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این نشریه در کتابخانهٔ منطقه‌ای علوم و تکنولوژی شیراز نمایه می‌شود.

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- پایگاه بانک اطّلاعات نشریّات کشور (Magiran)
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Multisensory Instruction and Beta Oscillations Modification in Vocabulary Retention at Pre-school Level: A QEEG Study

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Abstract To investigate the impact of the multisensory method at the pre-school level, this study employed beta-waves during vocabulary retention. Six EFL learners were assigned to two groups: non-multisensory and multisensory. The comparison of the results of pre- and post-brain records denoted no significant differences in beta frequency ranges between the groups. A significant correlation was found between learners' mean score on the post-test and the increase in beta wave-frequencies on Fp1-Fp2-regions at post-records in the multisensory-group; however, the case study analysis showed decreases in beta1 wave frequencies in the non-multisensory-group. The topography-inspections demonstrated increases in high-beta-wave frequencies in the prefrontal cortex in both groups and activity localization on the para-hippocampal in the multisensory post-records. The statistical results of non-parametric tests on groups' mean scores revealed no significant difference between experimental and control groups. The study concluded the promising role of multisensory teaching to improve retention at the pre-school level.

Keywords: *Beta Waves, Foreign Language Vocabulary Retention, Multisensory Teaching, QEEG, Short-Term Memory*

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1. Introduction

The technical architecture of the brain and its mechanisms to process information facilitate the integration and incorporation of multisensory information. When the multitude of multisensory inputs is received by different sensory organs, the perceptual, cognitive, and motor systems decode, integrate, encode, and segregate the information so that the input is perceived as a coherent perceptual representation (Murray et al., 2016). This multisensory processing is essential to learn and live (Williamson, 2011).

The multisensory approach to teaching and learning accentuates delivering all information via sensory modalities: tactile, visual, and auditory. Multisensory teaching subsumes more than just two skills of reading and listening. Instead, it intrigues the learners with the material in more than one way. In almost every multisensory teaching, all learners' senses (touch, taste, smell, hearing, movement, and sight) will be applied. The multisensory method of teaching is useful for all students (Fernald, 1943; Gillingham & Stillman, 1997).

This study aims to analyze beta power band measures in short-term retention of foreign language vocabulary at the pre-school level. In particular, by applying and comparing QEEG data between the multisensory and non-multisensory teaching groups, it aims to objectively and empirically examine the impact of these different methods on short-term vocabulary retention in the participants.

The important issue that distinguishes this study from the others in the field is that they employ neuroimaging during task performance (Such as Ghetti & Bulge, 2012; Hsu et al., 2017), while this study used two QEEG records (pre- and post-records) to check the probable permanent or contemporary influence of the instruction on the brain waves and activities.

This study tries to answer these questions:

Q1. Is there any significant difference between beta wave frequencies (B1, high beta, and beta) on frontal regions (Fp1, Fp2, F3, and F4) in pre- and post-brain records?

Q2. Is there any significant difference between the scores in the post-tests in the multisensory and non-multisensory groups?

Q3. Is there any significant correlation between beta wave frequencies on post-records and scores on the post-test in both groups (multisensory and non-multisensory groups)?

2. Review of Literature

2.1. Multisensory learning and teaching

Multisensory teaching involves engaging learners through more than one sensory modality simultaneously. Research in elementary education highlights the importance of incorporating multisensory instructional strategies to enhance engagement and learning outcomes (Rains et al., 2008). These approaches are particularly effective because they provide multiple pathways for information processing and retention (Morgan, 2019).

Manipulative materials play a central role in multisensory instruction. Rains et al. (2008) describe manipulatives as objects that learners can touch, move, and physically interact with during instruction. Similarly, Chester et al. (1991, as cited in Rains et al., 2008) define manipulatives as materials that learners can manipulate physically or mentally to solve problems. Such materials increase sensory engagement and promote deeper cognitive processing.

Empirical studies have demonstrated the effectiveness of multisensory instruction. For example, Syahputri (2019) reported significant improvements in reading comprehension achievement among learners exposed to multisensory teaching methods. Integrating learners' prior sensory experiences with new instructional content has also been shown to enhance vocabulary acquisition and retention (Griva & Chostelidou, 2013).

2.2. Vocabulary learning and memory systems

Vocabulary learning primarily relies on conscious, explicit memory processes, including declarative, episodic, and semantic memory systems (Takashima et al., 2017). Research indicates that verbal short-term memory plays a critical role in vocabulary acquisition, while verbal working memory is more closely associated with grammar learning (Adams & Gathercole,

2000; Baddeley et al., 1998; French & O'Brien, 2008; Gathercole & Masoura, 2005).

Short-term memory enables the temporary storage and recall of information over brief periods, typically lasting up to approximately 20 minutes (Pinker, 2004). It supports the retention of recently encountered information and is primarily associated with activity in the frontal regions of the cerebral cortex (Norris, 2017).

2.3. Neurobiological basis of memory formation

Learning and retention processes are underpinned by neurobiological changes in the brain. Memory formation involves synaptic modifications that strengthen neural connections, increasing the likelihood of information storage and retrieval (Baddeley et al., 2011). These neural changes can occur over short or long time scales, corresponding to short-term and long-term memory processes (Baddeley, 1992; Goldman-Rakic, 2011).

Chemical changes at the neuronal level contribute to memory consolidation (Guyton & Hall, 2006). Understanding these mechanisms allows researchers to examine how external stimuli, such as instructional methods, affect memory formation and cognitive performance (Norris, 2017).

2.4. Neuroimaging, QEEG, and learning

Advancements in functional neuroimaging have enabled more precise examination of the neural basis of memory and learning. Memory representations are distributed across interconnected brain regions, with short-term memory relying heavily on the prefrontal cortex (Norris, 2017; Tian et al., 2018). Prefrontal regions support the ability to maintain, manipulate, and retrieve information for ongoing cognitive tasks (Guyton & Hall, 2006).

Quantitative electroencephalography (QEEG) provides an indirect measure of neuronal activity by recording and analyzing brainwave patterns. Unlike traditional EEG approaches that focus on identifying abnormalities, QEEG often examines normative brainwave activity to assess cognitive functioning and predict learning outcomes (Marcuse et al., 2015).

2.5. Beta brainwaves, attention, and learning

Cognitive performance and learning are closely associated with beta brainwave activity. Beta waves are linked to focused attention, intentional processing, reasoning, and problem-solving (Demos, 2005; Güntekin et al., 2013; Wróbel, 2000). Beta activity predominates during alert, task-oriented mental states requiring logical thinking and sustained attention (Demos, 2005).

Beta waves are typically divided into three frequency bands: beta 1 (12–15 Hz), beta 2 (15–22 Hz), and high beta or beta 3 (22–38 Hz). Beta 1 is associated with calm focus and intentional processing, beta 2 with active thinking and sustained attention, and high beta with complex cognition, hypervigilance, and anxiety (Demos, 2005). While moderate beta activity supports learning and retention, excessively high beta activity has been associated with reduced attention and poorer learning outcomes (Chiu et al., 2006; Ghetti & Alexander, 2004).

The reliability of EEG measures has been supported by previous research. McEvoy et al. (2000) demonstrated high test–retest reliability for EEG recordings across multiple time intervals, suggesting that resting-state EEG can reliably reflect cognitive changes over time.

3. Method

3.1. Participants

Six preschool novice language learners aged 5 to 6 years old (Mean age: 5.5, two boys and four girls) volunteered to take part in the study. Their mother tongue was Persian, and all were right-handed. One benefit of studying children at this relatively young age, compared with adults, is their neural plasticity (Wong et al., 2012). Participants were randomly assigned to one of the teaching groups: multisensory and non-multisensory, with each group including two girls and one boy. The study was carried out in an underprivileged area of Mashhad, Iran. Data from the questionnaires indicated that the children had no prior experience with English, had not attended English classes, and had never traveled to English-speaking countries.

All participants had normal brain states and no known neurological impairments. Their parents volunteered to participate in the project and provided informed consent approved by the Human Research Ethics Board at Payame-Noor University of Tehran. The study followed ethical standards, and the data were confidential, without mentioning the names of the participants.

The participants' parents filled out a researcher-made background questionnaire, including some related demographic information, such as the parents' educational level, the students' probable participation in FL classes, and their exposure to English because of international travel.

Since the parents were unfamiliar with the QEEG, before taking the records, the researcher (teacher) described and demonstrated the device and the process. They were informed that the device would record brain waves without exposing the children to radiation. The volunteer parents signed the questionnaire and expressed their agreement with their children's participation in the study. The limited number of participants was due to the manageability of the study in terms of the project cost, which any university or institute did not finance.

3.2. Materials and instrumentation

3.2.1. Teaching materials

Ten selected new words (*crayons, ice-cream, tea, hot, cold, wool, bag, glass, flowers, glue*) were presented using manipulatives in a 30-minute session to engage gustatory, olfactory, visual, vestibular, tactile, and auditory senses. The words were selected randomly from the list of vocabulary items presented in the designed Expressive One-word Picture Matching Test (EWPMT).

3.2.2. Expressive One-word Picture Matching Test (EWPMT)

To examine the effect of the treatment, an English test was designed and administered twice, once at the beginning of the study and then after a teaching session, as a pre- and post-test, in both multisensory and non-multisensory groups. Since the purpose of this study was to assess FL

vocabulary items retention, the target vocabulary items for the teacher-made test were selected from the vocabulary items to be taught. The EWPMT was designed according to the Expressive One-word Picture Vocabulary Test (Martin & Brownell, 2011). The test is suitable for children aged 2 to 18 years old, and it examines the child's English-speaking vocabulary at various levels of difficulty associated with age.

The EWPMT in this was a 40-item test to be circled by the participants after the teacher's articulation. It took 20 minutes, and one point was assigned for each item on the test. The test reliability was calculated using Cronbach's alpha (alpha = 0.74).

3.2.3. Instruments (QEEG Records)

The QEEG data were recorded using the Mitsar-EEG-201 device (FDA 510K K143233). It incorporates 21 shielded silver-chloride electrodes placed on the scalp in accordance with the 10–20 international system. The EEG sampling rate was kept at 500Hz.

Fp1, Fp2, F3, and F4 electrodes can exhibit EEG activity more typical of prefrontal and some frontal activities (Marcuse et al., 2016). Following some studies in the literature (Guyton & Hall, 2006; Llamas-Alonso et al., 2019), in the present study, the beta, beta1, and high beta frequencies from Fp1, Fp2, F3, and F4 areas and theta/beta ratio power from Fz, Pz, and Cz were analyzed.

3.3. Procedure

The study included one 30-minute session of instruction with six participants (two girls and a boy in each group). The selected new words were presented to both groups under study (multisensory and non-multisensory teaching groups). Before the instruction, there was a QEEG record (pre-record) and a pre-test. Next, after 30 minutes of instruction, there was a post-test and a post-QEEG record. In the recording sessions, the subjects were instructed to keep still. The QEEG data included 5 minutes of open-eyed and 5 minutes of closed-eyed records. The teacher (one of the researchers) was present in all the recording sessions.

In the multisensory method group, real manipulatives were used, and the participants touched, saw, and sometimes smelled and tasted the real objects while they were familiarizing themselves with their meanings. Sometimes they participated in vestibular practices or hands-on activities to learn a new word.

In the multisensory group, real manipulatives were used, and the participants saw, touched, and sometimes smelled and tasted the real objects while they were familiarizing themselves with their meanings. Sometimes they participated in vestibular practices or hands-on activities to learn a new word. In contrast, in the non-multisensory group, the vocabulary items were presented using flashcards while their meaning was explained in Persian.

4. Results

Due to the small sample size (n=3 in each group) and non-normal distribution of the data, the nonparametric tests of Wilcoxon, Mann-Whitney, and Kendall's tau non-categorical tests were applied to scrutinize the data (Soleimani, 2009).

Table 1. Wilcoxon results regarding pre- and post-records of the short-term multisensory and non-multisensory groups on beta and beta1 frequency ranges

Variable		Multisensory		Non-multisensory	
		Pre-record		Post-record	
		Z	Sig	Z	Sig
Beta	FP1	-1.60	0.10	0.00	1.00
	FP2	-1.60	0.10	0.00	1.00
	F3	-1.60	0.10	-0.53	0.59
	F4	-1.60	0.10	-0.53	0.59
Beta1	FP1	-1.60	0.10	-0.53	0.59
	FP2	-1.60	0.10	0.00	1.00
	F3	-1.06	0.28	0.00	1.00
	F4	-1.60	0.10	-0.53	0.59

The nonparametric Wilcoxon signed-rank test was applied to the mean absolute power of the beta and beta1 (SMR) wave frequencies at Fp1, Fp2, F3, and F4 brain regions to assess changes in these wave oscillations after 30 minutes of instruction. The comparison of the QEEG pre- and post-records of the three participants in both multisensory and non-multisensory groups indicated no significant differences (Table 1).

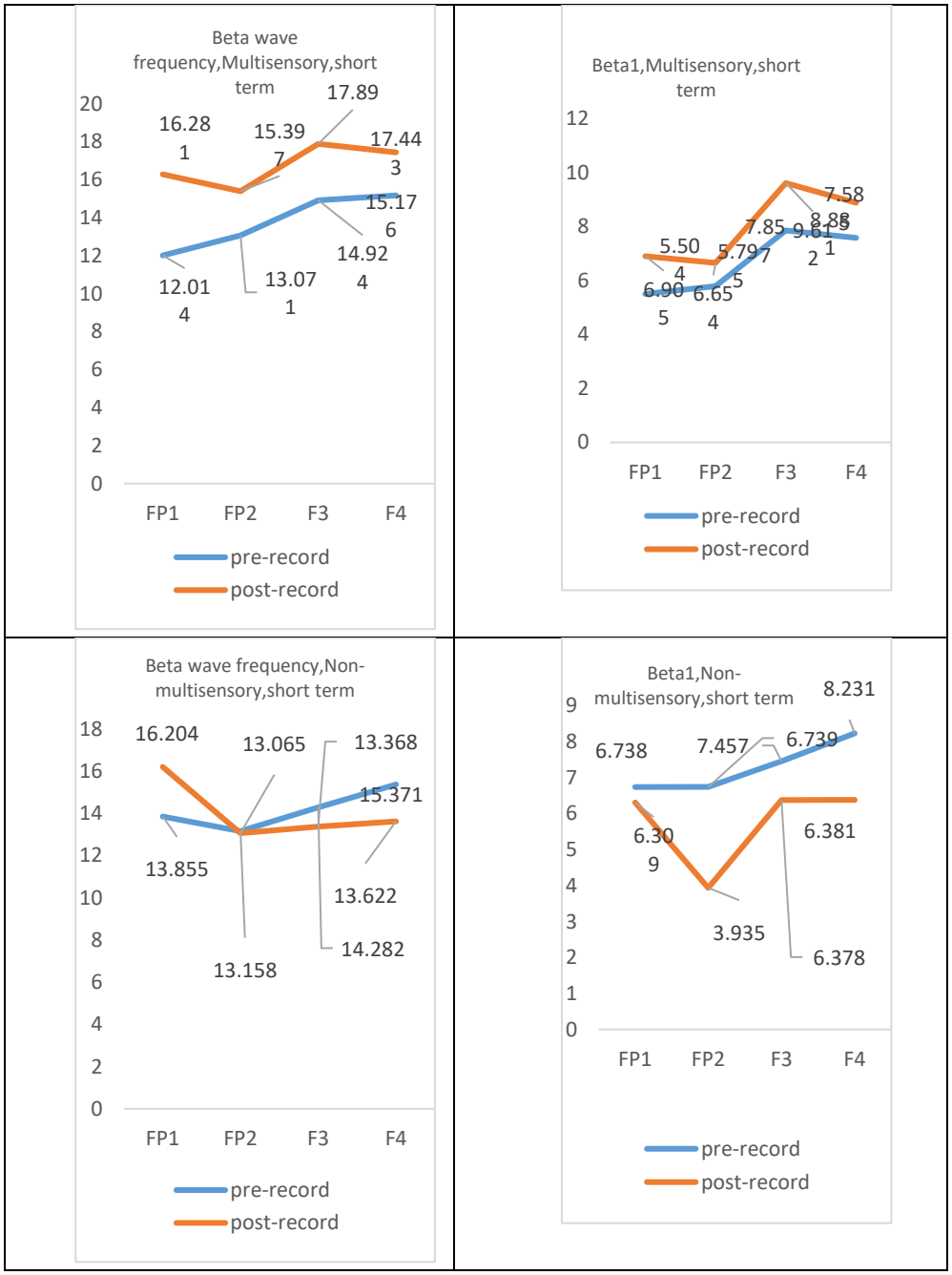


Figure 1. Beta and beta1 frequency band ranges on F3, F4, Fp1, and Fp2 in QEEG pre- and post-records of the multisensory and non-multisensory groups at short-term retention

Though Beta and Beta1 frequencies increased in the multisensory group's post records, the differences were not statistically significant (Figure 1).

The brain maps investigations demonstrated changes in brain activity before and after instruction, which were not statistically significant (Figure 2).

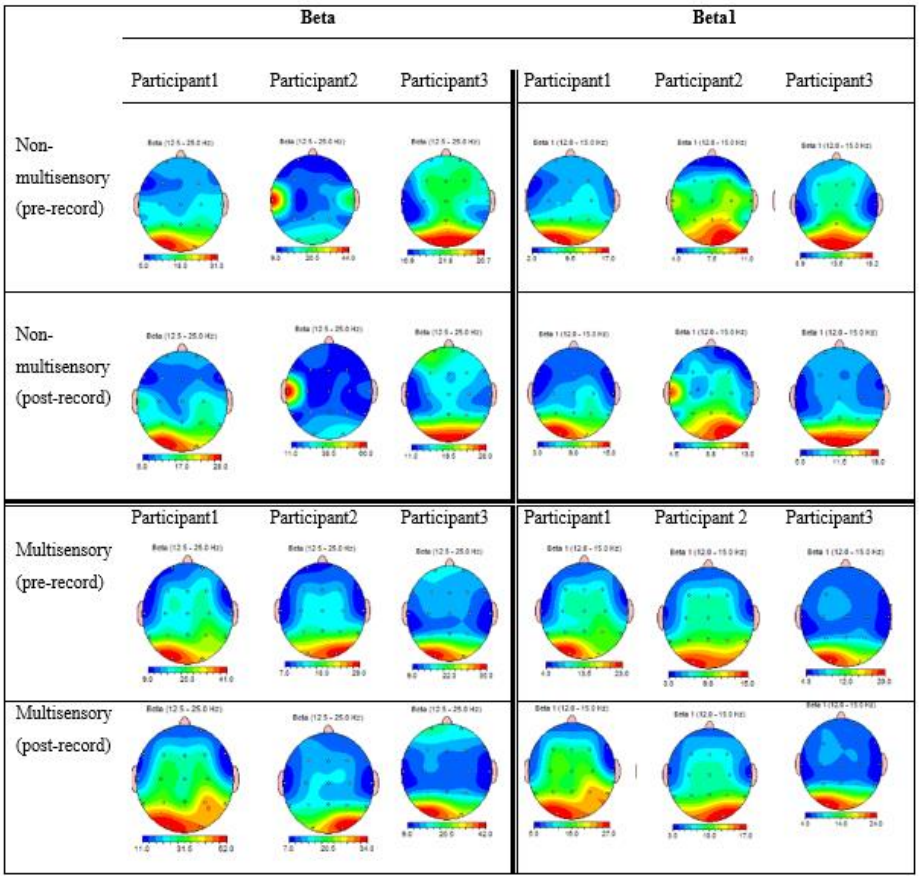


Figure 2. QEEG brain maps record related to beta and beta1 waves before and after 30 minutes of instruction (multisensory and non-multisensory teaching) in the short-term retention phase (Green - Normal Red = Excessive Blue = Diminished Activity)

As shown in Figure 2, the beta and beta1 wave frequencies in prefrontal regions indicated higher activity in the multisensory group's post-records compared to the pre-records and the non-multisensory group's post-records.

QEEG pre- and post-records of the three FL participants in both multisensory and non-multisensory short-term groups were analyzed, using

the Wilcoxon non-parametric test. The probable differences in high beta absolute power frequencies at Fp1, Fp2, F3, and F4 were examined, and the results ($p > 0.05$) indicated no significant differences (Table 2).

Table 2. Wilcoxon results regarding pre- and post-records of the short-term multisensory and non-multisensory groups on high beta frequency ranges

Variable		Multisensory		Non-multisensory	
		Pre-record		Post-record	
		Z	Sig	Z	Sig
High beta	FP1	-1.60	0.10	-1.06	0.28
	FP2	0.00	1.00	-1.60	0.10
	F3	-1.06	0.28	-1.06	0.28
	F4	-1.60	0.10	-0.53	0.59

High beta wave frequencies increased at individual post-records in both groups in comparison to the pre-records. However, the differences were not statistically significant (Figure 3).



Figure 3. High beta frequency changes on Fp1, Fp2, F3, and F4 at QEEG pre- and post-records of the multisensory and non-multisensory groups at short-term retention

In a clinical study, Ogrim et al. (2012) examined the correlations of behavioral parameters and beta rhythm frequencies in sixty-two participants (thirty-nine normal subjects and twenty-three subjects with Attention-Deficit / Hyperactivity Disorder/ ADHD); correspondingly, they found no significant relationship between high beta frequencies and behavioral parameters.

The brain maps investigation demonstrated changes in brain activities before and after 30 minutes of instruction, which were not statistically significant (Figure 4).

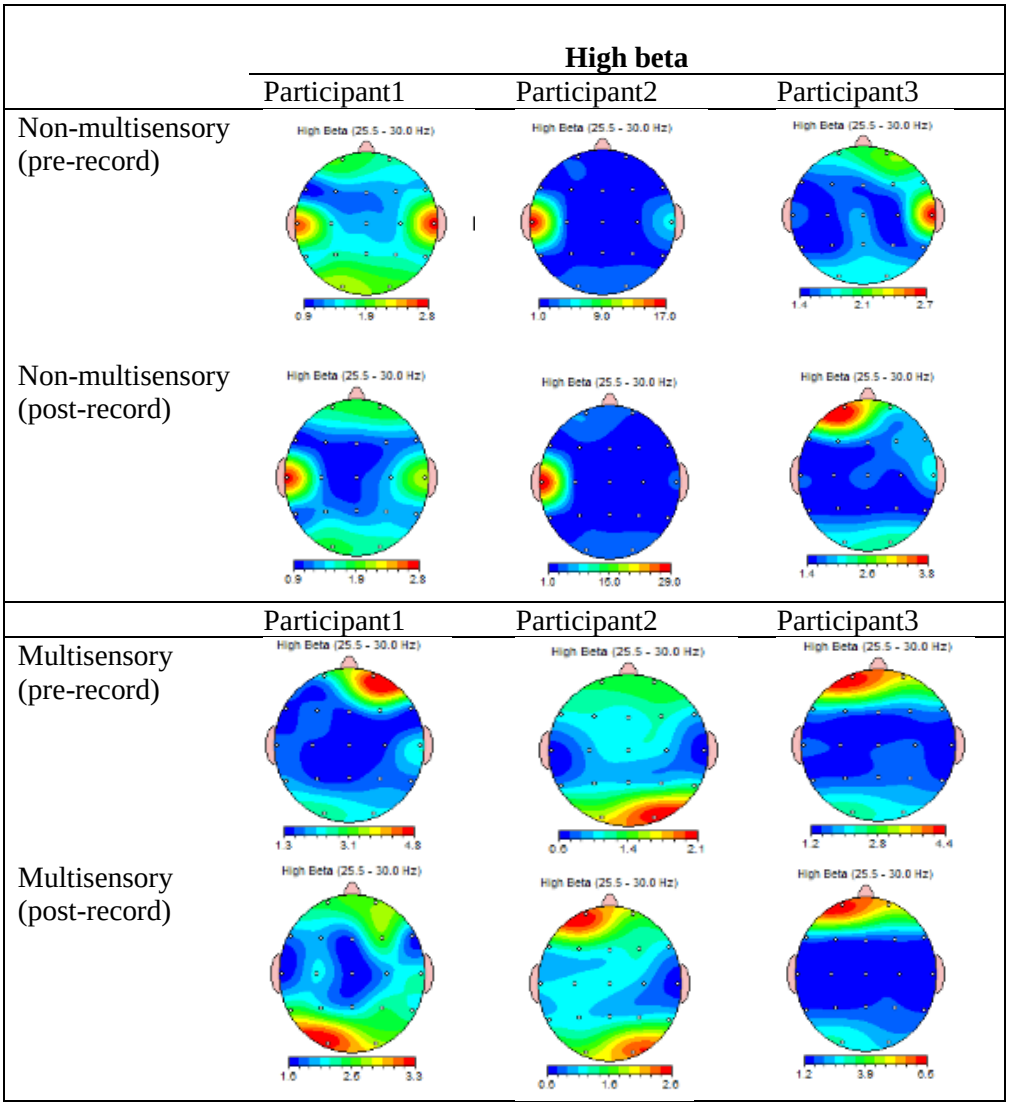


Figure 4. The post QEEG records after treatment (multisensory and non-multisensory teaching) (Green = Normal; Red = Excessive; Blue = Diminished Activity)

The non-parametric Mann-Whitney U test was used to compare the mean scores. The results indicated that there was no significant difference (p>0.05) between the mean scores of the post-tests in multisensory and non-multisensory groups (Table 3).

Table 3. Statistical indices of the Mann-Whitney U test, comparing post-test scores of multi-sensory and non-multisensory groups

Group	N	Mean Rank	Sum of Ranks	U	Sig
Multisensory	3	4.33	13.00	2.00	0.26
Non-multisensory	3	2.67	8.00		
Total	6				

The application of Kendall's Correlation Coefficient test on beta and beta1 (SMR) mean absolute power frequencies at Fp1, Fp2, F3, and F4 brain regions of the six participants of both multisensory and non-multisensory groups in short-term retention indicated that there was a significant positive correlation (p<0.05) between beta wave frequency changes at post-records on Fp1 and Fp2 regions and EWPMT mean score at post-test in multisensory group (Table 4). That is, the more the beta wave frequency increased at Fp1 and Fp2 regions of the brain, the more the scores on the EWPM post-test were in the multisensory group.

Table 4. Statistical indices of Kendall's Correlation Coefficient test to investigate the relationship between beta and beta 1 frequencies and EWPMT mean scores

Variable		Multisensory		Non-multisensory	
		r	Sig	r	Sig
Beta	FP1	1.00**	0.000	-0.81	0.22
	FP2	1.00**	0.000	-0.81	0.22
	F3	-0.33	0.60	-0.81	0.22
	F4	0.33	0.60	-0.81	0.22
Beta1	FP1	0.33	0.60	-0.81	0.22
	FP2	0.33	0.60	-0.81	0.22
	F3	0.33	0.60	0.00	1.00
	F4	0.33	0.60	-0.81	0.22

The statistical analyses (Kendall's Correlation Coefficient test) demonstrated that there were no significant relationships (p>0.05) between beta wave frequency changes on Fp1, Fp2, F3, and F4 at post-records and EWPM post-test mean score in the non-multisensory group.

The results of the Kendall's Correlation Coefficient test on high beta mean absolute power frequencies at Fp1, Fp2, F3, and F4 regions of the three participants of both multisensory and non-multisensory groups denoted that there was a significant negative correlation ($p<0.05$) between high beta wave frequency changes at post-records on F3 region and EWPMT mean score at post-test in multisensory group in short-term vocabulary retention phase (Table 5). To put it differently, the decrease in high beta frequencies on the F3 region of the brain is accompanied by higher scores on EWPMT.

Table 5. Statistical indices of Kendall's Correlation Coefficient test to investigate the relationship between high beta frequencies and EWPMT mean scores

Variable		Multisensory		Non-multisensory	
		r	Sig	r	Sig
Highbeta	FP1	0.33	0.60	-0.81	0.22
	FP2	0.33	0.60	-0.81	0.22
	F3	-1.00	0.000	-0.81	0.22
	F4	-0.33	0.60	-0.81	0.22

Low-Resolution Brain Electromagnetic Tomography (LORETA) Interpretation

LORETA was used to create contemporary source concentration images of brain wave activities. Localization of the brain waves density in EEG activity in the two groups was assessed voxel-by-voxel. In addition, the three-dimensional source distribution was computed for all the participants.

The LORETA analyses in the short-term multisensory group's post records and the first best matches showed that the Parahippocampal Gyrus on limbic lobe was significantly more active as compared to the non-multisensory group. In the three-dimensional tomography of the three participants in the multisensory group, Brodmann area 30 and Hippocampus were shown as the active areas correlated to the Parahippocampal Gyrus in the limbic lobe (Figure 5).

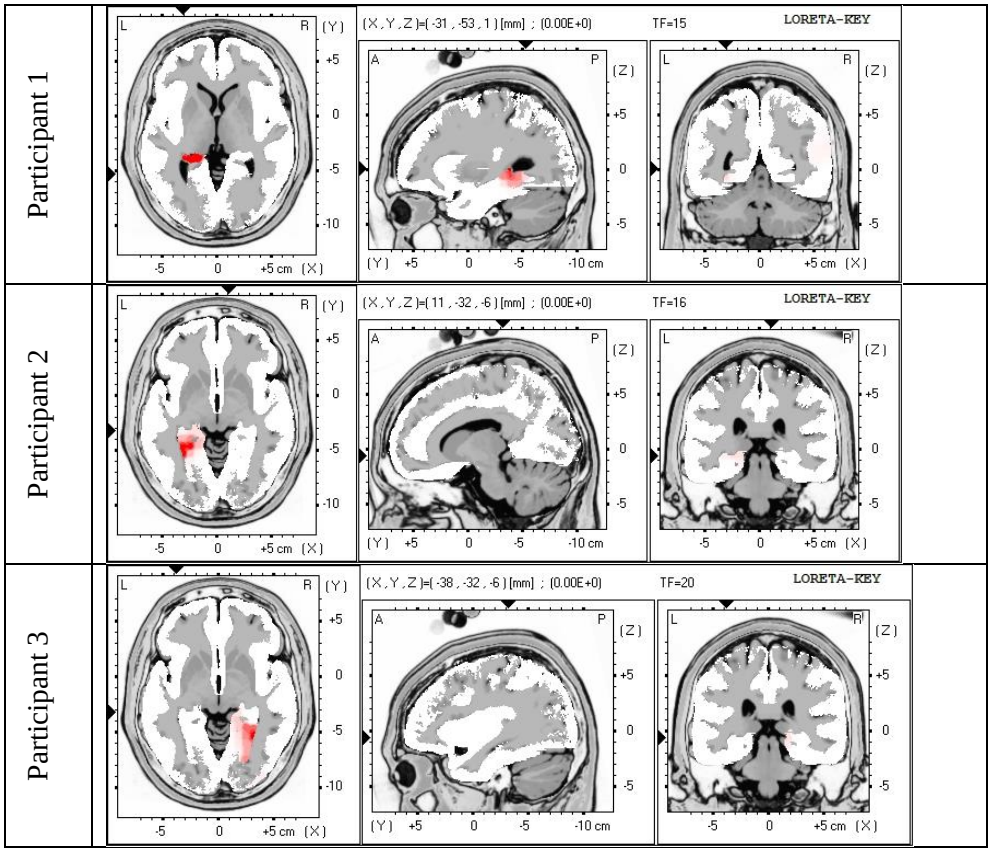


Figure 5. LORETA tomogram showing increased activity signals localized to the Parahippocampal gyrus

The LORETA results suggested that the signals are located in the cingulate cortex (area 30) and the hippocampus area for the first best match, which are located in the limbic lobe. The cingulate gyrus is a part of the limbic lobe, which is located around the corpus callosum and continues into the medial temporal lobe to join the parahippocampus (Brodmann & Garey, 1994).

These types of localization have not been found in the three participants of the non-multisensory group's post-records, and the acquired data on LORETA analysis indicated scattered localization on brain areas 41, 35, and 13.

During the emotionally arousing learning situation and memory storage, the parahippocampal gyrus and ventrolateral prefrontal cortex receive amygdala influences (Kilpatrick & Cahill, 2003). Amygdala is a part of the

limbic system near the parahippocampal region during a heightened emotional arousal outflow, and its increased cascading reflects well-established memory modulating ability (Kilpatrick & Cahill, 2003). Research with animals proved that hippocampal/parahippocampal complex memory-related activities were affected by the amygdala (Guyton & Hall, 2006; Tyng et al., 2017). Consistent with these findings, the present study indicated higher activities in the parahippocampal complex, which is related to higher retention scores on the post-test in the multisensory group.

Besides, the limbic-temoral lobe is directly related to the olfactory network, and the sensory processing at the Limbic Lobe could be modulated by learning and memory (Martin & Ravel, 2014). The oscillatory activities of beta (15-40 Hz) and gamma (60-100 Hz) rhythms in the olfactory system have been reported to be modulated during olfactory processing (Fourcaud-Trocmé et al., 2019). The multisensory groups' olfactory activities (smelling some of the manipulatives) might have activated the olfactory system and consequently the Limbic lobe and might have modified beta rhythms activities in this area of the brain that itself enhanced memory and learning in this group.

5. Discussion and Conclusion

The present inquiry was conducted to apply QEEG data to FL teaching field. Since the brain is a multisensory organ and learning will happen as a result of stimulation through senses (Fernald, 1943; Gillingham & Stillman, 1997; Morgan, 2019), the study designed to empirically scrutinize these changes in the field of language teaching by using a noninvasive device (QEEG).

In the present study, the FL vocabulary short-term memory performance in two groups of multisensory and non-multisensory instructions using QEEG data were examined. Beta, beta1, and high beta waves frequency ranges were recorded on prefrontal and frontal regions (Fp1, Fp2, F3, and F4) and brain maps' topography were analyzed before and after instructions. Though the case analyses of the results reiterated the supremacy of multisensory teaching in FL vocabulary retention, the findings were not statistically significant. These surprising results might be due to the state of the study (after-

instruction-record instead of during-instruction record) or to the small number of participants (only 3 participants in each group).

No significant correlation was signified between FL learners' mean score on the post tests and beta wave frequency increases on Fp1 and Fp2 areas in post records of the multisensory group.

The mean absolute powers of beta increased at post-records, but the data were not statistically significant. The increase in beta band frequency showed the positive effect of both instructions (multisensory and non-multisensory) on beta wave frequencies. Higher beta and beta1 wave frequencies are mentioned to be accompanied by higher concentration, energy, performance, and focused attention (Demos, 2005; Guyton & Hall, 2006) and consequently will result in learning improvement (Prat et al., 2016). Beta1 (SMR) wave frequencies were decreased in the non-multisensory but increased in the multisensory group, which indicated the supremacy of multisensory instruction regarding beta1 improvement in comparison to the non-multisensory group in this particular population. The EEG records on auditory memory tasks were analyzed by Pesonen et al. (2006), and the results indicated activation of beta rhythms as reflecting cognitive and memory processing. Pesonen et al.'s (2006) findings similarly reinforce the case-analyses results of the present study, which is the activation of the beta wave rhythms in both multisensory and non-multisensory groups.

Beta wave frequencies are ascribed to improvement in performance and learning (Marcuse et al., 2015), and the prefrontal regions (Fp1and Fp2) are associated with higher memory storage and recall (Guyton & Hall, 2006). Concentration and attention are ascribed to beta wave increases in prefrontal and frontal brain regions (Lim et al., 2019). Applying EEG to measure brain wave changes in thirty-two college students during a focus task, Lim et al. (2019) found that beta waves increased during concentration and immersion in the occipital and frontal lobes, with a higher increase in immersion. In line with Lim et al. (2019), the data on beta wave frequencies indicated higher activity on Fp1 and Fp2 regions.

Beta1 wave is a high-frequency and low-amplitude wave associated with introverted and focused concentration (Martin & Ravel, 2014). The introverted concentration would lead to the greater use of cognitive and metacognitive strategies in FL learning (Kayaoğlu, 2013). The prefrontal

region plays an attested role in metacognition (Takeuchi et al., 2019); therefore, an increase in beta1 wave frequencies would be associated with improvement in learning and retention.

The frequency of high beta wave ranges between 22 and 30 Hz and is accompanied by hypervigilance and high-speed cognitive processing, anxiety, and bruxism (Marcuse et al., 2016). The prefrontal cortex is affected by anxiety, which itself would alert the cerebral lateralization of dopamine activity and, as a result, excitement (Fride & Weinstock, 1988). A different experiment by Puig et al. (2014) showed that blocking dopamine receptors in the prefrontal cortex impairs incoming stimulus-response learning and cognitive flexibility, while it does not cease the memory of highly familiar associations.

The increase in high beta frequencies was more pronounced in the non-multisensory group compared to the multisensory group. The findings provide some evidence for the potential effectiveness of multisensory instruction in anxiety management. Beta and beta1 brainwave activity supports learning improvements and should be strengthened, while excessively high-beta activity may require suppression during learning or task engagement (Tatum et al., 2008). This study focuses on the permanent or temporary effects of instruction on brain waves after the teaching period rather than during it. No significant differences in the results were observed.

The short-term memory is associated with areas in the prefrontal cortex, specifically the dorsolateral area, primarily on the left side, so around F3 (Herwig et al., 2003). High beta wave frequencies, accompanied by anxiety, increased in both experimental and control groups in post-records. However, their increase in the Multisensory group was desirable since it led to higher scores on post-tests. The one-by-one correspondence between the multisensory group's post-test scores and high beta frequency absolute power indicated this proportionality.

Decreasing high beta wave frequencies on the F3 region is desirable in learning (Marcuse et al., 2015) and consequently in retention (Ritter et al., 2013). The higher mean score on the EWPM-post-test in the multisensory group was associated negatively with lower anxiety in the prefrontal cortex. That is, higher anxiety caused by multisensory instruction might help learners

improve their short-term memories and retain new FL vocabulary on the post-test.

Anxiety and excitement derive from similar neuro-chemical mechanisms in the brain, with their differentiation comes from the cognitive associations individuals attribute to these states. Imbalanced excitement, however, induces intensified dopamine release within behavior-regulating neural regions, particularly the frontal lobes (Guyton & Hall, 2006).

The humans' cognitive processes like perception, reasoning, learning, and even problem-solving are influenced by emotion (Tyng et al., 2017). Retrieval, encoding, and memory will be facilitated by attentional control (Tyng et al., 2017). Multisensory classes are full of emotion, they incorporate participation, excitement, games, and sensory manipulations which lead to retention.

The case study related to the scores on post-tests indicated improvement in language scores, but the results were not statistically significant. The sample is too small to draw a conclusion on this result and generalize the findings. The individual scores for each learner on the post-test indicated the effectiveness of both instructions (multisensory and non-multisensory).Even though the perceptual function is built upon a multisensory foundation (Molholm, et al., 2002; Noel et al., 2017) and multisensory instruction improve vocabulary learning (Gorjian et al., 2012), the findings of the study showed no significant improvement on post-test scores in the multisensory group in comparison to the non-multisensory group. The mean scores of the participants on the post-test in the multisensory group revealed that the learners in this group outperformed their counterparts in the non-multisensory group.

Moreover, the teacher's observations during the exam indicated that children in the multisensory group not only recalled the target vocabulary but also remembered related words within the same semantic network, allowing them to respond more quickly.

The qualitative results of the study are in line with Jubran's (2012) findings that asserted the effectiveness of multisensory instruction in teaching English skills. Applying experimental design, Jubran (2012) investigated the effect of multisensory teaching in comparison to traditional one in two groups

of 122 participants, and the results indicated students' performance enhancement in the multisensory group.

Broadbent et al. (2018) employed multisensory educational tools and advocated the benefits of multisensory information over unisensory cues for learning. They examined the retention of incidental categorical learning in 5-, 7-, and 9-year-olds (N=181), comparing multisensory and unisensory cues. In line with Broadbent et al. (2018), Baker and Jordan (2015) reported the beneficial presentation of multisensory cues on the immediate acquisition of numerical abilities. The empirical results of these studies affirmed the qualitative findings of the present study, that is, the effectiveness of multisensory processing in the brain on the learner's performance.

The LORETA analyses illustrated the activity localization on the parahippocampal gyrus in the multisensory group's post-records. It shows that multisensory instruction is an advantageous approach to teaching new FL vocabulary items. Since almost all studies on brain oscillations have recorded brain waves during task performance or instruction, rather than after it (e.g., Ghetti & Alexander, 2004; Hsu et al., 2017; McEvoy et al., 2000), it is challenging to make direct comparisons between published studies and the present one.

Regarding external validity, valid results are often in agreement with other research. As reported, previous research showed positive significant relationships between beta, and beta1 bands elevation and learning and attention (Demos, 2005; Güntekin et al., 2013; Ritter et al., 2013; Wróbel, 2000); while, the related studies indicated the negative significant correlation between high beta wave frequencies and attention and learning (Chiu et al., 2006; Demos, 2005; Ghetti & Alexander, 2004). Contrary to other studies, the present study's findings were not in agreement with the previous ones in the field. This unexpected result is mainly due to the limited number of participants (only 6); therefore, the results lack external validity and generalizability.

Considering the results of the case analyses, the findings revealed valuable insights. This empirical experiment offered a comprehensive investigation into the applications of the QEEG device in language learning. Further, it contributed to the development of related discussions on brain waves and instructional programs. The findings have several implications.

First, they provide FL educators and researchers with a scientific basis to explore interdisciplinary approaches (e.g., multisensory approaches) to language teaching and learning. Second, they offer psychologists and neurologists opportunities to examine the neural areas involved in FL learning and how these may be affected by methodological variations. Moreover, the results may assist language teachers in becoming familiar with scientific techniques of methodological evaluation and in adopting more effective instructional practices.

Despite these advancements, certain limitations must be considered. The relatively small sample size restricts the generalizability of the results. Besides, this study was conducted over a limited time frame, which did not allow examination of the long-term effects of QEEG-based interventions. Finally, the focus was refined to specific tasks and contexts, while factors such as learners' age, proficiency levels, and affective variables were not fully addressed. These limitations suggest that the findings should be interpreted with caution and warrant further, large-scale investigations.

Future research is recommended to identify further the brain regions and oscillatory patterns engaged in FL/SL learning, to enhance language teaching, and to investigate potential long-term or transient changes in brain waves resulting from specific tasks or instructional periods.

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Reclaiming the Translator's Agency in AI-Assisted Training: An Approach Based on Self-Regulated Learning

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Abstract This study investigated the impact of integrating self-regulated learning strategies into AI-based translation training. Twenty-one undergraduate translation students were divided into control and experimental groups. While both groups used ChatGPT for doing translation tasks, only the experimental group received instruction based on SRL principles. Targeted weekly feedback also played a critical role in guiding students' learning processes. Translation performance was assessed through pre and posttests using Waddington's model, and SRL development was measured using the MSLQ and weekly reflective journals. The results showed significant improvement in the experimental group's translation quality and self-regulatory behaviors. Thematic analysis of journals indicated a shift from dependence on AI to empowered decision-making. These findings suggest that SRL-based instruction, when paired with structured feedback, enhances not only the students' interaction with AI tools but also their autonomy, critical thinking and engagement. The study highlights the value of pedagogically grounded use of AI in translator education.

Keywords: *Translator's Agency, AI, Translator Training, Self-Regulated Learning, Feedback*

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1. Introduction

The integration of AI into translation education, in recent years, has transformed both the way translation tasks are performed and the way students engage with learning. Although the new technology is efficient, it has pedagogical challenges for sure. For example, overreliance on technology can encourage surface-level engagement and diminish learners' sense of responsibility; besides, in some cases, it facilitates unethical practices such as plagiarism, outsourcing of assignments, or unquestioning acceptance of technology outputs (Williams, 2007; Howard & Davies, 2009; Awdry, 2021). Part of this overreliance is due to shifts in the behavior of university students these days. Generation Z students, who currently populate most higher education classrooms, have grown up with technology which seems to be an integral part of their lives (Johnston et al., 2024). It is therefore unrealistic to expect students to refrain from using readily accessible technological tools that make their academic tasks easier (Szymkowiak et al., 2021). Research showed that this generation, due to their limited attention span, prefers to grasp the key points as soon as they start studying; this makes traditional assignment completion tedious and unappealing (Poláková & Klímová, 2019). Moreover, many of these students have been conditioned to focus primarily on achieving results and not engaging with the learning process itself (Johnston et al., 2024). In addition to what was said, factors such as the difficulty level of the course content, lack of discipline and time management, procrastination, and physical and mental health challenges that may impair concentration further contribute to their reliance on technology (Amigud & Lancaster, 2019; Amigud & Lancaster, 2020). Such conditions push students toward the use of technology that helps them complete their tasks with minimal stress, time, and mental effort. While instructors from older generations may consider this behavior as straightforward academic dishonesty, today's students often do not perceive it as such. Compounding this problem is a broader societal shift in which such behavior, though once stigmatized, is gradually becoming more tolerated, turning to a socially accepted norm, if not implicitly accepted, as a necessary adaptation to systemic pressures (Brimble, 2016; Flom et al., 2021). This situation, where traditional instruction has become less prominent (Pishghadam & Ebrahimi, 2024), highlights the need for pedagogical frameworks that not only make use

of the affordances of AI but also improve students' capacity for critical engagement, ethical decision-making, and proactive learning (Johnston et al. 2024), since learners' excessive reliance on AI may diminish their capacity for learning independently and wear away their creativity and critical thinking (Wogu et al., 2018). In fact, in line with technological advancements, the adoption of innovative instructional approaches can further enhance the quality of teaching and learning (Khazaie et al., 2020). Besides, there might be a need to re-examine the concept of cheating and assignment outsourcing (Evering & Moorman, 2012).

In the context of translation education, certain AI-powered tools, including those based on generative AI, are capable of producing high-quality, and at times even acceptable, translations. This development has the potential to undermine the very logic of translation pedagogy and classroom practice if students are allowed to rely solely on the output generated by such tools. Furthermore, studies show that while AI-produced translations may initially appear seamless and highly accurate, entirely fabricated words or expressions might have been inserted there; in other words, the usability and reliability of AI-based translation tools are disputable (Alkodimi et al., 2024). This is yet another red flag that highlights the risks of uncritically accepting AI-produced translations.

Notwithstanding the challenges posed by the integration of AI into translation education, the benefits of its application in this domain are so substantial that its utilization cannot be overlooked. AI offers numerous advantages such as bridging linguistic and cultural gaps by facilitating communication through features such as speech recognition and machine translation, saving time and costs by automating repetitive tasks, and optimizing decision-making processes, which means human translators can save their creativity and human ingenuity for more complicated translation tasks (Tavares et al., 2023; Wang, 2023). That is why, according to Yu (2023), rather than prohibiting the use of AI, instructors should teach learners how to make optimal use of it; if this is the aim, research grounded in experiences and conceptualizations of both instructors and learners regarding the use of AI in real-world classrooms should be carried out (Lameras & Arnab, 2022).

Also, learners, as key stakeholders, and their needs must be considered in the process of changing policies toward AI (Johnstone et al., 2024).

One effective way to address the growing presence of AI in translation education is by integrating an approach based on self-regulated learning (SRL). SRL encompasses a range of skills and dispositions that help learners develop internal motivation to take ownership of their learning, a process which can reduce passive reliance on technology. In effect, this approach, as it applies to postsecondary education, emphasizes learning through experience and self-reflection (Pintrich, 1995).

Hence, the purpose of the present study is to explore the impact of integrating SRL strategies into AI-based translation instruction in an undergraduate context. Accordingly, it is to investigate whether students who receive SRL-informed instruction demonstrate enhanced engagement with translation learning and more responsible use of AI technologies.

2. Review of Literature

2.1. Thematic analysis of AI-based approaches in translation studies

Most recent studies addressing AI in the context of translation studies have primarily focused on one of the following themes: the impact of AI on translation education (see Yuxiu, 2024; Koka, 2024; Zaghlool & Khasawneh, 2024; Alkodimi et al., 2024); these studies described the influence of AI on the translation education sector in general terms, but did not offer concrete pedagogical strategies which could be implemented. The evolving role of AI in professional translation sector (see Ameri, 2024; Majeed & Taha, 2024, Pym, 2024; Elkins, 2024; Zayed & Nuirat, 2024; Al Sawi & Allam, 2024; Moneus & Sahari, 2024; Fu & Liu, 2024; Puppel & Borg, 2025); though these studies tried to clarify how AI is transforming the professional translation sector, they provide limited guidance for optimal use of AI which is a prerequisite for entering the professional market these days. Another line of inquiry has examined shifts in paradigms, theoretical bases and research methods due to the appearance of the new technology (see King Lee (2023); Soysal (2023); Ali & Ali (2023); Asscher (2023); Kaifang & Chunlei (2023); Yu & Liu (2024)); these studies primarily focus on conceptual and methodological transformations and do not directly address practical training

approaches. As it can be seen, although these studies have significantly advanced our understanding of how AI is reshaping translation education, the professional market, and theoretical foundations, they fail to provide a critical perspective on how current pedagogical practices can make use of AI-tools effectively. In response to this gap, Khalili (2025) developed an innovative framework which is grounded in learning theories. The framework aims at evaluating and selecting AI-powered translation tools with the purpose of facilitating their effective integration into translation training courses. Also, Khalili (in press) investigated whether applying the principles of connectivism, as a digital-age learning theory, can help students make optimal use of AI-powered translation tools.

As previously discussed, the integration of AI-powered tools into translator education can pose significant challenges such as academic dishonesty including plagiarism and outsourcing of assignments (Awdry, 2021). Besides, the high-quality AI- produced translations may lead learners to ponder if there is a need at all to develop translation skills because they assume that technology can handle the task much better. If left unaddressed, such perception could undermine the very logic behind translator training programs; therefore, it is essential to develop a sense of agency and responsibility among learners. As it was mentioned before, one promising approach can be the application of SRL strategies which can help students see themselves as active managers of their own learning process. The following section provides an overview of SRL and its pedagogical potentials.

2.2. SRL in higher education: implications for AI-based translator training

Learners are expected to be more independent, and in charge of their own learning process when they are admitted to the higher education level (Zimmerman, 2005). This means that learners have to be involved actively in planning learning paths, setting goals, monitoring their progress, reflecting on outcomes, and making necessary adjustments (Carter Jr et al., 2020). There are a lot of studies that have shown that incorporating SRL strategies can enable learners to develop these capabilities, leading to improved academic performance, greater motivation, and long-term achievements (see

Zimmerman, 1989; Zimmerman, 2002; Zimmerman, 2005; Dent & Koenka, 2016; Chen, 2022; Greenquist-Marlett et al., 2024). The ability to self-regulate becomes even more crucial in today's digital era. Research supports how SRL is effective in technology-enhanced environments; it shows that SRL can encourage meaningful engagement, improve digital competence, and facilitate academic success both in autonomous and blended learning settings (see Barnard-Brak et al., 2010; Cho & Heron, 2015; Jaramillo et al., 2022; Buot, 2023; Caixia et al., 2025; Simón-Grábalos et al., 2025; Faza & Lestari, 2025). Since translation training typically takes place in higher education, the implementation of SRL strategies with the purpose of enhancing learners' autonomy and responsibility is clearly relevant, especially in the context of AI-based translation training, where learners may face challenges such as academic dishonesty or over-reliance on AI-produced translations. However, although SRL can influence learners' performance positively, its effectiveness must not be considered the same across all educational contexts because several factors might be at work. For example, consider the learning objectives and outcome expectations in a translation training program which differ from those in a mathematics course due to the fact that students are expected to improve across different dimensions in each of these courses; or consider the instructor's patience and level of expertise in implementing SRL strategies as well as learners' willingness and motivation to develop SRL-related competencies which might differ from one learning context to another.

Overall, the existing literature demonstrates that SRL can substantially enhance learner autonomy, adaptability, and responsibility. Nevertheless, its potential in addressing the specific challenges raised by AI-powered translation tools such as academic dishonesty, over-reliance on AI outputs, and the erosion of motivation to acquire translation skills remains underexplored. This gap underscores the relevance of the present study, which seeks to connect the advances in AI-driven translation education with SRL-based pedagogical practices.

2.3. Theoretical framework

SRL is a set of skills that can be taught and cultivated in a variety of educational contexts (Pintrich, 1995); in effect, it is an approach that provides a comprehensive framework for understanding how learners can take control of their learning processes. According to Pintrich (1995) and Zimmerman (2002), SRL involves a cyclical model with three interrelated phases of forethought, performance, and self-reflection. In the forethought phase, learners engage in goal-setting and strategic planning; in the performance phase, they monitor their cognitive and behavioral engagement; and in the reflection phase, they evaluate outcomes and make necessary adjustments to their learning strategies. It is said that consistent self-monitoring and self-reflection enhance self-efficacy and intrinsic motivation, ultimately leading to better academic outcomes (Zimmerman & Paulsen, 1995; Zimmerman, 2002). Also, feedback, which is crucial to the development of SRL, acts as a mediator between performance and adjustment. As Zimmerman and Paulsen (1995) argue, feedback allows learners to evaluate their performance in relation to their goals and make very prompt modifications. Studies have shown that feedback, if it is well-designed and formative, can enhance SRL to a great extent by improving learners' independence, metacognitive awareness, and engagement (see Nicol & Macfarlane-Dick, 2006; Panadero et al., 2017; Zawacki-Richter et al., 2019; Wang, 2024; Campos, 2025).

In the context of translator education, while integrating AI-powered translation tools is beneficial, it can lead learners to adopt a passive role due to overreliance on AI output. Thus, instructional designs are needed to equip students with strategies that can help them critically assess, manage, and optimize their learning processes. This is where SRL gains significance. SRL can help learners reposition themselves as active agents rather than passive recipients of AI outputs by promoting intentional planning, active monitoring, and critical reflection.

For this study, Zimmerman's (2002) cyclical model of SRL was adopted as the theoretical foundation. This model guided both the instructional design and the research methodology. Particular attention was given to how learners set short-term translation goals, monitored their progress through interaction with AI, and reflected on the quality and limitations of its outputs. Through

this lens, this study explored whether developing SRL-related skills can enhance trainees' autonomy, decision-making, and translation performance in an AI-based setting.

2. Method

This study is an applied, experimental research that aims to examine the impact of integrating SRL strategies into AI-based translation training; here, the focus is on undergraduate students' translation performance and their learning behavior as well.

3.1. Participants

The participants were twenty-one undergraduate students who were to take 'Translating Scientific and Technical Texts', an undergraduate translation course, at the University of Mazandaran. Students were assigned into two equal groups, control and experimental, based on their pretest scores using a matched-pair random assignment method. All participants had a similar academic background and prior exposure to ChatGPT, the AI tool used in the project.

3.2. Procedure

The project was conducted for both groups, control and experimental, over 12 sessions, each session lasting 90 minutes per week, yet the two groups received different instructional approaches:

A) The control group was taught using the conventional method of translation instruction.

B) The experimental group, in contrast, was trained on the basis of a self-regulating approach that included goal setting, self-monitoring, self-reflection, and critical evaluation of AI outputs. Students were encouraged to document their decision-making processes, reflect on their use of AI tools, and identify areas for improvement after each task.

3.3. Instruments

To evaluate the outcomes, the following instruments were used:

Translation performance tests: A pretest and posttest were administered to both groups. Translations were evaluated using Waddington's (2001) model, which combines both an error analysis and a holistic approach considering the accuracy and appropriateness of the translations. It is worth noting that all translations, in both the pretest and posttest phases, were evaluated anonymously, which is one of the most effective methods to reduce implicit bias and discrimination in evaluation (Saul, 2013; Bygren, 2022).

The next two sections (MSLQ[1] and reflective journals) are specific to the experimental group. This is because these two instruments were employed within the framework of SRL in order to assess learners' progress. Accordingly, applying them to the control group which did not receive SRL-based instruction would lack pedagogical justification, and was therefore not necessary.

Motivated Strategies for Learning Questionnaire (experimental group only): this questionnaire[2], designed by Pintrich and DeGroot (1990), is based on a 7-point Likert scale[3]. It was administered pre- and post-intervention to assess students' in-depth opinions on the use of SRL strategies during the translation course. Given the comprehensive and domain-general design of the MSLQ, encompassing two broad domains of motivation (with respective subscales of value components, expectancy components, and affective components) and learning strategies (with respective subscales of cognitive and metacognitive strategies, and resource management strategies), which allows for applicability across various academic disciplines, the original version of the questionnaire was used with only a couple of slight modifications[4].

Reflective Journals (experimental group only): Students in the experimental group wrote short weekly reflective journals in order to record, and report

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[1]. Motivated Strategies for Learning Questionnaire
[2]. See appendix 1
[3]. 1 = Not at all true of me, 2 = Mostly not true of me, 3 = Somewhat not true of me, 4 = Neutral, 5 = Somewhat true of me, 6 = Mostly true of me, 7 = Very true of me
[4]. See appendix 2

later, their learning behaviors and interactions with AI tools. The purpose was to allow students to express their thoughts, struggles, and strategies in their own words which was more akin to stream-of-consciousness reflection or freewriting exercises.

3.4. Instructional model

The instructional model developed for this study was grounded in the theoretical framework of SRL (Zimmerman, 2002) and the importance of feedback in promoting effective learning (Zimmerman & Paulsen, 1995). Structured feedback was incorporated into the model at two levels:

- Feedback on translation strategies: Students received targeted feedback on the appropriateness of their translation strategies and the quality of their translations so that they could have deeper reflection on strategic decisions.
- Feedback on learning processes: Students were provided with feedback regarding their use of SRL strategies, including goal setting, self-monitoring, and self-evaluation to help them identify areas for improvement.

It must be mentioned that all the quantitative data collected in this study were subjected to statistical analysis using SPSS (version 26), and the significance level for all descriptive statistics as well as inferential tests was set at $p < .05$.

4. Results

4.1. Translation performance tests

After marking the papers using Waddington's (2001) evaluation model and determining the mean scores and standard deviations, participants' pretest scores were used to randomly assign students to the experimental and control groups to guarantee a baseline equivalence and a balanced comparison. In order to do so, participants' pretest scores were first ranked from the highest to the lowest. Then, students with similar scores were paired together based on their adjacent ranking positions. Within each pair, one student was randomly assigned to the experimental group and the other to the control

group. This matched-pair random assignment method helped control for initial differences in translation performance. Moreover, in order to double-check the homogeneity of the two groups prior to the intervention, an independent samples t-test was conducted on the participants' pretest scores. The results, as shown in Table 1, indicated no significant difference between the two groups, confirming their comparability at the outset of the study.

Table 1. Independent samples test (Checking the homogeneity of the 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
Pretest scores	Equal variances assumed	.24	.62	1.49	19	.15	1.23	.82	-.49	2.97
	Equal variances not assumed			1.49	18.75	.15	1.23	.82	-.50	2.97

Following the completion of the training period, a posttest was administered to the students, and translations were evaluated using Waddington's (2001) model. Scores from both groups were then inputted into SPSS to determine the statistical significance in the posttest performance between the two groups with the aim of assessing the impact of the teaching approach which was based on SRL.

First of all, the Shapiro-Wilk test was used, covering both pretest and posttest, to determine the normal distribution of the data. The aim was to examine whether the assumptions for conducting parametric tests were met. As shown in Table 2, the Sig. values for all variables were above .05. This suggests that the distribution of students' scores in both groups approximates a normal curve, with most scores clustering around the mean. Based on this

result, it was deemed appropriate to apply parametric tests including paired samples t-test for the statistical analysis.

Table 2. Tests of normality

Group		Shapiro-Wilk		
		Statistic	Df	Sig.
Experimental	pretest_score	.889	10	.166
	posttest_score	.891	10	.172
Control	pretest_score	.934	11	.448
	posttest_score	.935	11	.467

The paired t-test is used to compare the mean scores of the same participants before and after an intervention, assessing whether any observed changes are statistically significant. Here, this test was employed to determine whether each group (experimental and control) showed significant improvement in their translation performance from the pretest to the posttest. The results are presented in Table 3.

Table 3. Paired T-Test (Comparing pretest and posttest scores within each group)

Translation performance	Group	Pretest (mean ± standard deviation)	Posttest (mean ± standard deviation)	T	Sig
	Experimental	16.60 ± 1.91	18.50 ± 1.43	7.42	< .001*
	Control	15.36 ± 1.88	16.04 ± 1.76	4.89	.001*

* Indicates significant difference ($p < .05$)

The results indicate that although both groups experienced statistically significant improvements in their posttest scores compared to their pretest scores, the experimental group showed a more notable increase in their translation performance ($p < .001$). These findings suggest that although both instructional methods were effective to some extent, the intervention (translation teaching based on SRL) which was applied to the experimental group led to greater achievements in performance.

Also, the one-way analysis of covariance (ANCOVA) was conducted to examine the effectiveness of the instructional intervention by comparing the posttest scores of the experimental and control groups while controlling for the participants' pretest scores. The rationale behind using ANCOVA was to account for any initial differences between the two groups and provide a more

accurate estimation of the effect of the intervention. This approach ensures that the post-intervention differences are not merely due to pre-existing disparities in performance. The results of this test are provided in Table 4, below.

Table 4. The One-Way ANCOVA results for posttest scores with pretest as covariate

Translation performance	Group	Pretest (mean ± standard deviation)	Posttest (mean ± standard deviation)	F	Sig	Effect size
	Experimental	16.60 ± 1.91	18.50 ± 1.43	33.17	< .001*	.648[a]
	Control	15.36 ± 1.88	16.04 ± 1.76			

* Indicates significant difference ($p < .05$)
[a] Indicates large effect size

As it can be seen, after adjusting for the pretest scores, the ANCOVA revealed a statistically significant difference between the two groups on the posttest scores, $F= 33.17$, $p < .001$, indicating a strong effect of the intervention. The partial eta squared value suggests a large effect size, meaning that approximately 65% of the variance in posttest scores can be explained by the group membership (experimental vs. control). These results strongly support the conclusion that the instructional program had a substantial and statistically significant impact on students' translation performance.

4.2. MSLQ

To assess the potential impact of the instructional intervention on students' use of SRL strategies, the MSLQ (Motivated Strategies for Learning Questionnaire) was administered to the experimental group, once at the beginning of the course, prior to the implementation of the instructional model, and again at the end of the course, after the intervention had been completed. Since the control group did not receive any treatment, the questionnaire, which is specific to SRL, was not administered to them. This pre/post design aimed to measure any meaningful changes in students' motivation and learning strategies that could be attributed to their participation in the AI-based translation training program focusing on a self-regulating approach; this was to identify whether the intervention had

contributed to the development of more autonomous and effective learning behaviors.

The MSLQ consists of two major components: motivation scales and learning strategies scales. The Motivation section has three subscales of value components, expectancy components, and affective components; they measure students' goals, beliefs, and emotional responses related to learning. The learning strategies section comprises two subscales of cognitive and metacognitive strategies, and resource management strategies; they assess learners' planning, monitoring, and use of resources during learning tasks. To examine changes over time, paired samples t-tests were conducted for each subscale, comparing students' pre- and post-intervention scores.

4.2.1. Motivation scales

4.2.1.1. Value components

This subscale measures the degree to which students value the learning task and perceive it as useful and interesting. The results of the analysis are presented in Table 5.

Table 5. Paired T-Test (Comparing pre/post value components scores within experimental group)

MSLQ	Group	Value components-pre (mean ± standard deviation)	Value components-post (mean ± standard deviation)	T	Sig
	Experimental	44.10 ± 1.79	61.60 ± 4.35	12.09	< .001*

* Indicates significant difference (p < .05)

Students' scores on the value components subscale significantly increased from pretest (M = 44.10, SD = 1.79) to posttest (M = 61.60, SD = 4.35) with $p < .001$. This suggests that by the end of the course, learners placed significantly higher importance on and perceived greater usefulness in the translation tasks, reflecting enhanced intrinsic motivation.

4.2.1.3. Expectancy components

Table 6. Paired T-Test (Comparing pre/post expectancy components scores within experimental group)

MSLQ	Group	Expectancy components-pre (mean ± standard deviation)	Expectancy components-post (mean ± standard deviation)	T	Sig
	Experimental	30.10 ± 1.20	40.20 ± 2.39	20.02	< .001*

* Indicates significant difference (p < .05)

Students' scores on the Expectancy Components subscale showed a significant increase from pretest (M = 30.10, SD = 1.20) to posttest (M = 40.20, SD = 2.39) with p < .001. This indicates a notable improvement in students' self-efficacy and confidence in their ability to succeed in translation tasks, suggesting that the intervention positively influenced their task-related expectations.

4.2.1.3. Affective components

Table 7. Paired T-Test (Comparing pre/post affective components scores within experimental group)

MSLQ	Group	Affective components-pre (mean ± standard deviation)	Affective components-post (mean ± standard deviation)	T	Sig
	Experimental	10.80 ± 2.39	14.10 ± 1.73	3.91	.004*

* Indicates significant difference (p < .05)

Students' scores on the affective components subscale increased significantly from pretest (M = 10.80, SD = 2.39) to posttest (M = 14.10, SD = 1.73) with p = .004. This improvement suggests that students experienced reduced anxiety and more positive emotional engagement with the learning process, reflecting greater emotional regulation and comfort in working with AI-based translation tasks.

4.2.2. Learning strategies scales

4.2.2.1. Cognitive and metacognitive strategies

Table 8. Paired T-Test (Comparing Pre/Post Cognitive & Metacognitive Strategies Scores within Experimental Group)

MSLQ	Group	Cognitive & Metacognitive Strategies-pre (mean ± standard deviation)	Cognitive & Metacognitive Strategies-post (mean ± standard deviation)	T	Sig
	Experimental	55.60 ± 3.63	88.30 ± 10.47	9.70	< .001*

* Indicates significant difference (p < .05)

Students' scores on the cognitive and metacognitive strategies subscale showed a significant increase from pretest (M = 55.60, SD = 3.63) to posttest (M = 88.30, SD = 10.47) with $p < .001$. This marked improvement indicates that learners developed stronger skills in planning, monitoring, and evaluating their translation work, reflecting enhanced metacognitive awareness and more strategic engagement with AI-produced translations.

4.2.2.1. Resource management strategies

Table 9. Paired T-Test (Comparing pre/post resource management strategies scores within experimental group)

MSLQ	Group	Resource management Strategies-pre (mean ± standard deviation)	Resource management strategies-post (mean ± standard deviation)	T	Sig
	Experimental	12.70 ± 1.25	19.60 ± 1.96	7.46	< .001*

* Indicates significant difference (p < .05)

Students' scores on the Resource Management Strategies subscale increased significantly from pretest (M = 12.70, SD = 1.25) to posttest (M = 19.60, SD = 1.96) with $p < .001$. This suggests a notable improvement in learners' ability to manage time, effort, and learning environments effectively.

4.3. MSLQ overall

Table 10. Paired T-Test (Comparing pre/post MSLQ scores within experimental group)

MSLQ	Group	Overall MSLQ-pre (mean ± standard deviation)	Overall MSLQ-post (mean ± standard deviation)	T	Sig
	Experimental	157.40 ± 4.70	229.30 ± 20.70	11.93	< .001*

* Indicates significant difference (p < .05)

To gain a holistic view of students' development in SRL, a paired-samples t-test was conducted on their total MSLQ scores. The results showed a statistically significant increase from pretest (M = 157.40, SD = 4.70) to posttest (M = 229.30, SD = 20.70), with $p < .001$. This substantial improvement in the overall score suggests that the instructional intervention effectively enhanced students' general capacity for motivation regulation and learning strategy use, reinforcing the benefits of implementing a self-regulated learning approach to AI-assisted translator training.

4.4. Reflective journals

Weekly reflective journals were incorporated into the instructional design for the experimental group as part of the SRL approach so that a deeper insight could be afforded into the students' engagement with SRL strategies in AI-assisted translation training; in effect, these journals served as a qualitative supplement to the quantitative data which were collected through the translation performance tests and the MSLQ.

Students in the experimental group were required to submit their short reflective notes at the end of each week throughout the 12-week project. As for reflective journals, the format was semi-structured. This means that instead of imposing a rigid template, students were provided with guiding prompts which were to encourage thoughtful reflection, while individual expression would still be preserved. Prompts[5] included questions such as:

- How did you evaluate the quality of the AI-produced translation? Any comments on its strength, its weakness, etc.

[5] See appendix 3 for the full list of the prompts

- What translation strategies did you use to refine AI output?

Students were encouraged to respond freely to these prompts; they were also allowed to write about any other thought or observation which could be relevant to the translation process or their learning behaviors. Actually, the goal was to prompt metacognitive awareness and to reinforce habits of critical self-evaluation in alignment with SRL principles.

4.4.1. Qualitative thematic analysis

An essential component, at this stage, was the role of instructor's feedback which was systematically integrated into the analysis of reflective journals. Each week, the instructor reviewed the journals and provided learners with customized feedback both on their use of SRL strategies, and on the effectiveness and justification of their translation strategies which were employed while using AI. The aim of this dual-layered feedback loop was to create a space which was meant for recursive learning in which students were not only encouraged to articulate their feelings and experiences but were also challenged to refine their thinking and decision-making in response to guided prompts and targeted reflections.

A thematic analysis of the reflective journals revealed a dynamic shift in learners' attitudes and behaviors which can be categorized into the following four themes. However, it is worth noting that there cannot be clearly-defined boundaries, and it is more appropriate to conceptualize the themes as stages along a continuum:

4.4.1.1. Experiencing initial uncertainty

Many students, in the early weeks of the project, were in a state of uncertainty and had a sense of inferiority when they compared their own translation decisions with those of ChatGPT. They often accepted the AI output without critique as they felt hesitant to challenge AI suggestions. Students viewed AI as a dominant, authoritative presence, and often assumed a passive role for themselves in the translation process.

4.4.1.2. Developing awareness

It was midway through the course when most of the students began to develop a more reflective stance as they started to question the appropriateness of certain AI-produced translations. They then attempted to analyze the matter because they were required to find out the rationale behind the AI output and to write about it in their journals. Although they were still cautious, they began to notice limitations in AI performance.

4.4.1.3. Engaging critically

As their experience and confidence grew, students became more assertive in their making translation choices. They actively started to challenge and revise AI translations considering linguistic accuracy and cultural appropriateness. In effect, at this point, students demonstrated early signs of self-regulation.

4.4.1.4. Reclaiming agency

At this stage, students' reflections emphasized a shift from considering AI as a dominant authority to a supportive assistant. Learners began to demonstrate self-regulation by articulating the reasoning behind their own translation choices which replaced those of AI, and exhibiting autonomy in task completion.

The iterative dialogue between students' reflections and instructor's feedback served as a driving force behind the observed shift in the learners' opinions on their position as translators.

5. Discussion and Conclusion

Considering learners' translation performance, the findings demonstrate that the integration of SRL strategies into AI-based translation instruction can both enhance the translation performance and fix the perceived identity of students as translators. Significant improvements which were observed in the experimental group's translation posttest scores, which was then supported by ANCOVA analysis as well, provide clear evidence that SRL-based translation instruction leads to more effective learning outcomes than those the conventional approach can offer. These findings go beyond simple

translation performance improvements and suggest that strategic self-regulation enables students to approach AI-based translation tools not passively, but as critical users capable of refining and improving AI-produced translations.

Regarding learners' motivational and strategic development, the MSLQ results provided strong quantitative support for the experimental group's development; statistically significant gains were also observed almost across all five subscales (value components, expectancy components, affective components, cognitive and metacognitive strategies, and resource management strategies). This highlights meaningful improvements in both motivational and strategic dimensions of SRL. Furthermore, the noticeable increase in students' overall MSLQ scores from pretest to posttest reinforces what is concluded, that the intervention encouraged learners' proactive engagement and more autonomous learning behavior, which supports the argument that motivation and strategy use are not fixed traits but can be shaped through deliberate instructional design (Pintrich, 1995), even in the context of AI-mediated learning.

Concerning learners' attitudes and behaviors, the qualitative analysis of reflective journals revealed a striking shift in their perception. Students, who were in a state of uncertainty at the beginning of the course and were heavily reliant on ChatGPT for their translation tasks, gradually turned into more confident and autonomous translators to the extent that by the end of the course, they viewed ChatGPT as a translation assistant and not an authority; this aligns with what Wang (2024) believes that AI has the potential to serve as a supportive companion and not an unquestionable authority when embedded within a SRL framework. This insight is especially relevant in translation studies where human-AI collaboration is becoming the norm rather than the exception.

It must be mentioned that the instructor's feedback on students' translation decisions and on their use of SRL strategies, was an important mediator which acted as catalyst throughout the whole project. This interactive feedback mechanism led to deeper reflection on both translation and learning strategies and reinforced students' metacognitive awareness and agency. This aligns with the literature suggesting that feedback is crucial for effective learning and it can be an enabler for SRL (Nicol & Macfarlane-Dick,

2006; Panadero et al., 2017; Zawacki-Richter et al., 2019; Wang, 2024; Campos, 2025). Moreover, beyond the structured feedback which was provided by the instructor, students engaged in ongoing self-generated feedback through goal setting, self-monitoring, self-evaluation and self-reflection processes. This internal feedback mechanism, which is intrinsic to SRL, empowered learners to take ownership of their progress and fostered greater metacognitive awareness and autonomy. Such a dual-feedback system, both external and internal, likely contributed to the significant improvements in the experimental group's translation performance.

Compared to previous studies, this research expanded the topic by placing SRL in an AI-based translation training context. The results of the present study not only align with the literature which emphasizes that SRL can have a crucial role in academic success (Pintrich, 1995; Zimmerman, 2002), particularly in technology-based learning environments (Barnard-Brak et al, 2010; Cho & Heron, 2015; Jaramillo et al., 2022; Buot, 2023; Caixia et al., 2025; Simón-Grábalos et al., 2025; Faza & Lestari, 2025), but also show that, even in the context of translation education, SRL can help learners navigate the complexity of AI-produced translations. This study also demonstrates that structured training can mitigate overreliance on AI by enhancing affective use of it (Wang, 2024). This becomes particularly important in the current context where AI is capable of producing translations of acceptable quality; this may lead students to develop blind trust in AI. Such overreliance not only undermine students' self-esteem, as it was revealed through the analysis of their reflective journals at the beginning of the course, but also calls into question the very rationale for offering translation training programs.

This study contributes to the intersection of translation pedagogy and learner autonomy by showing how SRL can scaffold more critical, reflective use of AI. Moreover, it suggests that translation instructors should not merely introduce AI tools, however, they should provide structured guidance on how to critically interact with them, for example, through SRL strategies.

Overall, the findings of the present study support a pedagogical shift toward empowering students both to use AI and to challenge it at the same

time. Such a shift holds promise for more ethically grounded, cognitively engaged, and learner-centered translation education.

Several limitations of the present study should be acknowledged, including the relatively small sample size, which was due to the limited space of the university lab and the low speed of the Internet, both of which affected the feasibility of recruiting more participants. Future studies with larger and more diverse participant pools could be carried out to complement the results. In addition, the duration of the instructional intervention was limited to a single academic semester. Although the observed changes were promising, a longer-term study might be needed in order to examine the sustainability of improvements. Moreover, the study focused exclusively on a single AI tool (ChatGPT). It is recommended that this approach be tested using other AI-powered tools as well.

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Appendices

Appendix 1

Motivated Strategies for Learning Questionnaire (MSLQ)*

1. I prefer class work that is challenging so I can learn new things.
2. Compared with other students in this class I expect to do well.
3. I am so nervous during a test that I cannot remember facts I have learned.
4. It is important for me to learn what is being taught in this class.
5. I like what I am learning in this class.
6. I'm certain I can understand the ideas taught in this course.
7. I think I will be able to use what I learn in this class in other classes.
8. I expect to do very well in this class.
9. Compared with others in this class, I think I'm a good student.
10. I often choose paper topics I will learn something from even if they require more work.
11. I am sure I can do an excellent job on the problems and tasks assigned for this class.
12. I have an uneasy, upset feeling when I take a test.
13. I think I will receive a good grade in this class.
14. Even when I do poorly on a test I try to learn from my mistakes.
15. I think what I am learning in this class is useful for me to know.
16. My study skills are excellent compared with others in this class.
17. I think what we are learning in this class is interesting.
18. Compared with other students in this class, I think I know a great deal about the subject.
19. I know that I will be able to learn the material for this class.
20. I worry a great deal about tests.
21. Understanding this subject is important to me.
22. When I take a test I think about how poorly I am doing.
23. When I study for a test, I try to put together the information from class and from the book.
24. When I do homework, I try to remember what the teacher said in class, so I can answer the questions correctly.
25. I ask myself questions to make sure I know the material I have been studying.
26. It is hard for me to decide what the main ideas are in what I read.
27. When work is hard, I either give up or study only the easy parts.
28. When I study, I put important ideas into my own words.

29. I always try to understand what the teacher is saying even if it doesn't make sense.
30. When I study for a test, I try to remember as many facts as I can.
31. When studying, I copy my notes over to help me remember materials.
32. I work on practice exercises and answer end of chapter questions even when I don't have to.
33. Even when study materials are dull and uninteresting, I keep working until I finish.
34. When I study for a test, I practice saying the important facts over and over to myself.
35. Before I begin studying, I think about the things I will need to do to learn.
36. I use what I have learned from old homework assignments and the textbook to do new assignments.
37. I often find that I have been reading for class, but don't know what it is all about.
38. I find that when the teacher is talking, I think of other things and don't really listen to what is being said.
39. When I am studying a topic, I try to make everything fit together.
40. When I'm reading, I stop once in a while and go over what I have read.
41. When I read materials for this class, I say the words over and over to myself to help me remember.
42. I outline the chapters in my book to help me study.
43. I work hard to get a good grade even when I don't like a class.
44. When reading, I try to connect the things I am reading about with what I already know.

* Pintrich, R. R., & DeGroot, E. V. (1990)

Appendix 2

Motivated Strategies for Learning Questionnaire (slightly modified for AI-based translation training)

1. I prefer AI-based translation task that is challenging so I can learn new things.
2. Compared with other students in this class I expect to improve my translation skills even now that I know AI can generate acceptable

translations.

3. I am so nervous while doing a translation task that I cannot remember facts and strategies I have learned.
4. It is important for me to learn what is being taught in this class.
5. I like what I am learning in this class.
6. I'm certain I can understand the ideas taught in this course.
7. I think I will be able to use what I learn in this class in other translation classes.
8. I expect to improve my translation skills very well in this AI-based class.
9. Compared with others in this class, I think I'm a responsible student who tries to understand the process of translation, not just relying on AI output.
10. I often challenge AI outputs to learn something from even if it requires more work.
11. I am sure I can do an excellent job on the problems and tasks posed by AI.
12. I have an uneasy, upset feeling when I do a translation task using AI.
13. I think I will receive a good grade in this class.
14. Even when I do poorly on a translation task I try to learn from my mistakes.
15. I think what I am learning in this AI-based class is useful for me to know.
16. My using translation strategies is excellent compared with others in this class.
17. I think what we are learning in this AI-based class is interesting.
18. Compared with other students in this AI-based class, I think I know a great deal about how to challenge and revise AI-generated outputs.
19. I know that I will be able to learn how to improve my translation skills despite the fact that AI can generate excellent outputs.
20. I worry a great deal about translation tasks which must be done using AI tools.
21. Understanding how to translate using AI is important to me.
22. When I do a translation task using AI, I think about how poorly I am doing.
23. When I do a translation task, I try to put together the information from class and from the book.
24. When I do homework, I try to remember what the teacher said in class, so I can do the translation task correctly.
25. I ask myself questions to make sure I know the material I have been studying.
26. It is hard for me to decide what I should challenge and revise when I use AI for translation.

27. When work is hard, I either give up or translate only the easy parts.
28. When I study, I put important ideas into my own words.
29. I always try to understand what the teacher is saying even if it doesn't make sense.
30. When I do a translation task, I try to check and revise the AI output as much as I can.
31. When studying, I copy my notes over to help me remember materials.
32. I work on practice exercises and translate end of chapter tasks even when I don't have to.
33. Even when study materials are dull and uninteresting, I keep working until I finish.
34. When I do a translation task, I practice saying the important facts over and over to myself.
35. Before I begin studying, I think about the things I will need to do to learn.
36. I use what I have learned from old homework assignments and the textbook to do new assignments.
37. I often find that I have been translating for class, but don't know what to do with the AI output.
38. I find that when the teacher is talking, I think of other things and don't really listen to what is being said.
39. When I am translating a text, I try to make everything fit together.
40. When I'm translating, I stop once in a while and go over what I have translated.
41. When I read materials for this class, I say the words over and over to myself to help me remember.
42. I outline the strategies and techniques in my notebook to help me study.
43. I work hard to get a good grade even when I don't like a class.
44. When translating, I try to connect new strategies I am practicing with what I already know.

Appendix 3

List of reflective prompts

1. How did you evaluate the quality of the AI-produced translation? Any comments on its strength, its weakness, etc.
2. What translation strategies did you use to refine AI output?
3. How did you use the feedback to improve your translation or your learning behavior?
4. What challenges did you face when interacting with AI for this translation task?
5. How has your perception of AI differed since last week?
6. What goals did you set, and how did you self-monitor this week?
7. What have you learned about your own strengths and weaknesses as a translator in using AI tools so far?

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Patrons and Cultures: A Socio-political History of Scientific and Philosophical Translation in Iran from Ancient to the Qajar Period

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Abstract Translation serves as a powerful medium for transmitting knowledge, culture, and ideas from one culture to another. The efficacy of translation hinges on social, cultural, and political contexts. The transmission of scientific and philosophical concepts from ancient Greece to Iran sparked intellectual vitality and broadened perspectives on existence and the cosmos. Historically, translation in Iran has experienced cycles of flourishing and decline: during eras when cultural openness, patronage from rulers, or a collective thirst for knowledge prevailed, translation, and with it, philosophy and science, prospered. Conversely, in more culturally neglectful periods, translation and its influence waned. Exploring various socio-cultural and political conditions across epochs, this study demonstrates that external factors such as governmental support, societal demand, and a predisposition toward knowledge have shaped the translation of scientific and philosophical texts.

Keywords: *Ancient Iran, Dar al-Hikma, History of Translation, Wisdom and Philosophy*

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1. Introduction

Societies need the comprehensive use of all available socio-cultural capabilities to achieve their ideal goals, and translation as an enriching tool seems to have always been playing an indispensable role in driving the cultural advancement of the communities. Translation in Iran, as a society with a rich cultural heritage, is by no means an exception. Throughout the country's socio-political epochs, translation has consistently played a pivotal role. However, its status and efficacy have not remained constant across these periods, with significant oscillations and fluctuations.

Specifically, the translation of scientific and philosophical texts, given the intrinsically rationalistic nature of philosophy and science and their prominent status among Iranian scholars, has played a critical role as a conduit for intellectual exchange with other linguistic communities. Like the general trend of translation, this specific domain has experienced fluctuations, partly due to socio-historical factors such as governmental or personal support that have influenced the overall translational trend and the translation of scientific and philosophical texts in particular. The susceptibility of the translation of these texts to social configurations is not merely confined to the rise and fall within the national cultural process. More precisely, the orientations, biases, and the very act of translation itself are, to a considerable extent, predicated upon these social considerations.

For those preoccupied with the critical analysis of Iran's cultural narrative, investigating the historical trajectory of translation as one of the great phenomena of global civilization has always been of great significance. Consequently, numerous studies have examined the history of translation across different periods and from various epistemological perspectives. Some studies have focused on translation in Iran as a cultural and communicative phenomenon, analyzing its development across distinct historical periods or tracing its evolution from the inception of writing to the contemporary era. A rather comprehensive study on this topic is Azerang's (2015) book, *The History of Translation in Iran*. He systematically investigates the history of translation from ancient Iran to the end of the Qajar dynasty. To this end, he divides the extensive timeframe into smaller, manageable periods, enabling a meticulously chronological and detailed analysis of the phenomenon. His

research, despite being comprehensive, examines the translation of scientific and philosophical texts sporadically, which is not enough for those with a special interest in translating these texts. Similarly, Varzgar (1994) explores the evolutionary phases of translation in Iran from ancient Persia up to the Mongol era.

The Translation Movement, a remarkable historical milestone in the annals of translation, has also been the main core of extensive scholarly studies. This movement was a massive intellectual undertaking from the middle of the second century to the late fourth century AH, during which a substantial corpus of scientific and cultural works was translated. Among the studies addressing this movement is the research conducted by Hashemi et al. (2010). Their research is divided into two stages. The first section reviews related research in this regard, examining the antecedents and motivations underpinning translation in this era, the key translators, the translated works, and the consequences of this movement. In the second section, it addresses contemporary translation dynamics, including modern translations into Arabic, translations into Turkish, Persian translation in the contemporary period, and translation into Arabic in the Western context. Madkour (1986), in addition to analyzing the initial translatorial efforts by Muslims, evaluates the contributions of the Abbasid Caliphate to this movement. He then discusses the Islamic translations broadly. Mohaghegh (1986) scrutinizes the role of translation and the sciences of foreign origin during the life of Imam Reza and examines their consequential impact. Drawing a distinction between open and closed societies and referring to the global affinity for knowledge and scholarly domains, Fani (1986) explores translation activities within the House of Wisdom (Bayt al-Hikma) and the specific methodological approaches employed there. Hosseini (1996) traces translation in the immediate centuries following the advent of Islam. Moreover, Badavi (1986) analyzes the translation and transmission of Greek philosophy into the Islamic world.

Considering this synoptic review of previous studies, a discernible research gap specific to the history of translating scientific and philosophical texts is evident. Consequently, this study tries to put translation within its

socio-cultural and political context, seeking to see what factors exerted influence on the translation of scientific and philosophical texts.

2. Method

This study tries to hold a socio-historical and systemic perspective with the main idea that translation of scientific and philosophical texts is not only a matter of linguistic transfer, but also the texts for translation and the very act of translation are context-embedded and under the influence of many social, cultural, political, and economic agendas. Accordingly, conducting this research requires considering the influencing socio-political and institutional systems, as well as individual activities. To this end, the researcher relied on the old and established theoretical considerations, such as Even-Zohar's (1990) poly-system theory, which is a robust descriptive research on cultural phenomena (Heydel, 2024), and Venuti's (2012) domestication and foreignization continuum. Moreover, a relational perspective in doing this research (see Cantó-Milà et al., 2025) helped the researcher see the dynamism, non-linearity, and emergent essence of text and knowledge transfer through translation.

A descriptive-analytical method is used to conduct this research, and all related library resources are scrutinized. To handle the investigation, this extensive historical period is delineated into smaller, distinct epochs. The rationale for the divisions lies in their influential and prominent status in the history of translation in Iran. The focus is on the remarkable periods in the history of cultural exchanges and translation activities. Such conceptual tools as support and patronage, cultural exchanges, relationship and power hold the guide-frame for the researcher.

3. Translation in the Pre-Islamic Era

The Iranian civilization has possessed a long-standing predilection for philosophy and wisdom. This intellectual tradition is not only attributable to the post-Islamic era and the consequent widespread expansion of literacy; rather, philosophy and wisdom were already prevalent in pre-Islamic Iran, particularly during the Sassanian era. The philosophical discourse that gained

prominence during this era was heavily influenced by the thought of Greek philosophers and sages. Therefore, to address the investigation concerning this period, it seems that the examination should start with the cultural and scientific exchanges between Greece and Iran, as some research reveals the bulk of scientific and cultural interactions (e.g., Khosravi, Changizi Ashtiyani, & Amini, 2022; Keshavarzi, Jafary Dehaghi, & Hasani, 2024; Zarrinkoub, 2011) with particular emphasis on the translation of Greek philosophy and wisdom.

During the Median period, cultural transactions were performed through translation, though primarily orally. This phenomenon is clearly evident in the Achaemenid era through extant inscriptions like the Behistun Inscription. However, during the Seleucid era, evidence of this phenomenon is scarce or, at the very least, no noteworthy records can be definitively identified. While the historical record confirms the phenomena of multilingualism and the promotion of the Greek language alongside broader Hellenization in Iran during this period, the specific impact of Hellenization on translation remains obscure and cannot be conclusively determined (Azerang, 2015). He describes the state of translation during the Seleucid era as ambiguous, suggesting that Iranian society in that period did not benefit from the Greek cultural and intellectual legacy, and that signs of cultural exchange were absent. This lack of interaction might be explained by the perception of the Seleucid community as foreign invaders, leading the Iranians to reject everything associated with them, including Greek thought and culture.

Varzgar (1994) asserts that Iranians were familiar with the Greek language and culture from the Achaemenid period, and even in the Naqshe Rostam inscription, a Greek translation was used alongside the Pahlavi language. The Parthians were not illiterate, but they possessed a limited inclination towards writing (Rajabi, 2002). This does not, however, imply that they did not engage with science and literature. The origins of many Iranian myths and narratives are traced back to the Parthian era (Rajabi, 2002). For instance, the primary source narrative of the *Shahnameh* can be traced back to the Parthian period (Azerang, 2015).

During this period, the extent of Parthian power and influence expanded, fostering vibrant interactions between Iranians and other nations, notably the

Greeks, Romans, and Chinese. Consequently, translation would have been an inevitable mode of communication and exchange. However, as Azerang (2015) notes, there is not any written records that would allow for a decisive commentary on the specific methods or scope of translation in that era.

With the establishment of the Sasanian dynasty, cultural exchange flourished, and translation activities intensified. Significant works like the Avesta were translated. It is well-documented that a wide spectrum of Greek scholars, including scientists, historians, travelers, philosophers, and physicians visited Persia, facilitating scientific and cultural interaction (Sajjadi, 1994).

The impetus behind this intellectual traffic and cultural and scientific exchange, of which translation was a crucial component, was rooted in the patronage of the ruling monarchs and the practical requirements of the contemporary society. However, perhaps the most critical factor driving the flourishing of translation during this time was the personal interest of the Sasanian kings and the support provided by the court and noble families.

The existence of several prominent educational institutions in Iran appears to have fostered an environment conducive to scientific and cultural exchange. These included the School of Nisibis, the School of Edessa, and the renowned Academy of Gondishapour (Jondishapour). The School of Nisibis fell under Persian control in 363 AD and served as a major center for instruction in theology, medicine, and philosophy (Sajjadi, 1994). Upon its eventual closure, the School of Edessa emerged as its successor, later attaining the status of an official "House of Knowledge" (Dar al-Ilm). Political developments and sustained academic interactions ensured that this center became a crucible for the convergence of ideas, witnessing the growth of philosophical thought and the translation of Greek texts into Syriac (Azari Khakestar, 2021). Fakhry (1983) states that the translations done in the cities of Antioch, Harran, Edessa, and Nisibis included not only theological works but also texts on logic. The necessity for translating these logical texts originated with the need for a deeper conceptual analysis of theological concepts and a desire to master the dialectical methods that had permeated the Christian religious debates of the time.

The cultural and scientific interaction under the governance of Khosrow Anoushirvan is a remarkable phenomenon in this period. In the early 6th century AD, Anoushirvan ordered the establishment of a hospital and a medical school at Gondishapur. The two centers became a nexus for the intellectual engagement of Greek, Syriac, and Iranian philosophers and physicians. It was during this period that Iranians were first exposed to the thought of Aristotle. The majority of the instructors at the school were Syriac (Corbin, 1994).

De Boer (1964) similarly notes that Khosrow Anoushirvan (531-579 AD) established an institution for the study of philosophy and medicine in Gondishapur. The main trainers of the center were Nestorian Christians. Since he was interested in logic, he showed leniency towards the Nestorians and Jacobites. The Syriac Christians excelled in medicine and achieved significant benefits from this environment.

Cultural treasures were subsequently channeled to the court of Khosrow Anoushirvan. Borzouye, the royal physician, went to India to collect and translate the texts on Indian science and wisdom into Persian (Goshtasb & Naderpour, 2014). Syriac Christians who enjoyed favorable conditions at the court translated the medical works of the Greek physician Galen into Persian (Browne, 2011).

The cosmopolitan nature of the scientific institutions is further highlighted by the contributions of Indian scholars. Varzgar (1994) reports that in Gondishapur, there was a fully equipped hospital where several Indian physicians collaborated. They, in turn, translated some Indian medical works into Pahlavi.

The intellectual ferment during the Sasanian era was significantly shaped by the movements of major educational institutions and key translators. Corbin (1994) refers to a famous school founded in Edessa. This school was established when Emperor Eumenes surrendered the city of Nisibis to the Persians. Subsequently, the Byzantine Emperor closed the school in 489 AD due to its Nestorian teachings. The masters and students who retained their Nestorian faith took refuge in Nisibis and founded a new school there, which became a center for philosophy and theology (Corbin, 1994).

Detailed information regarding all translators of this period is scant. However, one pivotal figure who can be identified with certainty is Paul the Persian (Jackson, 2003). Paul the Persian was reportedly among the tutors of philosophy for Khosrow Anoushirvan, and he is credited with translating Aristotle's Metaphysics. Another attributed work is his commentary on Aristotle's *Peri Hermeneias*.

Furthermore, it is recorded that seven Neoplatonic philosophers were expelled from Greece, and Khosrow Anoushirvan welcomed them in his court in 532 AD (De Boer, 1964). De Boer (1964) dates the beginning of the translation of Greek philosophical texts to the fourth century AD, saying that translating these texts persisted until the eighth century. He elaborates on the translations of this period and two highly distinguished translators: Prōbōs, a priest and physician in Antioch, and Sergius of Resh ʿAina (Sergius of Ra's al-'Ayn). Corbin (1994) supplements this account, saying that Sergius of Ra's al-'Ayn is a famous person of tremendous activity, who translated numerous works of Galen and the logical treatises of Aristotle into Syriac.

The scope of Sasanian intellectual interest was broad, yet focused. During the Sasanian period, mathematics, astronomy, and medicine were held in exceptionally high regard; especially the translation of books concerning mathematics, astronomy, and medicine is highly noteworthy (Varzgar, 1994). Recounting the efforts under Ardashir I, Varzgar (1994) states that Ardashir I dispatched envoys to foreign territories across the world to gather suitable collections of books for his libraries and had them all translated into Pahlavi. Furthermore, his son, Shapur I, ordered Greek physicians to be brought to Iran for medical instruction, and many Indian and Greek books were translated into Pahlavi and stored at Gondishapur. The personal engagement of the royalty underscores this intellectual value. According to Varzgar (1994), Khosrow Anoushirvan (531-579 AD) read the Pahlavi translations of the philosophical works of Plato and Aristotle, and his predecessors, such as Shapur I, read Pahlavi translations of many works from Greek, Babylonian, Syrian, and Indian sources.

4. Translation after the Advent of Islam

To adequately analyze the socio-political and cultural factors that influenced the trajectory of translating scientific and philosophical texts, the post-Islamic period must be segmented. Here, I delineate two primary eras: The First Era, from the advent of Islam to the Mongol invasion, and The Second Era, from the Mongol invasion to the beginning of the Qajar dynasty.

4.1. From the Advent of Islam to the Mongol Invasion

The establishment of the first Islamic polity began with the Prophet Muhammad and continued under the Rashidun Caliphate (up to 661 AD). Following the Prophet's passing, the Umayyad Caliphate was founded in 661 AD and persisted until 750 AD.

The rise of Islam as a new religion and ideology was accompanied by various conflicts. Simultaneously, the Qur'an was progressively revealed, leading to the formation of a novel intellectual and cultural structure. The continuation of this faith necessitated the study of religious issues. Although the socio-economic conditions of the early Muslims were strained by frequent tribal and ethnic warfare, the propensity to learn increased. This was driven by a rise in literacy and, crucially, Islam's emphasis on reflection and the acquisition of knowledge.

In the initial period following the Prophet's death, intellectual debates and the pursuit of epistemological unknowns continued. One side of this intellectual spectrum was marked by an exclusive adherence to the Qur'an, asserting self-sufficiency from non-Qur'anic sources. The opposing view recognized the need to address profound ontological and cosmological questions.

The dogmatic adherence of some people to the Qur'an, restricting themselves to Qur'anic and Hadith sources, served as a barrier to translating non-Arabic works. The alleged destruction of the Library of Alexandria and other libraries is sometimes cited as a consequence of this mindset. According to one related account, the destruction of this library was commanded by Omar ibn Khattab (Safa, 2005), based on the premise of self-sufficiency from writings that either conformed to or contradicted the divine book (Halabi, 1982; Safa, 2005; Ovdi & Ramadanipour, 2007).

However, the eventual catalyst for scientific and philosophical growth in the Islamic world is widely considered to be the engagement with Western thought and sciences, notably that of the Greek philosophers. The establishment of the House of Wisdom and the systematic translation of Greek works led to an exponential intellectual efflorescence in Islam. In essence, at the advent of Islam, the sciences had not yet been fully dissociated from philosophy; philosophy encompassed various sciences and disciplines, and philosophers were often proficient in fields like medicine. Muslim scholars, by assimilating Greek philosophy and synthesizing it with Islamic teachings, established Islamic philosophy, which they continuously expanded. While the advancement of philosophy in the Arab world subsequently underwent a period of relative stagnation, it continued its maturation in Persia, evolving into various schools of thought.

4.2. The Abbasid Period

The most crucial span within this era is the Abbasid Caliphate (750 AD to 1258 AD). The Abbasid Caliphate was established in Harran in 750 AD. Its capital was subsequently moved from Harran to Baghdad, then briefly to Khorasan, and eventually back to Baghdad. This rule concluded in 1258 AD (656 AH) following the Mongol invasion of Iran. Between the third and fifth centuries AH (9-11th centuries AD, the Islamic community across the Middle East, Central Asia, North Africa, and Al-Andalus witnessed one of the most brilliant periods of cultural, philosophical, and scientific flourishing in human history. This intellectual dynamism persisted until the ninth century AH, effectively paving the way for the European Renaissance (Adalat, 2010). Such great scholars as Jabir ibn Hayyan, Al-Khwarizmi, Al-Razi, Al-Farabi, Ibn Sina, Al-Birouni, Ibn Rushd, and Sohravardi collectively defined the golden age of science, civilization, philosophy, and rationalism.

Adalat (2010) argues that the essential phase of this scientific and philosophical efflorescence, which began with the Translation Movement under the Abbasid Caliph Al-Ma'moun, was primarily realized in Iran under the Samanid and later the Buyid dynasties. This phase coincided with the ascendancy of Persian culture, language, and literature, and the growth of Muʿtazilite rationalist philosophy, particularly among the Shi'a communities.

A crucial factor enabling the profound scientific and philosophical boost during this golden age was the politically open and intellectually pluralistic environment established at the courts of the Baghdad Caliphs and the Samanid and Buyid rulers. In this scholarly environment, Muslim, Christian, Jewish, and even irreligious scholars collaborated and engaged in scientific and philosophical debates (Adalat, 2010). Zakariya al-Razi, for instance, despite his philosophical opposition to the doctrines of prophecy and religion, was not subjected to persecution. Instead, he was appointed to the headship of hospitals in Rey and Baghdad and held these responsibilities for many years (Adalat, 2010).

The scholars of Harran, from the third century AH onwards, embraced Greek wisdom with a favorable disposition (De Boer, 1940). Greek knowledge consequently reached the Muslims in the East via the pathways of Harran and Syria. The Syrians played a significant role by absorbing Greek Neoplatonic philosophy and transmitting it to the nascent Islamic intellectual centers.

Although this era marks the most extensive translational activity in the history of the world, culminating in the foundation of the House of Wisdom, it appears that the translation of works into Persian was not a primary focus, given the extensive scope of this period. Instead, this phase should be fundamentally understood as the era of translation into the lingua franca of the Islamic world, Arabic. Arabic served as the dominant medium for the transmission of scientific and philosophical knowledge across the vast Islamic empire.

The systematic translation of Greek sciences and philosophy into the Islamic world began under the Abbasid Caliphate, driven by the intellectual curiosity and direct patronage of the ruling elite. The beginnings of the Islamic philosophical school coincide with the first translations of the works of Greek scholars from Syriac or Greek into Arabic (Fakhry, 1983). Scientific and medical texts were among the very first compositions to be translated into Arabic. The Arabs and the Iranians, who played a substantial role in establishing the scientific and philosophical movement in the Islamic world, usually approached matters from a scientific perspective.

Al-Mansour (reigned 754–775 AD) was the first Abbasid Caliph who actively engaged in the process of transmitting Greek sciences into the Islamic sphere (Halabi, 1982). His interest in philosophy and astronomy led him to employ the greatest physicians, scientists, and translators (Fakhry, 1983). He had a deep attachment to Greek scientific and philosophical works and supported and encouraged translators' activities. Haroun al-Rashid (reigned 786–809 AD) also dedicated considerable attention to the advancement of science. His court physician, Youhanna (Yahya) ibn Masawayh, was the greatest scientific and literary figure of his time. Haroun appointed him as his personal physician and entrusted him with the task of translating ancient medical texts (Fakhry, 1983).

The peak of this translational activity was reached during the reign of Al-Maʾmoun (833 AD), when books on philosophy, logic, and other rational sciences (ʿOloum ʿAqliya) were translated into Arabic (Halabi, 1982). In 217 AH (832 AD), Al-Maʾmoun founded the House of Wisdom in Baghdad, appointing Yahya ibn Masawayh as its director. Al-Maʾmoun requested the Byzantine Emperor a selection of philosophical books from his imperial libraries, and then ordered their translation into Arabic (Corbin, 1994).

Inspired by Al-Maʾmoun's initiative, some people of Baghdad provided funds for this translation, attracting major translators from Iran, Iraq, and Syria to the capital (Halabi, 1982). These translators rendered a wide range of philosophical and scientific works from Syriac, Persian, Greek, Sanskrit, and Nabataean into Arabic. Consequently, the most important works of the Greek philosophers were translated into Arabic during this time. Corbin (1994) similarly emphasizes that the bulk of this activity involved translation from Greek into Arabic.

The influx of translations had a profound effect, fostering intense scientific and cultural dynamism, including the emergence of Scholastic Theology (ʿIlm al-Kalam) (Corbin, 1994). Fakhry (1993) dates the beginning of the Islamic philosophical school to the time when the first translations of Greek scholars' works were rendered from Syriac or Greek into Arabic.

The government's role was instrumental in promoting philosophical texts and spreading philosophy. Theoretical philosophy gained greater currency due to the personal inclinations of figures such as Al-Maʾmoun and Jaʿfar

Barmaki, who were interested in ancient sciences in their Iranian, Indian, and Babylonian forms generally, and in their Greek and Hellenistic forms specifically (Fakhry, 1993).

In addition to Greek texts, the Translation Movement incorporated the works of philosophers from other civilizations. India holds a special place in this intellectual exchange. De Boer (1964) notes that India was regarded as the land of wisdom. According to him, the dissemination of Indian wisdom among the Arabs occurred primarily through trade routes during periods of peace. This transmission also intensified following the Islamic conquests. A substantial portion of this wisdom was translated during the reigns of Al-Mansour and Haroun al-Rashid. These translations were made either from Pahlavi versions or directly from Sanskrit.

Al-Maʾmoun is recognized as the greatest patron of philosophy and science throughout the history of Islam (Fakhry, 1983). Although Al-Mansour and Haroun al-Rashid had taken the preliminary steps, Al-Maʾmoun's pivotal contribution was the establishment of the Bayt al-Hikma in 215 AH (830 AD), formalizing it as an institution and library dedicated to translation and research. To fully equip the library with scientific and philosophical works, he dispatched envoys to the Byzantine Empire to search for books on the Ancient Sciences (Oloum al-Awaʾil).

In the early Islamic period, while Arabic became the dominant scholarly language (i.e., lingua franca) for the massive translation of Greek works, texts were also rendered from Greek, Arabic, and other languages into Persian. The most prominent figure in the history of translating Greek philosophy and science was Hunayn ibn Ishaq (809–873 AD), who is credited with establishing the art of translation upon a scientific basis (Fakhry, 1983).

Following the establishment of Islamic philosophy in Iran, many philosophers actively composed original works in Persian. The shift toward Persian as a language of philosophical discourse is evident in the works of major Iranian thinkers. Sohravardi composed the majority of his works in Arabic, but also wrote some in Persian (Emam, 1974). Moreover, he translated some of his own Arabic works into Persian. Of 48, he composed 17 books in Farsi. Additionally, Omar Khayyam translated Ibn Sina's *Khutbat*

al-Ghurra into Persian (Nasr, 2010). He wrote several independent philosophical books in Persian.

Minovi (1953) suggests that after the initial massive translation of Hindu and Syriac books into Arabic during the early Abbasid period, scholars seemingly considered themselves sufficiently equipped and focused solely on deep reflection and elaboration upon the knowledge they had already acquired. In his view, with the exception of two or three translations mentioned by Abu Rayhan al-Biruni in his works and translations from Arabic into Persian by Iranians, there is a noticeable dearth of further translational activity within the Islamic world until the Mongol era. During the Mongol period, Khajeh Nasir al-Din al-Tousi initiated translations and studies, particularly in astronomy, incorporating a small body of astronomical knowledge into his own writings.

The sustained momentum of the Translation Movement was initially sustained by the Caliphs' specific interests and the financial backing of influential families. A distinguishing characteristic of most early Abbasid caliphs was the precedence given to astrological texts over other genres (Fakhry, 1983). This preference explains their interest in procuring and subsequently translating the ancient works of astrology. Other key patrons of science and philosophy were the members of the wealthy and influential Banou Mousa family. They generously provided the means for the translation of scientific and philosophical works (Fakhry, 1983). Varzgar (1994) also references other prominent families who encouraged translators and scholars to render beneficial works.

Although the Seljuk period (1037-1194 AD) saw a quantitative decline in the number of philosophical works in both Persian and Arabic, compared to earlier periods, it is considered the golden age of Persian literature and mysticism (Nasr, 2010). During this period, the greatest masterpieces of Persian Sufi prose emerged, such as Hujwiri's *Kashf al-Mahjoub,* Abu Saeed's *Asrar al-Tawhid*, and the Persian translation of Al-Qushayri's *Risalat al-Qushayriyah*. The appearance of Illuminationist Philosophy (Hikmat al-Ishraq) in the Persian language also occurred during the Seljuk era. A key feature of the intellectual landscape in Iran following the Translation Movement was a strong inclination toward composing original philosophical

works in Persian rather than translating. This inclination can be traced to Iran's intellectual leadership in science and philosophy. While many scientific texts continued to be written in Arabic (the lingua franca of the Islamic world), the preference for writing philosophical works in Persian became very noticeable among Iranian scholars. Fakhr al-Din al-Razi wrote several treatises in Persian, including *Jamiʿ al-ʿOloum*, *Osoul al-ʿAqaʾid*, and *Risalat al-Kamaliyah* on Kalam (Scholastic Theology). Baba Afzal Kashani composed thirteen treatises entirely in Persian. Nasr (2010) views this development as indicative of the subsequent expansion of Islamic philosophy in Persian, where various philosophical schools gradually began to synthesize.

The writing of Persian philosophical works did not cease even with the Mongol invasion of Iran. Throughout the Timurid era, numerous philosophical works were written in Persian (Nasr, 2010). Khajeh Nasir al-Din al-Tousi wrote several philosophical treatises in Persian, such as *Baqa' al-Nafs* (The Perpetuity of the Soul) and *Jabr va Ekhtyar* (Free Will and Predetermination).

With the emergence of the Safavid Dynasty, the use of Persian in the rational sciences (Oloum Aqliyya) declined. The reasons for this reduction and whether a decrease in Persian philosophical production led to a corresponding increase in translation are worthy of another scholarly investigation. A unique work of translation from this period is the *Tanksuqnameh Ilkhan dar Fonoun va Oloume Khataʾi* (The Ilkhan Book of Treasures on Chinese Sciences and Arts), produced during the reign of Ghazan Khan. This work constitutes the translation of a section of Chinese medical and scientific texts into Persian (Minovi, 1953).

4.4. The Safavid Era

Shah Ismaʿil I established the Safavid dynasty, created a centralized government, and declared Shia Islam as the official religion of Iran. Despite several wars, this period is considered one of the most favorable in the Islamic history of Iran for the attention to religious sciences. The Safavid rulers created a political and cultural environment highly conducive to the compilation of biographies (Sireh) and merits (Manaqeb) of the Imams,

alongside other foundational Shia religious texts. Direct and indirect encouragement from the Safavid Shahs, particularly Shah Tahmasp I, and the socio-political and cultural preeminence of the Shia community led to the proliferation of many books on the lives and merits of the Twelve Imams (Hosseinzadeh Shanehchi, 2009). The expansion of Shia thought and religious studies fueled the development of eminent thinkers and philosophers such as Mir Damad and Molla Sadra.

The composition and translation of religious sciences surged dramatically. The titles of the translated books show that translators generally selected works of recognized scholarly value that would be acceptable to both Shia and Sunni people (Hosseinzadeh Shanehchi, 2009).

The Safavid court exerted an influence on the type and style of translation undertaken. The book *Kashf al-Ihtijaj,* for instance, was translated by direct order of Shah Tahmasp. Another version of this book was likely translated by Mulla Fath Allah Kashani. The book's preface cites the public's use of it as the rationale for its translation. Accordingly, the translator reduced the linguistic complexity and artifice in rendering the text from Arabic to Persian, adopting a language appropriate for the public's understanding (Hosseinzadeh Shanehchi, 2009).

The rendering of religious biographies into Persian is particularly significant because it marks a substantial increase in Persianization of the translations (Hosseinzadeh Shanehchi, 2009). Although the Safavids did not specifically champion poets and literati, their support for writing and translation into Persian played a crucial role in promoting Persian composition (Hosseini, 2014).

The history of translation is a history of patronage, the support or deliberate lack of support in different periods (Hosseini, 2014). The Safavid era marks the first period in which the translation of religious texts was undertaken in a systematic manner and attained the status of a movement, supported directly by the central government (Hosseini, 2014). Many Shia scholars (some of whom held high governmental positions) undertook the task of translating Shia works in the domains of Qur'anic sciences, Hadith, Kalam, and Jurisprudence into Persian, with the aim of promoting and disseminating Shia doctrine (Miri, 1998). The Safavid Shahs also encouraged

scholars to engage in writing and translating religious texts from Arabic into Persian. Qom and Isfahan emerged as the main centers for translating these kinds of books (Hosseini, 2014). Although the dominant trend in Safavid translation heavily favored religious texts, resulting in a clear focus of state-supported projects, works in other domains were also translated. Hosseini (2014) categorizes the translated works of this period into four groups: religious texts, scientific texts, texts pertaining to governance, and texts related to Western culture and civilization.

5. Discussion and Conclusion

This study examined the key phases of translating scientific and philosophical texts in the social, political, and cultural context of Iran from its pre-Islamic origins to the beginning of the Qajar period. As this analysis makes it evident, the translation of scientific and philosophical texts in the pre-Islamic era flourished primarily due to royal court patronage, resulting in the translation of many works by Greek philosophers. In the brief period immediately following the advent of Islam, the translation of non-religious texts suffered a decline, partially due to the dominant ideology that led to the reported burning of libraries. However, this phase was overcome by a subsequent intellectual need among scholars to engage with Greek thought. This need led to the foundation of the House of Wisdom, where numerous sciences were rendered into Arabic, the lingua franca of the Islamic world at the time. The ruling apparatus's prominent role in supporting the translation of philosophical texts remained paramount. Following these comprehensive translations, Iran experienced a significant period of scientific and cultural advancement, which fueled the production of original science and philosophy in Persian. Concurrently, many philosophical works were also translated into Persian during this period.

Examining the trajectory of translating scientific and philosophical texts in Iran showed an interplay between intellectual curiosity, political patronage, and cultural identity. Lefevere (1992) states that translation is controlled by ideology, economics, and status, all of which are often embodied by a patron (e.g., an individual, institution, or social class). The Sasanian and Abbasid courts are good examples of patronage in the period under discussion, where

the direct support of rulers such as Khosrow Anoushirvan and Al-Ma'moun established the ideological and economic conditions for the flourishing of translation. This state-directed phenomenon, or the institutionalized translation in the Abbasid period (Zinhom, 2024), seems to be prevalent in the contemporary era, in which patronage has shifted from royal courts to research institutes and government funding bodies, supporting and determining what is translated and how. Historical evidence of such patronage reveals the power dynamics inherent in the production of knowledge, where the patron effectively determines which ideas enter the cultural system.

This study showed that linguistic and intellectual shifts occurred over the period under investigation. is evident. Linguistic shifts in translation activities from Pahlavi to Arabic, as the lingua franca of the Abbasid era, and back to Persian in subsequent periods signify a negotiation between global intellectual currents and local cultural identity. This resonates with the domestication and foreignization approaches in translation proposed by Venuti (2012) and Vieira (1999). The former can be interpreted as a need to absorb a global intellectual system, while the latter is the reemergence of Persian as a language of philosophy, asserting intellectual sovereignty. Moreover, the shift from relying on foreign sources through translation to producing new scientific and philosophical ideas and texts, translating can be explained by Even-Zohar's poly-system theory. According to Even-Zohar (1990), translated literature may assume a central or peripheral position within a literary system: in the early stages, cultures rely heavily on importing foreign works through translation, while, with the establishment of an intellectual current or system, translation is usually replaced by new original production within that culture. Producing a huge bulk of translations in the Abbasid Translation Movement, for example, represents the existence of such a phase.

Considering the aforementioned issues, one can conclude that the flourishing of the translation of philosophical and scientific texts and the subsequent production of new texts over the study period were the result of a convergence of several key factors and conditions. The most remarkable factor was direct governmental patronage (e.g., by the Abbasid caliphs),

which both politically and financially supported the institutionalized translation. Another significant issue is engagement with other cultures, which facilitated exposure to diverse bodies of scientific and philosophical knowledge and encouraged cross-cultural intellectual exchange. Moreover, the necessity and demands for advanced knowledge (e.g., medicine, astronomy, and philosophy) created a strong incentive to translate and expand on existing works. All these factors created a suitable environment for the translation, transition, adaptation, and generation of knowledge in Iran.

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Error Patterns in Persian Amateur Subtitles and the Limits of the FAR Model

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Abstract Translation quality is crucial for effective communication, and in subtitling its importance is heightened by the medium's unique constraints. Amateur subtitling has emerged as a growing form of intercultural communication and an area of increasing academic interest. This study investigates amateur subtitling of foreign drama feature films localized for Persian-language audiences in Iran based on the FAR model proposed by Pedersen (2017a). This study focuses on assessing the quality of amateur subtitles with the aim of uncovering the error patterns of audiovisual translation (AVT) by amateur subtitlers. According to the identified error patterns, semantic errors are the most significant factor from a translational perspective. While amateur subtitlers may manifest deficiencies and errors in semantic aspects, they also demonstrate notable competencies, particularly in their technical proficiency with subtitling software. Drawing on the results, the article argues for context-sensitive refinements to the FAR model to account for cultural variables that shape subtitling practices, highlighting the influence of local norms and constraints.

Keywords: *Non-professional Subtitling, Translation Quality, Far Model, Persian*

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1. Introduction

In recent decades, thanks to technological advancements and related industries, and the corresponding easy access to software, the participation of audiences with their unique perspective and public release in the realm of media production has emerged as a new phenomenon. These participants have become integral to media culture and identity constituents, engaging in various activities such as translation, dubbing, subtitling, and other endeavors. The exclusive broadcasting of films and series, particularly Japanese anime, as the starting point within various countries, along with the demands of fans for up-to-date access to media products upon release (Díaz-Cintas & Sánchez, 2006), are some of the main reasons behind this emergence. Consequently, amateur media enthusiasts have emerged, each of whom is dedicated to a different subfield in audiovisual translation (AVT). As Diaz-Cintas and Remael (2014) state, the inception of amateur subtitling dates back to the 1980s, when it emerged as an attempt to popularize Japanese cartoons known as *manga* and *anime*, driven by both language barriers and the scant distribution of the audience's favorite films and TV series as two crucial factors that urged fans to proceed to translate and subtitle the films and series themselves. Throughout the years, this new form of subtitling, known as "by fans for fans" (Diaz-Cintas and Remael, 2014, p. 27), has expanded its reach and challenged the exclusivity of professional subtitling companies. Amateur subtitling is conducted by individuals or groups without any official organization or financial motivation. These volunteer translators not only popularized media products but also contributed to the enrichment of media cultures. Consequently, it has received great welcome from both audiences and communities and has garnered academic attention. This research explores amateur subtitling by focusing on different types of errors such as semantic and technical errors and seeks to determine the error pattern in such translations. This study set out to explore two central lines of inquiry. First, it aimed to determine the predominant technical features that characterize Persian amateur subtitles created for English-language drama films. Second, it sought to examine and classify the recurring error patterns that emerge in these subtitles. To achieve this, the investigation employed a model proposed by Pedersen (2017a). The

films selected for this study belong to a specific genre to obtain more precise results, as different types of texts and speeches require different styles and methods of translation.

2. Review of the Literature

2.1. Translation quality assessment

Reception studies in media accessibility highlight that audience comprehension is shaped by intercultural and ideological factors extending well beyond technical accuracy (Shokoohmand & Khoshsaligheh, 2024). Audiovisual translation practices are further complicated by pervasive censorship and the systematic manipulation of culturally sensitive content (Abu-Rayyash & Shiyab, 2023; Fouladi & Hashemi, 2025), which, when compounded by challenges in adapting intercultural nuances and taboo items for targeted audiences, produce distinctive error patterns that standardized assessment models fail to adequately capture.

Assessing a product's quality is a multifaceted phenomenon subject to various interpretations depending on the chosen approach, as observed by Pedersen (2017a). This conceptual complexity has engendered scholarly effort across diverse disciplines to delineate the concept of quality. Within the domain of Translation Studies, this challenge is particularly pronounced due to the inherent subjectivity involved in quality assessment, which is influenced by individual perspectives and subjective judgments. Despite the inherent challenges of reconciling subjective judgments with scientific objectivity, it remains imperative to acknowledge the significance of research in this field, as asserted by House (2001).

A substantial body of research on the Translation Quality Assessment (TQA) has provided practical insights (Doherty, 2017; Doherty et al., 2013; Pym 2020). Internationally recognized standards, exemplified by ISO EN 17100 (2015) and EN 15038 (2006), delineate the competencies and attributes expected of professionals engaged in translation processes, encompassing translators, reviewers, terminologists, and managers. These professionals play a pivotal role in ensuring translation quality and nurturing robust supplier-client relationships (Szarkowska et al., 2020). Additionally, deductive assessment models, involving the quantification of errors and the

imposition of penalties commensurate with error severity, find common applications, particularly within the realms of localization and information technology (Doherty, 2017; O'Brien, 2012).

In the academic context, TQA predominantly adopts a communicative perspective with a central emphasis on issues related to equivalence. Translation quality is typically assessed using three primary models: response-based, text-based, and functional-pragmatic approaches (Szarkowska et al., 2020). Response-based approaches prioritize the evaluation of equivalence between translations and their source texts (ST) based on responses elicited from their respective target audiences. This approach seeks to ascertain whether the response provoked by translation aligns with that elicited by the original work. Text-based approaches, grounded in linguistic principles, underscore the comparative analysis of ST and target texts (TT) to discern the principal strategies employed by translators in terms of syntactic, stylistic, and semantic alterations. Finally, the functional-pragmatic approach assesses translation quality by considering the pragmatic aspects of language use. Centers on Skopos or the purpose of the translation. In this context, equivalence pivots in the presence of a TT function equivalent to that of ST. The latest iteration finds application in AVT, particularly subtitling assessments (Abdelaal, 2019).

Within AVT, subtitling has become a central object of research. As a practice that involves condensing spoken language into synchronized, written on-screen text, subtitling demands a balance between semantic fidelity and readability. Technical constraints such as line length, character-per-second limits, punctuation, and segmentation further complicate the subtitler's task (Gottlieb, 2005). These challenges make AVT a unique field in which linguistic and technical competencies intersect—and where quality assessment must extend beyond traditional linguistic criteria.

2.2. Amateur subtitling: Global trends and the Iranian context

The term non-professional interpreting and translation (NPIT) broadly refers to translational practices carried out by individuals without formal training, institutional affiliation, or professional certification (Antonini et al., 2017). This inclusive label contrasts with narrower or value-laden alternatives like

"unprofessional" or "natural translation". Within the field of AVT, NPIT plays a critical role in widening access to subtitled media, particularly in under-resourced contexts. These practitioners are often circumstantial bilinguals (Angelelli, 2010) whose informal efforts, though outside professional norms, serve functional social purposes (Hall & Sham, 2007).

In many global contexts, amateur subtitling is largely associated with fansubbing, a grassroots practice that originated in Japanese anime communities and is defined as subtitling "by fans for fans" (Díaz-Cintas & Muñoz Sánchez, 2006; Pérez-González, 2017). However, the scope has since broadened to include funsubbing, blogger subtitling, danmaku (the practice in which online viewers provide amateur translations of foreign-language videos by posting live on-screen comments), and self-subtitling, practices now seen as part of a wider participatory culture (O'Hagan, 2017; Wang et al., 2024). These subtitlers often deviate from industry norms, using translation as a tool for cultural mediation, ideological commentary, or audience engagement (Nornes, 2007; Pérez-González, 2012).

The boundary between amateur and professional subtitling is increasingly fluid. Some large fansub communities, such as aRGENTeaM[1], implement structured hierarchies, training systems, and recruitment tests (Orrego-Carmona, 2016), while others have seen members transition into professional roles (Casarini, 2014). Conversely, professionals have adopted stylistic features from fansubbing, including parody subtitles and on-screen performative texts (Pérez-González, 2014; Díaz-Cintas, 2018). As Leksawat (2022) observes, fansubbing has evolved into a quasi-professional space, especially in language markets underserved by professional AVT. Meanwhile, studies such as Sajna (2013) and point to common amateur errors—semantic, syntactic, or cultural—but also note that many subtitlers use the practice as informal training or for personal enjoyment.

In Iran, the categorization of non-professional subtitling is more differentiated. Ameri and Khoshsaligheh (2019) propose five distinct types of non-professional subtitling: (1) amateur subtitling, (2) fansubbing, (3) funsubtitling, (4) activist subtitling, and (5) commission-oriented subtitling

[1]. An Argentine fansub group known for producing and hosting Spanish-language subtitles of movies and TV series, translated and synced by its members

(e.g., TED Talks). While all exist outside formal AVT institutions, they differ in motivation, quality, and distribution channels. Amateur subtitling is the most prevalent and semi-commercial form in Iran. Practitioners, often students or self-taught language learners with technical skills, translate films for pirated websites or local VOD platforms, typically receiving some form of payment. Though lacking systematic training, they are motivated by career-building or freelance opportunities rather than fan loyalty. Their output is more regulated than fansubbing but lacks professional consistency (Ameri & Khoshsaligheh, 2019). Viewers nonetheless accept these subtitles for their speed and accessibility (Khoshsaligheh et al., 2019; Ameri, 2020). In contrast, fansubbing in Iran is voluntary and genre-driven, often centered on anime or stand-up comedy (Khoshsaligheh & Fazeli Haghpanah, 2016). Funsubtitling offers humorous or fake subtitles, usually for satire, and is common on platforms like Aparat and Telegram (Chaume, 2020; Díaz-Cintas, 2018). Activist subtitling is used to disseminate political content and mobilize civic engagement (Baker, 2019; Chaume, 2019). Commission-oriented subtitling, as on TEDTalks, involves unpaid yet monitored translation under crowd-sourced models (O'Hagan, 2020; Jiménez-Crespo, 2017).

This study focuses specifically on amateur subtitling in Iran, excluding fansubbers and other non-professional categories. Unlike fansubbers, Iranian amateur subtitlers do not form collaborative communities or subtitle for fandom-based motives. Rather, they translate across genres, including drama, romance, and thriller for broader, often commercial reasons. This distinction is crucial for evaluating translation quality in a segment of AVT that is expanding yet remains largely unregulated.

2.3. The FAR Model

Pedersen (2017a) states that TQA in a professional society is an adjustment between input and efficiency, ultimately culminating indirectly in the translator's competence. As he points out, quality is not precisely defined and remains vague; thus, most judgments are based on the daily pinpointed characteristics of quality assessment. The FAR model is product-oriented. Pedersen (2017b) argued that a product-oriented model can work more efficiently than a process-oriented model (which mainly focuses on the

process of translation, such as the level of translators' competence and the revision manner of translation). However, he found that most executors used a process-oriented model along with in-house guidelines, which mainly controlled quality assessment.

The letters in the FAR model represent the tripartite domains evaluated by the model, each of which contains subcategories to classify the problems found precisely. The initial phase evaluated the functional equivalence of the subtitles (semantic and stylistic issues). The subsequent phase, acceptability, pertains to the target-language process; its purpose is to check the acceptability of the text in the target language and its adherence to norms. It is divided into three subdivisions of errors related to grammar, spelling, and idiomaticity that involve the natural use of language. The final phase, readability, relates to the technical aspects of subtitling and includes segmentation and spotting, punctuation and graphics, reading speed, and line length (Pedersen, 2017a).

The FAR model is based on error analysis, which is the most common method for TQA (Nord, 1997). This model has specific rules and methods for detecting errors and is sufficiently flexible to incorporate local guidelines and norms. The model borrows labels and scores from NER (Number of words in live subtitles, Edition error, and Recognition error), a model used for assessing live subtitles on television. This model uses a formula for all characters to determine the results (Romero-Fresco, 2012). The FAR model's errors (Table 1) were rated as 'minor', 'standard', or 'serious' (Pedersen, 2017a). In addition to the level of errors, there is a penalty point system based on the impact of an error on audiences, ranging from 0.25 to 2.

Table 1. The FAR Model, subtitling quality assessment model

	Area	***Types of Errors***	**Penalty Points**
Subtitling Quality Assessment	Functional Equivalence	*Semantic Error*	Minor (0.5)
			Standard (1)
			Serious (2)
		Stylistic Error	Minor (0.25)
			Standard (0.5)
			Serious (1)
	Acceptability	*Grammar Error*	Minor (0.25)
			Standard (0.5)
			Serious (1)

	Spelling Error	Minor (0.25)
		Standard (0.5)
		Serious (1)
	Idiomaticity Error	Minor (0.25)
		Standard (0.5)
		Serious (1)
Readability	*Segmentation and spotting*	Minor (0.25)
		Standard (0.5)
		Serious (1)
	Punctuation and Graphics	Minor (0.25)
		Standard (0.5)
		Serious (1)
	Reading Speed and Line Length	Minor (0.25)
		Standard (0.5)
		Serious (1)

Thus, minor errors could be neglected (deducting 0.25/0.5 points). Minor errors were lexical errors, including terminology errors that did not affect the storyline of the films. Standard errors affect the relationship between the subtitlers and viewers, which Pedersen (2007, p. 40) called "contact of illusion". The contact of illusion is a metaphor (deducting 0.5/ 1 point), and Pedersen (2007) described the relationship between subtitles and end users. Although viewers know that they are reading translated lines, which may not be precise, they pretend that subtitles are dialogue. Thus, standard errors affect this perception. Standard errors included cases in which utterances important to the storyline were translated differently or eliminated. Finally, serious errors are those that affect the understanding of subtitles and their coherence, which may provide misinformation or irrelevant information, leading the viewer to reread the subtitles (deducting 1/ 2 points) (Pedersen 2017b). Serious errors consisted of erroneous subtitles that disturbed target viewers' understanding of the films.

Some advantages of this model can be counted as follows: it is propounded for interlingual translation subtitling, contrary to the existing NER model, which is for intralingual and live subtitling. Additionally, the FAR model is proposed specifically for assessing the quality of subtitles; it is not strict and can be adapted to local norms and values. Despite its advantages, this model is partially flawed, a fact that was also acknowledged by Pederson. The greatest weakness of the model lies in the subjectivity

involved in judging the equivalences and idiomaticity, as well as in determining their penalty scores.

3. Method

The corpus of this study comprises five feature films from the drama genre, along with their amateur Persian subtitles available online and presented by *Tiny Movies*. The *Tiny Movies* is a prominent platform within the Persian mediascape, providing amateur subtitling for various English-language films, thus catering to Iranian audiences seeking accessible, subtitled international content. The films used in this study were selected through purposive sampling, with emphasis on the drama genre. The choice to focus on drama aligns with the genre's narrative complexity, which frequently presents a range of cultural, emotional, and social issues, thus making it an ideal lens for examining translation challenges in subtitling. The nuanced storytelling of this genre is crucial for assessing how amateur subtitlers convey subtle meanings in Persian. In this study, these feature films were selected for investigation and analysis in terms of their quality assessment based on the FAR model proposed by Pedersen (2017a). The descriptive information of the films is presented in Table 2 and was selected through a purposeful sampling procedure. Potentially sensitive themes, such as sexuality, drug use, and explicit language, were consciously included to evaluate subtitlers' handling of culturally challenging content within the Persian context, a setting where such topics are often subject to strict regulatory constraints. Although generalizability to other genres may be limited, the selection aims to offer insight into the specific difficulties amateur subtitlers face when navigating ideologically loaded materials, highlighting potential areas for improvement in training and quality standards. The decision to focus on amateur subtitling rather than other non-professional forms, such as fansubbing or activist subtitling, was based on its dominance and relevance in the Persian mediascape. This study was conducted to identify the following research questions:

1. What are the predominant technical characteristics of Persian amateur subtitles produced for English-language drama films?

2. What error patterns can be identified in the Persian amateur subtitling of English-language drama films?

Accordingly, the objectives are to identify error patterns using the FAR model, evaluate the transferable subtitling skills exhibited by amateur subtitlers, and reflect on the applicability and limitations of the FAR model in non-Western AVT contexts, providing pedagogical implications for subtitler training programs.

In response to the research questions regarding the error patterns of translation quality and format of Persian amateur subtitles for English language drama films, subtitles were extracted from freely accessible subtitle files available on *Tiny Movies*. Each subtitle line was analyzed using the FAR model, which classifies errors into three overarching domains: functional equivalence (semantic and stylistic errors), acceptability (grammar, spelling, and idiomaticity), and readability (spotting, segmentation, punctuation, line length, and reading speed). Errors were assessed against the corresponding ST. Each instance was assigned a severity score, minor, standard, or serious, according to Pedersen's (2017a) guidelines, with corresponding penalty values ranging from 0.25 to 2 points. By nature, this research is descriptive and attempts to identify the most frequent errors made by amateur subtitlers.

Table 2. The descriptive information corpus of the study based on IMDb

Film Title	Country	Year	Genre	Director	Languages
The Danish Girl	United Kingdom/ United States	2015	Drama/ Biography/ Crime	Tom Hooper	English/ French/ German/ Ukrainian
American Honey	United Kingdom/ United States	2016	Drama/ Adventure/ Romance	Andrea Arnold	English
Manchester by the Sea	United States	2016	Drama	Kenneth Lonergan	English
Moonlight	United States	2016	Drama	Barry Jenkins	English
Misconduct	United States	2016	Drama/ Mystery/ Thriller	Shintaro Shimosava	English

4. Results

This section presents the analysis of errors identified in the selected corpus of five English-language drama films subtitled into Persian by amateur subtitlers. Using the FAR model (Pedersen, 2017a), three major categories, Functional Equivalence, Acceptability, and Readability, were examined in depth. The examples provided are transcribed directly from the subtitles as displayed on screen, preserving formatting, punctuation, and other stylistic features in order to reflect the authentic viewer experience.

4.1. Functional equivalence

The first dimension of the FAR model evaluates semantic and stylistic fidelity between the ST and TT. Functional Equivalence pertains to whether the intended meaning of the source utterance is accurately conveyed in the subtitle, and whether the style and tone are consistent with the communicative context.

4.1.1. Semantic error

Semantic errors refer to mistranslations that distort or misrepresent the source meaning. According to Pedersen (2017a), these errors can significantly disrupt viewer comprehension and are often considered serious due to their high impact on narrative clarity. Table 3 presents selected instances of semantic errors from the corpus. In the first example, a positive assertion in the ST is rendered as a negation in the TT, resulting in a misleading and potentially confusing subtitle. In the second example, the term “blank-to-blank”, likely a placeholder or stylized expression, is mistranslated as “bank to bank”, which produces a nonsensical and irrelevant phrase in Persian. The third example, from *Manchester by the Sea*, illustrates the subtitler’s failure to capture the speaker’s hedged and persuasive tone. The ST phrase “I didn’t think you’re wrong about that” is intended as a nuanced concession; however, the Persian subtitle translates it as a direct contradiction: “I think you are wrong”, thereby misrepresenting both the speaker’s intent and interpersonal dynamics.

Table 3. Functional error, subcategory of semantic errors

	Film	Original Segment	Subtitle Back Translation
1	*The Danish Girl*	Hans said the Germans might check your papers. You're nearly there.	هانس گفت آلماني‌ها مدارکت رو بررسي نميکنن Back Translation (BT): Hans said the Germans won't check your documents.
2	*The American Honey*	All right, blank-to-blank for Sean	بانک به بانک برای شون BT: Bank to bank for Sean
3	*Manchester by the Sea*	Listen, I didn't think you're wrong about that	فکر می کنم اشتباه می‌کنی BT: I think you are wrong.

These examples illustrate the amateur subtitlers' difficulty in handling ambiguity, implied meaning, and figurative language, leading to semantic errors that range in severity. In all cases, these mistranslations impair narrative coherence and would likely be classified as standard to serious errors under Pedersen's severity rubric.

4.1.2. Stylistic error

Stylistic errors occur when the tone, register, or linguistic style of the TT fails to align with the communicative context or genre expectations. While such errors may not distort semantic meaning, they affect the naturalness and appropriateness of the subtitle and can disrupt the viewer's immersion (Pedersen, 2017a). As shown in Table 4, in the first example, the phrase "smart-ass" conveys a sarcastic, slightly mocking tone, implying arrogance or cheeky cleverness. However, the Persian translation "زرنگ" (clever) neutralizes this tone and fails to capture the pejorative or confrontational undertone of the original expression. While "زرنگ" may suggest intelligence or cunning, it lacks the informal, ironic edge conveyed by "smart-ass". This misalignment results in a stylistic error, as the attitude and speaker's tone are softened in the target text. A more accurate rendering might involve colloquial terms such as "پررو" (impudent) or "کله‌شق" (headstrong), which better reflect the source tone.

In the second example, the English phrase “Jake can hustle” conveys a sense of energetic, street-smart behavior—often tied to informal entrepreneurship, resourcefulness, or making money through skill or determination. In contrast, the Persian rendering “خیلی وحشیانه کار کنه” (can work very savagely/brutally) introduces a tone of aggression or violence that distorts the original meaning. This translation not only diverges from the intended nuance but also alters the social characterization of the speaker, leading to a stylistic mismatch and a possible semantic error. The shift from urban slang to a violent register misrepresents the original tone and diminishes the coherence of the character portrayal.

Table 4. Category of functional equivalence, subcategory of stylistic

	Film	Original Segment	Subtitle Back Translation
1	*The Danish Girl*	Like a smart-ass power agent.	مثل یه مامور برق زرنگ BT: like a clever electricity agent.
2	*The American Honey*	Jake can hustle. Jake can hustle.	جیک می تونه خیلی وحشیانه کار کنه. BT: Jake can work very violently/brutally.

In the cases discussed, the error was not severe enough to hinder comprehension or narrative coherence and was therefore categorized as a minor stylistic error. However, such discrepancies underscore a broader pattern in amateur subtitling: the frequent tendency to adopt overly formal or written Persian registers when rendering casual or colloquial English dialogue. These observations further support the argument for culturally adaptive refinements to the FAR model. Specifically, errors involving pragmatic misrepresentation, especially in socially or culturally embedded speech, may warrant redefined penalty weights or the addition of subcategories. This is particularly relevant in contexts like Iran, where high diglossia and censorship pressures influence subtitlers’ linguistic choices and stylistic decisions.

4.2. Acceptability

The second core dimension of the FAR model is Acceptability, which refers to the linguistic naturalness and formal correctness of subtitles in the target

language. This dimension comprises three subcategories: grammar, spelling, and idiomaticity (Pedersen, 2017a). Errors in this domain do not necessarily result in semantic distortion but may affect the fluency, readability, and cultural intelligibility of the subtitles. For viewers, such errors can create disruption or confusion, especially when idioms or syntax feel foreign or mechanical.

4.2.1. Grammar error

Grammatical errors involve deviations from standard syntactic or morphological rules of the target language. These may be the result of literal translation, omission of inflectional elements, or incorrect word order.

In Table 5, the first example contains a clear grammatical error due to an incorrect verb form in Persian. The phrase "شروع کن" is the imperative form of the verb "شروع کردن" (to start), meaning "Start!" This is inappropriate in this context, where the original English sentence is in the past tense third-person singular (She started). The use of "شروع کن" not only changes the verb tense and mood (from past declarative to imperative), but also disrupts the grammatical and narrative coherence of the subtitle. It may confuse viewers, as it appears to command someone (perhaps the viewer or a character) rather than describing a past action by a third person. This is a major grammar error under the Acceptability parameter of the FAR model. The incorrect verb form significantly affects the grammatical correctness and interpretability of the subtitle. It results in a misrepresentation of the original utterance's grammatical structure, leading to potential misunderstanding by the audience.

The second example from *Manchester by the Sea* reflects a structural mismatch due to literal translation. The phrase "کسی داره تیکه‌تیکه‌ش نمی‌کنه" is grammatically awkward because it combines the affirmative progressive auxiliary "داره" ("is [doing]") with the negated verb "نمی‌کنه" ("is not doing"). In Persian, such a construction is not standard, as the presence of "داره" typically signals a positive progressive action, while negation creates a semantic and grammatical contradiction. This structure may be acceptable in colloquial speech with heavy emphasis or irony, but it compromises the natural flow and clarity in the written subtitle. Although the meaning remains comprehensible, the use of the progressive auxiliary with a negated verb

results in a minor grammar error that affects the acceptability and fluency of the subtitle. It reflects a common challenge in amateur subtitling where informal speech patterns are transferred into written subtitles without proper grammatical adjustment.

Table 5. Category of acceptability, subcategory of grammar errors

	Film	Original Segment	Subtitle Back Translation
1	*The Danish Girl*	She started stabbing everybody in the restroom right there.	او **شروع کن** به چاقو زدن به همه، توی دستشویی همینجا. BT: She start (imperative) stabbing everyone, in the restroom, right here
2	*Manchester by the Sea*	Nobody is smashin' it to pieces! It's fine!	کسي داره تیکه تیکه‌ش نمیکنه! سالمه! BT: Somebody is not tearing it to pieces! It's fine!

These examples reflect a recurring pattern of under translation and structural interference from English, which suggests that amateur subtitlers may rely too heavily on surface equivalence rather than syntactic and stylistic norms in Persian.

4.2.2. Spelling errors

Spelling errors in subtitles can compromise comprehension and visual processing, especially in time-constrained viewing contexts. Such errors are particularly problematic in subtitling, where each word must be easily and quickly readable (Pedersen, 2017a).

In Table 6, the first example from *American Honey* includes a misspelled or typographically distorted word, "Naghti", that has no recognizable meaning in Persian and appears to be a keyboard slip, perhaps intended to be "وقتی" ("when"). This kind of error impairs viewer understanding and may cause distraction.

For the second example, it seems that the Persian letter 'ر' has been omitted from the word 'میام' results in a verb that is morphologically and semantically incorrect. The back-translation, "I'll come to your opinion too", demonstrates how the subtitle's grammatical incoherence and orthographic inaccuracy distort the intended meaning of "I'll definitely consider it".

Table 6. Category of acceptability, subcategory of spelling errors

	Film	Original Segment	Subtitle Back Translation
1	*The American Honey*	Once you get this one fucking step down,	نقتی این یه قدم لعنتی رو برداری BT: Naghti you get this one damn step**.**
2	*Manchester by the Sea*	I'll definitely consider it.	نظر تو رو هم به حساب میام I'll come to your opinion too.

Given their potential to confuse or mislead the viewer, these spelling mistakes are classified as serious errors, despite their seemingly minor surface features. Their presence points to a broader need for proofreading protocols and typographical awareness in amateur subtitling practices.

4.2.3. Idiomaticity error

Idiomaticity refers to the use of expressions that are natural, culturally appropriate, and conventional in the target language. Idiomatic errors occur when literal translation fails to preserve the figurative or pragmatic function of a phrase, especially when a culture-specific expression has a well-established equivalent in the target language (Venuti, 2008; Pedersen, 2017a).

In Table 7, both examples feature idiomatic expressions that are rendered literally. In the first case, "bottom of the barrel", a widely recognized metaphor for something of poor quality or low value, is awkwardly translated word-for-word. The subtitle fails to convey the connotation and does not use the common Persian equivalent. The second example, "pissing in the wind", is a slang idiom indicating a futile or pointless effort. The literal translation used in the subtitle both violates norms of register and fails to convey the idiom's intended meaning. A culturally appropriate Persian equivalent, such as "آب در هاون کوبیدن," would have been more effective, though this study does not advocate prescriptive solutions. Rather, the literal approach here results in a serious idiomaticity error that hinders comprehension.

Table 7. Category of acceptability, subcategory of idiomaticity

	Film	Original Segment	Subtitle Back Translation
1	*The American Honey*	bottom barrel,	ته بشکه BT: Bottom of the barrel
2	*Misconduct*	So that's like pissing in the wind**,** son.	براي همين اين مثل شاشيدن تو باد مي مونه. BT: So that's like pissing in the wind.

These cases exemplify a frequent challenge for amateur subtitlers: the inability or reluctance to apply idiomatic substitutions, either due to unfamiliarity with target-language norms or an overreliance on literal rendering. Such errors significantly reduce subtitle quality and suggest a need for idiom training and contrastive phraseology exercises in amateur subtitler education.

4.3. Readability

The third dimension of Pedersen's (2017a) FAR model is Readability, which concerns the technical presentation of subtitles. This includes segmentation and spotting, punctuation and graphics, and reading speed and line length. While errors in this category were less frequent than those found in Functional Equivalence or Acceptability, their presence still has a meaningful impact on viewer processing, cognitive load, and visual fluency.

4.3.1. Segmentation and spotting errors

Segmentation and spotting errors refer to problems with the synchronization of subtitles with the corresponding audio, as well as the inappropriate division of subtitle lines. Such issues may cause subtitles to appear too early, too late, or not at all, reducing the fluidity of subtitle delivery and potentially confusing the viewer (Pedersen, 2017a).

In the first case, the subtitle content appears to have no relation to the actual spoken dialogue; the line "No, I have a little fucking cartoon" is replaced by a visually misplaced response, "Here is Pahinhill Street – ok", indicating poor alignment between speech and subtitle. In the second case, the character's simple but emotionally salient phrase "I'm so happy" receives no translation at all, despite being clearly audible and significant in context. These errors demonstrate a breakdown in temporal coordination and subtitler attentiveness.

Table 8. *Manchester by the Sea,* category of readability, subcategory of segmentation and spotting errors

	Spot	Original Segment	Subtitle Back Translation
1	01:46:20,531 01:46:22,967	No, I have a little fucking cartoon.	-اینجا خیابون پیجن هیل-ه -باشه BT: Here is Pahinhill Street

			-ok
2	01:47:05,960 01:47:08,830	I'm so happy.	(no translation)

Although relatively rare, segmentation and spotting errors are highly disruptive when they occur. They can undermine narrative coherence and suggest a lack of basic subtitle-timing knowledge among amateur subtitlers.

4.3.2. Punctuation and graphic errors

This category includes errors in basic orthographic conventions, such as incorrect use of punctuation marks or visual clutter that impedes readability. While such errors may not drastically alter meaning, they reduce the professional appearance and legibility of subtitles, especially when they violate well-established reading norms (Pedersen, 2017a).

As illustrated in Table 9, the first example from *Misconduct* involves the improper use of quotation marks. The brand name "Vypraxilin" should have been clearly delimited to mark it as a proper noun or specialized term, but the subtitle awkwardly encloses only part of the phrase. In the second example from *American Honey*, the subtitle begins with a hashtag (#) and a misplaced comma, both of which are ungrammatical and visually disruptive. These unnecessary graphic elements distract the viewer and obscure the speech rhythm.

Table 9. Category of readability, subcategory of punctuation and graphic errors

	Film	Original Segment	Subtitle Back Translation
1	*Misconduct*	I was part of the initial test group for the drug Vypraxilin.	من جزو گروهي بودم كه داروي ويپراكسيلين " روش آزمايش ميشد" BT: I was part of the group that the drug Vypraxilin "has been tested on."
2	*The American Honey*	# 'Cause everybody here knows your name	#چون همه اينجا، اسمت رو ميدونند BT: # ', Cause everybody here knows your name

These errors are categorized as minor, but their accumulation can erode the subtitle's visual fluency. They also reveal inconsistency in subtitling

conventions and a lack of punctuation awareness, particularly when subtitles are manually typed without proofreading tools.

4.3.3. Reading speed and line length

Reading speed and line length are crucial components of subtitle legibility. Excessively long lines, dense blocks of text, or slow/fast display speeds can interfere with viewers' ability to read comfortably within the available screen time (Gottlieb, 2005; Pedersen, 2017a).

As shown in Table 10, the first example from *The American Honey* includes a translator's personal tag ("Ali.Es: Translation by...") embedded within the subtitle. This unnecessary addition introduces extraneous visual content, slowing down reading and breaking the illusion of natural speech. The second example from *Misconduct* features three full lines of subtitle text displayed simultaneously, which overwhelms the viewer and covers nearly half the screen, well beyond standard two-line subtitle practice.

Table 10. Category of readability, subcategory of reading speed and line length

	Film	Original Segment	Subtitle Back Translation
1	*The American Honey*	Fuck.	لعنتی ترجمه : Ali.Es BT: Ali.Es: damn Translation
2	*Misconduct*	Jane is the advisor we retained. Private org. Kidnap and rescue	"جین" مشاوریه که استخدامش کردیم توي یک سازمان خصوصي و در بخش آزادسازي گروگان‌ها کار میکنه Jane is the advisor we employed; he is working in a private organization in the section of rescuing hostages

These are clear violations of subtitle formatting norms and fall under standard readability errors. They not only challenge viewer processing but also suggest an absence of training in subtitle design conventions such as optimal character-per-line limits and professional screen layout.

While readability errors were relatively infrequent in the analyzed corpus, their effects on viewer experience are non-negligible. The most prominent issues, spotting mismatches, unedited screen clutter, and excessive line length, stem from a lack of familiarity with guidelines, rather than

linguistic deficiency. These findings reinforce the importance of technical training in subtitler education. Many amateur subtitlers appear unaware of basic subtitle layout standards, punctuation practices, or timing mechanics. Incorporating modules on segmentation techniques, spotting accuracy, and interface-based editing into subtitling workshops could address these gaps and raise the overall quality of amateur AVT products.

5. Discussion and Conclusion

This study set out to evaluate the quality of Persian amateur subtitles produced for five English-language drama films, employing Pedersen's (2017) FAR model as the primary evaluative framework. Through the meticulous error analysis, semantic errors emerged as the most frequent and consequential (121 errors), surpassing errors related to punctuation and graphics (24 errors), spelling (23 errors), and grammar (19 errors). These findings not only corroborate earlier observations in the domain of AVT (Pym, 2010; Bogucki, 2009) but also reveal particular challenges inherent in amateur subtitling practices, especially within culturally rich and linguistically complex contexts like Persian.

Table 11. Frequency distribution of subcategories of the far model in the corpus

	The Danish Girl	*The American Honey*	*Moonlight*	*Manchester by the Sea*	*Misconduct*	Total
Semantic Error	8	43	28	27	15	121
Stylistic Error	1	2	0	0	0	3
Grammar Error	5	2	1	11	0	19
Spelling Error	1	16	2	3	1	23
Idiomaticity	0	2	0	0	3	5
Segmentation and Spotting	0	0	0	2	0	2
Punctuation and Graphics	0	18	2	2	2	24
Reading speed and line length	0	4	0	0	2	6

A comparison of the frequency percentage elucidates the technical and translational competence of amateur subtitlers. The primary competence of a translator is its ability to find suitable equivalences and accurately convey semantic concepts (Pym, 2010). An examination of the error distribution, summarized in Table 11 and visualized in Figures 1 and 2, demonstrates that Functional Equivalence constitutes the most error-prone aspect of amateur subtitling. Comprising 60% of all recorded errors (121 out of 203), this dimension encompasses semantic accuracy, which proved to be the weakest link across all five films examined. The dominance of semantic errors aligns with the scholarly consensus that meaning transfer in subtitling is a complex task, especially when subtitlers are confronted with emotionally nuanced dialogue, taboos, and culturally embedded expressions. Indeed, the drama genre, known for its rich linguistic texture and subtle pragmatic cues, amplifies the difficulty of maintaining semantic fidelity, thereby exposing the limitations of amateur subtitlers who often lack specialized training or experience.

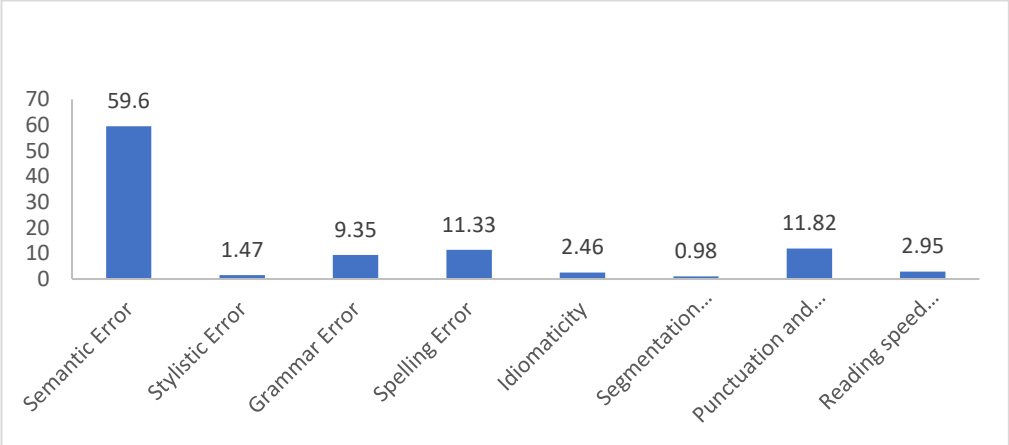


Figure 1. The percentage of the frequency for subcategories of the FAR Model

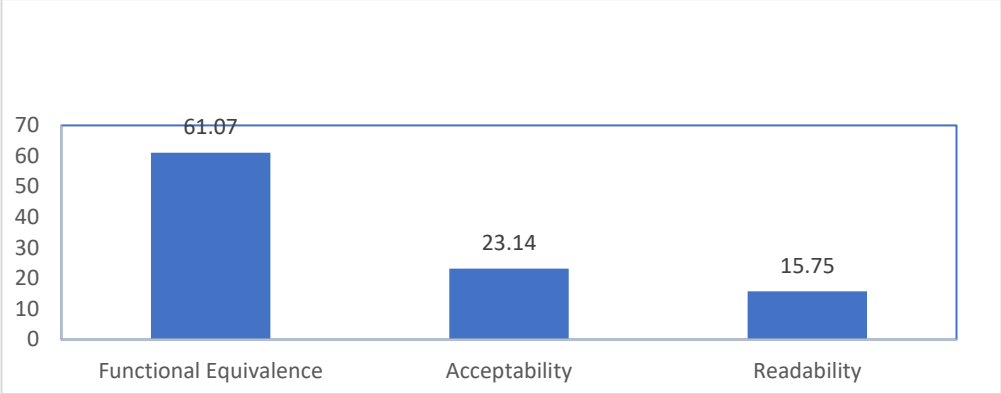


Figure 2. The percentage of the frequency for categories of the Far Model

5.1. Key patterns and theoretical implications

The error patterns revealed by this study illustrate two interrelated but distinct trends with significant theoretical implications for translation studies and AVT. First, there is a clear manifestation of translational insecurity related to meaning transfer. Amateur subtitlers consistently struggled with preserving semantic fidelity, especially when interpreting pragmatic functions, idiomatic expressions, and hedged statements—those utterances where meaning is implicit or context-dependent rather than explicit. This tendency to favor literal translations over contextually appropriate equivalents suggests a gap in training and conceptual understanding of translation as a negotiation of meaning rather than mere word substitution. Literalism in translation, while sometimes a protective strategy for less experienced translators, ultimately leads to diminished communicative effectiveness in subtitles. This is especially problematic in AVT, where space and time constraints demand economy and precision in language. The findings resonate with the broader theoretical discourse emphasizing the translator's role as an active mediator who must balance faithfulness to the ST with the communicative needs of the target audience (Venuti, 1995; Baker, 2018). In the case of Persian amateur subtitlers, the prevailing literalism may reflect insufficient exposure to or understanding of these translational dynamics, as well as a lack of pedagogical emphasis on pragmatic competence.

The second notable trend concerns the interplay between technical proficiency and linguistic competence. While the participants exhibited commendable skills in technical subtitling tasks, evidenced by the minimal

segmentation and spotting errors (only two in total) and relatively few problems with line length and timing, these competencies did not translate into corresponding linguistic accuracy. This finding aligns with Pedersen's (2017a) observation that readability tends to be less problematic in fan- or amateur-created subtitles due to the widespread use of digital subtitling tools and software. However, this technical fluency does not suffice to compensate for deficiencies in semantic and idiomatic accuracy.

The FAR model's penalty point system, detailed in Table 12, further underscores the disproportionate impact of semantic errors, which accounted for nearly 70% of all penalty points (136 out of 195.25). This highlights an important critique of the FAR model's weighting logic: while it robustly captures the presence and severity of errors, it may require recalibration to better reflect the nuanced challenges of subtitling in environments like Iran with censorship and numerous cultural and political constraints. This suggests the necessity for context-sensitive adaptations of quality assessment frameworks to accommodate the diversity of amateur subtitling practices and target audiences worldwide.

Table 12. Penalty point system for different error types in each film

	The Danish Girl	*The American Honey*	*Moonlight*	*Manchester by the Sea*	*Misconduct*	Total
Semantic Error	5.5	54.5	32	29.5	14.5	136
Stylistic Error	0.25	0.75	0	0	0	1
Grammar Error	2.5	1.25	1	5.75	0	10.5
Spelling Error	0.25	5	0.5	0.75	1	7.5
Idiomaticity	0	1.25	0	0	0.75	2
Segmentation and Spotting	0	0	0	2	0	2
Punctuation and Graphics	0	8	0.5	0.5	0.75	9.75
Reading speed and line length	0	1.75	0	0	2	3.75
Total for Each Film	8.5	72.5	34	38.5	19	

The extent of each error type based on the Pedersen (2017a) penalty point system is different from the order of errors based on their frequency, which is due to the different penalty point systems (minor, standard, and serious) and the severity of the impact of the mistake on the audience's understanding (Table 13).

Table 13. Frequency and type of errors based on errors classified by far model

			The Danish Girl	***The American Honey***	***Moonlight***	***Manchester by the Sea***	***Misconduct***
Functional Equivalence	semantic	minor	2.5	5.5	5	6.5	3.5
		standard	3	15	9	5	5
		major	0	34	18	18	6
	stylistic	minor	0.25	0.25	0	0	0
		standard	0	0.5	0	0	0
		major	0	0	0	0	0
Acceptability	grammar errors	minor	0.5	0.25	0	1.25	0
		standard	1	0	0	1.5	0
		major	1	1	1	3	0
	spelling errors	minor	0.25	3	0.5	0.75	0
		standard	0	2	0	0	0
		major	0	0	0	0	1
	idiomaticity errors	minor	0	0.25	0	0	0.75
		standard	0	0	0	0	0
		major	0	1	0	0	0
Readability	segmentation and spotting	minor	0	0	0	0	0
		standard	0	0	0	0	0
		serious	0	0	0	2	0
	punctuation and graphics	minor	0	3	0.5	0.5	0.25
		standard	0	1	0	0	0.5
		serious	0	4	0	0	0
	reading speed and line length	minor	0	0.75	0	0	0
		standard	0	0	0	0	0
		serious	0	1	0	0	2

While the present study concentrates on amateur subtitling, the findings offer insights that extend to other forms of non-professional AVT in Iran, including fansubbing, activist subtitling, and commission-based volunteer projects. The persistent issues with semantic fidelity, idiomatic inaccuracy, and contextual mismatch are likely to affect any subtitling category in which translators operate without formal training, editorial oversight, or access to institutionalized subtitling norms. As such, the error patterns identified here,

particularly those related to meaning transfer and cultural adaptation, may serve as diagnostic tools for understanding the broader challenges of Persian AVT in semi-professional contexts.

5.2. Pedagogical and professional implications

The implications of this study are especially pertinent to subtitling pedagogy and the professional development of amateur and aspiring subtitlers. The prevalent error patterns highlight the need for comprehensive training curricula that integrate both linguistic and technical skills with theoretical knowledge of translation principles and cross-cultural communication. Specifically, subtitling education should begin by focusing on semantic and pragmatic fidelity, equipping trainees with the ability to interpret implied meaning, speech acts, and tonal nuances embedded in dialogue. This requires not only linguistic knowledge but also awareness of the ST's communicative intentions and the cultural context of both source and target audiences. Without such competencies, subtitlers are prone to literalism and misinterpretation, as evidenced by this study's findings. Moreover, training should emphasize idiomatic and cultural substitution strategies. Subtitlers must learn to identify culture-specific references, metaphors, and idioms and develop skills to adapt these effectively within the constraints of subtitle space and timing. Technical skills, including line segmentation, spotting, and screen layout, remain essential components of subtitling training. Although amateur subtitlers showed proficiency in these areas, reinforcing these skills ensures the maintenance of readability and viewer comfort, which are critical for effective subtitle reception.

Finally, incorporating quality assessment practice based on the FAR model or similar frameworks into subtitling pedagogy could foster critical awareness of error types, their severity, and their potential impact on the viewer. By familiarizing students with assessment criteria and penalty systems, educators can promote self-evaluation and quality control skills, which are crucial for professional growth. In sum, integrating translation theory, cross-cultural competence, and technical subtitling practice in a cohesive curriculum is vital to bridging the gap between enthusiasm and expertise among amateur subtitlers, a gap that has long been recognized (Bogucki, 2009; Massidda, 2015). Only through such holistic education can

amateur subtitlers progress toward producing subtitles that meet both linguistic and cultural standards of quality.

5.3. Limitations and directions for future research

While this study contributes valuable insights into Persian amateur subtitling practices, it is important to acknowledge its limitations. The scope was confined to a single genre, drama, and focused exclusively on the English-Persian language pair. Additionally, all analyzed subtitles originated from a single amateur subtitling platform, *Tiny Movies*. These constraints limit the generalizability of the findings across other genres, languages, subtitling communities, and professional contexts.

Despite these limitations, the thematic and translational challenges identified, particularly those pertaining to semantic fidelity and idiomatic transfer, likely resonate in many non-professional subtitling environments globally. Future research should build upon this foundation by expanding the empirical scope. Incorporating a wider range of genres, such as comedy, action, or documentary, could elucidate genre-specific subtitling challenges and error tendencies. Similarly, exploring different language pairs would provide comparative insights into how linguistic and cultural distances affect amateur subtitling quality. Further research could also adopt a reception-oriented approach, investigating how target audiences perceive and process various types of subtitling errors. Such studies, following Gerber-Morón et al. (2018) and Szarkowska and Gerber-Morón (2018a), would deepen understanding of the real-world impact of subtitling quality on comprehension, enjoyment, and viewer engagement. Experimental interventions aimed at training amateur subtitlers and assessing their efficacy would provide practical recommendations for pedagogical design and quality improvement. Lastly, there is a need for further refinement of quality assessment models like FAR to better accommodate the linguistic and cultural realities of diverse subtitling contexts. Adapting the weighting of semantic and idiomatic categories in the penalty system could yield more sensitive and contextually appropriate evaluation metrics, thereby improving the reliability and validity of quality assessments.

5.4. Conclusion

In conclusion, this study affirms that semantic accuracy remains the most significant challenge confronting Persian amateur subtitlers, with literalism and context-mismatch dominating the error landscape. While their technical proficiency in subtitling software and formatting is noteworthy, effective subtitling demands a more complex fusion of linguistic accuracy, cultural adaptation, and visual clarity. As Díaz-Cintas and Remael (2014) emphasize, subtitles must be "semantically and syntactically self-contained", a standard that remains largely unmet by amateur subtitling efforts examined in this research. The evidence underscores the urgent need for structured subtitling training programs, editorial oversight, and context-sensitive quality frameworks that address the unique demands of amateur subtitling. This study echoes prior calls (Bogucki, 2009; Massidda, 2015) to bridge the gap between enthusiasm and expertise by integrating translation theory, intercultural competence, and AVT practice in subtitler education.

In the contemporary era of global media exchange, where audiovisual content crosses linguistic and cultural borders with increasing frequency, ensuring subtitle quality, particularly in ideologically complex genres like drama, is imperative. Models such as FAR must be revisited and adapted to reflect the lived realities of amateur practice and the diverse expectations of target audiences. Only through such efforts can amateur subtitling transcend its current limitations and fulfill its potential as a vehicle for intercultural communication and artistic expression.

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Decoding Collocational Disputes: An ERP Approach to Understanding Proficiency Variations

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Abstract This study was an attempt to compare the neural processes of two proficiency levels through employing a stroop-like multi-word units task. The participants were selected based on purposive sampling through a test of language proficiency. Analysis of the data revealed no significant differences in the reaction times. There was a significant difference between two levels of proficiency and Plausible Target Distractor (PTD) condition in F3, F4, C3, C4, Fz, Fp1 and P3 channels and PDT in Fz, F8 and O2 channels and Implausible Target Distractor (ITD) in F8, Fz, C4 and T4 channels. A greater recruitment of the frontal lobes was observed as the participants needed to make judgments. The findings provide insights for the understanding of processing mechanisms related to multi-word units such as collocations in the brain. They also reveal the different areas of the brain involved in terms of cognitive variances.

Keywords: *Event Related Potentials, Language Proficiency Level, Multi-word Units, Conflict Detection, Collocations*

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1. Introduction

The complexity of language and its widespread display in the brain is not surprising because it involves different linguistic processes. However, through time, it has mainly been the knowledge of neuroscience that has promoted the researchers' understanding of language processing in the brain. In fact, drawing upon neuroscience, researchers have understood the functions of the brain and how it works in this regard (Pfaff et al., 2022). The human brain consists of a complicated network of nerve cells that keep communicating with one another through impulses which are electrical signals (Akram et al., 2025). Cognitive neuroscience is a subfield of neuroscience and introduces tools and methodologies that can be used in research in the field of learning and instruction. It can equip researchers to investigate precise cognitive processes comprehensively (De Smedt, 2014).

Different neuroimaging methods have helped researchers understand learning processes, including Event-Related Potentials (ERP) or functional Magnetic Resonance Imaging (fMRI) (De Smedt, 2014). It has been noted that while the brain produces electrical voltage potentials because of cellular activities, it is possible to record those voltages in order to understand cognitive events including the different aspects of the language processing nature and language acquisition and such patterns are called event-related potentials (ERPs) (Morgan-Short, 2014). In recent years, scholars including language education scholars have tended to employ ERP studies (Esfandiari et al., 2020; Farani et al., 2023; Karipidis et al., 2018; Lee, et al., 2019; Pelzl et al., 2019; Wu et al., 2022) to have evidence and complete and extend their knowledge of learning and instruction in relation to language (De Smedt, 2014). ERP studies are advantageous in investigating various language components and language comprehension (Elgort et al., 2022) as well as production (Kaan, 2007).

ERP studies are also a worthy choice and solution for the study of semantic processing in language; thus, recent research studies at global and national levels are conducted on semantic processing and the brain (DiStefano et al., 2019; Khaleghi et al., 2020; Morgan et al., 2022; Safavi et al., 2012; Yu et al., 2016). One of the semantic processing forms that researchers have studied includes multi-word units (Kessler et al., 2022; Morgan et al., 2020; Onnis & Huettig, 2021). According to Wolter and Yamashita (2018), multi-

word units contain idioms, collocations, phrasal verbs, binominals, and lexical bundles. In many of the recent studies (Jung et al., 2022; Sabanashvili & Garibashvili, 2022; Van Vu & Peters, 2022), collocations are considered as an essential element in language teaching and learning. That is why a collocational proficiency has been defined, which can distinguish native and non-native speakers (Hsu, 2007). One other area of research in neurolinguistics has been the study of the relationship between lexical proficiency and lexical semantic processing in the brain, where lexical proficiency has a basic role in this relationship (Elgort, 2022).

A large number of studies have focused on the relationship between collocations and proficiency level (Goulart, 2019; Uchihara et al., 2022); however, they have used behavioral performance or their focus has been on monolinguals or bilinguals rather than foreign language learners of English and in varied proficiency levels. While ERP studies have contributed to the understanding of the brain processes for different language components and word classes (De Smedt, 2014; Kaan, 2007), they can be used in investigating collocations which are a fundamental part of learning the vocabulary of a language (McCarthy & O'Dell, 2017). Hughes (2018) focused on the psychological validity of collocations to be evaluated through a direct measure. Jung et al. (2022) used ERPs to find the effect of textual enhancement as well as frequency manipulation on collocation acquisition through reading. Siyanova-Chanturia et al. (2019) employed ERPs to compare the processing of non-literal language forms by monolinguals and bilinguals. Accordingly, in recent years, ERPs have been used as an effective measure to study collocations as far as language processing in the brain is concerned.

ERP stroop-like tasks can provide the conflicts, and through analyzing these conflict detections, the neural processes involved can be detected and analyzed. While the processing of collocations can be different in learners of varied proficiency levels, it is possible to compare such neural processing in terms of learners' proficiency levels. The present study thus sought to use a stroop-like event-related potential (ERP) technique to analyze the neural processes involved in the detection of the conflict as well as resolution (when there is no conflict) in collocations based on the learners' proficiency levels.

A large number of studies have focused on the relationship between collocations and proficiency level (Goulart, 2019; Uchihara et al., 2022); however, they have either used behavioral performance or their focus has been on mono or bilinguals rather than foreign language learners of English and at varied proficiency levels. However, using the ERP technique of analyzing brainwave data is surprisingly lacking. ERP studies are highly informative, and their advantages outweigh other techniques specially that they are non-invasive. Thus, ERPs can provide a unique set of data that can greatly increase our understanding of cognition, including our understanding of how languages are processed" (Morgan-Short, 2014, p. 17). In this paper, the researchers employed the ERP technique to investigate the possible differences in the processing of conflict in terms of collocations based on Iranian English as a foreign language learners' proficiency level. Accordingly, the present paper sought to answer the following two main and related sub-questions:

1. Is there any significant difference in reaction time while processing collocations in terms of Iranian EFL learners' proficiency level?
2. Is there any significant difference in the processing of collocations in terms of Iranian EFL learners' proficiency level?
    - 2a. Is there any significant difference in the processing of PTD in terms of Iranian EFL learners' proficiency level?
    - 2b. Is there any significant difference in the processing of PDT in terms of Iranian EFL learners' proficiency level?
    - 2c. Is there any significant difference in the processing of ITD in terms of Iranian EFL learners' proficiency level?
    - 2d. Is there any significant difference in the processing of IDT in terms of Iranian EFL learners' proficiency level?

2. Literature Review

2.1. Importance of collocations in language proficiency

One critical aspect in learning the second language vocabulary is the knowledge of collocations, which can allow learners to improve to a high level of language proficiency (Bui, 2021; Nation, 2013; Nizonkiza, 2015). While mastering collocations is a difficult task for learners (McCarthy & O'Dell, 2017; Zaabalawi & Gould, 2017), it has been argued that with the

increase in proficiency level of EFL learners, collocation use is extended (Laufer & waldman, 2011; Goulart, 2019).

Concerning their form rather than meaning, collocations are classified into two main categories of grammatical and lexical (Benson et al., 1986). "Verb + noun" collocations, which are the focus of this study, fit in the lexical group. Gyllstad (2009) argues from the reviewed studies that "verb + noun" collocations are more difficult for learners. Moreover, it has been stressed by Siepmann (2005) that, as dual units, "verb + noun" collocations are more frequently used.

Knowledge of collocations and proficiency levels have proven to have a significant relationship (Boers et al., 2006; Nizonkiza, 2015). Many studies have demonstrated that the knowledge of collocations influences the characteristics of EFL learners' proficiency as well (Du et al., 2022; Granger & Meunier 2008; Gyllstad, 2009; Keshavarz & Salimi, 2007; Nesselhauf 2003; Nizonkiza, 2015; Ordulj & Sokolić, 2019; Saito & Liu, 2022). Shi et al. (2023) also maintain that figurative collocations require more cognitive effort than do literal collocations. Besides, it is highlighted by Harati Mokhtari et al. (2016) that the cognitive processes involved in recognizing collocations can differ based on the participants' proficiency level. Siyanova-Chanturia et al. (2019) maintain that the language proficiency of learners can be a determining factor in the processing of non-literal language. It has been noted that language learners also have more difficulty understanding incongruent collocations than congruent collocations. The speed of processing for incongruent collocations is also an issue and it is stressed that responding to incongruent collocations is not only slow but also includes errors among low-proficiency level learners (Yamashita & Jiang, 2010).

Thus, the use of collocations and the errors the students make may depend on the proficiency level of the target language they have (Boonraksa & Naisena, 2022). As Sonbul and El-Dakhs (2020, p. 1) state, "congruency (the availability of a direct first language translation) and level of proficiency have been reported among the most important determinants of second language collocation processing". Other studies have also found relationships between learners' collocation knowledge and language writing proficiency level (Abdi & Ariffin, 2020; Kim & Bae, 2012; Yazdandoost et al., 2014).

One of the major variables that has been considered for observing the changes in brain mapping in individuals and participants has been proficiency (Rastelli, 2018). In one recent study, Di Liberto et al. (2021) compared high proficiency level learners with native listeners in listening through a neuroimaging study. They found out that language proficiency could be decoded with high accuracy. They also maintained that such a result advances our understanding of the cortical processing of linguistic information in second-language learners and provides an objective measure of language proficiency.

Language proficiency and semantic processing of language have been studied, and it is concluded that a higher proficiency makes it possible to process both L1 and L2 semantics similarly (Vandenberghe et al., 2019). Thus, it can be assumed that the processing of collocations as language units can be different in learners with varying levels of proficiency if situations of conflict are provided. According to the reviewed literature, there seems to be a difference in the use, knowledge, and processing of collocations among learners in terms of their proficiency levels.

2.2. Event-related potentials

The electroencephalogram (EEG) is a record of the brain oscillations related to the electric potential from electrodes on the human scalp (Nunez & Srinivasan, 2006). EEG measurements are recorded from the scalp surface and are non-invasive. The majority of neurocognitive studies that record EEG signals have employed average evoked or event-related potentials (Schomer & Da Silva, 2012), which cause voltage alterations.

Such voltage changes that relate to the time because of some event in the brain are event-related potentials, which can provide important information about how the human brain normally processes information (Picton et al., 2000). In EEG recording, when the researcher creates a stimulus, this stimulus makes variations in the EEG activity, and some neural responses can be observed accordingly. To extract the responses from the EEG recording, researchers use “a simple averaging technique or more sophisticated techniques, such as single-trial analysis and time-frequency analysis” (Lu & Hu, 2019, p. 24). The average of the responses, which is extracted from the EEG is called event-related potentials (ERPs) and relates to that specific stimulus (Hu & Zhang, 2019). Steinhauer (2014) highlights that ERPs

illustrate brain waves without delay from the participants' scalp (including any age or patients) in a millisecond temporal.

2.2.1. Conflict detection through a stroop-like task

The Stroop-like task has been extensively used for clinical as well as experimental reasons. The test measures the ability to hinder cognitive interference, which is the effect of processing a stimulus feature at the expense of another stimulus attribute (Scarpina & Tagini, 2017). In its common version, the participants need to read the three different tables presented to them as fast as possible. Two of the tables represent a "congruous condition" in which "to read names of colors (henceforth referred to as color-words) printed in black ink (W) and name different color patches (C)". In the third table, which includes the color-word condition, there is an inconsistency between the word and the ink color. For example, the word blue is printed in pink color, and following this incongruent situation, the participant has to say the color of the ink rather than read the word. This difficulty, which inhibits the automated process of naming, is called the Stroop effect (Pickering, et al., 2022). The task has been used ever since the 1930s to develop other research ideas in different fields to measure working memory (Finn, et al., 2022), cognitive flexibility (Rastelli, 2018), semantic interference and attention (Scaltritti, et al., 2022) as well as language components (Pathak & Pathak, 2022; Semushina & Mayberry, 2022; Simi et al., 2022).

In a stroop task, the provision of conflict detection and resolution is essential (Coderre, et al., 2011). Based on this conflict detection, other researchers (Kałamała, et al., 2022; Pulido & Dussias, 2019; Šaban & Schmidt, 2022) have done studies in the field of language. For example, Pulido and Dussias (2019) provided high and low conflict situations where the participants had to choose between lexical candidates when one of them was implausible and when the candidate items were both plausible. In another study, Zurrón et al. (2009) employed ERPs to find the semantic conflict in terms of congruent or incongruent stimuli. Accordingly, stroop task and its effect is an accepted technique to provide conflict in language studies.

In ERP studies, while presenting collocations (V + N) to the participants and while they are asked to choose the correct verb between the proposed candidates, the lexical selection between the verbs and the single noun in each collocation could lead to conflict (Pulido & Dussias, 2019). Accordingly, as

Pulido and Dussias (2019) discuss, "because lexical selection involves detecting conflict between candidates concurrently available for selection, understanding the process of lexical selection requires investigating the conflict detection and resolution mechanisms involved" (p.1). Consequently, in the selection between congruent and incongruent verbs in collocations (multi-word units) before the display of the noun, conflict arises and the time of conflict detection may be varied (Pulido & Dussias, 2019). Conflict is a crucial characteristic of the human cognitive system, and stroop-like tasks are a fundamental tool to measure cognitive conflict. Many of the language studies have adapted this color-naming stroop task (Botvinick et al., 2004; Coderre et al., 2011; Larson et al., 2014; Šaban & Schmidt, 2022).

3. Method

3.1. Participants and setting

The sample of the study included 30 Iranian EFL students studying at university level whose native language was Persian. However, at the onset of the study three participants who were left-handed and five participants who reported taking psychoactive medication were excluded. Accordingly, the participants of the study included 22 healthy (based on the self-report questionnaire) right-handed language learner volunteers in the age range of 19 to 30. The participants included both male and female students (12 females, 10 males). They were all BA and MA students of the language-teaching major. A2 level participants included 11 (5 males and 6 females) and B1 level participants included 11 (5 males and 6 females). Authorization from the ethics committee at the Biomedical Engineering Laboratory at Islamic Azad University of Mashhad to conduct this research was received **(**IR.IAU.MSHD.REC.1401.166). All the participants were right-handed with normal vision. The sampling procedure included purposive sampling in which the researchers selected the participants based on the research study purposes (Etikan et al., 2016). They had proficiency levels of A2 and B1 based on the Common European Framework of Reference for languages (CEFR) as an international standard. Data were collected at the biomedical engineering laboratory of the Islamic Azad University of Mashhad.

3.2. Instrumentation

The following instruments were used to conduct the present study.

3.2.1. Test of proficiency

To determine the English proficiency level of the students, the researchers used the Oxford University Press quick placement test and all the 30 participants were tested for their language proficiency as a reliable and time-saving method for the assessment of the proficiency level (Syndicate, 2001). It included multiple-choice items for which 30 minutes were allocated. Based on the score gained, the subjects were placed in different levels.

3.2.2. Four lists of collocations

Two lists of multi-word units were created, named targets and foils adopting the procedure from Pulido and Dussias (2019) focusing on lexical collocations. The term foil refers to an alternative that serves as a contrast or distractor to the target and main items. It is an incorrect or incongruent choice included in experimental tasks to help researchers understand how well participants can distinguish the correct target item from plausible or implausible alternatives.

The first list contained eight target verb-noun multi-word units (e.g., cancel [a] trip, eat breakfast) and the second list included eight verb-noun sets used as foils (e.g., schedule [a] time, skip school). To study the effect of conflict during the experiment, the researchers selected two additional lists of plausible distractors and implausible distractors list. The plausible distractors list contained foil-verb + target-noun that were plausible (e.g., schedule [a] trip, skip breakfast). The implausible distractors' list consisted of "foil-verb + target-noun" (e.g., break [a] trip, shoot breakfast). All verb-noun units used as targets were checked by 6 experts (PhD holders in teaching and translation of English) for the target list to be congruent (could be translated literally) between two languages (Persian and English), and the foil list had to be incongruent concerning the two languages. Examining both languages can allow for assessing and controlling how the learners' native language (Persian) affects their processing of English multi-word units. Only two of the VN sets were modified (disturb [the] neighbors was changed to disturb [the] view/fail [a] test was changed to develop [a] test). All lists are presented in Table 1.

Table 1. List of verb-noun phrases per condition

Target List	Foil List	Plausible Distractors	Implausible Distractor
cancel [a] trip	schedule [a] time	schedule [a] trip	break [a] trip
eat breakfast	skip school	skip breakfast	shoot breakfast
finish [a] story	break [the] news	break [a] story	disturb [a] story
promote peace	disturb [the] view	disturb [the] peace	schedule peace
rent [a] movie	shoot photos	shoot [a] movie	launder [a] movie
save money	launder clothes	launder money	skip money
teach [a] class	develop [a] test	develop [a] class	cash [a] class
write [a] check	cash [a] prize	cash [a] check	develop [a] check

3.2.3. The familiarization phase task

In order to familiarize the participants with the target verbs, a familiarization task was created. The rationale for the familiarization phase was to train participants on what responses to select. Since the manipulation in the study involved plausible vs. implausible distractors, without the familiarization phase, it would not have been possible for the participants to know what verb to select in the plausible distractor trials (e.g., cancel-schedule-trip). That is, some participants could have chosen "cancel" and others "schedule" and both responses are technically plausible and correct. Therefore, participants would have (a) been uncertain as to whether their response was correct, and (b) the researchers would not have been able to measure accuracy in their responses.

To do the familiarization phase, for each target list the researchers created a sentence which contained the target V-NP phrase in the middle of it as follows. Participants read the sentences at their own pace on the paper before the EEG recording started. The task was adopted from Pulido and Dussias (2019). A sample is presented below.

> Carrier sentence: On Sundays, I usually get up later and eat breakfast in my pajamas.
>
> Target multi-word unit: *eat breakfast*

To avoid the participants' overlooking the target verbs, a gap-filler task displayed the sentences they had just read and the participants had to choose the right multi-word unit from two options. The participants had to choose the best answer from the options on the paper before EEG recording started

as shown below in the second example. The participants had to pay attention to the target verbs before the trials started.

On Sundays, I usually get up later and **……..** in my pajamas.

eat breakfast skip school

3.2.4. Multi-word-based lexical selection task

Each multi-word unit in Table 1 (e.g., cancel [a] trip) was presented with a plausible distractor multi-word unit (e.g., schedule [a] trip) and an implausible distractor multi-word unit (e.g., break [a] trip).

Relying on the familiarization phase and the task, and based on the phrases presented in that stage, the noun was presented for which the participants had to select the suitable verb. A counterbalanced order was taken to present the target and the distractor. This means that once for half of the trials, the order was as CANCEL-schedule-trip and for the other half of the trials it was schedule-CANCEL-trip. In order to monitor the processing and activation order, the two forms of targets and distractors related to each set were presented sequentially.

3.3. Research procedure

Initially, consent was obtained from all participants to participate in this study. The study was divided into two stages. In stage one, participants answered the quick placement test items to determine their level of English proficiency, and based on the results, they were divided into two groups of A2 and B1 proficiency levels. A2 level participants' minimum score was 30, and the maximum score was 39. The B1 level participants' minimum score was 20, and the maximum score was 29. Moreover, the participants who were left-handed were disqualified to be in the study.

In stage two, the participants were requested to take part in the experiment in the lab and completed the familiarization phase as described previously before recording started. The researchers were aware of artifacts and made an attempt to control them (Picton et al., 2000). The recorded electrical activity must always be contaminated with artifacts which may affect the analysis of EEG signal" (Jiang et al., 2019).

To display the words on the screen, the font size of Times New Roman 30 was used. For designing and running the tasks of the experiment, PSYTASK software was employed. To start the task (Figure 1), first, a fixation cross appeared on the screen for 400ms. One of the verbs appeared

to the left side of the fixation cross. After leaving it for 400ms, the second verb was presented to the right side of the cross. As the next stage, both verbs remained on the screen together with the cross for another 500ms. Then, the left verb was removed from the screen while the right verb remained for another 400ms. After presenting the two verbs, the noun was presented on the screen for 500ms. As the final stage, the blue fixation cross appeared on the screen for 1500ms to the point that a response was made. Overall, 3250ms were allocated to the task. Using the button box, the participants had to press either the left or the right button in order to choose the correct response. This was done based on the side of the correct verb presented on the screen. In this research, one independent categorical variable (A2 & B1) and four (more than one) continuous dependent variables (PTD, PDT, ITD, IDT) were included. Thus, the study entailed an ERP experiment using a Stroop-like paradigm with multi-word lexical collocations as stimuli to investigate the neural correlates of conflict processing across two proficiency levels.

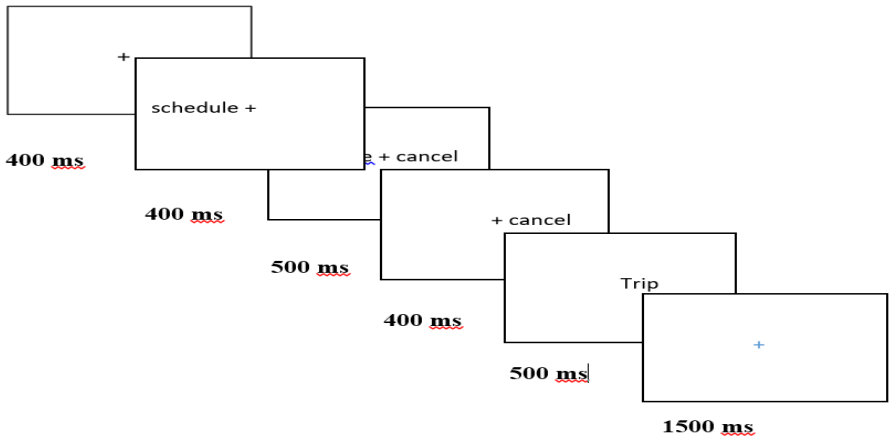


Figure 1. Sample trial of the lexical selection task

4. Results

For ERP data analysis, MATLAB software was used as it provides a flexible and powerful environment for processing and visualizing neuroscientific data. It enables precise signal processing, artifact rejection, and plotting of multi-channel ERP waveforms. These are all essential for analyzing brain activity across conditions and proficiency levels. Table 2 shows the means,

standard deviations, variances, minimum, and maximum for each of the variables in the study.

Table 2. Descriptive Statistics for the Tests Used in the Study

	PTD	PDT	ITD	IDT	PTDreaction*	PDTreaction*	ITDreaction*	IDTreaction*
Mean	58.86	62.09	59.41	63.00	3139.86	3061.73	3144.59	3037.59
Median	63.50	67.00	66.00	67.00	3124.00	3107.50	3180.00	3074.50
Mode	63a	68	70	73	2826a	2725a	2895a	3111
Std. Deviation	16.08	13.28	17.22	13.14	134.17	160.05	148.63	158.20
Variance	258.79	176.37	296.53	172.85	18002.40	25618.01	22091.30	25027.39
Range	66	49	68	50	595	585	573	590
Minimum	9	30	10	28	2826	2725	2895	2728
Maximum	75	79	78	78	3421	3310	3468	3318

*PTDreaction: PTD reaction time PDTreaction: PDT reaction time ITDreaction: ITD reaction time IDTreaction: IDT reaction time

The normality of the distributions of all the tests used in the study was checked. Skewness and Kurtosis values of zero indicate the data are perfectly normally distributed. However, values between ±1 are considered "very good" and values between ±2 are considered acceptable (West, Finch, & Curran, 1995).

As Table 3 shows, values for the tests are within the "good" and "very good" excluding Kurtosis for PTD, which is above the range (3.59) (West et al., 1995). Therefore, normality can be assumed for the distributions for almost all the tests in the study.

Table 3. Test of normality for the measures used in the study

	PTD	**PDT**	**ITD**	**IDT**	**PTD reaction**	**PDT reaction**	**ITD reaction**	**IDT reaction**
Skewness	-1.86	-1.07	-1.51	-1.29	.120	-.35	.01	-.26
Std. Error of Skewness	.49	.49	.49	.49	.49	.49	.49	.49
Kurtosis	3.60	.59	1.98	1.28	.71	-.44	-.32	-.52
Std. Error of Kurtosis	.95	.95	.95	.95	.95	.95	.95	.95

As Table 4 shows, values for the tests are "very good" for PTD. Therefore, normality can be assumed for the distributions for almost all the tests for PTD in the study.

Table 4. Test of normality for the measures used in the study (PTD)

Row	Skewness	Standard Error of Skewness	Kurtosis	Standard Error of Kurtosis
Fp1	0.055	0.065524476	0.814	0.086273942
Fp2	0.710	0.04780286	0.559	0.101512171
F3	0.551	0.075473648	0.812	0.090710196
F4	0.711	0.094181109	0.432	0.150322964
C3	0.778	0.09989469	0.458	0.09417106
C4	0.282	0.140265037	0.852	0.106325203
P3	0.393	0.128169478	0.961	0.185658608
P4	0.753	0.117818557	0.151	0.154579874
O1	0.359	0.108627375	0.492	0.114673076
O2	0.555	0.157748196	0.739	0.158037496
F7	0.336	0.096394716	0.827	0.147417422
F8	0.541	0.09376816	0.634	0.080156898
T3	0.970	0.067062264	0.411	0.076724448
T4	0.324	0.059317392	0.772	0.140427218
T5	0.411	0.083001615	0.630	0.122686143
T6	0.757	0.132472894	0.655	0.179759618
Fz	0.560	0.089691636	0.981	0.120519192
Cz	0.559	0.111035099	0.698	0.133869108
Pz	0.269	0.11674812	0.605	0.166690933

As Table 5 shows, values for the tests are “very good” for PDT. Therefore, normality can be assumed for the distributions for almost all the tests for PDT in the study.

Table 5. Test of normality for the measures used in the study (PDT)

Row	Skewness	Standard Error of Skewness	Kurtosis	Standard Error of Kurtosis
Fp1	0.615	0.087554208	0.557	0.106493932
Fp2	0.137	0.09179922	0.136	0.169542648
F3	0.476	0.061438562	0.730	0.096139073
F4	0.901	0.111430213	0.669	0.162843264
C3	0.243	0.104361771	0.426	0.107744875
C4	0.525	0.117037883	0.449	0.154554953
P3	0.166	0.129191925	0.541	0.148449038
P4	0.548	0.122912471	0.837	0.141536985
O1	0.267	0.083127108	0.693	0.096001912
O2	0.033	0.114578402	0.456	0.129054941
F7	0.328	0.062830556	0.469	0.066273006
F8	0.945	0.080592353	0.002	0.190203064
T3	0.271	0.061977146	0.846	0.09372682
T4	0.528	0.081581975	0.356	0.104942542

T5	0.846	0.115063312	0.883	0.147286549
T6	0.930	0.149100716	0.395	0.159830946
Fz	0.838	0.070984332	0.319	0.149195279
Cz	0.672	0.078181248	0.322	0.127542109
Pz	0.868	0.093730036	0.949	0.134118533

As Table 6 shows, values for the tests are "very good" for ITD. Therefore, normality can be assumed for the distributions for almost all the tests for ITD in the study.

Table 6. Test of normality for the measures used in the study (ITD)

Row	Skewness	Standard Error of Skewness	Kurtosis	Standard Error of Kurtosis
Fp1	0.386	0.112839582	0.428	0.112472014
Fp2	0.113	0.090971895	0.901	0.147946342
F3	0.101	0.088856917	0.109	0.117623479
F4	0.178	0.096580227	0.586	0.133486123
C3	0.146	0.101783853	0.503	0.157460958
C4	0.044	0.13654965	0.019	0.150202885
P3	0.281	0.107310269	0.628	0.163574366
P4	0.886	0.122660502	0.438	0.157164782
O1	0.407	0.073377632	0.490	0.124145722
O2	0.523	0.120094419	0.473	0.136387235
F7	0.793	0.061954574	0.283	0.059159087
F8	0.037	0.115281251	0.397	0.112072756
T3	0.942	0.072864535	0.206	0.0692568
T4	0.023	0.066386211	0.190	0.110747686
T5	0.912	0.064279797	0.865	0.179798971
T6	0.390	0.130549663	0.974	0.158491686
Fz	0.033	0.105345823	0.663	0.145088521
Cz	0.523	0.114983727	0.287	0.163888441
Pz	0.683	0.09204252	0.222	0.151541763

As Table 7 shows, values for the tests are "very good" for IDT. Therefore, normality can be assumed for the distributions for almost all the tests for IDT in the study.

Table 7. Test of normality for the measures used in the study (IDT)

Row	**Skewness**	**Standard Error of Skewness**	**Kurtosis**	**Standard Error of Kurtosis**

Fp1	0.340	0.117016151	0.316	0.143097553
Fp2	0.651	0.121990871	0.518	0.179108263
F3	0.284	0.0850604	0.661	0.064520649
F4	0.164	0.135677017	0.507	0.13455136
C3	0.508	0.122676015	0.889	0.104628127
C4	0.802	0.134629525	0.846	0.117550997
P3	0.448	0.113024911	0.302	0.114565884
P4	0.547	0.126226099	0.496	0.111915911
O1	0.521	0.069094524	0.118	0.099911006
O2	0.380	0.119287821	0.992	0.146689596
F7	0.255	0.089725646	0.358	0.079155223
F8	0.369	0.079971699	0.492	0.051525473
T3	0.302	0.096353077	0.321	0.077616937
T4	0.606	0.083514577	0.198	0.109526866
T5	0.538	0.096482833	0.336	0.095365157
T6	0.897	0.15010977	0.322	0.11048846
Fz	0.108	0.14051385	0.260	0.137427955
Cz	0.546	0.140569927	0.313	0.103364596
Pz	0.368	0.111945428	0.697	0.107473385

After importing data to MATLAB software, the ERP analysis focused on one-time window: (400-500ms) from 19 channels. In MATLAB software, the plot of two proficiency levels of the participants (A2 Level, B1 Level) was drawn. Figures, 2, 3, 4, 5, 6, 7, and 8 show the plots of ERP signals in Fz, F3, F4, F7, Fp1, Fp2, and C3 channels in 4 conditions (PTD, PDT, ITD, IDT).

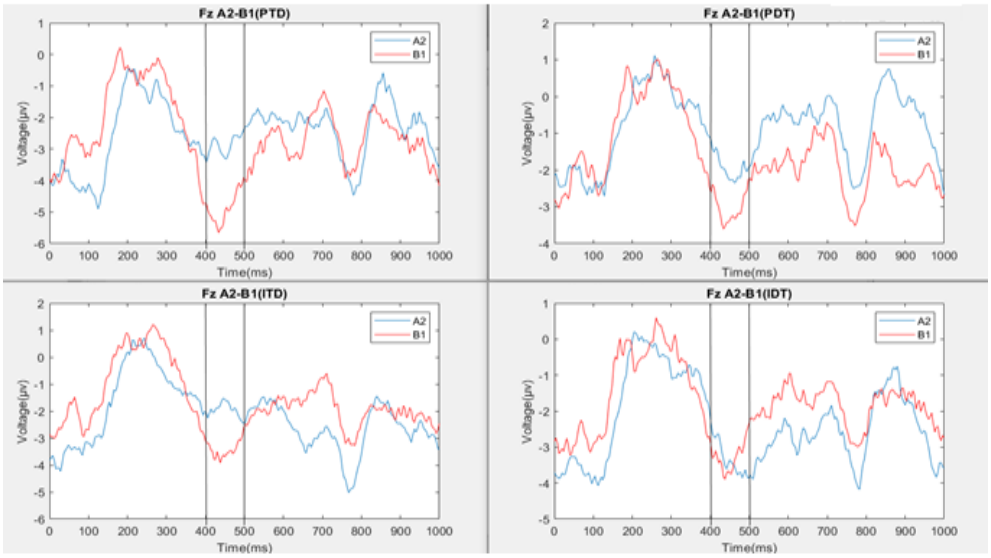


Figure 2. ERP signals plots in Fz channel in four conditions

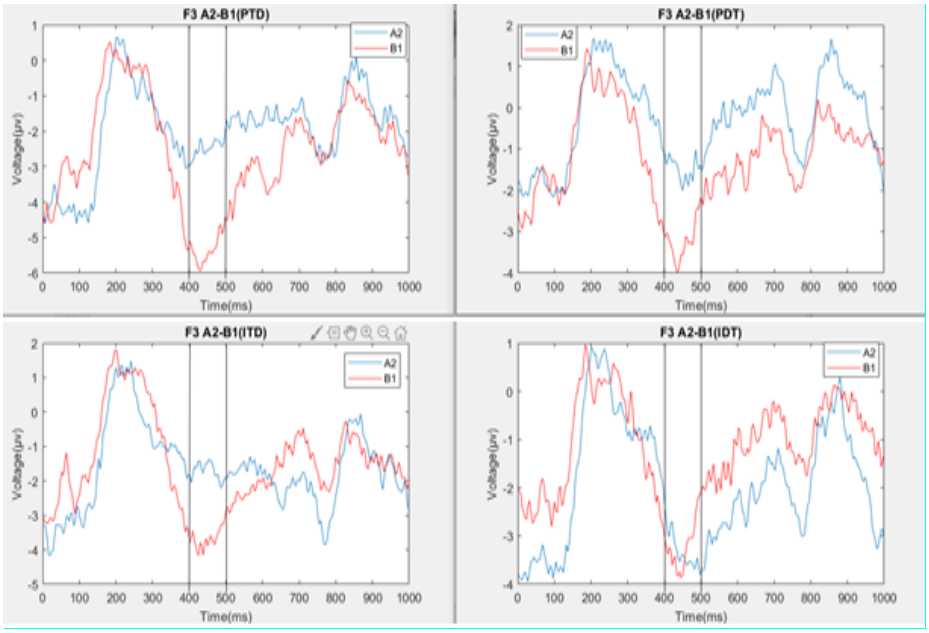


Figure 3. ERP signals plots in F3 channel in four conditions

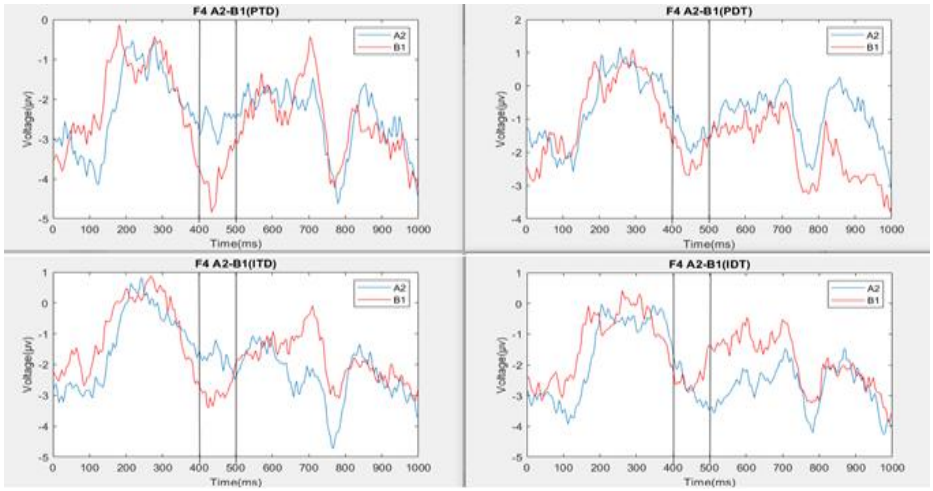


Figure 4. ERP signals plots in F4 channel in four conditions

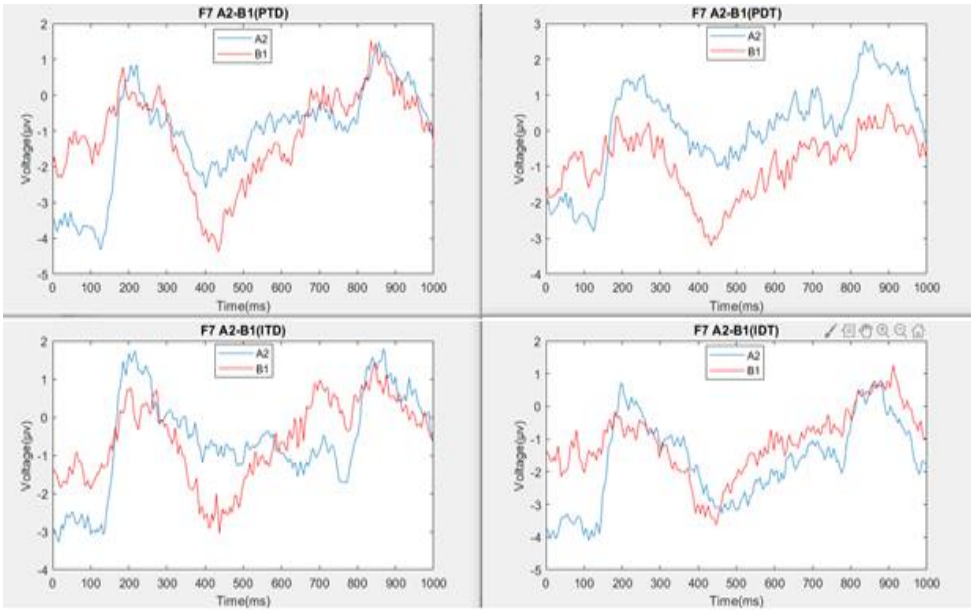


Figure 5. ERP signals plots in F7 channel in four conditions

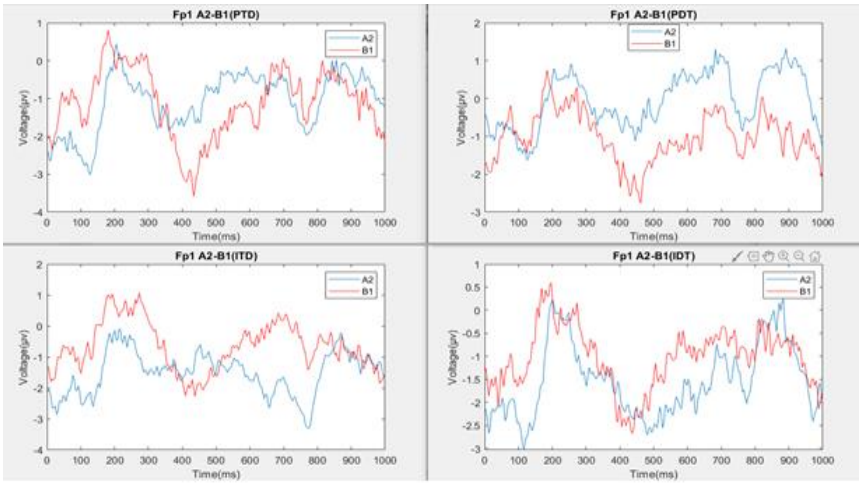


Figure 6. ERP Signals Plots in Fp1 Channel in 4 Conditions

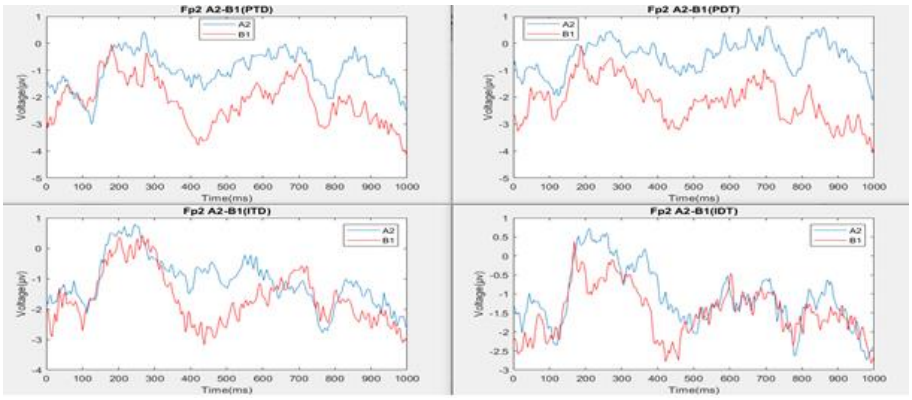


Figure 7. ERP Signals Plots in Fp2 Channel in 4 Conditions

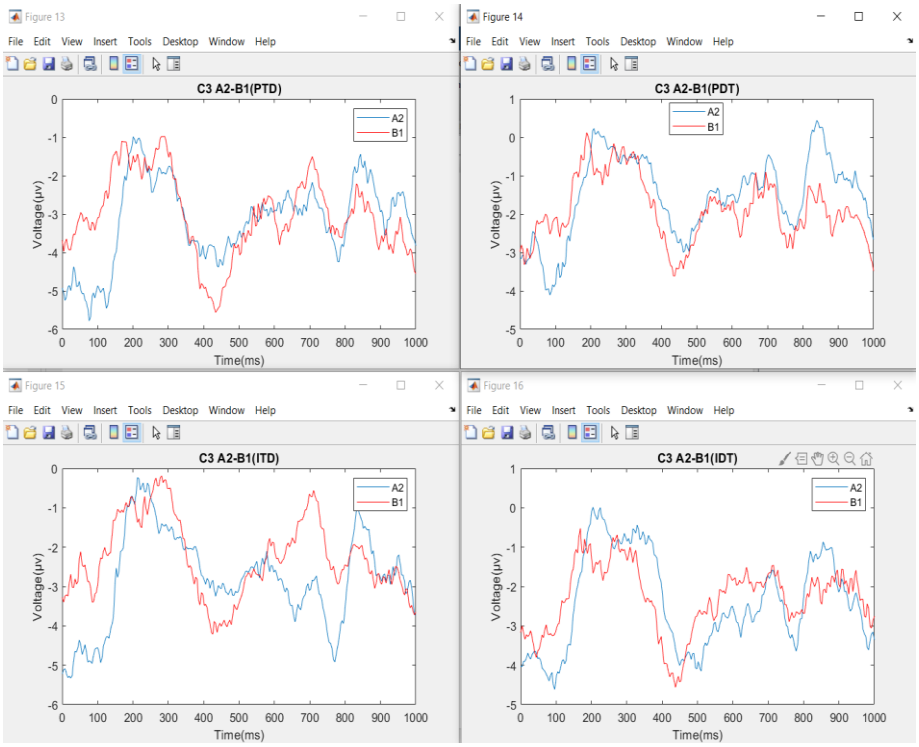


Figure 8. ERP Signals Plots in C3 Channel in four Conditions

Independent-samples t-test was run to compare the scores of A2 and B1 level students in their reaction times. Table 8 shows the descriptive statistics for A2 and B1 level of proficiency.

Table 8. Descriptive statistics for the proficiency levels in reaction time

	level	N	Mean	Std. Deviation	Std. Error Mean
PTD reaction	A2	11	3155.55	129.933	39.176
	B1	11	3124.18	142.763	43.045
PDT reaction	A2	11	3107.27	177.048	53.382
	B1	11	3016.18	133.747	40.326
ITD reaction	A2	11	3174.36	151.504	45.680
	B1	11	3114.82	146.588	44.198
IDT reaction	A2	11	3041.09	172.685	52.066
	B1	11	3034.09	150.700	45.438

According to Table 9, as all the significant values for reaction times are above .05 the hypothesis is confirmed (research question one); thus, based on research one related hypothesis, there is no significant difference in the mean scores of A2 and B1 students in reaction times.

Table 9. T-test for comparing proficiency levels in reaction time

		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
PTD reaction	Equal variances assumed	.539	20	.596	31.364	58.203
	Equal variances not assumed	.539	19.825	.596	31.364	58.203
PDT reaction	Equal variances assumed	1.362	20	.188	91.091	66.902
	Equal variances not assumed	1.362	18.610	.190	91.091	66.902
ITD reaction	Equal variances assumed	.937	20	.360	59.545	63.562
	Equal variances not assumed	.937	19.978	.360	59.545	63.562
IDT reaction	Equal variances assumed	.101	20	.920	7.000	69.105
	Equal variances not assumed	.101	19.640	.920	7.000	69.105

In order to answer the second research question, which aims to find the differences in processing of 4 conditions of collocations (PTD, PDT, ITD, IDT), based on proficiency levels, the research question was categorized into four sub-questions.

Processing of PTD in terms of EFL learners' proficiency level was analyzed. In Table 10, a t-test was run to compare the results of means, skewness, kurtosis, standard deviations, variances, minimums, maximums, and summations analysis of PTD condition (ERP data) and 2 levels of proficiency (400-500ms time window of ERPs).

Table 10. SEGMENTED (400-500ms)-T test-PTD

Row	Fp1	Fp2	F3	F4	C3	C4	P3	P4	O1	O2	F7	F8	T3	T4	T5	T6	Fz	Cz	Pz

Mean	0.202	0.106	0.058	0.283	0.481	0.877	0.773	0.382	0.330	0.256	0.119	0.730	0.247	0.494	0.564	0.655	0.106	0.793	0.387
Skewness	0.055	0.710	0.551	0.711	0.778	0.282	0.393	0.753	0.359	0.555	0.336	0.541	0.970	0.324	0.411	0.757	0.560	0.559	0.269
Kurtosis	0.814	0.559	0.812	0.432	0.458	0.852	0.961	0.151	0.492	0.739	0.827	0.634	0.411	0.772	0.630	0.655	0.981	0.698	0.605
SD	0.485	0.146	0.315	0.047	0.098	0.023	0.053	0.170	0.468	0.367	0.276	0.352	0.523	0.397	0.630	0.788	0.185	0.179	0.152
Variance	0.337	0.122	0.213	0.049	0.057	0.038	0.040	0.114	0.469	0.258	0.275	0.439	0.385	0.468	0.475	0.767	0.116	0.091	0.096
Median	0.241	0.109	0.064	0.308	0.471	0.824	0.780	0.384	0.307	0.289	0.129	0.755	0.263	0.513	0.526	0.680	0.107	0.835	0.360
Minimum	0.119	0.072	0.046	0.109	0.276	0.488	0.770	0.700	0.432	0.488	0.066	0.560	0.203	0.380	0.542	0.791	0.052	0.465	0.773
Maximum	0.246	0.159	0.146	0.719	0.890	0.411	0.350	0.130	0.260	0.126	0.158	0.968	0.278	0.826	0.649	0.555	0.325	0.668	0.120
Summation	0.202	0.106	0.058	0.283	0.481	0.877	0.773	0.382	0.330	0.256	0.119	0.730	0.247	0.494	0.564	0.655	0.106	0.793	0.387

As Table 10 shows, in F3, there is a significant difference in mean (p = .058) and minimum (p = .046) and summation (p = .058) in PTD condition. Moreover, in F4, there is a positive significant difference in SD (p = .047) and in variance (p = .049). In addition, there is a significant difference (p = .057) in variance in C3. Table 12 also presents significant differences in C4 (SD (P = .023), in variance (p = .038)), and in Fz (minimum (p = .052). Finally, there is a significant difference in Fp1 channel in skewness (p = .055), in P3 channel in standard deviation (SD (p = .053), and in variance (p = .040))

Processing of PDT in terms of EFL learners' proficiency level was analyzed. In Table 11, a t-test was run to compare the results of means, skewness, kurtosis, standard deviations, variances, minimums, maximums

and summations analysis in PDT condition (400-500ms time window of ERPs).

Table 11. SEGMENTED (400-500ms)-T test-PDT

Row	Fp1	Fp2	F3	F4	C3	C4	P3	P4	O1	O2	F7	F8	T3	T4	T5	T6	Fz	Cz	Pz
Mean	0.161	0.124	0.208	0.605	0.655	0.832	0.661	0.536	0.682	0.726	0.114	0.222	0.291	0.215	0.863	0.624	0.387	0.798	0.802
Skewness	0.615	0.137	0.476	0.901	0.243	0.525	0.166	0.548	0.267	0.033	0.328	0.945	0.271	0.528	0.846	0.930	0.838	0.672	0.868
Kurtosis	0.557	0.136	0.730	0.669	0.426	0.449	0.541	0.837	0.693	0.456	0.469	0.002	0.846	0.356	0.883	0.395	0.319	0.322	0.949
SD	0.830	0.164	0.315	0.638	0.524	0.643	0.806	0.659	0.285	0.352	0.051	0.146	0.462	0.769	0.275	0.866	0.637	0.513	0.758
Variance	0.925	0.194	0.269	0.579	0.362	0.527	0.976	0.979	0.410	0.255	0.062	0.296	0.350	0.849	0.346	0.744	0.596	0.349	0.491
Median	0.184	0.115	0.209	0.648	0.605	0.852	0.812	0.639	0.744	0.878	0.105	0.245	0.262	0.208	0.744	0.580	0.438	0.807	0.841
Minimum	0.115	0.067	0.119	0.556	0.703	0.682	0.519	0.460	0.420	0.448	0.057	0.117	0.306	0.189	0.797	0.693	0.336	0.675	0.879
Maximum	0.246	0.269	0.311	0.744	0.984	0.989	0.516	0.695	0.812	0.909	0.345	0.411	0.586	0.393	0.606	0.686	0.464	0.900	0.712
Summation	0.161	0.124	0.208	0.605	0.655	0.832	0.661	0.536	0.682	0.726	0.114	0.222	0.291	0.215	0.863	0.624	0.387	0.798	0.802

As Table 11 presents, in F7 channel there is a significant difference in standard deviation (p = .051) and minimum (p = .057). Moreover, in F8 channel, there is a positive significant difference in kurtosis (p = .002). Also, there is a significant difference (p = .033) in skewness in O2 channel.

Processing of ITD in terms of EFL learners' proficiency level was analyzed. In Table 12, a t-test was run to compare the results of means, skewness, kurtosis, standard deviations, variances, minimums, maximums

and summations analysis for ITD condition (400-500ms time window of ERPs).

Table 12. SEGMENTED (400-500ms)-T test-ITD

Row	Fp1	Fp2	F3	F4	C3	C4	P3	P4	O1	O2	F7	F8	T3	T4	T5	T6	Fz	Cz	Pz
Mean	0.562	0.126	0.126	0.444	0.484	0.785	0.626	0.537	0.150	0.346	0.201	0.542	0.937	0.877	0.606	0.831	0.262	0.836	0.540
Skewness	0.386	0.113	0.101	0.178	0.461	0.044	0.281	0.886	0.407	0.523	0.793	0.037	0.942	0.023	0.912	0.390	0.033	0.523	0.683
Kurtosis	0.428	0.901	0.109	0.586	0.503	0.019	0.628	0.438	0.490	0.473	0.283	0.397	0.206	0.190	0.865	0.974	0.663	0.287	0.222
SD	0.873	0.214	0.565	0.388	0.119	0.082	0.124	0.149	0.627	0.630	0.231	0.210	0.629	0.419	0.972	0.526	0.512	0.272	0.181
Variance	0.962	0.188	0.436	0.333	0.133	0.093	0.173	0.182	0.542	0.647	0.234	0.192	0.519	0.521	0.739	0.597	0.417	0.256	0.170
Median	0.563	0.122	0.115	0.403	0.466	0.889	0.645	0.612	0.210	0.497	0.207	0.478	0.970	0.830	0.578	0.826	0.231	0.827	0.558
Minimum	0.581	0.085	0.111	0.392	0.345	1.000	0.989	0.797	0.176	0.393	0.126	0.569	0.713	0.897	0.673	0.982	0.267	0.604	0.796
Maximum	0.628	0.316	0.268	0.696	0.932	0.247	0.288	0.248	0.098	0.208	0.352	0.944	0.944	0.644	0.602	0.638	0.513	0.705	0.232
Summation	0.562	0.126	0.126	0.444	0.484	0.785	0.626	0.537	0.150	0.346	0.201	0.542	0.937	0.877	0.606	0.831	0.262	0.836	0.540

In C4 channel there is a significant difference in skewness (p = .044) and kurtosis (p = .019). Moreover, in F8 channel, there is a positive significant difference in skewness (p = .037). Also, there is a significant difference (p = .033) in skewness in Fz channel. In T4 channel also there is a significant difference in skewness (P = .023).

Processing of IDT in terms of EFL learners' proficiency level was analyzed. In Table 13, a t-test was run to compare the results of means, skewness, kurtosis, standard deviations, variances, minimums, maximums and summations (400-500ms time window of ERPs). As table 13 presents, there is not any positive significant difference in IDT condition.

Table 13. SEGMENTED (400-500ms)-T test-IDT

ow	p1	p2	3	4	3	4	3	4	1	2	7	8	3	4	5	6	z	z	z

ea	.9	.2	.9	.7	.7	.4	.3	.4	.2	.3	.8	.5	.6	.5	.2	.6	.9	.8	.5
n	3	6	5	7	0	1	7	2	9	5	8	1	9	2	3	6	8	8	7
	0	7	3	5	6	8	0	2	2	4	8	7	6	0	0	3	7	5	3
ke	.3	.6	.2	.1	.5	.8	.4	.5	.5	.3	.2	.3	.3	.6	.5	.8	.1	.5	.3
wn	4	5	8	6	0	0	4	4	2	8	5	6	0	0	3	9	0	4	6
ess	0	1	4	4	8	2	8	7	1	0	5	9	2	6	8	7	8	6	8
urt	.3	.5	.6	.5	.8	.8	.3	.4	.1	.9	.3	.4	.3	.1	.3	.3	.2	.3	.6
osi	1	1	6	0	8	4	0	9	1	9	5	9	2	9	3	2	6	1	9
s	6	8	1	7	9	6	2	6	8	2	8	2	1	8	6	2	0	3	7
D	.7	.8	.2	.5	.6	.1	.3	.5	.8	.7	.2	.4	.7	.7	.1	.2	.5	.4	.9
	6	5	7	5	0	9	2	3	4	5	7	2	5	6	1	5	0	7	4
	8	1	3	1	8	2	2	8	8	8	1	1	4	8	1	2	7	2	7
ari	.6	.7	.3	.6	.8	.4	.5	.3	.8	.4	.3	.4	.8	.6	.0	.2	.4	.4	.9
an	1	0	2	0	1	6	6	6	6	7	2	3	6	7	9	0	7	8	9
ce	6	2	0	7	5	7	9	2	9	2	7	3	9	5	0	0	1	5	9
edi	.8	.2	.9	.8	.6	.4	.3	.4	.2	.3	.8	.4	.6	.4	.1	.6	.9	.9	.6
an	6	3	7	1	9	8	9	6	9	1	1	4	6	1	9	3	2	8	8
	9	7	6	7	7	6	0	0	8	1	0	7	7	2	3	5	6	0	8
ini	.9	.3	.8	.8	.6	.6	.5	.3	.2	.3	.6	.8	.9	.8	.1	.5	.8	.8	.5
mu	4	4	5	7	4	9	4	6	9	6	8	6	3	0	3	5	6	1	9
m	3	9	6	7	6	5	2	0	2	4	9	6	8	7	7	1	3	1	5
axi	.7	.2	.8	.5	.8	.2	.3	.5	.3	.4	.8	.3	.6	.4	.4	.8	.7	.6	.5
mu	8	2	7	2	4	2	2	6	3	9	3	7	8	4	2	8	7	3	1
m	3	6	2	7	0	3	2	0	5	1	9	6	4	7	5	1	3	8	1
um	.9	.2	.9	.7	.7	.4	.3	.4	.2	.3	.8	.5	.6	.5	.2	.6	.9	.8	.5
ma	3	6	5	7	0	1	7	2	9	5	8	1	9	2	3	6	8	8	7
tio	0	7	3	5	6	8	0	2	2	4	8	7	6	0	0	3	7	5	3
n																			

5. Discussion and Conclusion

The present study was conducted to find any significant differences in the processing of collocations in four conditions (PTD, PDT, ITD, IDT) in terms of EFL learners' proficiency level. In addition, the study aimed at finding behavioral results of the reaction time in both proficiency groups' responding. As for the reaction times, there were no significant differences between the two proficiency level groups. This finding was not in line with Pulido and Dussias's (2019) study. However, it needs to be noted that in their study, the

participants were monolingual and bilinguals whose proficiency levels must have been different from the participants in this study. Moreover, the participants were in levels A2 and B1 which are very close in their proficiency level.

The results of t-tests in different channels revealed that there is a significant difference in PTD condition in F3, F4, C3, C4, Fz, Fp1 and P3 channels and there is a significant difference in PDT condition in F7, F8 and O2 channels. Moreover, there is a significant difference in ITD condition in F8, Fz, C4, and T4 channels, and there is no significant difference in IDT condition.

The results of the present study revealed important connections between two vital factors in language teaching, including the proficiency level and collocation processing. This finding is in line with other studies conducted in the field of language teaching, such as the study conducted by Nizonkiza (2015), which supported the relationship between the receptive collocation competence and EFL learners' proficiency, and Gitsaki's (1999) study on the relationships between proficiency level and two types of collocations. The interpretation of these results suggests that higher levels of proficiency enable better processing of collocations, indicating that learners who are more advanced may utilize more efficient cognitive mechanisms during language comprehension.

The results show a significant difference in the N400 component (400-500ms) between two levels of proficiency in PTD, PDT, and ITD conditions of collocations. This finding aligns with the study conducted by Pulido and Dussias (2019), which showed that the processing of the noun with target verb and distractors in collocations (PTD, PDT, ITD, IDT) had significant differences in monolingual and bilingual speakers in the N400 component (400-500ms). The emphasis on the N400 component is significant as it is widely regarded as an indicator of lexical retrieval and semantic processing difficulties, particularly in the context of collocations.

Observing and analyzing the qualitative data related to the plots of ERP signals reveals that in Fz, F3, F4, F7, F8, Fp1, Fp2, C3, C4, T4, and P3 channels related to the N400 component, a significant difference in N400 (PTD: F3, F4, C3, C4, Fz, Fp1, P3), (PDT: F7, F8, O2), and (ITD: F8, Fz, C4, T4) was observed. Moreover, a stronger negativity (N400 component) can be

clearly seen in B1 level of proficiency plots. This finding is indicative of how different brain regions engage in collocation processing, which has been substantiated in previous research, such as the work of Kutas and Hillyard (1980), who demonstrated the significance of the N400 component in language comprehension tasks.

Additionally, the N400 responses recorded in these particular channels offer valuable perspectives on how language processing varies with different levels of proficiency and cognitive skill. Research by van Petten and Luka (2006) highlights the significance of choosing the right channels when analyzing ERPs, especially concerning tasks involving semantic processing. Therefore, concentrating on the N400 component and the specified channels is essential for linking the effects of proficiency to the fundamental cognitive mechanisms involved in language comprehension.

Based on the findings of the present study, several conclusions can be made. As for the reaction time, it was observed that it could not be a dependent variable to distinguish differences. In this study, no significant differences were observed in the reaction times of the different proficiency groups. However, it needs to be highlighted that the proficiency levels of A2 and B1 are very close. Perhaps other proficiency levels with greater differences could show differences in reaction times as well. This suggests that while proficiency does impact collocation processing, reaction time may not be as effective a measure in distinguishing between nuanced proficiency levels. Further investigation into this relationship could provide deeper insights into how various proficiency levels might exhibit different patterns in cognitive processing, as suggested by studies focusing on learners across a wider proficiency spectrum. However, based on the analyses of the data, it is possible to investigate the differences in proficiency level among language learners, in this case, Persian learners of the English language, through processing collocations. This can be done through the provision of resolution as well as conflict detection by presenting event-related tasks to the students and by recording their brain waves. In fact, the conflict is provided through the presentation of a plausible distractor in a multi-unit collocation. The PTD and PDT conditions triggered more differences as compared to the implausible condition that only triggered N400 in the ITD condition.

Many of the differences were found in the frontal lobes of the brain which is responsible for judgment (Funayama et al., 2019) and there seems to be a greater recruitment of the frontal lobes in processing collocations, including sets which have plausible pairs, as the participants needed to make judgments.

Another finding related to the P3 channel, where a difference was found in the parietal lobe. It has been noted by Coslett and Schwartz (2018) that though most of the language processing has been attributed to frontal and temporal lobes (as was found in the current study as well), "the parietal lobe plays a major role in semantic processing, particularly for 'thematic' relationships" (p.1). In the same vein, other researchers, including Jiao et al. (2020), Numssen et al. (2021), and Blackett et al. (2022), mention and highlight the language processing and semantic function of the parietal lobe.

The observation of N400 is also evidence of semantic processing in the study. As Kutas and Federmeier (2011) maintain, N400 can be observed in cases where language processing in the semantic aspect is done in written formats as was conducted and the words were presented in the present study on the screen.

Thus, the study revealed that learners with diverse proficiency levels processed the different conditions in various ways, especially for the PTD condition that included ambiguity, as there was a plausible distractor. In fact, in this condition, the plausible item was presented first and this should have led to confusion for the learners. Moreover, based on the qualitative data related to the plots extracted based on EEG and later ERP recordings, it was concluded that a clear stronger negativity, which relates to N400, could be found in the time span of 400 to 500, reflecting the cognitive processing challenges faced by different learners.

The findings provide new insight into the processing of collocations through conflict detection and resolution. These findings are critical for language education, as they suggest that instructors can adapt their teaching strategies and develop tailored materials that address the specific needs of learners based on their proficiency. One group of scholars who can reliably benefit from the results includes linguists. This study presents findings on the extent to which a learners' underlying grammatical knowledge can have an influence on the processing of different sets of words, including plausible and non-plausible collocations. Moreover, the differences in channels can help

linguists to understand the processing mechanisms of collocations with and without plausible distractors in the brain and the different areas of the brain involved in it in terms of cognitive variances. This study can also be used by assessment researchers to create more convenient items using ERPs evidence for effective testing. Unlike pen and paper tests that require a lot of time and effort on the part of both testers and testees as well as administrators, ERPs can be effectively used to understand cognitive processing differences of the linguistic items in language learners across various levels of proficiency, including the language structures in the brain accurately. Moreover, testing in broad terms and implemented in large groups can have negative consequences; thus, more accurate testing systems are required (Kiani, 2016; Shakibaee & Jamhidof, 2022).

A replication of the current study may be possible through a larger sample size in order to increase the generalizability of the findings as the sample size was limited. Besides, as the participants were selected based on their language proficiency levels of B1 and A2, other researchers are recommended to conduct a similar study through selecting participants based on other language proficiency levels. In addition, the present study focused on the "verb-noun" combination of collocations. Other research studies may concentrate on other types of colocations. Gender differences in the processing through conflict detection and resolution tasks can be another line of research.

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EFL Teachers' Perceptions Regarding Praxical Hope: A Qualitative Study in Public Schools

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Abstract This qualitative study examined the perceptions of pre-service, in-service, and retired English as a Foreign Language (EFL) teachers regarding the concept of praxical hope within public school settings in Gorgan, Iran. The researchers interviewed 42 participants, including 13 pre-service teachers, 16 in-service teachers, and 13 retired teachers, to explore the nuanced understandings and implications of praxical hope in EFL education. Employing a constructivist grounded theory framework and analyzing data using MAXQDA 24, the study identified 46 initial codes and categorized them into 25 thematic groups. This process led to the development of a model of praxical hope characterized by four key elements: empowerment and agency, collaborative learning environments, critical reflection and social awareness, and innovative pedagogical practices. The findings underscore the vital role of cultivating praxical hope in enhancing educators' effectiveness and improving student outcomes, providing insights that can inform future language education strategies.

Keywords: *Hope, Praxical Hope, Qualitative Research, EFL Teachers, Perception*

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1. Introduction

Teaching English as a foreign language (EFL) is a challenging task that involves teachers having a positive attitude and hope for the future. L2 teaching comprises several problems constantly decelerating teachers' educational practices. EFL teachers must be hopeful to overcome these challenges (Ghadyani et al., 2020). Highly hopeful teachers are more likely to support their students to be more disciplined and educationally involved (Snyder, 2000).

Freire (1994) argued for the pedagogy of hope from a social and critical consciousness perspective. He described hope as an ontological requirement for humanity, and without hope, engagement in the struggle was impossible. In critical pedagogy, hope has been proposed as a radical or transformative mode, demanding analysis, consideration, and action for social change (Freire, 1994). He emphasized that without active participation and intervention, hope can risk becoming either overly idealistic or inert (Freire, 1970). Accordingly, praxical hope is an operative form of hope, deeply embedded in the development of *conscientização* (critical consciousness) and maintained through sustained, committed efforts for transformation. Therefore, this study adopts the term 'praxical hope' rather than 'critical hope,' as the former captures hope as an active, reflective process integral to praxis—the essential dialogue between thought and action that drives social and educational change.

Praxical hope can impact teachers' pedagogical practices, including the ability to evaluate one's conditions in a fair and just manner and predict the potential for a more desirable future (Dugan, 2017; Duncan-Andrade, 2009). It suggests to teachers a resource to overcome the challenges they encounter in their professions in healthy and supportable ways (Dugan, 2017).

Education must focus on nurturing critical and reflective teachers who can cultivate the presence of hope and empower learners to become purveyors of hope (Carl, 2011). If the purpose of education is transformation and empowerment on individual and collective scales, educators will need to possess the skill to foster and maintain a practical sense of praxical hope (Webb, 2010).

Previously, several variables have been studied and emphasized for teachers' effective role in teaching a second or foreign language. Due to the

lack of research on the interface of hope and second or foreign language teaching (Ghadyani et al., 2022) and the lack of studies on the praxical hope among Iranian EFL teachers, the current study aimed to explore the perceptions of pre-service, in-service, and retired EFL teachers regarding praxical hope in public schools. This qualitative study aimed to contribute to the literature on praxical hope in language teaching by examining the perceptions of EFL teachers from different backgrounds and experiences.

2. Review of Literature

2.1. Hope and its different taxonomies

As an intrinsic component of human existence, hope persists endlessly despite our anxieties. Hope empowers us to overcome difficulties, irrespective of their formidability. It means that hope is a central aspect of being human. It exists within us and continues to thrive even in the face of fear and uncertainty. This idea is supported by researchers such as Snyder (2002), who emphasized hope theory. "The absence of hope renders any contemplation of education entirely inconceivable" (Freire, 2007, p. 87). Literature reviews have identified various theories and definitions of hope, resulting in the emergence of different models and taxonomies of hope. Considering hope as an active orientation toward some featured good, Webb (2008) has developed a taxonomy of hope that distinguishes between five distinct modes: estimative, resolute, patient, critical, and transformative.

Duncan-Andrade explained three concepts of critical hope and their application within the educational setting: material hope, Socratic hope, and audacious hope. West (2004) described critical hope as 'tragicomic hope': the ability to find enjoyment and reserve a sense of delight in life. On the other hand, Giroux (2006) employed the concept of 'educated hope' that represents both resistance and the potential for change. Moreover, Lear (2006) used the phrase 'radical hope' to define a variation of critical hope.

2.2. Theoretical framework

One of the significant psychological theories concerning hope was Snyder's hope theory (Snyder, 2002). Snyder et al. (1991), as positive psychologists, suggested a cognitive perspective on hope that consisted of three different components: goals, pathway thinking, and agency thinking. This theory highlighted the pursuit of goals as a crucial feature of human behavior

(Snyder, 1994; Snyder, 2002). While agency thinking referred to a sense of sheer determination to achieve goals in the past, present, and future, pathway thinking relates to the belief in one's capacity to recognize practicable ways of accomplishing goals (Snyder et al., 1991; Snyder, 1994). Consequently, agency thinking and pathways thinking shape the hope (Snyder, 2000, 2002).

Furthermore, Freire (1994) studied the concept of hope concerning the pedagogy of hope, observing it through the lens of social and critical consciousness and theorizing it as an integral need for humanity. Indeed, the lack of hope transformed humans into mere objects subjected to the impact of governing powers in the world.

2.3. Constructs of praxical hope

Upon conducting a literature review on praxical hope, seven key constructs were identified and explored. These constructs include agency, optimism, social justice orientation, future orientation and vision, existential longing, efficacy, and reflective practice.

Agency: It involves distinguishing oneself as being in command of one's actions and the subsequent outcomes (Solorzano & Bernal, 2001).

Optimism: Optimism influences hope regarding previous experiences, the current situation, and expectations for the future. Optimism is a broad disposition to believe that positive experiences will produce favorable consequences rather than negative ones (Scheier & Carver, 1985).

Social justice orientation: Praxical hope arises as a powerful force associated with a social justice orientation. Freire supported an ontology of hope that concentrated on reconstructing the world in ways that developed social justice (Freire, 2007).

Future orientation and vision: Grain (2022) highlighted that hope, being future-oriented, brings joy not in its fulfillment but its possibilities. Hope serves two purposes: To increase the present moment and to improve future outcomes.

Existential longing: Freire (1972) associated hope with "active waiting" rather than passive resignation. He believed hope was an anxious yearning that permeates one's very being.

Self-efficacy: Bandura (1977) introduced the notion of self-efficacy as the belief in one's ability to arrange and fulfill the actions required to achieve specified accomplishments.

Reflective practice: A fundamental requirement for critical hope is active participation in reimagining power dynamics and striving to live consistently with aspirations and visions for a more favorable world based on a thorough understanding of wider systems of oppression (Duncan-Andrade, 2009).

2.4. Previous research on critical hope

An extensive and developing body of scholarship has investigated the concept of critical hope within educational contexts. In a study on first-year urban school teachers who were members of a social justice university group, Picower (2011) indicated that teachers who used material hope lived in a state characterized by apprehension, compliance, and the pressure to conform. Within these conditions, there was an acknowledgment that managers placed extreme focus on standardized testing, thus posing a challenge to their ability to teach with an emphasis on social justice.

In another study, Duarte (2018) developed a comprehensive understanding of the feelings of efficacy and career choices among first-year teachers. The study investigated the personal narratives of three novice teachers working in economically underprivileged schools. The findings proposed that educators' ideologies may support the illusory hope promoted by the neoliberal policy framework, which indicated equal chances and diligent effort.

Moreover, Olave et al. (2023) underlined the significance of critical hope in science education by presenting it as a practice interwoven with radical love, solidarity, and collective growth. They attempted to create an educational space where humility, attentiveness, risk-taking, and vulnerability were considered central values. They claimed that integrating radical love with critical hope offered a vital basis for transformative educational practices to foster social and knowledge-based justice.

Furthermore, Virella (2024) investigated how school principals refined and used the concept of critical hope to direct their schools through crisis circumstances. The study examined how these leaders nurtured hope for themselves and their school communities by providing persistent leadership efforts during challenging times. The findings specified that principals constantly cultivated critical hope as a crucial component in their leadership approach.

Reviewing the literature reveals the rarity of studies on teachers' perceptions regarding praxical hope in EFL contexts. This study employed a qualitative approach using constructivist grounded theory methodology to explore the perceptions of pre-service, in-service, and retired EFL teachers regarding praxical hope in Iranian public English classes. It aimed to improve teachers' understanding of the constructs of praxical hope and how teachers in the Iranian context conceptualize and actualize the concept of hope. Specifically, the study seeks to answer the following main research question:

> What are the perceptions of pre-service, in-service, and retired EFL teachers regarding praxical hope in public schools?

3. Method

3.1. Participants and setting

This qualitative study involved pre-service, in-service, and retired English as a Foreign Language (EFL) teachers (male and female) in Gorgan, Iran. The researcher interviewed 42 EFL teachers, including 13 pre-service, 16 in-service, and 13 retired teachers. Their teaching experience ranged from 7 to 30 years in public secondary and high schools, with various university degrees. The study was conducted in the participants' respective schools or via online platforms, based on their preferences. The researchers informed the participants of the study's objectives and their rights, and asked them to provide informed consent before participation. The study took place over six months.

3.2 Instrumentation and materials

The researchers used a variety of data collection instruments and materials in this qualitative study, including interviews, a voice recorder, and MAXQDA software 24.

3.2.1. Interview

Interviews are particularly valuable for exploring complicated subjects such as teacher perspectives. They provide a more comprehensive investigation of participants' encounters and viewpoints (Rubin & Rubin, 2012). Consequently, interviews allow for in-depth, nuanced discussions that can reveal personal insights and emotions, fostering a trusting environment for participants to share their experiences. In the present study, the researchers

interviewed the three groups of EFL teachers who participated in this research.

3.2.2. Voice recorder

During a qualitative interview, the researcher will record information using handwritten notes or through audio and videotaping (Creswell & Creswell, 2018). In this study, the researchers used a mobile phone to record the interviews.

3.2.3. MAXQDA Software 24

MAXQDA is a computer-assisted qualitative data analysis (CAQDAS) software. It is a program for PC/Windows computers and is appropriate for textually-based case study research (Mills et al., 2010). According to Creswell and Creswell (2018), hand-coding is strenuous and time-consuming. Using a computer is an effective method of sorting and locating qualitative data. This study used MAXQDA Software version 24 to analyze the collected qualitative data.

3.3. Design

The present study employed a qualitative research framework, which is well-suited for investigating and understanding complicated phenomena within their natural situations (Creswell & Creswell, 2018). This qualitative study employed constructivist grounded theory (Braun & Clarke, 2019; Corbin & Strauss, 1990). According to Charmaz (2006), this approach identifies that individuals build their understanding of the world through their experiences and interactions, and that these constructions are fundamentally designed by their unique perspectives and interpretations. To investigate the validity of the findings, this study used four general criteria of trustworthiness by Lincoln and Guba (1985), including credibility, transferability, dependability, and confirmability.

The current study used purposive sampling. It is a non-random sampling method where participants are selected based on their expertise or relevance to the research topic (Creswell & Creswell, 2017). In this study, three groups of EFL teachers have been purposefully selected because of their unique experiences and perspectives on praxical hope. The selection criteria for participants included their age, years of experience in EFL teaching, and

educational backgrounds, ensuring a diverse group of participants with varying levels of experience and expertise (Merriam & Tisdell, 2016).

3.4. Procedure

3.4.1. Data collection

In this constructivist grounded theory study, the researcher explored the perceptions of pre-service, in-service, and retired EFL teachers regarding praxical hope to achieve a comprehensive understanding of how diverse stages of a teaching career impact one's viewpoint on hope in the educational context. The data collection process followed several significant steps as outlined by Strauss and Corbin (1997), Charmaz (2006), and Braun and Clarke (2019). Primarily, all participants filled in the consent form, confirming they comprehended the study's purpose. Afterward, the researchers scheduled individual interviews in a comfortable and confidential situation. Then, the researchers recorded and transcribed all interviews while maintaining participant anonymity. Finally, the data was organized and stored securely to protect participant confidentiality.

3.4.2. Data analysis

To analyze the qualitative data, the researchers used MAXQDA 24. They interpreted and coded the data regarding the three coding levels of grounded theory (open, axial, and selective) (Braun & Clarke, 2019; Charmaz, 2006; Clarke, 2005; Corbin & Strauss, 1990, 2008). There was a considerable number of codes in open coding. Next, the researchers established a relationship between these codes at the axial level and classified them under the dominant categories. Ultimately, they developed the core category at the selective coding level. The researchers continued data collection until theoretical saturation, meaning that no new codes or themes emerged from the data.

4. Results

The present study investigated the perceptions of pre-service, in-service, and retired EFL teachers regarding praxical hope in public schools. The researchers planned several interview questions based on the related literature concerning the praxtical hope and interviewed these three groups of EFL teachers using semi-structured interviews.

After collecting the data, the researchers transcribed the interviews and entered them into MAXQDA software version 24 for analysis using three coding phases of Grounded Theory Methodology. In open coding, the researcher identified 46 primary codes for praxical hope based on teachers' perceptions. Figure 4.1 illustrates the main menu of the MAXQDA software, presenting the codes and sub-codes of praxical hope.

In the axial coding, the researcher established a relationship between these primary codes and identified 25 categories: student engagement, student confidence, growth mindset and adaptability, goal setting, teacher self-efficacy, optimism, community engagement and collaboration, creating a supportive environment, peer teaching, feedback, student-centered approaches, social justice awareness, critical thinking, reflective practices, self-assessment, cultural awareness, future-oriented vision, existential longing, use of technology, creativity and flexibility in teaching, project-based learning, having a mentor.

Finally, in selective coding, the researchers categorized these codes under four fundamental constructs of praxical hope: empowerment and agency, collaborative learning environments, critical reflection and social awareness, and innovative pedagogical practices. Figure 4.2 displays the proposed model of the praxical hope regarding the EFL teachers' perceptions.

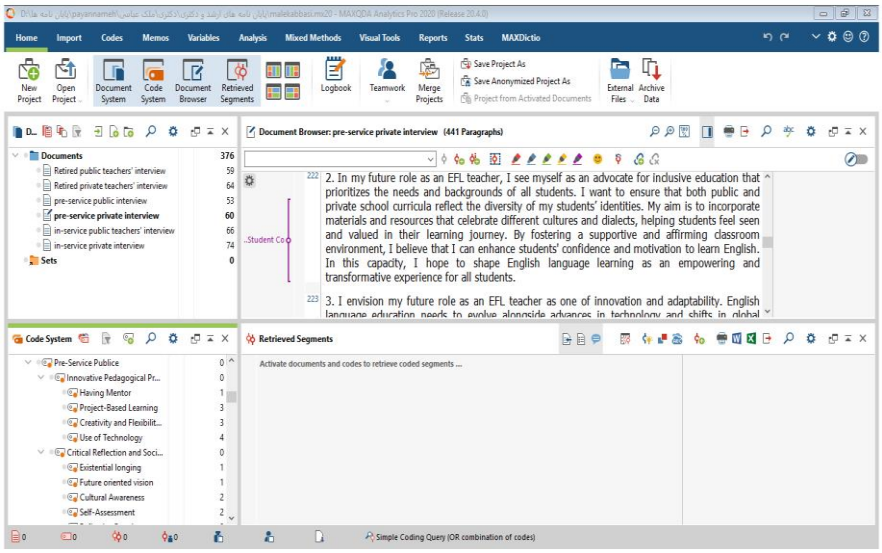


Figure 1. The Codes and Sub-codes of Praxical Hope in MAXQDA Software

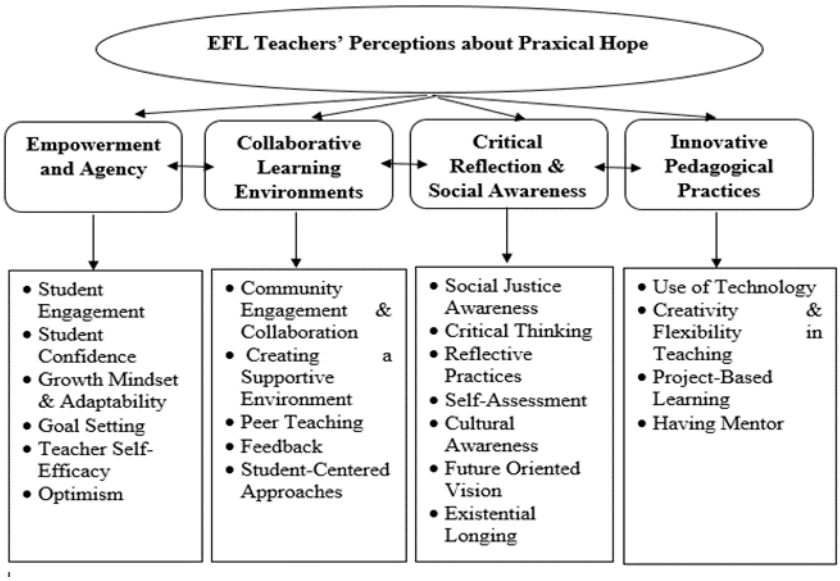


Figure 2. The proposed model of praxical hope based on EFL teachers' perceptions

The following section explains four fundamental constructs of praxical hope and the sub-constructs derived from the interviews with EFL teachers. Moreover, the researcher describes these categories using valid references

from the related literature, confirmed by the extracts from participants' interviews.

4.1. Empowerment and agency

One of the fundamental constructs of praxical hope derived from the EFL teachers' perception was empowerment and agency. This study identified six sub-constructs for this dimension: student engagement, student confidence, growth mindset and adaptability, goal setting, teacher self-efficacy, and optimism.

4.1.1. Student engagement

Student engagement covers the level of attention, curiosity, interest, optimism, and motivation that learners establish through the educational process. It comprises behavioral, emotional, and cognitive dimensions that encourage active participation and more profound understanding (Fredricks et al., 2004). Marzban et al. (2021) further emphasized the role of identity in shaping advanced Iranian learners' experiences, suggesting that valuing learners' backgrounds could enhance their engagement in the language learning process. Participants of the present study indicated student engagement as a construct of paraxial hope:

> By connecting their language learning to their unique experiences, students will feel more engaged and empowered to express themselves (pre-service participant No. 10).
>
> Collaboration has fostered deeper engagement among my students. By working on projects where they must collaborate to solve problems or create presentations, students learn to value each other's perspectives and contributions (in-service participant No. 5).
>
> Encouraging students to create their learning materials was a key part of my approach. By having them design presentations or lesson aids, they developed ownership and pride in their work (retired participant No. 7).

4.1.2. Student confidence

Student confidence refers to the degree of belief or trust that learners have in their ability to accomplish tasks successfully and be involved in the learning process (Bandura, 1977). Here are some extracts from the participants' interviews about student confidence:

> When students improve or even try hard, I want to highlight their efforts publicly. Knowing that their achievements are recognized by teacher can help them build confidence and a sense of hope (pre-service participant No. 2).
>
> Now, I see my role as helping students gain confidence and agency through English. I encourage them to express their opinions and advocate for themselves (in-service participant No. 4).
>
> I regularly encouraged them to celebrate small achievements in their language learning (retired participant No. 3).

4.1.3. Growth mindset and adaptability

A growth mindset is the belief that intelligence and aptitudes are not static but established through dedicated effort, constant learning, and persistence (Yeager & Dweck, 2020). Moreover, adaptability indicates the ability to remain open and flexible in the face of change, allowing individuals to adapt their approaches and succeed in shifting environments (Feraco et al., 2023). Many participants of the present study emphasized a growth mindset as a construct of praxical hope:

> I want to focus on building a growth mindset in my students. I'll introduce activities that encourage perseverance and resilience, clarifying that struggles are part of the learning process (pre-service participant No. 13).
>
> Promoting a growth mindset among my students has been crucial to empowering them in their language learning. I regularly remind them that making mistakes is part of the learning process and that persistence leads to improvement (in-service, participant No. 9).
>
> I prioritize fostering a growth mindset among students. I occasionally encountered students stuck in a fixed mindset, which hindered their progress (retired participant No. 9).

4.1.4. Goal setting

Goal setting is a thoughtful process through which individuals or groups create clear, specific, and achievable purposes that direct behavior and continue motivation over time (Locke & Latham, 2002). Here are some teachers' perceptions about goal setting:

> I set specific goals for myself at the beginning of each semester. For example, one goal might be to incorporate more technology into my

lessons or to improve my classroom management skills (pre-service participant No. 4).

At the beginning of each term, I encourage students to set personal language learning goals—whether improving their speaking fluency, expanding vocabulary, or mastering a specific grammatical structure (in-service participant No. 1).

In my classroom, I encouraged students to set their own learning goals and reflect on their progress continuously. This strategy fostered a sense of accountability and personal investment in their journey (retired participant No. 3).

4.1.5. Teacher self-efficacy

Teacher self-efficacy refers to educators' confidence in their ability to successfully implement classroom responsibilities, engage learners, and foster effective learning (Bandura, 1977). Individuals with higher self-efficacy feel a sense of control over the current conditions and perceive themselves as skilled. Self-efficacy impacts their perspectives, goals, and aspirations, leading to greater effort from the teacher in overcoming obstacles and enhancing the quality of teaching (Fathi et al., 2021). The following section presents some extracts from teachers' interviews, indicating teacher efficacy and confidence:

To build my confidence and efficacy as an EFL teacher, I plan to immerse myself in continuous professional development (pre-service participant No. 1).

One of the strategies I use to maintain confidence is balancing my expectations. I acknowledge that teaching is not about perfection but about growth and fostering a positive learning environment (in-service participant No. 16).

To build confidence, I attended workshops specifically focusing on classroom strategies. Implementing what I learned gradually improved my classroom dynamics, and I felt more competent as a teacher (retired participant No. 1)

4.1.6. Optimism

Optimism frequently refers to a positive outlook concerning future events, representing the belief that problems can be managed and objectives achieved

(Carver & Scheier, 2014). Most of the participants of the present study indicated the optimism:

> I think having a positive outlook can create a ripple effect in the classroom. When I
> approach teaching with enthusiasm and optimism, it encourages my students to engage more actively (pre-service participant No. 1).
> Maintaining a positive outlook has significantly enhanced the atmosphere of my classroom (in-service participant No. 1)
> Maintaining a positive outlook helped me create a welcoming classroom environment where students felt safe to express themselves (retired participant No. 1)

4.2. Collaborative learning environments

The second construct and dimension of praxical hope regarding the teachers' perception was collaborative learning environments. The researchers of the present study identified five sub-constructs for this dimension, including community engagement and collaboration, creating a supportive environment, peer teaching, feedback, and student-centered approaches.

4.2.1 Community engagement and collaboration

Community engagement and collaboration require the active participation of community members in shared decision-making and problem-solving efforts (Arnstein, 1969). Several participants of this study indicated the importance of community engagement and collaboration:

> I engage students in community service projects that require them to use the language. The more they see the relevance of the language in their environment, the more purposeful their learning feels (pre-service participant No. 5).
> I participate in online communities and forums dedicated to EFL teaching. Engaging with other educators allows me to share experiences, seek advice, and reflect on my practices (in-service participant No. 10).
> In my experience, I found that collaborating with colleagues was invaluable. Sharing lesson plans and teaching techniques helped me feel supported (retired participant No. 2).

4.2.2. Creating a supportive environment

Practically, supportive and safe environments provide the psychological security and social trust necessary for individuals and groups to engage meaningfully in predicting, planning, and acting towards common purposes (Ejiogu, 2025). The following section presents the EFL teachers' perception regarding the supportive environment:

> I want to create a safe classroom where students feel comfortable expressing their ideas, regardless of how different their ideas may be. I'll encourage open conversations about identity, culture, and social issues (pre-service participant No. 8).
>
> I strive to create a supportive classroom environment where students feel comfortable expressing themselves in the English language. When they feel supported, their enthusiasm and engagement boost my morale and self-efficacy (in-service participant No. 3).
>
> My vision was to create a supportive learning environment that fostered innovation and creativity. I encouraged students to express their ideas freely (retired participant No. 11).

4.2.3. Peer teaching

Peer teaching is an educational strategy in which students at similar levels alternate in teaching and supporting one another's understanding, thus encouraging shared knowledge production and active participation (Topping, 1996). The participants of the current study indicated peer teaching and learning:

> I want to create a classroom that prioritizes group work and peer learning, where students can exchange ideas and collaboratively develop their language skills (pre-service participant No. 4).
>
> One effective strategy I've used is peer teaching, where students explain concepts to each other. This issue not only builds their confidence but also reinforces their understanding (in-service participant No. 2).
>
> I promoted peer teaching, where students would tutor each other on specific language elements or themes. It empowered them to take the initiative and bolster their confidence in their understanding (retired participant No. 4).

4.2.4. Feedback

Feedback can target particular tasks, cognitive processes, or self-regulatory mechanisms. When carried within supportive atmospheres, operative feedback reflects on past performance and proposes clear, actionable recommendations that increase motivation and self-efficacy (Shute, 2008). The participants of this study emphasized the significance of feedback both from students and colleagues:

> I actively seek feedback from my students after lessons through simple surveys or informal chats. Asking them what they enjoyed or found challenging helps me gauge their understanding and engagement levels (pre-service participant No. 8).
>
> I actively seek feedback from my students as a way to gauge my effectiveness as an EFL teacher (in-service participant No. 3).
>
> Feedback from my students was a crucial part of building my confidence. By implementing anonymous surveys, I learned what they enjoyed and what needed improvement (retired participant No. 5).

4.2.5. Student-centered approaches

Praxical hope, defined as hope symbolized through deliberate, practical actions and cooperative effort, discovers productive ground within student-centered settings that authorize learners to imagine and follow improved futures (Tang, 2023). Here are the perceptions of this study's participants regarding student-centered approaches:

> I try to create a classroom where students work together and can participate in different activities (pre-service participant No. 4).
>
> My future-oriented vision as a teacher has evolved to focus heavily on student-centered learning. Now, I design lessons that encourage student participation, choice, and ownership of their learning (in-service participant No. 3).
>
> I believed strongly in student-centered learning, which I implemented by allowing students to choose project topics related to their interests. It not only motivated them but also fostered ownership of their understanding (retired participant No. 1).

4.3. Critical reflection and social awareness

Concerning the EFL teachers' perceptions, the third construct of praxical hope is critical reflection and social awareness. The researchers of the present study identified seven sub-constructs for this dimension of praxical hope, including social justice awareness, critical thinking, reflective practices, self-assessment, cultural awareness, future-oriented vision, and existential longing.

4.3.1. Social justice awareness

Social justice awareness involves a critical understanding of systemic injustices and a commitment to support fairness within societal organizations, particularly in educational contexts (Freire, 1970). The following section presents the perception of the participants regarding social justice awareness:

> I plan on discussing how language can perpetuate stereotypes or foster discrimination. Empowering them to understand language as a tool for both oppression and liberation will be a vital part of my teaching philosophy (pre-service participant No. 7).
>
> I now strive to create a curriculum that reflects and legitimizes the diverse experiences of all my students, allowing everyone to see themselves in the material we explore (in-service participant No. 4).
>
> I began implementing lessons that celebrated diversity, but I found it challenging to strike the right balance between social issues and language instruction (retired participant No. 3).

4.3.2. Critical thinking

Critical thinking provides individuals with the cognitive tools to evaluate evidence and articulate strategies rooted in contextual realities. This intellectual rigor allows praxical hope to transcend passive optimism, developing into informed and purposeful action (Schwittay, 2023). Furthermore, Adel and Ramezanzadeh (2017) emphasized the necessity of integrating creative and critical thinking skills, fostering an environment where learners can actively engage with content and navigate their educational journeys. Some participants indicated the significant role of critical thinking:

> I envision myself as a facilitator of critical thinking. I want to engage my students in debates and discussions about social justice topics. It

> improves their language skills and encourages them to think critically about the world around them (pre-service participant No. 3).
>
> Encouraging critical thinking has been a key part of empowering my students. I pose open-ended questions and ask them to support their opinions during discussions, prompting them to take responsibility for their contributions (in-service participant No. 15).
>
> I focused on developing critical thinking skills through discussions about global issues. This issue empowered students to articulate their viewpoints in English, giving them a voice (retired participant No. 11).

4.3.3. Reflective practices

The reflective practice covers active and continual reflection during an activity (reflection-in-action) and after its completion (reflection-on-action), thereby enabling informed and deliberate selections (Machost & Stains, 2023). In their exploration of critical pedagogy in English Language Teaching (ELT), Adel et al. (2019) emphasized the importance of providing educators with tools that encouraged reflective practices and empowered learners. Their development of a Critical Pedagogy Questionnaire provides insights into the teachers' readiness to adopt transformative approaches in the classroom. Additionally, Adel and Khalili (2024) discuss the significance of intersectionality in second language education, advocating for inclusive pedagogical practices that recognize diverse identities. Here are some extracts from teachers' interviews regarding the importance of reflective practices:

> After reading something new, I reflect on how it relates to my practice. It keeps me updated on best practices while encouraging self-reflection **(**pre-service participant No. 6).
>
> Reflective practice is the cornerstone of maintaining my confidence. I set aside time each week to reflect on my lessons, analyzing what worked and what didn't (in-service participant No. 4).
>
> As I gained more experience, I realized the importance of self-reflection. I kept a journal where I documented my lessons, what worked, and what didn't (retired participant No. 1).

4.3.4. Self-assessment

In Self-assessment, learners critically reflect on and evaluate their own work and development concerning recognized criteria, thus promoting autonomy,

self-regulation, and a deeper understanding of their learning processes (Panadero et al., 2017). Many participants of this study indicated the role of self-assessment as a construct of praxical hope:

> I created a self-assessment rubric based on the key competencies I want to develop as an EFL teacher, like lesson planning, student engagement, and assessment strategies (pre-service participant No. 9).
>
> Engaging in peer feedback sessions has been invaluable for my self-assessment. I regularly collaborate with fellow EFL teachers, and we observe each other's classes (in-service participant No. 2).
>
> Watching my teaching from the students' perspective was eye-opening and allowed me to recognize strengths and areas for improvement in my instructional techniques (retired participant No. 5).

4.3.5. Cultural awareness

Cultural awareness helps to create the comprehensive and supportive situations required for praxical hope by encouraging mutual respect and understanding. It empowers individuals and groups to work cooperatively toward meaningful social transformation (Carlson et al., 2024). Teachers who are familiar with the culture of the foreign language they are teaching are quickly attracted to intercultural topics during instruction. They are more likely than unfamiliar teachers to include intercultural models in foreign language teaching (Taheri et al., 2015). Here is the perception of the participants in this regard:

> I plan to incorporate diverse perspectives and cultural contexts into my lessons, helping students appreciate the richness of different cultures while learning English (pre-service participant No. 4).
>
> Understanding that language learning also involves appreciating diverse cultures, I now strive to include cultural topics and global issues in my curriculum (in-service participant No. 2).
>
> My vision included preparing students for international communication. I focused on intercultural competence, integrating cultural discussions into my curriculum (retired participant No. 4).

4.3.6. Future-oriented vision

A future-oriented vision involves the ability to predict, conceptualize, and deliberately plan for potential and desired futures, preparing individuals and

organizations to manage uncertainty and complexity efficiently (Pawlak & Moustafa, 2023). Here is the perception of EFL teachers about future-oriented vision:

> Having a future-oriented vision makes me think about my students as global citizens. I want to teach English in a way that connects them to the world beyond our classroom (pre-service participant No. 2).
>
> My future-oriented vision as a teacher has evolved to focus heavily on student-centered learning. I design lessons that encourage student participation, choice, and ownership of their knowledge (in-service participant No. 3).
>
> Having a future-oriented vision was transformative for my teaching. I always aimed to equip my students with skills for global citizenship and lifelong learning (retired participant No. 1).

4.3.7. Existential longing

Praxical hope involves ongoing, cooperative efforts to translate optimistic visions into tangible realities, with existential longing vitalizing this process by highlighting what is deeply meaningful and worthy of pursuit (Schwittay, 2023). The participants of the present study indicated the existential longing:

> I plan to connect language education to their personal passions and life goals to cultivate a sense of existential longing and purpose in my students' language learning. This approach empowers them to see English not just as a subject, but as a tool to explore and achieve their aspirations (pre-service participant No. 1).
>
> I believe that cultivating a sense of existential longing in language learners involves exploring the cultures associated with the language they are learning (in-service participant No. 3).
>
> I actively shared my own learning experiences with students, emphasizing that learning is a lifelong journey. This shared vulnerability encouraged them to approach their studies positively (retired participant No. 11).

4.4. Innovative pedagogical practices

Finally, the fourth fundamental construct of praxical hope regarding the EFL teachers' perception is innovative pedagogical practices. This study established four sub-constructs for this dimension, including the use of

technology, creativity and flexibility in teaching, project-based learning, and having a mentor.

4.4.1. Use of technology

Over recent decades, technological developments have meaningfully restructured educational procedures by facilitating personalized learning pathways, increasing access, and supporting engagement through collaborative and adaptable approaches (Zou et al., 2025). Most participants emphasized the significance of using technology:

> With the rapid advancement of digital tools, I want to incorporate things like online collaboration platforms and language learning apps into my lessons. This makes learning more engaging for students (pre-service participant No. 1).
>
> Integrating technology into my lessons has been a fantastic way to engage students and build my confidence. I have embraced various online tools that cater to different learning styles, making my lessons more interactive (in-service participant No. 12)
>
> My vision focused on preparing students for a rapidly changing world, which led me to integrate technology into my lessons. I introduced digital tools to enhance language learning (retired participant No. 2).

4.4.2. Creativity and flexibility in teaching

Creative teaching inspires exploration, critical problem-solving, and active student engagement through various techniques, including brainstorming, role-playing, and questioning, to improve motivation and enable profound comprehension (Neacșa, 2023). Here is the perception of EFL teachers about creativity and flexibility in teaching:

> I think creativity is key to fostering hope. I plan to incorporate art, music, and drama into lessons to help students to express frustrations (pre-service participant No. 3).
>
> Through creative projects, students take charge of their learning, collaborating to solve real-world problems, research, and produce creative outputs (in-service participant No. 10).
>
> I incorporated art and music into lessons, connecting language learning to creative expression. This helped many students find their passion for learning English (retired participant No. 12).

4.4.3. Project-based learning

Project-Based Learning (PBL) is an instructional approach focusing on students' actively acquiring knowledge and skills by engaging in complex, authentic projects over a prolonged period (Rehman et al., 2024). Therefore, according to teachers' perception, project-based learning not only advances academic competencies but also fosters the pragmatic hope essential for enduring personal growth and social transformation:

> I want to integrate project-based learning in my teaching, where students work on meaningful projects that allow them to use their language skills creatively (pre-service participant No. 13).
>
> Incorporating project-based learning into my curriculum has significantly empowered students. Through projects, students take charge of their learning, collaborating to solve real-world problems, conduct research, and produce creative outputs (in-service participant No. 14).
>
> Using project-based learning that addressed real-world problems allowed my students to see the impact of their language skills (retired participant No. 3).

4.4.4. Having mentor

Mentors support the learning process by communicating their knowledge, representing best practices, and promoting critical reflection, which allows mentees to successfully encounter challenges and improve their competencies (Darling-Hammond, 2020). Several participants of the present study indicated the role of a mentor:

> I've connected with a mentor teacher who provides invaluable insights into my teaching practices. After each observation, we sit down for a chat where she gives me feedback and asks reflective questions (pre-service participant No. 7).
>
> Having a mentor in my teaching career has been a game-changer for my confidence and growth. My mentor provides guidance and a safe space to discuss the challenges I face (in-service participant No. 8).
>
> Having a mentor during my early years was transformational. They guided me through lesson planning and classroom management techniques (retired participant No. 7).

5. Discussion and Conclusion

The current study has significantly contributed to understand praxical hope among EFL teachers in Gorgan, Iran, by investigating the perceptions of pre-service, in-service, and retired educators within public school contexts. Using a qualitative framework and employing constructivist grounded theory, the research revealed the multifaceted nature of praxical hope. This study identified four fundamental constructs of praxical hope, including empowerment and agency, collaborative learning environments, critical reflection and social awareness, and innovative pedagogical practices. It highlighted the significance of developing a hopeful mindset among EFL teachers.

Furthermore, the variety of perspectives captured from pre-service, in-service, and retired teachers enhances the discourse on praxical hope by demonstrating how experiences across diverse stages of a teaching profession shape insights and practices. The study underlined the need for continuing professional development that encourages teachers to reflect on their roles as facilitators of hope and change within their classrooms.

The findings of the present qualitative study provided a nuanced understanding of the perceptions of pre-service, in-service, and retired EFL teachers regarding praxical hope. Through the lens of constructivist grounded theory, the study showed that teachers across diverse stages of their professions shared a common yet varied understanding of praxical hope. The selective coding phase assisted the researcher to propose a praxical hope model with four fundamental constructs: empowerment and agency, collaborative learning environments, critical reflection and social awareness, and innovative pedagogical practices. These constructs functioned as a basis for understanding how teachers conceptualized praxical hope in their daily practices.

The study's identification of collaborative learning environments as a key category aligns with Vygotsky's (1978) sociocultural theory, which emphasizes the centrality of social interaction and collaborative dialogue in knowledge construction and identity formation. Contemporary research by Durlak et al. (2011) supports the notion that peer collaboration, mentorship programs, and community engagement enhance both teacher and student

agency by creating contexts where individuals feel supported and valued. More recent empirical evidence specifically within EFL contexts illustrates that collaborative professional learning communities bolster teachers' sense of belonging and hope through shared problem-solving and reflective dialogue (Yoo & Jang, 2023).

The current study's linking of critical reflection and social justice awareness to praxical hope echoes and extends critical hope theory as theorized by Duncan-Andrade (2009), who defines it as a form of hope intertwined with critical consciousness and social action. Critical hope involves recognizing systemic inequities while maintaining a commitment to transformative educational praxis.

Furthermore, the results of the present study are in line with those of Strikwerda and Lalas (2021). They framed the concept of "critical hope" and investigated how systemic oppression in society uninterruptedly perpetrates the "hope gap" in low-income students. They identified nine themes reflecting hope: building trust and caring relationships; goal oriented, willingness to act, and perseverance; critical reflection and empowerment; valuing optimism; confronting hopelessness; personal commitment to ethical responsibility and accountability; humanizing self-identity; consciousness of economic, social, cultural, and historical life barriers; and inspiring motivation and engagement.

Moreover, the findings of the current study support the results of the research by Ghadyani et al. (2022). In an exploratory mixed-methods grounded-based methodology, they explored the precise meaning of hope for learning EFL (HLEFL). The findings of their study indicated that goal-setting, emotion, certainty, anticipated effort, interpersonal relationships, sources, and social purposes establish the underlying issues that impact the development of HLEFL.

Moreover, research on peer teaching and feedback mechanisms reveals their positive influence on both learner engagement and teacher confidence (Velez & dos Santos, 2023). However, some inconsistencies surface in the literature regarding the scalability of collaborative environments. For example, Eryilmaz et al. (2025) caution that without intentional facilitation and school leadership support, collaborative structures risk becoming

superficial, potentially exacerbating teacher isolation rather than alleviating it.

On the other hand, Day and Gu (2013) remind us that agency is not guaranteed; systemic barriers such as institutional policies, workload, and resource scarcity may inhibit teachers' capacity to sustain hopeful and agentic practices over time. These findings suggest that while empowerment undergirds praxical hope, it is contingent on supportive structural conditions.

The findings from this qualitative study indicated significant pedagogical implications for various stakeholders in the educational setting. EFL teachers should distinguish the significance of nurturing praxical hope within their classrooms. By contributing to a curriculum that encourages empowerment, collaboration, and critical thinking, students will cultivate crucial skills such as adaptability, creativity, and self-assessment.

Moreover, policymakers can generate a more dynamic and responsive education system and create a more equitable and hopeful learning situation for all learners. Additionally, curriculum developers can develop materials and resources that facilitate student-centered approaches, encourage peer teaching, and integrate technology effectively.

While this study provides valuable insights into the perceptions of EFL teachers regarding praxical hope, several limitations must be recognized that may influence the generalizability and interpretation of the findings. Although the study included different groups of EFL teachers, the sample size may limit the generalizability of the findings to broader populations. Future research could benefit from larger and more varied samples to improve the transferability of the results.

As a qualitative study, the findings depend on participants' interpretations and reflections. Despite efforts to confirm trustworthiness through credibility, transferability, dependability, and confirmability, the researchers' interpretations of the data may introduce bias.

Personal biases or predetermined ideas concerning praxical hope may unintentionally affect how questions were framed during interviews or how data were interpreted.

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Navigating Motivation and Anxiety in Second Language Learning: The Impact of Directed Motivational Currents on EFL and ESL Learners

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Abstract This study examines the relationship between Directed Motivational Currents (DMCs) and English Language Classroom Anxiety (ELCA) in English as a Foreign Language (EFL) and English as a Second Language (ESL) learners. DMCs, defined by sustained, goal-driven motivation, are essential for long-term language learning, whereas ELCA, characterized by anxiety in classroom settings, can impede progress. Employing an explanatory mixed-methods approach, the study collected quantitative data from 140 participants and qualitative insights from 20 in-depth interviews with learners experiencing varying levels of DMCs. Findings revealed a significant negative correlation between DMCs and ELCA, with ESL learners reporting higher motivation and lower anxiety due to greater language exposure and integrative motivation. Qualitative findings emphasized the role of teacher support, learner goals, and contextual factors in shaping motivation and anxiety. These insights highlight the importance of goal-oriented learning environments that enhance motivation while reducing anxiety, offering practical implications for educators and curriculum designers.

Keywords: *Directed Motivational Currents, English Language Classroom Anxiety, Vision-Driven Motivation, Goal-Oriented Learning, Educational Strategies*

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1. Introduction

The study of second language acquisition (SLA) has long been concerned with understanding the factors that facilitate and hinder language learning. Among these factors, motivation and anxiety are two of the most influential psychological variables, often exerting opposing effects on learners' success (Dörnyei, 2009; Dörnyei et al., 2015a; Horwitz et al., 1986). While motivation is widely recognized as a driving force that sustains long-term commitment to language learning, anxiety can significantly disrupt the learning process, leading to reduced participation and lower achievement (Horwitz et al., 1986). Understanding the interaction between these two constructs is particularly critical in English as a Foreign Language (EFL) and English as a Second Language (ESL) contexts, where learners' experiences are shaped by their exposure to authentic language environments, instructional methods, and personal learning goals (Zhou et al., 2024).

A relatively recent development in SLA motivation research is the concept of Directed Motivational Currents (DMCs), introduced by Dörnyei et al. (2015b). DMCs describe intense, goal-driven motivational surges that enable learners to sustain high levels of engagement and commitment over extended periods. Unlike short-term bursts of enthusiasm, DMCs are characterized by a self-sustaining momentum, where learners experience intrinsic enjoyment and heightened focus while working toward meaningful language-learning goals (Bui, 2023). These motivational currents can be transformative, pushing learners beyond their typical performance levels and creating enduring positive attitudes toward language learning. However, despite the potential benefits of DMCs, research suggests that various psychological barriers, particularly English Language Classroom Anxiety (ELCA), can interfere with their activation and sustainability (Al-Hoorie & Jahedizadeh, 2021).

ELCA is a situation-specific form of anxiety that arises in language-learning contexts, often linked to fear of negative evaluation, communication apprehension, and test anxiety (Horwitz et al., 1986; Tanveer, 2007). Studies indicate that high levels of ELCA can lead to avoidance behaviors, reduced self-confidence, and negative attitudes toward language learning, all of which undermine learners' motivation and progress (ShayesteFar, 2021; Yamashiro

& McLaughlin, 2001). Given the inherently social and interactive nature of language learning, students who experience high ELCA may hesitate to participate in speaking activities, limit their exposure to real-life language use, and struggle with overall proficiency development (Hassan et al., 2020). This anxiety can be particularly detrimental in EFL settings, where students often have fewer opportunities for authentic communication and rely heavily on structured classroom instruction (Zulkifli, 2007).

Conversely, research suggests that stronger DMCs are associated with lower ELCA levels, as learners who are deeply engaged in meaningful language-learning goals tend to experience a state of psychological flow where anxiety is minimized, and motivation is heightened (Sak, 2019). ESL learners who are immersed in environments where English is actively spoken often report higher levels of motivation and lower levels of anxiety compared to their EFL counterparts (Tanveer, 2007). This difference is likely due to greater exposure to real-life language use, integrative motivation, and a higher perceived need for English proficiency (Hassan et al., 2020). However, despite these insights, there is a gap in the literature regarding the direct interplay between DMCs and ELCA across different instructional contexts. Most existing studies have focused on these constructs separately, leaving open questions about how they interact to influence learners' experiences and progress (Archambault et al., 2009; Ellis & Helaire, 2018; Oga-Baldwin & Nakata, 2017; Reeve & Lee, 2014; Saito et al., 2025).

This study addresses this gap by investigating the relationship between DMCs and ELCA in EFL and ESL settings. Specifically, it explores how these constructs interact within different instructional environments, providing insights into their combined impact on learners' success. By examining these relationships, this research aims to contribute to the broader understanding of motivation and anxiety in SLA and offer practical recommendations for educators, curriculum designers, and policymakers. To achieve these objectives, the study focuses on the following research questions:

1. Is there a significant relationship between Directed Motivational Currents (DMCs) and English Language Classroom Anxiety (ELCA) among EFL and ESL learners?

2. How do EFL and ESL learners perceive the role of DMCs in their language-learning experiences?

Based on the above-mentioned research questions, the following hypothesis has been proposed: There is no significant relationship between DMCs and English language classroom anxiety between EFL and ESL learners.

By systematically examining these dynamics, this study aims to inform the development of teaching strategies and instructional practices that enhance motivation while alleviating anxiety, thereby supporting learners in achieving their language-learning goals. Given the increasing emphasis on learner-centered approaches in language education, these findings may provide actionable insights for improving curriculum design, classroom interactions, and learner support mechanisms.

2. Literature Review

2.1. Motivation and anxiety in second language acquisition: Theoretical perspectives

Motivation and anxiety have been extensively studied in SLA research due to their substantial influence on learners' success. Early conceptualizations, such as Gardner's (1985) socio-educational model, categorized motivation into integrative and instrumental types. Integrative motivation reflects a learner's aspiration to become part of the target language community, whereas instrumental motivation arises from practical considerations, including academic or professional advancement. However, this classification fails to capture the dynamic nature of motivation, which fluctuates based on learners' experiences, external influences, and self-perception. In response, Dörnyei (2009) developed the L2 Motivational Self System, which consists of three components: the Ideal L2 Self (the learner's desired future self as a proficient speaker), the Ought-to L2 Self (external pressures and expectations), and L2 Learning Experience (the impact of past learning experiences on motivation). This model highlights the evolving nature of motivation in response to learners' goals and learning environments.

A more recent development in SLA motivation research is the concept of DMCs, introduced by Dörnyei et al. (2015b). DMCs represent intense and self-sustaining motivational surges that drive learners toward a well-defined,

personally meaningful language-learning goal. Unlike conventional motivation, which fluctuates over time, DMCs involve high levels of engagement, intrinsic enjoyment, and goal-oriented persistence (Al-Hoorie & Jahedizadeh, 2021). Research suggests that learners who experience DMCs maintain motivation despite obstacles and often achieve significant progress in their language proficiency (Bui, 2023). However, DMCs are not universally experienced by all learners and require favorable environmental conditions, such as a tangible vision and an attainable goal, a facilitative structure consisting of behavioral routines and feedback, and a continuous sense of progress toward the end goal (Dörnyei et al., 2015b).

In contrast, ELCA, a subcategory of Foreign Language Anxiety (FLA), represents a significant psychological barrier to language acquisition. Horwitz et al. (1986) defined FLA as situation-specific anxiety that arises from the challenges of communicating in a non-native language, including fear of making mistakes, communication apprehension, and test anxiety. Studies have consistently shown that high levels of ELCA negatively correlate with speaking fluency, participation, and overall language performance (Fathi & Mohammaddokht, 2021; Mohammadi & Ahmadpour Kasgari, 2024; Tanveer, 2007). Learners experiencing high ELCA often avoid speaking tasks, hesitate to engage in classroom discussions, and struggle with self-confidence (Zulkifli, 2007). While some scholars argue that moderate anxiety can enhance motivation by increasing focus and preparation (Al-Shboul et al., 2013; Dordinejad & Ahmadabad, 2014; MacIntyre & Gardner, 1994), excessive anxiety typically results in long-term stagnation in language learning (Hassan et al., 2020; Horwitz et al., 1986).

Dordinejad and Ahmadabad (2014) found that higher anxiety levels significantly correlated with lower English achievement, emphasizing that anxiety hinders rather than facilitates learning. Their study challenges the claim that moderate anxiety is beneficial, reinforcing the need for anxiety-reducing strategies in language instruction.

The relationship between motivation and anxiety remains complex, as motivation can either counteract or be undermined by anxiety. Some learners with strong motivational currents successfully manage their anxiety, whereas others, particularly those with low self-efficacy and high fear of failure, experience anxiety as a demotivating factor (Al-Hoorie & Jahedizadeh,

2021). Despite substantial research on both constructs, there remains limited empirical investigation into how DMCs and ELCA interact in different language-learning environments.

2.2. Motivation and anxiety in EFL and ESL learners

The distinction between EFL and ESL learning environments significantly influences how motivation and anxiety shape learners' experiences. EFL learners typically study English in formal classroom settings, with limited real-world exposure to authentic language use. As a result, their motivation is often extrinsically driven, focusing on academic success, standardized exams, or career aspirations rather than communicative fluency (Yamashiro & McLaughlin, 2001; Goodarzi & Namaziandost, 2025). Due to the lack of frequent practice opportunities, EFL learners often develop higher levels of ELCA, particularly when engaging in speaking activities (Horwitz, 2010; Tanveer, 2007). Studies indicate that EFL students frequently experience performance-related anxiety, fear of making mistakes, and discomfort with spontaneous language use (Sohrabi & Ahmadi Safa, 2020; MacIntyre & Gardner, 1994).

Conversely, ESL learners are immersed in environments where English is the primary language of communication, leading to higher integrative motivation (Hassan et al., 2020). A meta-analysis by Zhou et al. (2024) confirms that motivation in second-language learners is closely linked to their exposure to authentic language use, with ESL learners displaying stronger integrative motivation compared to EFL learners. However, while ESL learners generally report lower anxiety levels, they are not entirely free from language-related stress. Situational anxiety in academic presentations, workplace interactions, or high-stakes assessments can still hinder language performance (Zulkifli, 2007).

A crucial research question is whether greater exposure to English in ESL settings naturally reduces anxiety and enhances motivation or whether other factors, such as personal goal-setting and learning strategies, play a more significant role. Some scholars argue that immersion alone is not sufficient to lower anxiety, as learners still need structured support, feedback, and confidence-building activities (Al-Hoorie & Jahedizadeh, 2021). Others suggest that strong personal goals, as seen in DMCs, are a more crucial factor in overcoming anxiety than mere exposure to the language (Sak, 2019).

In addition, teaching methodologies, assessment practices, and classroom environments shape how motivation and anxiety interact. Studies have found that learners who experience highly interactive, communicative, and supportive classroom settings report lower anxiety and higher motivation levels compared to those in rigid, test-driven environments (Gunawardana, 2024). Similarly, peer support and collaborative learning structures have been shown to enhance motivation while reducing anxiety in both EFL and ESL learners (Namaziandost et al., 2024). These findings emphasize the need for instructional approaches that promote confidence, goal-setting, and real-world engagement to balance motivation and anxiety in language acquisition.

2.3. Addressing the research gap

Despite significant advancements in understanding motivation and anxiety in language learning, there remains a lack of research examining how these factors interact in both EFL and ESL contexts. While studies have explored motivation and anxiety separately, few have directly investigated their reciprocal influence and how they shape learners' experiences across different learning environments. Bai et al. (2025) provide empirical evidence that motivation and anxiety in ESL/EFL learners fluctuate over time based on learning conditions rather than remaining fixed traits. Similarly, Duyen et al. (2024) highlight that transitions between classroom-based and autonomous learning environments significantly influence learners' motivation and anxiety levels over time. While immersion in an English-speaking setting offers advantages, it does not guarantee higher motivation or lower anxiety. Some ESL learners still experience anxiety due to high proficiency expectations and social pressure, particularly in academic and workplace settings (Usop, 2024). Conversely, some EFL learners develop strong motivation and confidence despite limited exposure to English, especially when engaged in goal-driven learning experiences and structured extensive listening activities (Jantasode & Ruangjaroon, 2025). These findings challenge the notion that mere language exposure determines motivation and anxiety levels, highlighting the role of individual goal-setting, learning strategies, and contextual support in shaping language-learning experiences.

To address these gaps, this study aims to provide a comparative analysis of DMCs and ELCA in EFL and ESL learners, investigating how these psychological factors interact and influence learners' progress. By examining

the role of goal-setting, exposure to English, and instructional support, this research will offer practical insights for educators, curriculum designers, and policymakers. Understanding how motivation can mitigate anxiety, and vice versa, will contribute to more effective teaching approaches that enhance engagement and reduce language-learning stress.

3. Method

This section outlines the methodology employed in the current research study and provides a detailed description of the participants, the instruments used, and the study's overall design and procedures. The section also explains the process of estimating reliability indices during the pilot study, followed by a comprehensive account of the data analysis methods employed.

3.1. Participants

This study adopted a cross-cultural, explanatory sequential mixed-methods design, integrating quantitative and qualitative data collection and analysis. A total of 140 participants were selected from a larger pool of 228 language learners, aged between 17 and 42 years, using convenience sampling. Participants were not randomly assigned, making this quantitative phase quasi-experimental in design, but were categorized into two naturally occurring groups based on their language learning contexts (i.e., EFL and ESL). The first group consisted of 70 Iranian English as a Foreign Language learners, including 42 males and 28 females, who were enrolled in English language institutions located in Gorgan, Golestan, Iran. These learners were native Persian speakers and represented proficiency levels ranging from lower intermediate to advanced. Their English proficiency was assessed prior to data collection to confirm group comparability. They were engaged in English courses to enhance their academic, professional, or personal language skills. The second group comprised 70 international English as a Second Language learners, including 38 males and 32 females. These participants attended English courses at a Canadian institution in British Columbia. They represented diverse linguistic and cultural backgrounds and used English as their second language while pursuing higher education. Their proficiency was also assessed to ensure alignment across both groups. To gain a deeper understanding of how students perceive directed motivational currents, a

semi-structured interview phase was conducted. Twenty participants were selected from those who experienced directed motivational currents based on their questionnaire scores from DMCs scale developed by Muir (2016). These participants were divided equally between the English as a Foreign Language and English as a Second Language groups, with ten from each. The interviews aimed to explore students' experiences with directed motivational currents, their motivational patterns, and the factors influencing their engagement in language learning. Participation in the qualitative phase was voluntary, and all participants were informed about the confidentiality of their responses. The smaller sample size for the qualitative phase ensured that rich and detailed insights complemented the broader quantitative findings.

3.2. Instruments

A range of validated instruments was utilized to collect data on language proficiency, motivation, and anxiety, as well as to gather qualitative insights. The Oxford Quick Placement Test (OQPT), a widely recognized tool developed by Oxford University Press and Cambridge ESOL, was used to assess participants' English proficiency levels. The test consists of 60 multiple-choice questions and categorizes proficiency into lower-intermediate, upper-intermediate, advanced, and very advanced levels (see Appendix A).

Table 1. ALTE level

	Level description	Score
1	Lower-intermediate	24 – 30
2	Upper-intermediate	31 – 40
3	Advanced	48-54
4	Very advanced	55–60

The DMC Disposition Questionnaire, developed and validated by Muir (2016), measured the intensity and characteristics of participants' DMCs. This instrument explores demographic information, frequency, and intensity of DMC experiences, and self-perceived English proficiency during motivational episodes. The instrument demonstrated a high-reliability index, with a Cronbach's alpha of .803, confirming its internal consistency (see Appendix B).

The Foreign Language Classroom Anxiety Scale (FLCAS), designed by Horwitz et al. (1986), was employed to assess participants' levels of classroom anxiety. Although the FLCAS was developed in 1986, it remains the most widely used and validated instrument for assessing foreign language classroom anxiety, with extensive evidence supporting its reliability and construct validity across diverse contexts. This 33-item instrument evaluates three dimensions of anxiety: fear of negative evaluation, communication apprehension, and test anxiety. Using a five-point Likert scale, the FLCAS demonstrated a Cronbach's alpha of .93, indicating strong reliability (see Appendix C).

Semi-structured interviews were used to collect qualitative data, providing a deeper understanding of participants' perceptions of DMCs. The interview protocol, adapted from Zarrinabadi et al. (2019), included 12 open-ended questions validated by experts in the field for content and face validity. These interviews allowed participants to share nuanced insights into their experiences, complementing the quantitative findings (see Appendix D).

3.3. Validity and reliability

To ensure validity and reliability, a pilot study was conducted with participants similar to those in the main study. Content validity was established through expert review, with three doctoral-level specialists evaluating the instruments. Confirmatory factor analysis (CFA) was used to refine the scales, ensuring their appropriateness for the study's context. Reliability indices for the DMC Disposition Questionnaire and FLCAS were calculated using SPSS (version 24), yielding results of .803 and .93, respectively, which confirm their consistency and reliability.

Table 2. Reliability statistics for DMC disposition questionnaire

Cronbach's Alpha	Cronbach's Alpha	N of Items
.803	.809	22

Table 3. Reliability statistics of FLCAS

Cronbach's Alpha	Cronbach's Alpha	N of Items
.930	.933	33

For qualitative data, validity was enhanced through member checking and peer review. Member checking involved sharing findings with participants to confirm the accuracy of their responses, while peer review engaged experts to evaluate coding and thematic analysis results. These strategies ensured the credibility and trustworthiness of the qualitative findings.

3.4. Data collection

Data collection followed an explanatory sequential mixed-methods approach, beginning with the quantitative phase followed by the qualitative phase. Ethical approval was obtained from relevant authorities in both Iran and Canada prior to data collection. Consent forms were distributed to all participants, ensuring voluntary participation, confidentiality, and anonymity.

In the quantitative phase, participants first completed the Oxford Quick Placement Test (OQPT) to determine their English proficiency levels. They then responded to the Directed Motivational Currents (DMC) Disposition Questionnaire and the Foreign Language Classroom Anxiety Scale (FLCAS) to assess their motivation and anxiety levels, respectively.

Following the analysis of the quantitative data, the qualitative phase involved semi-structured interviews with 20 volunteers, selected from those who experienced moderate to strong DMCs based on their questionnaire scores. Participants were categorized based on their total scores from the DMC questionnaire, where scores between 100 and 80 indicated a strong DMC experience, and scores between 79 and 60 indicated a moderate DMC experience. Those who scored below 60 were not considered for the qualitative phase.

Interviews were audio-recorded with participant consent, transcribed, and analyzed using thematic analysis. This approach provided in-depth insights into participants' experiences with DMCs and ELCA, uncovering key themes and patterns related to their language learning motivation and anxiety.

3.4. Data analysis

Quantitative data were analyzed using descriptive and inferential statistics, with SPSS (version 24) as the primary analytical tool. Pearson correlation coefficients were used to explore the relationship between DMCs and ELCA, while independent t-tests examined differences across EFL and ESL contexts.

Thematic analysis was used to analyze the qualitative data. The process involved open coding to identify key themes, axial coding to group related themes into broader categories, and selective coding to interpret the relationships among categories. This analysis provided rich, contextual insights that complemented the quantitative findings, allowing for a comprehensive understanding of the research questions.

This methodological framework provided a rigorous and integrated approach to exploring the interplay between motivation and anxiety in language learning contexts, offering valuable implications for educators, researchers, and policymakers.

4. Results

4.1. Descriptive statistics

This study used two scales for comparing the EFL and ESL learners' English language classroom anxiety and DMCs. The overall scores of the learners on each scale were used as the criterion to do the analysis. Before running the statistical tests for the results of the scales used, the normality of the data was checked. Table 4 shows the descriptive statistics related to the results of the two questionnaires used in this study.

Table 4. Descriptive statistics for the scales used in the study

Scale	N	Range	Mean	Std. Deviation	Kolmogorov-Smirnow	Shapiro-Wilk
DMC	140	45	39.02	12.55	.061	.0589
Anxiety	140	122	77.57	33.72	.052	.063

Table 4 indicates that the significance value for the Kolmogorov-Smirnov and Shapiro-Wilk tests for all the scales is more than .05 which shows the scores were normally distributed. Therefore, the assumption of normality has been satisfied. Consequently, we could use the mean as an indicator of central tendency index, besides using the parametric statistics models.

4.2. Differences in the relationship between DMCs and ELCA between EFL and ESL learners

The first research question probed the association between the DMCs and English language classroom anxiety of the EFL and ESL learners. For this

purpose, Pearson correlation coefficients were used, the results of which are indicated in Table 5. The results showed that there was a significant negative relationship between the two variables, suggesting that as the learners' DMCs increased, their language classroom anxiety decreased. For the EFL group, the correlation was statistically significant (r = -.876, p < .001), indicating that English language classroom anxiety was the result of lower DMCs. Similarly, for the ESL learners, there was a statistically significant negative correlation (r = -.889, p < .001), suggesting that more DMCs resulted in less anxiety. Overall, the results rejected the first null hypothesis, predicting no significant difference in the relationship between DMCs and English language classroom anxiety between EFL and ESL learners.

Table 5. The correlations between directed motivational currents and language learning anxiety for EFL and ESL learners

	Group		**Anxiety**
DMC	EFL	Correlation coefficient	-.876***
		Sig.	.000
		N	70
	ESL	Correlation coefficient	-.889***
		Sig.	.000
		N	70

*** correlation is significant at p < .001.

4.3. Perceptions of EFL and ESL learners towards directed motivational currents

The second research question of this study was qualitative and had no hypothesis. It aimed at providing qualitative data to explore the perceptions of both EFL and ESL learners regarding directed motivational currents. For this purpose, a sample of 20 learners (10 EFL and 10 ESL) was selected from those who experienced directed motivational currents based on their questionnaire DMCs score and was interviewed, and the responses were coded using thematic analysis. The coding analysis for the perceptions of the EFL learners is presented in Table 6. The findings revealed main themes extracted from codes used in the learners' responses. EFL learners perceived that their directed motivational currents were shaped by teacher-related factors (such as teachers' knowledge, behavior, and mindset), learner-related

factors (including their goals, personal characteristics, and mood), and context-related factors (such as facilities, engagement in learning activities, and the availability of support).

Table 6. Perceptions of EFL learners towards directed motivational currents

Main theme	Codes	Sample quotation
Teacher-related issues	Knowledge	I think my teacher's proficiency would affect my motivation significantly.
	Behavior	How could I pursue my goal when my teachers act like they do not like this field?
	Mindset	My professor is very fixed and strict and will not allow us to express ideas.
learner-related issues	Goal	When I do have a goal to accomplish, I will try harder, and my motivation will be influenced.
	Characteristic	Most learners are introverted in my class, so they don't like to talk to their peers about what could help them to do more.
	Mood	You know, I can't have a fixed feeling every day – it seems that daily emotions may affect my efforts and long-term goals.
Context-related issues	Facilities	The video projectors and labs in our university are sometimes out of service. We even lack internet access, which is now vital for learning.
	Boredom	The online classes and no interaction could make use bored and lazy most of the time. I think communication inside and outside the class is the key to learning and high motivation.
	Support	It's funny but sometimes the learners are deprived of very simple support from their teachers, supervisors, or even the college officials. I mean how could we reach our goals without some kind of help from the outside?

The analysis of the ESL learners' perceptions, however, showed slightly different results, as shown in Table 7. This suggests that contextual issues are not their concern, and the learners mostly worry about technical issues and their own efforts. Also, they think the teacher's methodology could be influential as well. It is thus clear that the learners in the two contexts have different perceptions, which could be context-related or even culture-related.

Table 7. Perceptions of ESL learners towards directed motivational currents

Main theme	codes	Sample quotation
Teacher-related issues	Support	My professor's attention to my goals and concerns means a lot to me.
	Method	I think teaching methodology is of high importance as it could really facilitate the learning gains which could affect our motivation.
learner-related issues	Goal	I personally believe in my own purposes in my studies and try to look for some internal forces to help me keep going.
	Effort	When I do my best to achieve my goals, I feel like I have done my duty and even a failure won't let me down.

5. Discussion and Conclusion

The findings of the present study provide strong evidence supporting the negative correlation between DMCs and ELCA, aligning with much of the existing research in SLA (Alrabai, 2014; Dörnyei et al., 2015b; Muir, 2016; Saito et al., 2025). However, they also reveal nuanced variations in how motivation and anxiety interact across EFL and ESL learning contexts, shedding light on the contextual dependencies of these psychological constructs.

5.1. The relationship between DMCs and anxiety in EFL and ESL learners

Quantitative findings from the present study indicate that learners with strong DMCs experience lower levels of ELCA, aligning with prior findings. Studies confirm that motivation acts as an emotional regulator in SLA (Dörnyei et al., 2015b; Henry et al., 2015) and that goal-oriented, engaged learners exhibit greater resilience against classroom anxiety (Al-Hoorie & Jahedizadeh, 2021). The self-propelling nature of DMCs, which involves high engagement, perseverance, and emotional investment, functions as a psychological buffer that reduces fear of failure and performance-related anxiety (Xodabande & Babaii, 2021)

Findings also support Piniel and Csizér (2013), who demonstrated that learners with a strong motivational self-image and clearly defined goals

reported lower anxiety and higher willingness to communicate. However, some researchers argue that motivation alone is not always sufficient to counteract anxiety, particularly in learners with low self-perceived competence (Teimouri et al., 2019).

Despite the inverse relationship between motivation and anxiety, some scholars suggest that their interaction is more complex. MacIntyre and Gardner (1994) argue that motivation and anxiety can coexist, especially among perfectionist learners or those facing high external expectations. Highly motivated learners may experience heightened anxiety due to fear of not meeting their own high standards, leading to self-induced pressure (Papi, 2010). This suggests that motivation generally mitigates anxiety but can also intensify it in high-stakes learning environments.

5.2. Contextual differences in learners' perceptions of DMCs

Qualitative findings reveal notable differences in how EFL and ESL learners experience DMCs, with contextual factors playing a significant role in shaping motivational strength and anxiety levels. EFL learners reported that their motivation depended heavily on external reinforcements, such as teacher support, classroom structure**,** and assessment-driven goals. These findings align with Sohrabi and Ahmadi Safa (2020), who found that EFL learners in test-oriented education systems experience heightened anxiety due to performance pressure and lack of real-world communication opportunities.

Conversely, ESL learners described their motivation as more internally driven, citing social integration, career aspirations, and daily language use as their primary motivators. This supports Gardner's (1985) theory of integrative motivation, which argues that learners immersed in authentic language environments develop stronger intrinsic motivation and experience lower anxiety.

A key divergence between EFL and ESL learners was their perception of external influences. While EFL learners frequently attributed their anxiety to factors such as lack of classroom support and test-related stress, ESL learners, despite being less anxious overall, still reported situational anxiety in high-pressure communication settings such as academic presentations or professional interactions (Hassan et al., 2020). These findings align with Tanveer (2007), who observed that EFL learners experience more anxiety due to fear of public evaluation and lack of communicative practice, whereas ESL

learners' anxiety is often tied to performance-related expectations in formal settings.

Additionally, past learning experiences emerged as a crucial determinant of anxiety levels. EFL learners who had previously encountered rigid, grammar-focused instruction reported higher anxiety, whereas those with interactive, communicative learning experiences exhibited lower anxiety and stronger DMC activation. This aligns with Xodabande and Babaii (2021), who found that structured learning environments play a crucial role in shaping motivational resilience, which may also contribute to reduced anxiety in language learners.

5.3. Contradictory findings and alternative perspectives

While this study's findings largely support the dominant view that strong motivation reduces anxiety, some alternative perspectives exist. Teimouri et al. (2019) argue that motivation and anxiety do not always function in opposition, particularly when external factors such as social expectations, personality traits, or cultural influences mediate their interaction. Their meta-analysis found that while motivation generally reduces anxiety, it can increase anxiety in highly self-critical or perfectionist learners.

Moreover, Uzun (2016) discovered that self-directed learning readiness exhibits a non-linear relationship with anxiety, meaning that while motivation plays a protective role, it does not fully dictate a learner's emotional experience in the classroom. Similarly, Yamashiro and McLaughlin (2001) found that some learners exhibit high motivation but still experience anxiety due to social and linguistic insecurities, particularly in cultures where mistakes are viewed negatively.

A central debate in second language acquisition research is whether motivation and anxiety are primarily shaped by the learning environment (EFL vs. ESL) or by individual learner characteristics such as personality, self-efficacy, and cognitive style. While this study suggests clear differences between EFL and ESL learners, some researchers argue that individual differences, such as personality, self-efficacy, and cognitive style, play a more critical role (Noprianto, 2017). Dewaele (2013) found that extroverted EFL learners often exhibit lower anxiety despite limited exposure to English, whereas some ESL learners still experience persistent anxiety despite immersion in an English-speaking environment. These findings suggest that

the interaction between motivation, anxiety, and learning environment is more individualized than previously assumed.

The findings of this study indicated that there was a significant negative correlation between DMCs and classroom anxiety, suggesting that higher DMCs could reduce the anxiety of the learners in the class. Therefore, DMC is negatively correlated with anxiety, as the former could result in the reduction of the latter. The results of this study also showed that the ESL learners had more DMCs than their EFL counterparts. This significant difference could be the consequence of contextual factors like the presence of native speakers outside the class who could assist the learners in adopting a vision that could contribute to their willingness and motivation to pursue long-term goals in learning a new language. The findings showed that ESL learners were less anxious in their classes compared to EFL learners. This could be justified with reference to the meaningful negative correlation that was found between DMCs and English language classroom anxiety. Further, qualitative data revealed that whereas the EFL learners were concerned with contextual factors like the presence of facilities, external support, and teachers' behavior, the ESL learners were mostly worried about technical issues like teaching methodology. This is related to the context of learning as the presence of native speakers could contribute to integrative motivation, while the EFL setting could result in more instrumental motivation.

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Appendix A. Oxford Placement Test

Where can you see these notices?

For questions 1 to 5, mark one letter A, B, or C on your answer sheet.

1.

please leave your key at a Reception

A)in a shop
B) in a hotel
C) in a taxi

2.

Foreign money changed here

A) in a library
B) in a bank
C) in a taxi

3.

The afternoon show begins at 2 PM

A) outside a theater
B) outside a supermarket
C) outside a restaurant

4.

CLOSED FOR HOLIDAYS, Lessons start again on the 8th January

A) at travel agents
B) at a music school
C) at a restaurant

5.

Price per night: £10 a tent £5 a person

A) at a cinema
B) in a hotel
C) on a camp-site

Questions 6-10

In this section you must choose the word which best fits each space in the text below.

For questions **6** to **10,** mark one letter **A, B** or **C** on your Answer Sheet**.**

Scotland

Scotland is the north part of the island of Great Britain. The Atlantic ocean is on the west and the North Sea on the east. Some people **(6)……..** Scotland speak a different language called Gaelic. There are **(7) ……** five million people in Scotland, and Edinburgh **(8)…….** most famous city.

Scotland has many mountains; the highest one is called 'Ben Nevis'. In the south of Scotland, there are a lot of sheep. A long time ago, there **(9) ……..** many forests, but now there are only a **(10) …… .**

Scotland is only a small country, but it is quite beautiful.

6.	**A** on	**B** in	**C** at
7.	**A** about	**B** between	**C** among
8.	**A** his	**B** your	**C** its
9.	**A** is	**B** were	**C** was
10.	**A** few	**B** little	**C** lot

Questions 11-20

In this section you must choose the word which best fits each space in the text below.

For questions **11** to**20,** mark one letter **A, B** or **C** on your Answer Sheet**.**

Alice Guy Blache

Alice Guy Blache was the first female film director. She first became involved in cinema while working for the Gaumont Film Company in the late 1890s. this was a period of great changes in the cinema and Alice was the first to use many new inventions, **(11) ……..** sound and color.

In 1907 Alice **(12)……..** to New York where she started her own film company. She was **(13)…….** Successful, but, when Hollywood became the centre of the film world, the best days of the independent New York film companies were **(14)…….** . when Alice died in 1968, hardly nobody **(15)……..** her name.

11.	**A** bringing	**B** including	**C** containing	**D** supporting
12.	**A** moved	**B** ran	**C** entered	**D** transported
13.	**A** next	**B** once	**C** immediately	**D** recently
14.	**A** after	**B** down	**C** behind	**D** over
15.	**A** remembered	**B** realized	**C** reminded	**D** repeated

UFOs- do they exist?

UFO is short for ' unidentified flying object'. UFOs are popularly known as flying saucers, **(16) ……** That is often the **(17) …….** they are reported to be. The **(18) ……..** "flying saucers" were seen in 1947 by an American pilot, but experts who studied his claim decided it had been a trick of the light.

Even people experienced at watching the sky, **(19) …….** as pilots, report seeing UFOs. In 1978 a pilot reported a collection of UFOs off the coast of New Zealand. A television **(20) ……** went up with the pilot and filmed the UFOs. Scientists studying this phenomenon later discovered that in this case they were simply lights on boats out fishing.

16.	**A** because	**B** therefore	**C** although	**D** so
17.	**A** look	**B** shape	**C** size	**D** type
18.	**A** last	**B** next	**C** first	**D** oldest
19.	**A** like	**B** that	**C** so	**D** such
20.	**A** cameraman	**B** director	**C** actor	**D** announcer

Questions 21-40

In this section you must choose the word or phrase which best completes each sentence.

For questions **21** to **40**, mark **one** letter **A, B, C** or **D** on your Answer Sheet.

21. The teacher encouraged her learners …….. to an English pen-friend.

A should write **B** write **C** wrote **D** to write

22. They spent a lot of time ……. at the pictures in the museum.

A looking **B** for looking **C** to look **D** to looking

23. Shirley enjoys science lessons, but all her experiments seem to …….. wrong.

A turn **B** come **C** end **D** go

24.……. from Michael, all the group arrived on time.

A Except **B** Other **C** Besides **D** Apart

25. She …….. her neighbor's children for the broken window.

A accused **B** complained **C** blamed **D** denied

26. As I had missed the history lesson, my friend went …… the homework with me.

A by **B** after **C** over **D** on

27. Whether she's a good actress or not is a …….. of opinion.

A matter **B** subject **C** point **D** case

28. The decorated roof of the ancient palace was …… up by four thin columns.

A built **B** carried **C** held **D** supported

29. Would it …….. you if we came on Thursday?

A agree **B** suit **C** like **D** fit

30. This form …….. be handed in until the end of the week.

A doesn't need **B** doesn't have **C** needn't **D** hasn't got

31. If you make a mistake when you are writing, just …… it out with your pen.

A cross **B** clear **C** do **D** wipe

32. Although our opinion on many things ……, we're good friends.

A differ **B** oppose **C** disagree **D** divide

33. This product must be eaten …… two days of purchase.

A by **B** before **C** within **D** under

34. The newspaper report contained …… important information.

A many **B** another **C** an **D** a lot of

35. Have you considered …….. to London?

A move **B** to move **C** to be moving **D** moving

36. It can be a good idea for people who lead an active life to increase their …….. of vitamins.

A upturn **B** input **C** upkeep **D** intake

37.I thought there was a …… of jealousy in his reaction to my good fortune.

A piece **B** part **C** shadow **D** touch

38. Why didn't you …….. that you were feeling ill?

A advice **B** mention **C** remark **D** tell

39. James was not sure exactly where his best interests ……. .

A stood **B** rested **C** lay **D** centred

40. He's still getting …… the shock of losing his job.

A across **B** by **C** over **D** through

Questions 41 – 50

In this section you must choose the word or phrase which best fits each space in the texts.

For questions 41 to 50, mark one letter A, B, C or D on your Answer Sheet

The tallest buildings - SKYSCRAPERS

Nowadays, skyscrapers can be found in most major cities of the world. A building which was many **(41)** …… …….. high was first called a skyscraper in the United States at the end of the 19th century, and New York has perhaps the **(42)** …… …….. skyscraper of them all, the Empire State Building. The **(43)** …… …….. beneath the streets of New York is rock, **(44)** …… …….. enough to take the heaviest load without sinking, and is therefore well-suited to bearing the **(45)** …… …….. of tall buildings.

41 A stages	B steps	C storeys	D levels
42 A first-rate	B top-class	C well-built	D best-known
43 A dirt	B field	C ground	D soil
44 A hard	B stiff	C forceful	D powerful
45 A weight	B height	C size	D scale

SCRABBLE

Scrabble is the world's most popular word game. For its origins, we have to go back to the 1930s in the USA, when Alfred Butts, an architect, found himself out of **(46)** …….. . He decided that there was a **(47)** ……. for a board game based on words and **(48)** ……. To design one. Eventually he made a **(49)** …… ……. from it, in spite of the fact that his original **(50)** ……. was only three cents a game.

46 A earning	B work	C income	D job
47 A market	B purchase	C commerce	D sale
48 A took up	B set out	C made for	D got round
49 A wealth	B fund	C cash	D fortune
50 A receipt	B benefit	C profit	D allowance

Questions 51 – 60

In this section, you must choose the word or phrase which best completes each sentence.

For questions 51 to 60, mark one letter A, B, C, or D on your Answer Sheet.

51 Roger's manager ..... to make him stay late if he hadn't finished the work.

A Insisted B warned C threatened D announced

52 By the time he has finished his week's work, John has hardly ..... energy left for the weekend.

A Any B much C no D same

53 As the game ..... to a close, disappointed spectators started to leave.

A Led B neared C approached D drew

54 I don't remember ..... the front door when I left home this morning.

A to lock B locking C locked D to have locked

55 I ..... to other people borrowing my books: they always forget to return them.

A Disagree B avoid C dislike D object

56 Andrew's attempts to get into the swimming team have not ..... with much success.

A Associated B concluded C joined D met

57 Although Harry had obviously read the newspaper article carefully, he didn't seem to have..... the main point.

A Grasped B clutched C clasped D gripped

58 A lot of the views put forward in the documentary were open to ..... .

A Enquiry B query C question D wonder

59 The new college ..... for the needs of learners with a variety of learning backgrounds.

A Deals B supplies C furnishes D caters

60 I find the times of English meals very strange – I'm not used ..... dinner at 6pm.

A to have B to having C having D have

Appendix B. DMC Disposition Questionnaire by Muir (2016)

Dear learners:

Hello!

Thank you for taking the time to participate in this questionnaire. The purpose of our survey is to understand your motivation for English learning. The questionnaire is anonymous. The results are for academic purposes only and promise absolute confidentiality, so there is no need to worry about it. Thank you for your participation and cooperation! Enjoy your study and life!

Part 1: Your basic information

1. Gender: A) male B) female
2. Age: _____
3. Your grade: A) freshman B) sophomore C) junior D) senior
4. Your major： _____
5. English scores (please fill in your according to your personal situation)…..
6. Hometown: A) countryside B) town C) City…..
7. Self-assessment of English proficiency: A) advanced B) intermediate C) low

Part 2:

We find accounts on the Internet of people being totally absorbed in VERY INTENSE PROJECTS, which motivate them for weeks or even months at a time.

These people say things like:

"I think about this project day and night. I feel like it's taken over my life!"

"I'm amazed I've been able to stay so focused for so long, I'm so enjoying it that putting in all the work feels easy!"

"I never thought I could achieve so much!"

"My friends can definitely see that something special is happening to me, they say they've never seen me so motivated!"

"I wish I could experience this type of motivation while working towards all my goals!"

Please answer the following questions by marking the appropriate answer.

Item 1 2 3 4 5

1. I recognize this type of intense motivation

2. I have personally experienced this type of intense motivation while doing a project
3. I have personally experienced this type of intense motivation, specifically while learning English
*1= Strongly disagree, 2=Disagree, 3=Neither agree nor disagree, 4=Agree, 5=Strongly agree
4. How often do you think you have experienced a project of this kind of motivational intensity?
1) □ I have NEVER experienced this type of motivation
2) □ I have experienced this type of motivation ONCE, but NOT QUITE AS INTENSE as above
3) □ I have experienced this type of motivation SEVERAL TIMES, but NOT QUITE AS
INTENSE as above
4) □ I have experienced this type of motivation ONCE to a SIMILAR LEVEL OF
INTENSITY as above
5) □ I have experienced this type of motivation SEVERAL TIMES to a SIMILAR LEVEL OF INTENSITY as above
About your experience of this kind of intense motivation, if you have experienced this more than once, please choose the most memorable time. This can be from ANY context (not only language learning).
5. How long did this experience last?
1) □ Less than 1 month 2) □ 1-2 months 3) □ 2-4 months
4) □ 4~6 months 5) □ Longer than 6 months
6. Please mark on the scale below how intense your motivation felt throughout this period
1 2 3 4 5
Not very intense □ □ □ □ □, Very intense
Part 3 : **About your intense motivation project**
Item 1 2 3 4 5
7. When looking back now, I have very good memories of this time
8. During this time, I was able to work more productively than 1 usually can
9. I surprised myself with how much I was able to do
10. Many times, it felt like a real struggle to keep going

11. This experience helped me to achieve all I had wanted to and more
12. I think something special happened to me during this experience - it was an amazing time
*1=Strongly disagree, 2=Disagree, 3= Neither agree nor disagree, 4=Agree, 5=Strongly agree
13. Would you like to experience this type of intense motivation again?
1.□ Yes 2.□ No

A little more about your intensive project experience.

Item 1 2 3 4 5
14. At the time, this project became a central part of my life
15. The people around me could see that 1 was experiencing something special
16. It didn't feel like hard work at the time -1 was just caught up in the flow!
17. I remember thinking about my goal all the time
18. I often imagined myself achieving my final goal
19. It was a really enjoyable experience
*1=Strongly disagree, 2=Disagree, 3=Neither agree nor disagree, 4=Agree, 5=Strongly agree

Please answer the following two questions ONLY if you have experienced this type of intense motivation in the context of English learning

20. How would you rate your English proficiency level at the time you experienced this intense period of motivation?
1) □ Beginner 2) □ Pre- intermediate 3) □ Intermediate
4) □ Upper- intermediate 5) □ Advanced
21. Please tick the below statement which was most appropriate to you at the time you experienced this
1) □ I was studying the language at school
2) □ I was studying the language at university
3) □ I was studying the language at a private language school
4) □ I was studying the language on my own

Part 4:

22. Have you seen this type of motivation in people around you?
1.□ Yes 2.□ No 3.□ Not sure

Appendix C. Foreign Language Classroom Anxiety Scale (FLCAS) by Horwitz et al. (1986)

The following section of the questionnaire aims at finding out about your degree of the language anxiety. We would like to ask you to answer the following questions by simply giving marks from 1 to 5.

1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

For example, consider the following item. If you strongly disagree with the statement, write "5" in the blank in front of the question: ( ) I don't worry about making mistakes in language class.

Please write one (and only one) whole number in front of each question and don't leave out any of them. Thanks.

1. I never feel quite sure of myself when I am speaking in a foreign language class.

1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

2. I don't worry about making mistakes in language class.

1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

3. I tremble when I know that I am going to be called on in language class.

1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

4. It frightens me when I don't understand what the teacher is saying in the foreign language.

1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

5. It wouldn't bother me at all to take more foreign language classes.

1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

6. During language class, I find myself thinking about things that have nothing to do with the course.

1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

7. I keep thinking that the other learners are better at languages than I am.

1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

8. I am usually at ease during tests in my language class.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

9. I start to panic when I have to speak without preparation in language class.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

10. I worry about the consequences of my failing my foreign language class.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

11. I don't understand why some people get so upset over foreign language classes.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

12. In language class, I can get so nervous I forget things I know.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

13. It embarrasses me to volunteer answers in my language class.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

14. I would not be nervous speaking the foreign language with native speakers.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

15. I get upset when I don't understand what the teacher is correcting.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

16. Even if I am well prepared for language class, I feel anxious about it.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

17. I often feel like not going to my language class.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

18. I feel confident when I speak in foreign language class.

1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

19. I am afraid that my language teacher is ready to correct every mistake I make.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

20. I can feel my heart pounding when I‟ m going to be called on in language class.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

21. The more I study for language test, the more confused I get.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

22. I don't feel pressure to prepare very well for language class.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

23. I always feel that the other learners speak the foreign language better than I do.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

24. I feel very self-conscious about speaking the foreign language in front of other learners.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

25. Language class moves so quickly I worry about getting left behind.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

26. I feel more tense and nervous in my language class than in my other classes.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

27. I get nervous and confused when I am speaking in my language class.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

28. When I'm on my way to language class, I feel very sure and relaxed.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

29. I get nervous when I don't understand every word the language teacher says.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

30. I feel overwhelmed by the number of rules I have to learn to speak a foreign language.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

31. I am afraid that the other learners will laugh at me when I speak the foreign language.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

32. I would probably feel comfortable around native speakers of the foreign language.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

33. I get nervous when the language teacher asks questions which I haven't prepared in advance.
1= strongly agree 2= agree 3= neutral 4= disagree 5= strongly disagree

Appendix D. DMCs Interview Protocol by Zarrinabadi et al. (2019)

1. Can you tell me about your motivational experience?
2. How did you feel about it?
3. How was your daily schedule?
4. What was particularly interesting about your experience?
5. What was your goal? Did you achieve it?
6. Was there any change in your daily routines or study plan?
7. How did others influence your motivation in that time?
8. Do you remember when it started?
9. Do you remember what triggered your motivation?
10. When did it start to lessen?

11. What do you feel after that experience?
12. Do you like to have such a motivational experience again?

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"I Felt That My Well-Being Was Important to the Teacher": A Phenomenological Inquiry into Emotional Experiences of EFL Learners

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Abstract This study explored Iranian university students' best and worst experiences in English as a Foreign Language (EFL) classrooms, examining their antecedents and emotional responses. A qualitative phenomenological design was conducted with 62 convenience-sampled Iranian students (20 male, 42 female), aged 18–27, enrolled in a general English course. Adapting the Critical Incident Technique (CIT), the researchers elicited learners' emotional experiences via a narrative frame and analyzed the data inductively using MAXQDA. Findings revealed three major insights: the best experiences were associated with the teacher as a source of affective support, a positive and humanized learning environment, and moments of personal triumph and competence. The worst experiences involved public failure, negative interpersonal dynamics, negative test experiences, impairment of student well-being, and feelings of language incompetence. Enjoyment emerged as the predominant positive emotion, whereas hopelessness was the most frequent negative one. The study offers implications for promoting emotional well-being in EFL classrooms.

Keywords: *Achievement Emotions, EFL Classroom, Emotional Experience, Positive Psychology*

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1. Introduction

Emotions are present everywhere in our daily lives (Frenzel et al., 2023), including in educational settings, where the feeling precedes the learning (Cardozo et al., 2024). Learners and teachers spend many years of their lives in the classroom, and this academic setting is of great importance to them, leading to the development of deep positive/negative emotional experiences (Pekrun et al., 2007). In the context of foreign language learning, it has been found that learners' emotions can affect their motivation, attitudes, and academic achievements (Dewaele et al., 2023a; Shao et al., 2020).

According to Dewaele and Li (2020), the research phase on Positive and Negative Emotions in SLA studies began in the early 2010s, and the growing interest in language learning psychology is evidenced by the increasing number of publications and conferences dedicated to the captivating topic of emotions (Dewaele & Li, 2020). Before that for decades the center of attention was the emotion of anxiety (Dewaele et al., 2008; MacIntyre, 2017) and the expansion of the range was explored recently (Dewaele et al., 2023a; Dewaele & MacIntyre, 2014; Fang & Tang, 2021; Shao et al., 2020), especially with the advent of positive psychology, known at the subjective level as a field about "*valued subjective experiences*" (Seligman & Csikszentmihalyi, 2014). Despite the growing literature on positive and negative emotions of EFL learners, there have been limited studies examining the learners' positive and negative emotional experiences, their antecedents, and the emotional responses to these incidents. Furthermore, emotional responses to English learning are culturally dependent phenomena (Dewaele & MacIntyre, 2014). Previous studies on EFL learners' emotions in Iran have predominantly explored individual or a limited range of emotions (e.g., Amiri et al., 2022; Nemati et al., 2020), yet they have rarely examined what classroom events trigger these emotions or how learners respond to them. Therefore, examining the uniqueness of emotional experiences of Iranian learners in EFL classrooms is crucial.

The present study attempted to fill the research gap by exploring the best and worst experiences of Iranian EFL learners in the classroom alongside the sources of and emotional responses to these incidents. Adopting a qualitative methodology, this research was conducted on university students in Iran and

aimed at examining their positive and negative emotional experiences in general English classrooms. It is hoped that the present study may help learners experience less negative and more positive emotions in EFL classes, thereby enhancing their psychological well-being. The study aimed to address two research questions. First, what are the sources of the best and the worst emotional experiences in the classroom based on Iranian English as a foreign language learners’ perceptions? Second, what types of emotions do Iranian learners experience in English as a Foreign Language classrooms?

2. Literature Review

2.1. An overview of emotion research in SLA

According to Dewaele and Li (2020), in the field of second language learning, three phases can be distinguished in research on learners' emotional experiences based on the dominant types of emotions studied: In the initial phase, the study of emotions was largely avoided. In the second phase, scholarly focus was predominantly limited to the investigation of anxiety. During the final phase, both positive and negative emotions were investigated (Dewaele & Li, 2020). Based on Pekrun et al. (2002), students experience nine positive and negative emotions –encompassing enjoyment, anxiety, boredom, anger, relief, pride, hope, hopelessness, and shame– frequently in the academic setting, which is known as academic emotions. However, many of these emotions have received scant attention from L2 emotion researchers (Shao et al., 2019). Anxiety, enjoyment, and boredom were the most prevalent types of academic emotions that have been investigated in FL studies (Botes et al., 2024; Dewaele et al., 2023b; Fang & Tang, 2021; Li, 2022).

As Botes et al. (2024) mentioned, most studies in this context have considered emotions as a variable that is used to predict outcomes such as learners’ test scores, but in recent times, the subjective experiences of the learners within the FL classroom setting have received greater attention because of the incorporation of positive psychology into the FL research domain. This incorporation has led to considering emotions as an output variable because the holistic well-being of learners is as important as the ultimate aim of achievement in language learning (Botes et al., 2024). Well-being is regarded as the main topic of positive psychology. Seligman (2011) introduced the well-being theory and formulated the five-dimensional

PERMA model of well-being, which consists of positive emotion (P), engagement (E), relationships (R), meaning (M), and accomplishment (A). In the field of language learning, Oxford (2016) revised Seligman's (2011) PERMA model, which primarily emphasized positive emotions, and developed a new theoretical framework called EMPATHICS, encompassing nine psychological dimensions: emotion and empathy (E), meaning and motivation (M), perseverance (P), agency and autonomy (A), time (T), hardiness and habits of mind (H), intelligence (I), character strengths (C), and self-factors (S). Oxford (2016) also argued for adopting a holistic approach that considers both positive and negative emotions.

2.2. Empirical studies on learners' emotional experiences

There are not many studies that have placed the learner's emotional experiences at the center of attention, examining the frequency and antecedents of various positive and negative emotions. In relation to this field, Fitriani et al. (2017) investigated the negative emotional experiences of problematic students in the EFL classroom using the method of case study. It was found that anxiety was the most prevalent negative emotion experienced by the students, followed by hopelessness, anger, and boredom. This study further reported that students' low English ability, material difficulty, material repetition, classroom environment, student-teacher relationships, and student-peer relationships were found to be stimulating factors of negative emotions in this research (Fitriani et al., 2017). In another analysis of emotion frequency, the results of a qualitative research by Piniel and Albert (2018) indicate that the English major students experience enjoyment and language anxiety more than other emotions in the context of foreign language use. In this regard, the interviews of advanced EFL learners about the emotions that they felt in English class during the semester showed that enjoyment was the most reported emotion, followed by hope, pride, relief, anger, and boredom (Reilly, 2021). In a related vein, the findings of interview data in a study by Liu et al. (2024) on classroom emotions of Chinese university students revealed that the most common emotions students experienced in the class were anxiety, enjoyment, and boredom as a result of internal and external factors. In another study, Uysal and Güven (2018) employed a qualitative case study design to investigate the sources of the negative emotions according to EFL students and instructors. It was found

that negative feelings of students are rooted in four principal classifications, namely: teacher-oriented (e.g., inappropriate teacher behavior), classroom-oriented factors (e.g., disruptive behaviors of the students), system-oriented factors (e.g., curriculum problems), and student-oriented factors (e.g., preconceived notions). In a qualitative study, Ramezanzadeh et al. (2017) explored the emotional lives of Iranian EFL teachers and learners and reported that caring, love, anger, and anxiety were the most dominant emotions among them.

In relation to the research question regarding the sources of enjoyment and anxiety in foreign language classrooms according to the learners, Jiang and Dewaele (2019) reported that English language anxiety in the classroom primarily results from the learner, whereas enjoyment is more triggered by the teacher. Similarly, in a qualitative part of a study by Yeşilçınar and Erdemir (2023), the sources of foreign language enjoyment and anxiety were explored in a Turkish context. It has been indicated that enjoyment is more dependent on the learner-external variables in comparison to internal ones. Enjoyment originates from personal, peers, teachers, teaching methodology, and institution factors, and triggers for anxiety originate from personal, peers, teachers, and teaching methodology. According to a qualitative study by Sun (2024) on Chinese college students, learners’ gaps with peers, fear of making mistakes and losing face, and exam worries are the antecedents of anxiety. Conversely, learners’ progress and their outstanding peers are enjoyment-provoking elements in speaking classrooms. Furthermore, the analysis of the qualitative part of a study by Gan and Ma (2025) on foreign language enjoyment and anxiety of Chinese high school students showed that the emotion of enjoyment stems from utilizing authentic English and recognition of self, teacher, and peers. In contrast, factors including mistakes in assignments and lack of lesson preparedness contribute to anxious experiences in this investigation. In a related subject domain, Liang (2025) conducted a qualitative longitudinal study examining the affective responses of five college students over 18 months. The results demonstrated that worries about failure and vulnerability to teacher evaluations stimulate High-arousal emotions, including doubt and fear. Also, in relation to language-learning experiences, Oxford (1989) investigated the best and worst experiences of learners and emotional responses to these episodes. In this research, the

characteristics of best experiences were summarized in several groups (e.g., teacher support situations), and various situations were identified as the characteristics of worst experiences (e.g., intense emphasis on grades).

2.3. Theoretical framework

Despite the current turn in research on foreign language learners' emotional experiences, studies exploring the diversity of positive and negative classroom emotions of EFL learners and their antecedents have remained scarce. Therefore, considering the significance of learners' emotional experiences in the foreign language classroom and the existing research shortage in this area, along with the influence of cultural contexts on learners' emotional responses, this study focuses on Iranian learners' best and worst experiences in the foreign language classroom, including their antecedents and the emotional responses to these incidents.

According to Pekrun's (2006) control–value theory of achievement emotions, the perceived control over learning processes and outcomes, together with the subjective value attached to those activities and results, play a central role in shaping learners' emotional experiences. Nine academic emotions–including enjoyment, pride, and hope as positive emotions, and anxiety, boredom, anger, relief, hopelessness, and shame as negative ones–are most frequently experienced by students in academic contexts (Pekrun et al., 2002). Because each specific emotion within achievement contexts is shaped by its distinct appraisal configuration, students' emotional experiences are, therefore, domain-specific (Pekrun, 2006). In this study, control–value theory clarifies the antecedents of both positive and negative achievement emotions in EFL classrooms. Cameron and Larsen-Freeman (2007) describe the language classroom as a complex system that cannot be reduced to its parts, since the parts both shape and are shaped by the whole, and a systems perspective helps in understanding classroom issues more holistically. From a complex dynamic systems view, the language classroom emphasizes "interaction across interconnected levels of organization–from individual minds up to the socio-political context of language learning–and interconnected timescales–from the minute-by-minute of classroom activity to teaching and learning lifetimes" (Cameron & Larsen-Freeman, 2007, p. 236). This dynamic conceptualization provides the foundation for viewing

learners' emotions and interactions in this study as interconnected and context-dependent phenomena.

3. Method

This study was guided by descriptive phenomenology, a method aimed at capturing the essence of lived experience as directly reported by participants (Edmond & Kennedy, 2016). It sought to explore university students' best and worst experiences in EFL classrooms, with a focus on the sources of and emotional responses to these incidents. Following the descriptive phenomenological principle of bracketing, the researchers consciously set aside their prior assumptions and avoided imposing external theoretical interpretations during data analysis, allowing themes to emerge inductively from participants' narratives.

3.1. Participants and context

A total of 62 undergraduate students from a large public university in Iran participated in the study. Participants were recruited via convenience sampling. The sample included 20 male and 42 female students, aged 18 to 27. All were undergraduate students except for one doctoral student in veterinary medicine. Participants were enrolled in various disciplines, including mechanical engineering, psychology, accounting, and veterinary medicine, and were at different stages of their studies (Terms 1–9). All participants were native Persian speakers. At this institution, general English classes are primarily taught in Persian, with instructors using students' first language for explanations. Regarding prior English learning experiences, 12 participants had only studied English in school and university; 18 had attended private language institutes for fewer than five terms, 15 for 5–10 terms, and 17 for more than 10 terms. To further contextualize participants' linguistic backgrounds, they were asked to self-assess their English proficiency level. The distribution was as follows: beginner (n = 2, 3.2%), elementary (n = 9, 14.5%), lower-intermediate (n = 20, 32.2%), intermediate (n = 16, 25.8%), upper-intermediate (n = 14, 22.5%), advanced (n = 1, 1.6%), and very advanced (n = 0, 0%).

3.2. Instruments

The instrument consisted of three main components:

1. An informed consent form assuring anonymity and voluntary participation;
2. A demographic section collecting data on gender, age, academic major, term of study, and prior English learning experiences;
3. Two structured narrative prompts, one for a best memory and one for a worst memory.

To elicit consistent yet deeply personal accounts, a structured written narrative frame was developed in Persian and administered as the primary data collection instrument. Narrative frames are particularly well-suited to phenomenological inquiry because they allow participants to reflect on and articulate lived experiences in their own words, without the immediate presence or influence of the researcher (Barkhuizen, 2014). This participant-directed format facilitates the elicitation and stimulation of deeply rooted experiences and practices (Kayi-Aydar, 2021). In addition, to facilitate rich recall of emotionally significant classroom experiences, the Critical Incident Technique (CIT) (Flanagan, 1954) was employed as a narrative elicitation strategy. Participants were invited to describe specific memorable incidents, both positive and negative. This use of CIT aligns with phenomenological inquiry, as it supports participants in articulating their lived experiences in contextual and reflective detail (Hughes, 2008).

Two parallel narrative prompts were provided: one for the best memory and another for the worst experience in a general English course during the current term. Each frame began with a standardized opening sentence that participants were asked to complete, followed by guided reflective questions. The full prompts were as follows:

The best experience frame:

"The best memory I have from this term's general English class was when, one day, …

At that moment, I was thinking that …

This event/experience was very important and special to me because …"

"The worst experience frame:

"The worst memory I have from this term's general English class was when, one day, …

At that moment, I was thinking that …
This event/experience was very important and special to me because …"

Following these open-ended sections, participants were presented with a structured emotion checklist based on Pekrun's (2006) control-value theory of academic emotions. For positive incidents, they could select one or more emotions from: *enjoyment*, *pride*, *hope*, or *none of the above*. For negative incidents, options included: *anxiety*, *anger*, *shame*, *boredom*, *hopelessness*, or *none of the above*. In both cases, a final open-ended item invited participants to name any additional emotions they had experienced but that were not listed. This design ensured systematic attention to emotional dimensions while preserving space for idiosyncratic affective responses.

The instrument was pilot-tested with three experts in qualitative research and emotion studies to ensure content relevance, linguistic clarity, and alignment with phenomenological aims (Nassaji, 2020). Minor refinements were made to phrasing and formatting based on their feedback before final deployment.

3.3. Data collection

An online narrative questionnaire was administered via Porsline, a widely used and user-friendly survey platform in Iran known for its accessibility and visual appeal. Before data collection, brief oral and written explanations (via voice messages and in-class announcements) were provided to clarify the study's purpose and guide participants in recalling meaningful episodes. The second author, an EFL university instructor in Iran, distributed the link among the general English students through official class messaging groups. Given that all participants were native Persian speakers and exhibited varying levels of English proficiency, data were collected exclusively in Persian to ensure participants could express complex emotional and cognitive experiences with nuance, accuracy, and minimal linguistic constraint.

3.4. Ethical considerations

This study received formal ethical approval from the Ethics Committee of Allameh Tabataba'i University (Approval Code: IR.ATU.REC.1403.030). Before data collection, all participants were presented with a detailed digital informed consent form outlining the study's purpose, procedures, estimated duration, voluntary nature of participation, and the right to withdraw at any

time without any negative consequences. Participation was contingent upon explicit consent: respondents were required to tick a consent checkbox to confirm willingness to take part. The consent form explicitly stated that responses would remain strictly confidential and all data would be anonymized using participant codes (e.g., P.01, P.02).

3.5. Data analysis

Data were analyzed using MAXQDA software (Version 2024) following the six-phase inductive thematic analysis framework (Braun & Clarke, 2006):

1. Familiarization: Repeated, line-by-line reading of all narratives to immerse in the data.

2. Initial coding: Generating concise labels for meaningful segments related to thoughts and emotions in positive and negative incidents.

3. Searching for themes: Grouping similar codes into potential overarching themes.

4. Reviewing themes: Checking candidate themes against both coded extracts and the full dataset.

5. Defining and naming themes: Refining theme definitions and assigning meaningful names for each theme.

6. Producing the report: Writing up the findings with anonymized embedded participant excerpts using participant numbers (e.g., P. 33).

Consistent with best practices in multilingual qualitative research, all initial coding was conducted in the original language (Persian) to preserve semantic integrity and contextual subtleties. Only after the thematic structure–comprising themes, sub-themes, and associated codes–was fully developed and validated in Persian were these analytical constructs translated into English. Similarly, all illustrative excerpts included in the Findings section were translated from Persian into English. To enhance trustworthiness, a second researcher reviewed the initial codes and theme definitions. Any discrepancies in interpretation were discussed until consensus was reached. Consistent with the study's descriptive phenomenological stance, the researchers maintained a neutral analytical posture, consciously setting aside personal views during coding and theme development. Finally, transferability was supported through a thick description of the research context, participant characteristics, and analytical procedures.

4. Results

To address the first research question, which focused on the sources of the best and worst emotional experiences of Iranian EFL learners, the data were analyzed separately based on the best and the worst incidents. Each domain is further categorized into themes, sub-themes, and associated codes, with frequencies indicating how often each element appeared across the 62 participants’ narratives.

4.1. Sources of best emotional experiences

As illustrated in Figure 1, regarding the sources of the best experiences, the following three themes emerged from the data: (1) the teacher as a source of affective support (f = 93), (2) Positive and humanized learning environment (f = 65), (3) Moments of personal triumph and competence (f = 40).

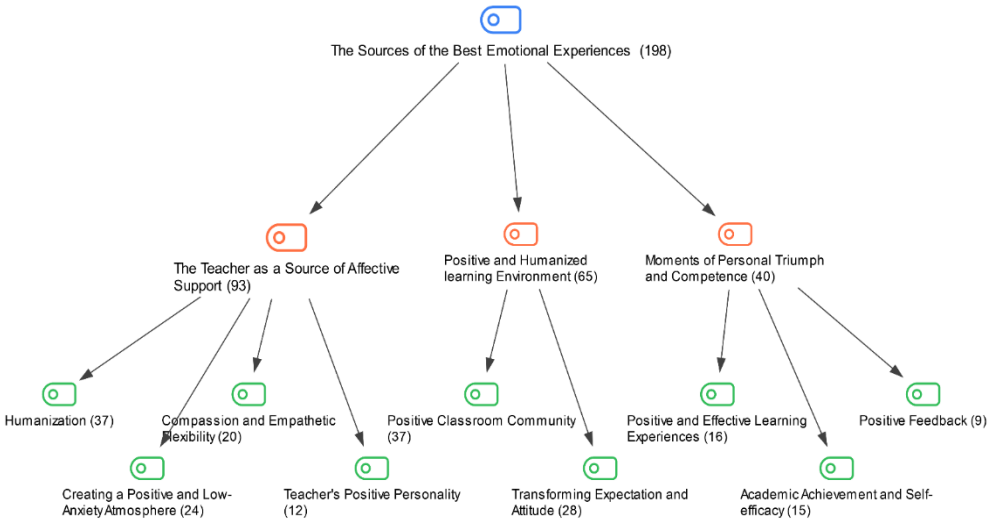


Figure 1. Sources of the best emotional experiences of Iranian EFL learners in the classroom

4.1.1. Teacher as a source of affective support

This was the most frequently reported theme, highlighting the importance of the teachers’ role in the formation of students’ positive emotional experiences. This theme encompassed four sub-themes:

a. Humanization: Students described teachers who demonstrated interest in their well-being, recognized and valued them as individuals, behaved in a friendly and respectful manner, and engaged in conversations beyond the curriculum. Reflecting on this, participant 33 remarked:

"How wonderful it would be if all instructors, before focusing on the lesson, first valued students as human beings and learners, making an effort to understand their personalities, psychological states, and temperaments, and adjusting their teaching accordingly to foster effective learning without leaving students constantly anxious or worried about the class or the teacher's behavior. It was the first time I encountered someone who related to students first as friends, then as their instructor–someone who genuinely cared for the students before even thinking about the subject matter." (P. 33)

b. Creating a positive and low-anxiety atmosphere: this sub-theme included teachers' use of humor, efforts to create a relaxed environment, positive first impressions, and awarding bonus points. In describing such an environment, participant 11 shared:

"The instructor always broke the formality and dryness of the classroom with their sense of humor and friendly demeanor, turning language learning into a genuinely enjoyable experience." (P. 11)

c. Compassion and empathetic flexibility: Students recalled instances of teacher flexibility, understanding, empathetic responses, support, and encouragement. Participant 17 recalled a particularly supportive interaction during a midterm exam:

"In my view, the best memory from that class was during the midterm. We were really struggling emotionally, and the instructor kept reassuring us, 'It's okay–I'll give you a chance to make up for it; don't cry. With your effort, you'll get where you need to be.' I also remember once telling the instructor directly, 'I'm exhausted–I don't understand anything; I'm just slow.' Their response was incredibly kind: 'You're not slow. You're capable. You can do this.'" (P. 17)

Participant 36 described a moment of understanding during a reading task:

"When the instructor asked me to read the passage and I said I wasn't ready, they calmly accepted my hesitation and kindly assigned the reading to me for the next session instead." (P. 36)

d. Teacher's positive personality: Participants referred to the teacher's overall positive personality as a meaningful aspect of their classroom experience. Participant 12 contrasted their expectations with reality:

"Based on my past experiences in middle and high school English classes, I expected to face someone rigid, authoritarian, arrogant, and overly serious, which filled me with fear and anxiety. But the opposite happened entirely. I met a person who was remarkably humble, calm, spirited, and full of humor!" (P. 12)

4.1.2. Positive and humanized learning environment

This theme encompassed students' accounts of positive experiences that arose from the classroom setting itself. It comprised two sub-themes:

a. Positive classroom community: It included descriptions of an intimate classroom environment, joyful atmosphere, opportunities for social interaction, the presence of a friend or relative in class, and in-class birthday celebrations with shared sweets. As participant 11 put it:

"That friendly atmosphere made language learning feel easier for me. I didn't feel like I was in a stiff, formal setting–rather, it was as if I were learning English alongside my friends." (P. 11)

b. Transforming expectation and attitude: It included accounts of unexpectedly positive classroom experiences and a renewed or improved attitude toward the English class. Participant 5 recounted a day that defied their expectations:

"After a grueling day at university–having taken a pure math exam and done physical training right before the general English class–I assumed I'd go home with a headache, even more exhausted. But I actually returned home feeling better than when I'd arrived. Can you believe it? After ten hours on campus, by 8 p.m. I was still energized! That day, I understood everything in class and felt proud that I'd made

it through such a tough day so well. It was then I realized my attitude toward English and English class had truly changed." (P. 5)

Participant 39 described a spontaneous, affirming moment:

"My best memory this term was when, during free time in the middle of class, my friends and I went out briefly for lunch but returned a bit late. Instead of getting upset, the instructor laughed and made lighthearted, humorous remarks. I was deeply moved by their kindness. In that moment, I thought to myself: how differently people can behave–and how a teacher's words and actions can leave either a positive or negative mark on a student. This experience was especially meaningful to me because it was the first time I'd witnessed such compassion in an educational setting." (P. 39)

4.1.3. Moments of personal triumph and competence

This theme reflected students' accounts of experiences in which they felt successful, capable, or effective in their English learning. It comprised three sub-themes.

a. Academic achievement and self-efficacy: Students described instances of exam success, a sense of academic competence in English, and overcoming fear to gain confidence in their abilities. Participant 59 shared a moment of unexpected success: *"We had a quiz, and I hadn't had much time to study because I had the English class that evening and needed to memorize vocabulary from two texts. Still, I didn't skip class and took the exam. Even though I hadn't prepared well, I scored a 19 based on my prior knowledge–and I felt incredibly proud of myself for facing the challenge head-on instead of backing down. I was one of the top students in class, having earned the highest score."* (P. 59)

b. Positive feedback: This sub-theme included reports of receiving praise from the teacher and recognition from peers or others in the classroom. Participant 61 recalled a rewarding presentation:

"I gave a presentation on film genres and received such positive reactions from both classmates and the instructor. It was a truly enjoyable experience." (P. 61)

c. Positive and effective learning experiences: participants recalled moments when their learning felt effective, enjoyable, or when they developed a stronger sense of efficacy in learning English. Participant 13 reflected on a breakthrough in vocabulary retention: *"My best memory from this term's general English class was when the instructor used a mnemonic keyword coding technique to teach a new word. In that moment, I thought: 'This is brilliant! With this method, I'll forget vocabulary much less often. It feels reliable–and enjoyable. I'm not getting tired of learning; in fact, I'm motivated to keep going.' This experience was deeply significant for me because I'd always struggled with memorizing words for exams–only to forget them immediately afterward and have to start over each time, which was incredibly frustrating."* (P. 13)

4.2. Sources of worst emotional experiences

As illustrated in Figure 2, regarding the sources of the worst experiences, the analysis yielded five themes: (1) Experience of Public Failure (f = 24), (2) Negative Interpersonal Dynamics (f = 21), (3) Negative Test Experiences (f = 16), (4) Impairment of Student Well-being (f = 15), and (5) Feeling of Language Incompetence (f = 5).

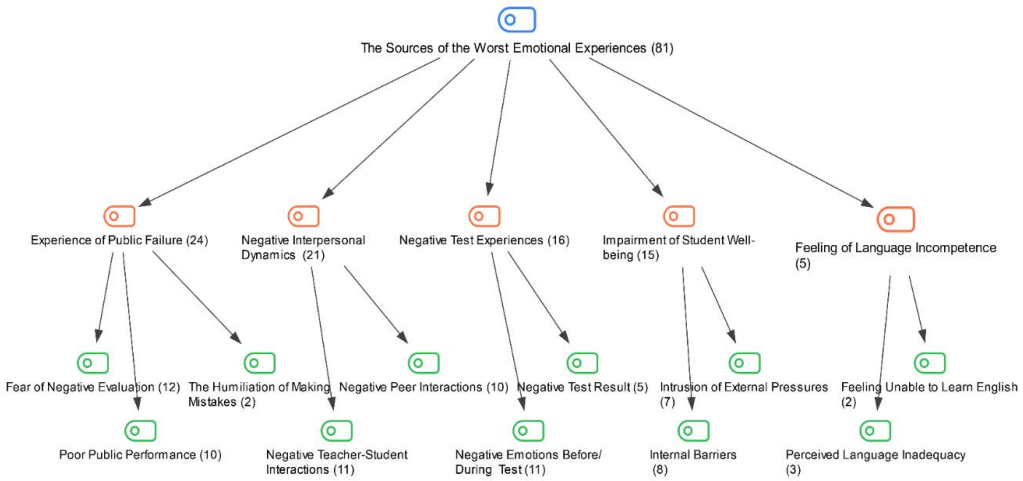


Figure 2. Sources of the worst emotional experiences of Iranian EFL learners in the classroom

4.2.1. Experience of public failure

This theme included students' accounts of situations in which they experienced fear of negative evaluation, humiliation from mistakes, or poor performance in public classroom activities. It comprised three sub-themes:

a. Fear of negative evaluation: students described concerns about being judged, disapproved of, or ridiculed by others, fear of disappointing the teacher, and worry about demonstrating incompetence. Participant 10 confided:

"I kept thinking, 'Everyone must think I'm so dumb for not knowing the meaning of such a simple word." (P. 10)

Participant 4 shared:

"I felt the instructor saw me as unreliable and careless–someone who didn't pay attention or care about the course. I believed they thought I was the weakest student in class, incapable of learning, and that they'd already given up on me." (P. 4)

b. The humiliation of making mistakes: This sub-theme captured reports of loss of face and being laughed at following errors in class. As participant 3 recalled:

"Once, I mispronounced a word, and it was repeated several times–causing others to laugh." (P. 3)

c. Poor public performance: Students recalled moments of underperformance, stage fright, difficulty with reading, mispronunciation, mistranslation, or receiving the lowest score. Participant 12 reflected on a virtual class setback:

"During one online session, I read a passage but couldn't perform as effectively as I usually do. My delivery was full of errors, and after every sentence, I was heavily criticized. I felt terrible about myself–wondering why I couldn't answer questions as well as I normally do." (P. 12)

Participant 41 remembered:

"There was a time I misread a word during a reading activity because I was distracted–and I was so embarrassed that I kept blaming myself for days afterward." (P. 41)

4.2.2. Negative interpersonal dynamics

This theme involved reports of unhelpful or distressing interactions with peers and the teacher. It comprised two sub-themes:

a. Negative peer interactions: Students described disruptive behavior, unfairness, feeling misunderstood or socially isolated, and conflict with classmates. Participant 48 described a frustrating classmate:

"A new student sat in front of me and either kept making irrelevant comments, cracking silly jokes, or doing things even high schoolers wouldn't do during class." (P. 48)

b. Negative teacher-student interactions: this sub-theme included feeling misunderstood by the teacher, disruptive teacher behavior, criticism, perceived indifference or dislike, fear of teacher judgment, and lack of support. Participant 3 recounted a disheartening conversation:

"I once spoke with the instructor about my absences and tried to explain my situation, but no matter how clearly I spoke, it felt as though no one was listening–or as if I were speaking a different language. Although the conversation ended calmly, I left feeling deeply discouraged by their response." (P. 3)

4.2.3. Negative test experiences

This theme referred to difficulties and distress related to quizzes and exams. It comprised two sub-themes:

a. Negative emotions before/during test: Students reported being unable to answer questions, feeling unprepared, and worrying about exam performance. Participant 17 shared:

"My worst memory was during that quiz–I felt so stupid because I thought I knew everything, but when the exam started, my mind just went blank." (P. 17)

b. Negative test result: this sub-theme described receiving a *lower score than peers, an unexpected low score, and being late for the exam, resulting in losing the score. Participant 13 expressed their dismay:*

"The worst memory I have from this term's general English class was receiving a 17 on the first quiz–even though I'd studied hard and expected a perfect score." (P. 13)

4.2.4. Impairment of student well-being

This theme described how personal and external factors interfered with students' classroom experience. It comprised two sub-themes:

a. Intrusion of external pressures: Students mentioned disruptions from personal life issues, academic pressures, and sympathy for struggling peers. Participant 4 explained:

"I'd promised the instructor I'd read aloud in the next session and had practiced the night before. But just before class, I received devastating personal news over the phone, which completely shattered my concentration–I couldn't bring myself to read from the text again." (P. 4)

b. Internal barriers: this sub-theme included sickness, fatigue, initial unfamiliarity with tasks, profound distress, pre-existing language anxiety, and fear of academic failure. Participant 50 described entering an unfamiliar classroom:

"My worst memory this term was walking into a class in another department where I didn't know anyone. As an introvert, and already carrying the anxiety I'd developed toward English classes since middle school, I sat down quietly and tried to take a deep breath." (P. 50)

Another recalled sheer exhaustion by participant 24:

"One day, I was so tired I just wanted the class to end. Honestly, I didn't understand anything that was happening." (P. 24)

4.2.5. Feeling of language incompetence

This theme included students' expressions of perceived language inadequacy and feeling unable to learn English. Participant 11 reflected:

"My worst memory this term was realizing I was falling behind the rest of the class in language learning. During one session, the instructor asked a question, and most students answered easily–but I struggled just to understand the question, let alone formulate a response." (P. 11)

4.3. Emotional responses to the best and worst experiences

The Iranian students reported diverse positive and negative emotions in the EFL classroom. The following patterns emerged from the data.

4.3.1. Positive emotional responses

According to Figure 3, among the best experiences, students reported 21 distinct positive emotional responses. The most frequently positive emotion was enjoyment (f = 45), followed by hope (f = 28), joy (f = 19), pride (f = 12), satisfaction (f = 4), rapport (f = 3), self-efficacy (f = 3), self-esteem (f = 2), dignity (f = 2), method efficacy (f = 2), and comfort (f = 2). Other less frequent emotions included admiration (f = 1), eustress (f = 1), responsibility (f = 1), empathy (f = 1), cognitive freedom (f = 1), agency and impact (f = 1), mindfulness (f = 1), fortuity (f = 1), status (f = 1), and meaning (f = 1).

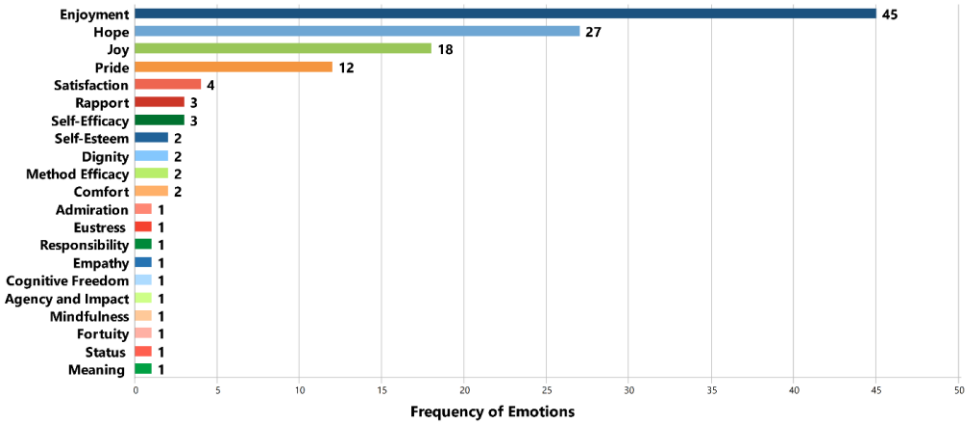


Figure 3. Iranian EFL students’ emotional responses to the best classroom experiences

4.3.2. Negative emotional responses

According to Figure 4, the worst experiences were accompanied by 22 distinct negative emotional responses. The most frequently negative emotion was hopelessness (f = 33), followed by anxiety (f = 27), shame (f = 22), boredom (f = 16), anger (f = 14), sadness (f = 8), stress (f = 7), fear (f = 4), worry (f = 3), futility (f = 3), humiliation (f = 2), and annoyance (f = 2). Other less frequent emotions included confusion (f = 1), heartbreak (f = 1), regret (f = 1), agitation (f = 1), hatred (f = 1), resentment (f = 1), dejection (f = 1), loneliness (f = 1), envy (f = 1), and insecurity (f = 1).

5. Discussion and Conclusion

This phenomenological research examined the best and worst experiences and emotions that were reported by 62 Iranian university students in their EFL classrooms, and yielded three major findings.

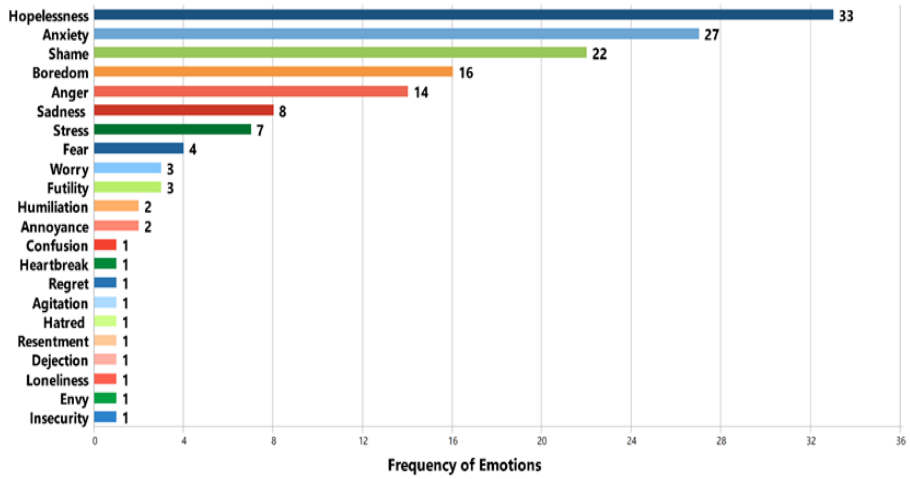


Figure 4. Iranian EFL students' emotional responses to the worst classroom experiences

First, the factors contributing to learners' best experiences encompass three main themes: (1) the teacher as a source of affective support (f = 93), (2) positive and humanized learning environment (f = 65), and (3) moments of personal triumph and competence (f = 40). These findings further support the idea of the critical role of external factors, especially the teacher in cultivating positive emotion of enjoyment (the most reported emotion in learners' best experiences) among foreign language learners. For example, a study by Jiang and Dewaele (2019) on the sources of enjoyment revealed that the emotion of enjoyment primarily stems from the teacher. In the same vein, Yeşilçınar and Erdemir (2022) reported that enjoyment is more dependent on the learner-external variables in comparison to internal ones. Furthermore, they

emphasized that the theme ‘teacher’ is highly related to foreign language enjoyment.

Second, with regard to the sources of learners’ worst experiences, students’ responses were categorized into five main themes: (1) experience of public failure (f = 24), (2) negative interpersonal dynamics (f = 21), (3) negative test experiences (f = 16), (4) impairment of student well-being (f = 15), and (5) the feeling of language incompetence (f = 5). There are similarities between the findings of the present study and previous studies that focused on the sources of anxiety (one of the most reported emotions in learners' worst experiences). According to Sun (2024), learners’ gaps with peers, fear of making mistakes and losing face, and exam worries are the antecedents of anxiety in speaking classrooms. Similarly, fear of negative evaluation and negative emotions before/during the test are recognized as important sources of the worst experiences in the present research. In another analysis of emotion-provoking elements, students’ low English ability, material difficulty, material repetition, classroom environment, student-teacher relationships, and student-peer relationships are reported as stimulating factors of negative emotions (Fitriani et al., 2017). Uysal and Güven (2018) similarly highlighted that improper teacher behaviors, negative teacher-student relationships, and group dynamics are among the negative-emotion-provoking factors. These findings are in accord with our results, which show that negative interpersonal dynamics, including negative peer interactions and negative teacher-student interactions, are identified as key sources of negative emotions. The findings of this study also mirror those of Jiang and Dewaele (2019), who reported that exams and quizzes, bad language performance, and peer pressure are among the important antecedents of anxiety. Furthermore, results of the current study indicate that the role of teachers in the formation of negative emotions is less prominent than their role in the formation of positive emotions. This finding further supports the idea that the formation of foreign language classroom anxiety is less related to the teacher compared to the teacher's role in triggering enjoyment (Dewaele et al., 2018; Jiang & Dewaele, 2019).

As mentioned earlier, findings of this study show that the experience of public failure encompassing fear of negative evaluation, poor public performance, and the humiliation of making mistakes is a key antecedent of

the worst experiences of Iranian EFL learners in the classroom. A possible explanation for this might be the Iranian cultural context. In Iranian culture, the concept of *Âberu* including "*terms like reputation, face, or good name*", is a crucial factor of personal and public life, and losing it generally is understood as a threatening element to life (Zaborowska, 2014). Furthermore, face is identified as an emotionally charged concept (Hosseini, 2022); therefore, losing it can trigger negative emotional experiences, especially in the context of Iran. It is also important to note that the results related to achievement emotions can be interpreted through the theoretical lens of the Control-Value Theory (Pekrun, 2006). In this regard, variables such as moments of personal triumph and competence, public failure, and negative test experiences illustrate situations of high or low perceived control over learning, which consequently elicit corresponding positive or negative achievement emotions.

Third, the Iranian students experienced diverse positive and negative emotions in the EFL classroom. In this research, enjoyment was the most prevalent positive emotion reported by the students during their best experience, followed by hope, joy, and pride. These findings support previous studies, which report that students experience enjoyment more than other positive emotions in the foreign language context (Liu et al., 2024; Piniel & Albert, 2018), and that hope and pride are also prevalent among students (Reilly, 2021). In terms of worst experiences in the present study, hopelessness was the most prevalent negative emotion reported by the students, followed by anxiety, shame, boredom, and anger. There are similarities between the most prevalent negative emotions in this study and those of Fitriani et al. (2017), who found that anxiety, hopelessness, anger, and boredom were the most prevalent negative emotions during the EFL classroom with this difference that anxiety was reported as the most reported negative emotion in some previous studies (Fitriani et al., 2017; Liu et al., 2024). This may be due to the unique focus of our study on the emotional responses to the *worst* experiences, in contrast to previous studies that have focused only on the frequency of negative emotions in classrooms.

In conclusion, the findings have shown that the sources of best experiences were categorized into three main themes: 1) the teacher as a source of affective support, 2) positive and humanized learning environment,

3) moments of personal triumph and competence. On the other hand, the sources of worst experiences were identified as five factors: 1) experience of public failure, 2) negative interpersonal dynamics, 3) negative test experiences, 4) impairment of student well-being, and 5) the feeling of language incompetence. Furthermore, concerning best experiences, enjoyment was the most prevalent positive emotion reported by the Iranian students in EFL classrooms, followed by hope, joy, and pride. Conversely, in terms of worst experiences, hopelessness was the most prevalent negative emotion reported, followed by anxiety, shame, boredom, and anger.

These findings have important implications for both learners and teachers, who are the shapers of the emotional environment of EFL classrooms. This is particularly true for teachers, who lead the development of the positive classroom environment (Ye, 2024) and play a prominent role in fostering positive experiences (Mohammadi & Ahmadpour Kasgari, 2024; Pishghadam & Farkhondehfal, 2017). Teachers should understand, support, encourage, recognize and value each student, while also demonstrating flexibility, empathetic response, interest in student well-being, friendliness, and respect for learners in the EFL classrooms. They should also strive to create a positive and low-anxiety atmosphere. The participants in the present study identified moments of personal triumph and competence as one of the best experiences in the EFL classrooms. Therefore, it is recommended that teachers use effective and engaging teaching techniques and offer various activities for learners so that they can attain positive and effective learning experiences, leading to a sense of academic achievement and self-efficacy. In addition, it is crucial that teachers be aware of the antecedents of negative emotional experiences of students, such as feeling misunderstood by the teacher, disruptive teacher behavior, teacher criticism, perceived teacher indifference or dislike, fear of teacher judgment, and lack of teacher support. They should also attempt to avoid these situations in the classrooms. Moreover, the results of this study indicate the influence of the classroom climate, student-teacher relationship, and peer interactions on triggering EFL learners’ emotions. By exploring the best and worst emotional experiences, students will understand more about their own emotional journey through EFL learning. Learners should be aware that learning a foreign language is emotionally charged and that they experience both positive and negative

emotions in EFL classrooms. Knowing about the sources of and responses to the emotional experiences can help learners to examine and cope with these events. The results of this study also help learners recognize the influence of external pressures and internal barriers on their emotional well-being in the classroom. EFL learners should be aware of how their country's contextual factors, such as the crucial importance of face and the test-oriented education system in Iran, influence their emotional responses, leading to the effective management of these responses. This research adds to a growing body of literature on emotions beyond enjoyment and anxiety and extends our knowledge of the best and worst experiences of language learning that have ingrained significant cognitive and affective data into participants' memories (Oxford, 1989).

The generalizability of these results is subject to certain limitations. First, this study centered on the emotional experiences of students from general English courses at one university who were taught by the same teacher, which means that the findings are not representative enough. Future studies should focus on students from various educational settings and different teachers. Second, all data of this research were gathered using students' self-reports. Future studies should incorporate other methods, such as classroom observations, to address this limitation. Third, for examining the dynamic aspect of emotional experiences, longitudinal studies should be conducted.

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Appendices

Appendix A. The narrative frame for the best memory

بهترین خاطرهای که از کلاس زبان عمومی این ترم به یاد دارم این بوده است که یک روز.....

در آن لحظه افکاری که داشتم این بود که.....

این اتفاق و تجربه/خاطره برایم خیلی مهم و خاص بود، چون.....

در خاطرهای که تعریف کردید، کدام یک از احساسات زیر را تجربه نمودید؟ (لذت، افتخار، امیدواری، هیچکدام) (در پاسخ به سوال میتوانید بیش از یک گزینه را انتخاب نمایید)

اگر احساس دیگری نیز تجربه نمودهاید، لطفاً نام ببرید.

The Narrative Frame for the Worst Memory:

بدترین خاطرهای که از کلاس زبان عمومی این ترم به یاد دارم این بوده است که یک روز.....

در آن لحظه افکاری که داشتم این بود که.....

این اتفاق و تجربه/خاطره برایم خیلی مهم و خاص بود، چون.....

در خاطرهای که تعریف کردید، کدام یک از احساسات زیر را تجربه نمودید؟ (اضطراب، عصبانیت، خجالت، خستگی، ناامیدی، هیچکدام) (در پاسخ به سوال میتوانید بیش از یک گزینه را انتخاب نمایید)

اگر احساس دیگری نیز تجربه نمودهاید، لطفاً نام ببرید:

Appendix B. Inductive thematic analysis of best memories with associated codes

Perceived themes for the best Memories	Themes	Total Frequency for each theme	Sub-themes	Frequency of each sub-theme	Associated codes	Frequency for each associated code
	Moments of Personal Triumph and Competence	40	Academic Achievement and Self-efficacy	15	Exam Success	3
					Sense of Academic Competence	6
					Conquering Fear and Gaining Confidence	6
			Positive Feedback	9	Teacher Praise	5
					Positive Social Recognition	4
			Positive and Effective Learning Experiences	16	Enhanced Learning Effectiveness	5
					Enjoyable Learning Experience	7
					Building Efficacy in learning	4
	Positive and Humanized learning Environment	65	Positive Classroom Community	37	Intimate Classroom Environment	14
					Joyful Classroom Environment	5
					Opportunities for Social interaction	2
					Presence of a Friend/Relative in the Classroom	2
					In-Class Birthday Celebration and Sharing Sweets	14
			Transforming Expectation and Attitude	28	Positive Event Contrary to Student Expectation	24
					Positive Shift in Attitude toward the English Class	4

	The Teacher as a Source of Affective Support	93	Compassion and Empathetic Flexibility	20	Teacher Flexibility	10
					Teacher Understanding	3
					Teacher's Empathetic Response	3
					Teacher Support	3
					Teacher Encouragement	1
			Humanization	37	Demonstrating Interest in Student Well-being	8
					Recognizing and Valuing Each Student	8
					Teacher Friendliness	10
					Teacher's Respect for Students	4
					Class Conversation Beyond the Curriculum	7
			Creating a Positive and Low-Anxiety Atmospher	24	Creating a Relaxed Environment	4
					Teacher Humor	12
					Positive First Impression	5
					Bonus Points	3
					Teacher's Positive Personality	12

Appendix C. Worst memories inductive thematic analysis with associated codes

Perceived themes for the worst Memories	**Themes**	**Total Frequency for each theme**	**Subthemes**	**Frequency of each sub-theme**	**Associated codes**	**Frequency for each associated code**
	Impairment of Student Well-being	15	Intrusion of External Pressures	7	Intrusion of Personal Life	2
					Intrusion of Academic Pressures	1
					Intrusion of Sympathy for Peers	4
			Internal Barriers	8	Sickness	1
					Fatigue	1
					Initial Unfamiliarity	3
					Profound Distress	1

					Academic Failure Anxiety	1
					Pre-existing Language Anxiety	1
	Negative Interpersonal Dynamics	21	Negative Peer Interactions	10	Disruptive Peer Behavior	3
					Peer Unfairness	2
					Feeling Misunderstood by the Peers and Socially Isolated	2
					Conflict with Peers	3
			Negative Teacher-Student Interactions	11	Feeling Misunderstood by the Teacher	2
					Disruptive Teacher Behavior	1
					Teacher Criticism	1
					Perceived Teacher Indifference/Dislike	2
					Fear of Teacher Judgment	4
					Lack of Teacher Support	1
	Experience of Public Failure	24	Fear of Negative Evaluation	12	Fear of being judged by others	3
					Fear of disapproval by others	2
					Fear of being ridiculed	1
					Fear of disappointing the teacher	5
					Fear of demonstrating incompetence	1
			The Humiliation of Making Mistakes	2	Feeling of loss of face	1
					Experience of being laughed	1
			Poor Public Performance	10	Feeling of underperformance	3
					Stage fright in public speaking	1
					Difficulty with reading	2

					Mispronunciation of a word	2
					Mistranslation of a word	1
					Getting the lowest score	1
	Negative Test Experiences	16	Negative Emotions Before/During Test	11	Feeling Unable to Answer Quiz/Exam Questions	4
					Feeling Unprepared to Answer Questions	4
					Worry about Exam Performance	3
			Negative Test Result	5	A Lower Score than Other Students	2
					An Unexpected Low Score	2
					Being Late for the Exam, Resulting in Losing the Score	1
	Feeling of Language Incompetenc	5		_____	Perceived Language Inadequacy	3
					Feeling Unable to Learn English	2

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