independent-samples t-test reported for the posttest scores of reading comprehension test and self-efficacy scale

		Levene's Test		**t-test for Equality of Means**						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence	
									Lower	Upper
Reading Comprehension Posttest	Equal variances assumed	.544	.464	-2.303	58	.025	-6.533	2.837	-12.213	-.854
	Equal variances not assumed			-2.303	57.313	.025	-6.533	2.837	-12.214	-.852
self-efficacy scale Posttest	Equal variances assumed	108.741	.000	-6.130	58	.000	-.48065	.07841	-.63761	-.32368
	Equal variances not assumed			-6.130	32.593	.000	-.48065	.07841	-.64026	-.32103

[Downloaded from mail.ijreeonline.com on 2026-11-19]

As shown in Table 10, the two-tailed sig of the reading comprehension test was "0.25," which was less than the assumed p value of "0.05," implying that there is a significant difference between the groups in terms of reading comprehension skill. The results of the independent-samples t-test for the self-efficacy scale depicted that the two-tailed sig was "0.000" which was less than the p value of "0.05". As a result, it can be concluded that there are significant differences between the two groups in the post-test. The results of T value for reading comprehension skill and self-efficacy scale were "-2.303" and "-6.130", respectively. Since the T value of both test was less than the critical value (-.1.96), it can be said that the null hypotheses of the study are rejected, and the treatment procedure has good results for both tests. Then, the results of paired-samples t-tests results were evaluated on the pre-test and post-test scores of both groups to determine how much they progressed during the study. The results of the paired-samples t-tests for both reading comprehension skill and self-efficacy scale are shown in Tables 11 and 12.

1- Table 11. The paired-samples t-test results for the reading comprehension test in both group

		Paired Differences					**t**	**df**	**Sig. (2-tailed)**
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Control Group - Pretest and Posttest	-.133	4.946	.903	-1.980	1.714	-.148	29	.884
Pair 2	Experimental Group - Pretest and Posttest	-5.600	5.069	.926	-7.493	-3.707	-6.051	29	.000

2- Table 12. The paired-samples t-test results for the self-efficacy scale in both groups

		Paired Differences					**t**	**df**	**Sig. (2-tailed)**
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Control Group - Pretest and Posttest	-.01075	.09782	.01786	-.04728	.02577	-.602	29	.552
Pair 2	Experimental Group - Pretest and Posttest	-.49355	.41416	.07561	-.64820	-.33890	-6.527	29	.000

As depicted in Tables 11 and 12, the two-tailed sig reported for statistical significance of the experimental group mean difference was less than the predetermined amount of p value, which is 0.05. As a result, it can be argued that there is a statistically significant difference in the level of reading comprehension skill and the self-efficacy scale of the participants before and after the tests in the experimental group, whereas the participants of the control group did not progress from the pre-test to the post-test of reading comprehension skill and self-efficacy scale. Finally, a one-way

[Downloaded from mail.ijreeonline.com on 2026-11-19]

ANCOVA analysis was conducted to determine whether students' reading comprehension skills differed significantly between the experimental and control groups after treatment. The results of one-way ANCOVA for the significance test of the differences in the mean scores of the modified post-test of the groups for reading comprehension skill are given in Table 13.

3- Table 13. ANCOVA results of the reading comprehension test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	6285.125	2	3142.563	131.781	.000	.822
Intercept	205.452	1	205.452	8.615	.005	.131
RCPretest	5644.859	1	5644.859	236.712	.000	.806
Group	467.510	1	467.510	19.605	.000	.256
Error	1359.275	57	23.847			
Total	172390.000	60				
Corrected Total	7644.400	59				

ANCOVA results show that the reading comprehension test of the experimental group is significantly better than the control group as shown in Table 13. The results of one-way ANCOVA for the significance test of the differences in the mean scores of the modified post-test of the groups for the self-efficacy scale are given in Table 14.

4- Table 14. ANCOVA results of the self-efficacy sca

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	3.685	2	1.842	20.470	.000	.418
Intercept	.180	1	.180	2.003	.162	.034
RCPretest	.219	1	.219	2.438	.124	.041
Group	3.483	1	3.483	38.697	.000	.404
Error	5.130	57	.090			
Total	535.160	60				
Corrected Total	8.815	59				

ANCOVA results show that the self-efficacy scale of the experimental group is significantly better than the control group as shown in Table 14. Thus, it can be concluded that English self-efficacy of the experimental group was significantly higher than the control group.

4.3 Results of Hypothesis Testing

Maggie McVay Lynch Learning Style Inventory and the English Proficiency Background Form were analyzed using descriptive statistics. The results of descriptive statistics revealed that most of the participants were female and the visual learning style was by far the most popular learning style, followed by kinesthetic and auditory learning styles in both groups. For the inferential analysis of the data, parametric statistics were used to analyze the data. Independent samples t-tests was used to compare the self-efficacy scale and English reading comprehension pre-test scores between treatment and control groups. Finally, two one-way ANCOVA tests were conducted to determine whether reading comprehension skills and self-efficacy of students after treatment differed significantly between the experimental and

[Downloaded from mail.ijreeonline.com on 2026-11-19]

control groups. The results of the study revealed that the reading comprehension test of the experimental group was significantly better than the control group. These findings also depicted that the English self-efficacy of the experimental group was significantly higher than the control group. Therefore, it can be concluded that learning styles have a significant effect on Iranian intermediate EFL learners' reading comprehension skills and self-efficacy perception.

5. Discussion

The main purpose of the present study was to examine the effect of learning styles on EFL learners' reading comprehension skills improvement and self-efficacy perceptions. For this study, two questions were presented, in which the difference in students' scores in the pre-test and post-test of reading comprehension test and self-efficacy scale were examined in both groups. The findings of this study indicated that the reading comprehension skills in the experimental group are significantly higher than the control group. Based on this conclusion, it can be suggested that learning-style based activities are more effective on reading comprehension skills than traditional reading comprehension activities that are designed without considering learning styles.

This result is consistent with the recent studies of Al-Hajaya and Al-Khresheh, (2012), Khademi, Motallebzadeh, and Ashraf (2013), and Sadeghi et al. (2012) which emphasize the positive effects of instruction that is compatible with students' learning style preferences on the progress of their reading comprehension in language classes. Al-Hajaya and Al-Khresheh (2012) pointed out that teaching strategies that are compatible with students' learning styles play a valuable role in empowering students to control their learning and maximize their learning potential, and thereby contributing to reading comprehension.

Sadeghi et al. (2012) investigated the relationship between learning styles and reading comprehension in foreign languages in terms of personality as the basis of learning styles. They assert individual differences such as learning styles and personality traits should be taken into account in foreign language reading classes. Khademi et al.'s (2013) results indicated that focusing on sensory preferences and providing related teaching strategies is a practical method for teaching reading and using multisensory activities can help struggling readers.

The post-test reading comprehension scores showed a slight increase compared to the pre-test scores in the control group, although it was not statistically significant. This increase can be considered as a relatively natural consequence of the learning-teaching process. In other words, students continued to learn in the normal learning environment where they feel comfortable. Grabe (2009) clarified that second language reading ability consists of both the ability to read the first and second languages and that first language ability has an important effect on second language reading ability. From this point of view, it can be said that the findings of the current study are consistent with the results of other relevant studies of Williams (2010). In his study, Williams (2010) observed a significant correlation between sensory learning styles and reading comprehension and concluded that a variety of techniques appealing to different methods may be useful in improving reading comprehension.

In the mentioned studies, positive results were consistently obtained regarding the importance of learning styles in second/foreign language education, and the significant impact of learning-style based instruction on the second/foreign language learning-teaching process was emphasized. Güven's (2007) study confirmed that learning-style based activities have a positive effect on students' listening achievement, attitude, and retention capacity. Based on their findings, Aliakbari and Tazik (2011) concluded that identifying students' learning styles can help their foreign language development and students' learning preferences should be considered in foreign language classes. Kırkgöz and Doğanay (2003) pointed out the positive effect of adapting different learning styles in language classes. They also point out the difficulty of matching teaching to each individual's learning style preferences and suggest using different language learning tasks, materials, and strategies to accommodate different preferences in language teaching.

It seems that the result of the study is consistent with the opinions of De Florio-Hansen (2006) and Ehrman et al. (2003) that matching learning styles with teaching design increases learning and progress in language education. Furthermore, Wang and Jin (2008) emphasized that learning style is very important in the language learning process, and designing instruction for learners with different learning styles is necessary for effective teaching and learning processes, which is consistent with the results of our study. However, results that are inconsistent with this finding and show that learning-style based instruction is not necessary and do not improve student achievement have also been reported. For example, Willingham's (2005) review of the literature indicated that students differ in their perceptual preferences, but matching these preferences does not improve their academic achievement. According to their review, teachers should pay attention to how they present new material. In a similar vein, Sparks (2006) claimed that identifying students' learning styles and matching instruction to those styles does not improve learning in language classes, arguing that learning style models confuse ability with style.

[Downloaded from mail.ijreeonline.com on 2026-11-19]

The findings of the second hypothesis indicated that the English self-efficacy of the experimental group was significantly higher than the control group. Based on this conclusion, it can be suggested that activities based on learning style are designed to improve English self-efficacy perception compared to traditional reading comprehension activities without considering learning styles. It is believed that positive effects on self-efficacy can be attributed to considering learning styles and designing learning experiences in a learner-centered way.

In a similar vein, Rahimi and Abedini (2009) expressed that designing a learner-centered language curriculum can help language learners to develop positive self-efficacy perceptions. Also, Peacock (2001) reported that the match between learning styles and teaching styles can strengthen positive attitudes towards foreign languages. According to Ehrman et al. (2003), learning styles, learning strategies, and affective domain are three inseparable categories that interact with each other when individual differences are considered. They also believe that using a learning-style based curriculum enables students to begin the learning process in a more comfortable and stress-free environment. Regarding their opinions and the findings of the current research, it can be pointed out that in the language learning environment where learners' learning styles are taken into account, their self-efficacy also increases. Furthermore, this finding is similar the results obtained by Dunn et al. (2009), indicating that awareness of learning styles improves students' self-efficacy regarding their abilities and enhances their learning as a result of their increased efforts.

Based on the relevant literature and the findings of the present study, it can be argued that activities designed with learning styles in mind have a significant positive impact on students' self-efficacy in learning a foreign language. According to Schunk and Pajares (2001), instructional variables partially affect influence students' self-efficacy to a certain extent. Therefore, paying attention to learning styles in planning the learning-teaching process can be effective in increasing self-efficacy and thereby help in learning a foreign language and reading comprehension. Turanlı (2007) suggested that increasing self-efficacy and achievement is a significant need in foreign language classes. Based on the findings of the research, considering learning styles in foreign language classes can be useful in terms of increasing self-efficacy, so it is suggested to include different learning styles in planning learning-teaching experiences.

6. Conclusion

This study provided empirical evidence on the positive effects of students' learning style preferences on reading comprehension achievement and English self-efficacy perceptions in foreign language classes. Based on the results of the study, it is recommended to use learning-style based activities to strengthen students' reading comprehension ability and increase self-efficacy in foreign language classes of higher education. These results suggest that foreign language instruction should pay attention to individual differences, including students' learning styles, as suggested in this study. It is believed that considering learning styles as one of the individual differences that play an important role in learning and designing learning experiences, helps to eliminate the deficiencies of foreign language classes.

Although the current study provides important data regarding the effects of learning-style based activities on students' reading comprehension skills and self-efficacy perceptions, more research is still required to fully explore the potential of these activities. In the current study, the activities were designed based on the sensory perception dimension of the physiological aspects of learning style. Other dimensions of learning style can also be regarded in the design and practice of teaching activities. Moreover, the effects of learning-style based activities on other language abilities other than reading, such as listening, speaking, or writing can be investigated. Finally, the impact of considering other individual differences such as motivation and language learning strategies on language learning progress can be investigated.

6.1 Implications of the Study

Today, despite all the efforts and investments, the desired level of language proficiency has not been achieved and there are still major problems in teaching foreign language in Iran; so it can be said that there are still deficiencies in the field of foreign language teaching. It is believed that one of the reasons for this deficiency may be forcing all students to learn the same thing in traditional learning environments, which can lead to wasted time and effort in language classes. Based on the relevant literature and the findings of the present study, it is significant for higher education instructors to pay attention to students' learning styles in English classes. Many experienced instructors are aware of the different learning styles of students; however, they still continue to teach the same things in the same ways and expect all students to learn in the same ways at the same time. In the current study, it is thought that the improvement in students' learning can be attributed to considering learning styles and increasing motivation and interest in learning.

[Downloaded from mail.ijreeonline.com on 2026-11-19]

Students with a strong sense of efficacy are likely to challenge themselves with difficult tasks and are intrinsically motivated. Instead of blaming external factors, these students put a lot of effort into fulfilling their commitments, and attribute failure to things within their control. Self-efficacious students also recover quickly from setbacks and are ultimately likely to achieve their personal goals. Thus, understanding students' self-efficacy perceptions makes it possible to demonstrate the characteristics of learning and the strategies they use more effectively. For this purpose, studies on the learning process of the individuals are needed. Students learn that their efforts improve their performance, so it is important to provide activities that students can complete with a reasonable effort. To ensure an optimal level of challenge, teacher support can include scaffolding, giving sufficient time to complete a task, and breaking larger tasks into smaller steps. Although involving students in setting their own goals can lead to greater student satisfaction, giving a student a goal you, as a teacher, wish to achieve can have a greater impact on self-efficacy because it demonstrates your belief in the student's capabilities. So, teachers should encourage students to compare present performance with a goal as well as with previous performance.

Generally, teachers can use strategies to build self-efficacy in various ways. For example, students' successful experiences increase self-efficacy, while failures destroy it. This is the most powerful source of self-efficacy. Observing a peer succeed in a task can strengthen beliefs about one's abilities. Teachers can boost their self-efficacy with authentic communication and feedback to guide students through on task or motivate them to do their best. A positive mood can enhance one's beliefs about self-efficacy, while anxiety can weaken it. A certain level of emotional stimulation can create a feeling of energy that can contribute to strong performance. Teachers can help by reducing stressful situations and anxiety around events such as exams or lectures.

5- *6.2 Limitations of the Study*

6- Considering that all researches have limitations, this research is not an exception to this rule. The present research faced limitations that should be considered in future studies:

- First of all, it should be noted that several variables affect the learning of reading comprehension skills, such as partnership, desire, motivation, mentality, personality for both the teacher and the student.
- Another limitation of the present study is related to the disadvantages of the multiple-choice test that the learners have a high chance of answering, and for this reason, the results cannot be accurately proven.
- The findings of this study can be used for Iranian EFL learners who are studying English at Pasargad Language Center in Langarud, Iran. This study does not involve EFL learners from other Language Institutes. Thus, it should be considered when generalizing current studies outside this population.
- Additionally, due to institutional limitations, the number of students in this quasi-experimental study was limited to 60 EFL learners in two groups.
- Furthermore, the participants in this study were mostly female students, and the researchers cannot control any possible effect of the students' gender.

References

Aghajani, M. (2018). Types of intelligences as predictors of self-efficacy: A study on Iranian EFL students. *IJREE, 3*(4), 12-26. http://ijreeonline.com/article-1-114-en.html

Ajideh, P., Zohrabi, M., & Pouralvar, K. (2018). Investigating the relationship between learning styles and ESP reading strategies in academic settings. *International Journal of Applied Linguistics and English Literature, 7*(3), 156-164. https://doi.org/10.7575/aiac.ijalel.v.7n.3p.156

Alaçayır, S. (2011). *Zihin engelliler öğretmeni adaylarının yeterlik algıları ile öğrenme stilleri arasındaki ilişkinin incelenmesi.* Unpublished master thesis, Marmara University Graduate School of Educational Sciences, İstanbul.

Alalouch, C. (2021). Cognitive styles, gender, and student academic performance in engineering education. *Educ Sci., 11*(9), 502. https://doi.org/10.3390/educsci11090502

Alavi, S., & Toozandehjani, H. (2017). The relationship between learning styles and students' identity styles. *Open Journal of Psychiatry, 7*, 90-102. https://doi.org/10.4236/ojpsych.2017.72009

Al-Ma'ani, M. (2012). A learner-centered approach to technical translation in undergraduate programmes: Contributions from Arabic. *The Linguistics Journal*, *6*(1), 205-217.

[Downloaded from mail.ijreeonline.com on 2026-11-19]

Amiry, K. K., & Mall-Amiri, B. (2015). The relationship between field independence, reflectivity/impulsivity and reading comprehension ability of Iranian EFL learners. *International Journal of Language Learning and Applied Linguistics World, 9*(2), 186-199. https://www.researchgate.net/publication/335974014_THE_RELATIONSHIP_BETWEEN_FIELD_INDEPENDENCE_REFLECTIVITYIMPULSIVITY_AND_READING_COMPREHENSION_ABILITY_OF_IRANIAN_EFL_LEARNERS

Asba, A. A., Azman, H., & Mustaffa, R. (2014). A match or mismatch between learning and teaching styles in science education. *International Journal of Education and Research, 2*(3), 1-14. https://www.ijern.com/journal/March-2014/45.pdf

Awang, H., Samad, N. A., Mohd Faiz, N. Z., Roddin, R., & Kankia, J. D. (2017). Relationship between learning styles preferences and academic achievement. *International Research and Innovation Summit, 226*, 1-5. doi:10.1088/1757-899X/226/1/012193

Baherimoghadam, T., Hamedani, S., & Mehrabi, M. *et al.* (2021). The effect of learning style and general self-efficacy on satisfaction of e-Learning in dental students. *BMC Med Educ., 21,* 463. https://doi.org/10.1186/s12909-021-02903-5

Balci, Ö. (2017). The effects of learning-style based activities on students' reading comprehension skills and self-efficacy perceptions in English foreign language classes. *Higher Education Studies, 7*(4), 35-54. http://doi.org/10.5539/hes.v7n4p35

Banaruee, H., Farsani, D., & Khatin-Zadeh, O. (2022). EFL learners' learning styles and their reading performance. *Discov Psychol, 2,* 45. https://link.springer.com/content/pdf/10.1007/s44202-022-00059-x.pdf

Bandura, A. (1986). *Social foundations of thought and action.* Englewood Cliffs, NJ.

Bayless, C. (2010). *Growing a reading culture: Just for Parents.* https://www.slideshare.net/ThroughtheMagicDoor/growing-a-readingculturereport

Becker, K., Kehoe, J., & Tennent, B. (2007). Impact of personalized learning styles on online delivery and assessment. *Campus Wide Information Systems, 24*(2), 105-119. https://doi.org/10.1108/10650740710742718

Benitez-Correa, C., Vargas-Saritama, A., Gonzalez-Torres, P., Quinonez-Beltran, A., & Ochoa-Cueva, C. (2022). Students' preferences and learning styles in relation to reading and writing strategies at distance higher education. *International Journal of Learning, Teaching and Educational Research, 21*(4), 316-336. https://doi.org/10.26803/ijlter.21.4.18

Bouiri, O., Lotfi, S., & Talbi, M. (2021). Correlative study between personality traits, student mental skills and educational outcomes. *Educ Sci. 11*(4), 153. https://www.mdpi.com/2227-7102/11/4/153

Chamot, A. U., Barnhardt, S., El-Dinary, P., & Robbins, J. (1996). Methods for teaching learning strategies in the foreign language classroom. In R. Oxford (Ed.), *Language learning strategies around the world: Cross-cultural perspectives* (pp. 175-188). Manoa: University of Hawaii Press.

Çiftlikli, S. (2018). The relationship between perceptual learning styles and language learners' success in reading tests. *Edebiyat Fakultesi, 24*(96), 173-190. doi:10.22559/folklor.310

Dalmolin, A. C., Mackeivicz, G. A. O., Pochapski, M. T., Pilatti, G. L., & Santos, F. A. (2018). Learning styles preferences and e-learning experience of undergraduate dental students. *Revista de Odontologia da UNESP*, *47*(3), 175-182. https://www.researchgate.net/publication/326659544_Learning_styles_preferences_and_e-learning_experience_of_undergraduate_dental_students

Derakhshan, A., & Shakki, F. (2018). An investigation into the relationship between Iranian EFL high and low proficient learners and their learning styles. *SAGE Open, 8*(4), 1–10. https://doi.org/10.1177/2158244018809408

Dunn, R., Honigsfeld, A., Doolan, L. S., Bostrom, L., Russo, K., Schiering, M. S., & Tenedero, H. (2009). Impact of learning-style instructional strategies on students' achievement and attitudes: Perceptions of educators in diverse institutions. *The Clearing House*, *82*(3), 135-140. https://doi.org/10.3200/TCHS.82.3.135-140

Ehrman, M. E., Leaver, B. L., & Oxford, R. L. (2003). A brief overview of individual differences in a second-language learning. *System, 31(3),* 313-330. https://doi.org/10.1016/S0346-251X(03)00045-9

[Downloaded from mail.ijreeonline.com on 2026-11-19]

Ellis, R. (1985). *Understanding second language acquisition*. Oxford: Oxford University Press.

Erginer, E. (2014). A study of the correlation between primary school students' reading comprehension performance and the learning styles based on memory modeling. *Journal of Education and Science, 39*(173), 66-81.

https://www.researchgate.net/publication/270816686_A_study_of_the_Correlation_between_Primary_School_Students%27_Reading_Comprehension_Performance_and_the_Learning_Styles_Based_on_Memory_Modeling

Fardon, M. (2013). *Relationships between students' learning style preference and exam achievement in differing forms of assessment during an advanced apprenticeship at a vocational Further Education College.* Institute of Learning, Department of Education, University of Oxford.

Foroozandehfar, L., & Khalili, G. F. (2019). On the relationship between Iranian EFL learners' reading fluency, their personality types and learning styles. *Cogent Arts & Humanities, 6*(1), 1681347. https://doi.org/10.1080/23311983.2019.1681347

Gilakjani, A. P. (2012). Visual, auditory, kinaesthetic learning styles and their impacts on English language teaching. *Journal of Studies in Education, 2*(1), 104-113. doi:10.5296/jse.v2i1.1007

Gilakjani, A. P., & Sabouri, N. B. (2016). A study of factors affecting EFL learners' reading comprehension skill and the strategies for improvement. *International Journal of English Linguistics, 6*(5), 180-187. doi:10.5539/ijel.v6n5p180

Grabe, W., & Stoller, F. L. (2002). *Teaching and researching reading.* London: Pearson Education Longman.

Hazır Bıkmaz, F. (2006). Öz yeterlik inançları. In Y. Kuzgun, & D. Deryakulu (Eds.), *Eğitimde bireysel farklılıklar* (pp. 291-310). Ankara: Nobel Yayın Dağıtım.

Khaksar Boldaji, M. A. (2006). *The relationship between learning styles, self-efficacy beliefs academic fields in high school students. Quarterly Journal of Educational Innovations, 4*(4), 107-131. http://noavaryedu.oerp.ir/article_78786.html?lang=en

Kozhevnikov, M. (2007). Cognitive styles in the context of modern psychology: Toward an integrated framework of cognitive style. *Psychol Bull., 133*(3), 464–481. doi:10.1037/0033-2909.133.3.464

Linnenbrink, E. A., & Pintrich, P. R. (2003). The role of self-efficacy beliefs instudent engagement and learning in the classroom. *Reading & Writing Quarterly, 19*(2), 119–137. doi:10.1080/10573560308223

Liu, F., Hu, L., & Gan, J. J. (2013). A study on the learning style preferences with different academic backgrounds; Taking Tujia EFL learners as examples. *Theory and Practice in Language Studies, 3*(1), 100-107. doi:10.4304/tpls.3.1.100-107

Magulod, J. G. C. (2019). Learning styles, study habits and academic performance of Filipino University students in applied science courses: Implications for instruction. *JOTSE: Journal of Technology and Science Education*, *9*(2), 184-198. https://files.eric.ed.gov/fulltext/EJ1210888.pdf

Margolis, H., & McCabe, P. P. (2004). Self-efficacy: A key to improving the motivation of struggling learners. *The Clearing House*, *77*(6), 241-249. https://doi.org/10.3200/TCHS.77.6.241-249

Masduqi, H. (2014). EFL reading in Indonesian universities: Perspectives and challenges in cultural contexts. *Journal of Teaching and Education*, *3*(3), 385-397. http://www.universitypublications.net/jte/0303/pdf/V4G339.pdf

Mikulecky, B. S. (2008). *Teaching reading in a second language.* Pearson Education.

Mills, N., Pajares, F., & Herron, C. (2006). A reevaluation of the role of anxiety: Self-efficacy, anxiety, and their relation to reading and listening proficiency. *Foreign Language Annals*, *39*(2), 276-295. https://doi.org/10.1111/j.1944-9720.2006.tb02266.x

Momeni Danaei, S., Azadeh, N., & Jafarpur, D. (2018). General self-efficacy and self-perceived confidence of dental students in performing orthodontic clinical skills. *Educ Res Med Sci., 7*(2):e80010. doi: 10.5812/erms.80010

Mulalic, A., Shah, P. M., & Ahmad, F. (2009). Learning-style preference of ESL students. *AJTLHE, 1*(2), 9-17. https://www.researchgate.net/publication/41389784_LEARNING-STYLE_PREFERENCE_OF_ESL_STUDENTS

Namaziandost, E., Razmi, M. H., Ahmad Tilwani, S., & Pourhosein Gilakjani, A. (2022). The impact of authentic materials on reading comprehension, motivation, and anxiety among Iranian male EFL learners. *Reading & Writing Quarterly, 38*(1), 1-18. https://doi.org/10.1080/10573569.2021.1892001

[Downloaded from mail.ijreeonline.com on 2026-11-19]

Naserieh, F., & Sarab, M. R. A. (2013). Perceptual learning style preferences among Iranian graduate students. *System, 41*(1), 122-133. https://doi.org/10.1016/j.system.2013.01.018

Niloufari, R., & Dastgoshadeh, A. (2019). Possible selves as correlates of EFL teachers' self-efficacy and students' achievement. *IJREE, 4*(4), 13-26. http://ijreeonline.com/article-1-236-en.html

Nunan, D. (2003). *Practical English language teaching* (International Edition). McGraw-Hill.

Othman, N., & Amiruddin, M. H. (2010). Different perspectives of learning styles from VARK model. *Procedia-Social and Behavioral Sciences, 7*, 652-660. https://doi.org/10.1016/j.sbspro.2010.10.088

Oxford, R. L. (2003). *Language learning styles and strategies: An overview*. Oxford: Gala.

Ozkan, E., & Gulten, C. D. (2013). The relationship between primary students' perceptual learning styles and their self-perceptions of success in courses. *Journal of Educational and Instructional Studies in the World, 3.*

Peacock, M. (2001). Match or mismatch? Learning styles and teaching styles in EFL. *International Journal of Applied Linguistics*, *11*(1), 1-20. https://doi.org/10.1111/1473-4192.00001

Provident, I., Leibold, M. L., Dolhi, C., & Jeffcoat, J. (2009). Becoming a fieldwork "educator": Enhancing your teaching skills. *OT Practice, 14*(19), CE-1–CE-8.

Rahimi, A., & Abedini, A. (2009). The interface between EFL learners' self-efficacy concerning listening comprehension and listening proficiency. *Novitas-ROYAL*, *3*(1), 14-28.https://www.researchgate.net/publication/275276911_The_Interface_between_EFL_Learners%27_Self-Efficacy_Concerning_Listening_Comprehension_and_Listening_Proficiency

Razavi, M., & Pourhosein Gilakjani, A. (2020). THE EFFECT OF TEACHING CULTURAL CONTENT ON INTERMEDIATE EFL LEARNERS'READING COMPREHENSION. ABILITY. *Teflin Journal, 31*(2), 302-321. doi: http://dx.doi.org/10.15639/teflinjournal.v31i2/302-321 https://pdfs.semanticscholar.org/702c/c231e55e0e7a6f3f930774a42501a30a5b3f.pdf

Razawi, N. A., Muslim, M., Razali, S. M. C., Husin, N., & Samad, N. Z. A. (2011). Students' diverse learning styles in learning English as a second language. *International Journal of Business and Social Science, 2*(19), 179-186.

http://www.learner-autonomy.org/ld/wp-content/uploads/2011/10/Students-Diverse-Learning-Styles-in-Learning-English-as-a-Second-Language.pdf

Riazi Ahmadsaraei, M., & Pourhosein Gilakjani, A. (2022). Exploring the effect of task-based language teaching on reading comprehension: Evidence from Iranian intermediate EFL learners. *Research in English Language Pedagogy (RELP), 10*(3), 517-536. https://journals.iau.ir/article_690783_4981f5e6775a3f344f056f5359704ee3.pdf doi: 10.30486/RELP.2022.1953908.1368

Rogers, K. M. A. (2009). Sebuah investigasi awal dan analisis preferensi gaya belajar mahasiswadi selanjutnyadan perguruan tinggi. *Jurnal Lanjut dan Pendidikan Tinggi, 33*(1), 13-21.

Sarabi-Asiabar, A., Jafari, M., Sadeghifar, J., Tofighi, S., Rouhollah, Z., Peyman, H., & Shams, J. (2015). The relationship between learning style preferences and gender, educational major, and status in first year medical students: A survey study from Iran. *Iran Red Crescent Med Journal, 17*(1). http://eprints.bmsu.ac.ir/id/eprint/5594

Senemoğlu, N. (2009). *Gelişim, öğrenme ve öğretim: Kuramdan uygulamaya* (14th ed.). Ankara: Pegem A Yayıncılık.

Sengsouliya, S., Soukhavong, S., Phonekeo, S., Sengsouliya, S., & Xaixanith, T. (2021). Mismatches in teachers' teaching and students' learning styles in English classes at a secondary school level: A case study of Laotian secondary schools. *IJREE, 6*(1), 16-33. http://ijreeonline.com/article-1-433-en.html

Soureshjani, K. H., & Naseri, N. (2012). Perceptual learning-style preferences of Iranian EFL learners in relation to their proficiency level. *American Journal of Linguistics, 1*(4), 70-74. doi:10.5923/j.linguistics.20120104.01

Tai, F. M. (2013). Adult EFL students' preferred learning styles and motivation. *The Journal of Human Resource and Adult Learning, 9*(2)*,* 161-171. https://www.slideshare.net/machiiwa/adult-efl-students-preferred-learning-styles-and-motivation

[Downloaded from mail.ijreeonline.com on 2026-11-19]

Tiyuri, A., Saberi, B., Miri, M., Shahrestanaki, E., Bayat, B., & Salehiniya, H. (2018). Research self-efficacy and its relationship with academic performance in postgraduate students of Tehran University of Medical Sciences in 2016. *J Education and Health Promotion, 7*(1), 11. https://www.jehp.net/article.asp?issn=2277-9531;year=2018;volume=7;issue=1;spage=11;epage=11;aulast=Tiyuri

Tobing, I. R. (2013). *The relationship of reading strategies and self-efficacy with the reading comprehension of high school students in Indonesia.* Doctoral Dissertation, University of Kansas, USA: Kansas.

Van Dinther, M., Dochy, F., & Segers, M. (2011). Factors affecting students' self-efficacy in higher education. *Educational Research Rev., 6*(2), 95–108. https://doi.org/10.1016/j.edurev.2010.10.003

Vizeshfar, F., & Torabizadeh, C. (2018). The effect of teaching based on dominant learning style on nursing students' academic achievement. *Nurse Education in Practice*, *28*, 103-108. https://isiarticles.com/bundles/Article/pre/pdf/126513.pdf

Williams, J. (2010). *Reading comprehension, learning styles, and seventh grade students.* Unpublished Doctoral Dissertation, Lynchburg: Liberty University.

Wintergerst, A. C., DeCapua, A., & Itzen, R. C. (2001). The construct validity of one learning styles instrument. *System, 29*(3), 385-403. https://doi.org/10.1016/S0346-251X(01)00027-6

Yanar, B. H., & Bümen, N. T. (2012). İngilizce ile ilgili özyeterlik inancı ölçeğinin geliştirilmesi. *Kastamonu Eğitim Dergisi*, *20*(1), 97-110. https://dergipark.org.tr/tr/pub/kefdergi/issue/48696/619511

Zare-Behtash, E., Bakhshizadeh Gashti, Y., Khatinzadeh, O., & Banaruee, H. (2017). Personality type and performance on listening tests: a study of correlation between personality traits and performance on "listening for gist" and "minimal pairs." *Int J Psychol Behav Sci., 7*(5), 123–6. doi:10.5923/j.ijpbs.20170705.01

Zimmerman, B. J., & Martinez-Pons, M. (1986). Development of a structured interview for assessing student use of self-regulated learning strategies. *American Educational Research Journal, 23*(4), 614-628. https://doi.org/10.3102/00028312023004614

[Downloaded from mail.ijreeonline.com on 2026-11-19]