



Teachers' Stroking Behavior in Anxiety, Willingness to Communicate, and Achievement

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Abstract Acknowledging the crucial role of teacher attention and performance in students' learning success, this study investigated the interrelationships of teacher stroke, foreign language classroom anxiety (FLCA), L2 willingness to communicate (WTC), and English language achievement (ELA) among Iranian EFL learners. A total of 281 EFL learners (100 male & 181 female) completed the learner stroke quotient (LSQ), the FLCA, and the L2 WTC scales. The results of the correlational analysis revealed a significant association between EFL teachers' stroking behavior and Iranian EFL learners' L2 WTC and ELA. Additionally, FLCA demonstrated a negative correlation with the positive verbal conditional subconstruct of LSQ. Structural equation modeling (SEM) further indicated that teacher stroke directly predicts EFL learners' L2 WTC without the mediation of FLCA. The findings also suggested that FLCA-mediated positive and negative LSQ can predict EFL learners' ELA, while positive LSQ is a direct predictor of learners' ELA. These results underscore the importance of teacher-student interactions in language education and offer insights for educators to enhance language teaching and learning outcomes.

Keywords: *English language achievement, Foreign language classroom anxiety, EFL learners, Teacher stroke, Willingness to communicate*

1. Introduction

Language teaching and learning have long been considered a significant concern for individuals, encompassing various aspects such as cognitive and linguistic abilities, teacher-centered and student-centered pedagogies, and psychological and behavioral factors (Gu & Sun, 2021). The shift towards a learner-centered approach to teaching has brought constructs such as anxiety, emotion, motivation, demotivation, and willingness to communicate (WTC) to the forefront (Fathi & Mohammaddokht, 2021).

One of the most complex issues in second language teaching studies is the psychological and emotional nature of WTC (Fernández-García & Fonseca-Mora, 2022; Gu & Sun, 2021). Researchers have determined that a positive classroom environment can influence students' WTC and emotions, such as pleasure and anxiety (Fernández-García & Fonseca-Mora, 2022; Khajavy et al., 2018). Previous research has indicated that students' WTC can be predicted by foreign language classroom anxiety (FLCA), and reducing FLCA

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levels can increase students' willingness to participate (Fathi & Mohammaddockht, 2021). Furthermore, strengthening the relationship between the teacher and the learner is crucial for promoting communication in the classroom (Cai, 2021).

To gain a deeper understanding of the psychological dynamics involved in interactions between students and teachers, it is essential for researchers to comprehend the characteristics of such interactions as well as the distinctiveness of the relationships that ensue. Transactional Analysis (TA), introduced by Eric Berne in 1958, offers a framework for comprehending systematic therapy and personality theory, which can facilitate positive growth and development of teacher-student relationships (Xie & Derakhshan, 2021). Researchers have utilized the TA theory to shed light on the concept of "teacher stroke" which refers to the actions and behaviors displayed by teachers in the classroom to acknowledge and recognize their students. The notion of stroke represents a unit of recognition derived from actions indicating awareness of the presence of others, with stroke in the educational context referring to a teacher's attention to a student's behavior and presence (Pishghadam et al., 2019). Stroke has a significant impact on the student's tendency to interact and participate in class, learning progress, and increased motivation (Pishghadam et al., 2021). Specifically, research has shown that positive teacher stroke can stimulate students' active motivation, thereby contributing to the professional success of the teacher (Pishghadam et al., 2021).

On the other hand, anxiety is considered a prominent factor that can influence classroom dynamics. Specifically, some researchers argue that Foreign Language Classroom Anxiety (FLCA) can have a detrimental impact on communication skills by causing learners to inaccurately assess their own cognitive abilities (Fathi & Mohammaddockht, 2021). Additionally, various studies have demonstrated an inverse relationship between language anxiety and learner progress, whereby individuals with lower levels of anxiety tend to exhibit higher proficiency in foreign language skills and perform better in foreign language courses (Azher et al., 2010; Sparks & Ganschow, 2007).

Overall, despite the existing literature on the impact of FLCA on language learning outcomes, the relationships among teacher stroke, FLCA, and WTC has yet to be explored. As such, the present study aims to investigate the role of teachers' stroking behavior in the FLCA, WTC, and English language achievement of Iranian EFL learners. By illuminating the potential interplay between these variables, this study can contribute to a better understanding of the factors that shape classroom interactions and language learning outcomes.

2. Theoretical Framework

2.1. Teacher Stroke

Stroke is a part of Transactional Analysis (TA). TA theory examines interpersonal relationships and personality development and leads to clearer and more constructive communication between teacher and learner (Pishghadam et al., 2019). Neil and Jeffrey (2002) Newell and Jeffery (2002) divided TA into six important components: "strokes", "time structures", "ego states", "life positions", "life scenario", and "transactions" (Amini et al., 2019). As a behavioral technique, the first of the elements of this theory, stroke, is defined as interpersonal actions that help meet emotional needs and recognize human presence (Pishghadam & Khajavy, 2014). Eric Berne (1988) uses the phrase recognition-hunger to better describe these needs.

One of the features of stroke in scholastic psychology is the teachers' feedback and praise of the student (Yuan, 2022). Feedback is divided into four categories: feedback on the task, on the processing of the task, on self-regulation, and on the self as a person. Feedback about the self as a person is very close to the concept of stroke because it is completely personal and goes back to oneself. On the other hand, given that teacher feedback is different from praise and is a reaction to the student's right or wrong behavior to help improve learner performance, it is not similar to a stroke because a stroke helps the teacher's better recognition of the student (Pishghadam & Khajavy, 2014). There are several ways teachers can stroke learners, such as "calling students by name", "allowing them to express themselves", and "providing adequate feedback" (Gao, 2021, p.3). Many believe that teachers' strokes enable them

to increase EFL / ESL students' willingness to attend classes, intelligence, care, and feedback, as well as academic participation and repetition of desirable behaviors (Gao, 2021).

Stewart and Jones (1987) classified stroke into three dichotomous groups: verbal or nonverbal, positive or negative, conditional or unconditional. Verbal strokes can range from a word to a long speech. Non-verbal strokes can also be divided into activities such as shaking the head, nodding, smiling, and similar behaviors. Negative strokes can cause discomfort, and positive strokes can make a person happy. Conditional strokes are related to the traits you give to a person's work, but unconditional strokes are related to the traits you give to the person.

Given the potential positive effect of stroke on healthy mental development and psychological well-being (Pishghadam & Khajavy, 2014), if students do not receive a stroke, they conclude that they are deprived of the teacher's attention (Xie & Derakhshan, 2021). There is criticism that not having a stroke can be worse than any other type of stroke because a learner who has not received a positive stroke may seek out negative strokes to be seen (Pishghadam & Khajavy, 2014).

Some studies have been conducted on the relationship between teacher stroke and different student variables such as academic motivation (Pishghadam & Khajavy, 2014), active/passive motivation (Pishghadam et al., 2021), and students' willingness to attend classes (Pishghadam et al., 2019) as well as teacher variables such as teacher success (Pishghadam et al., 2019; Pishghadam et al., 2021) and teacher credibility (Pishghadam et al., 2019; Pishghadam & Karami, 2017). Accordingly, a review of the literature on this subject reveals that teachers' stroking behavior has a significant impact on learners' psychological well-being and academic performance (Pishghadam & Khajavy, 2014); however, its role in foreign language classroom anxiety, willingness to communicate, and achievement has remained underexplored.

2.2. Foreign Language Classroom Anxiety

The term "anxiety" is commonly used to describe a state of mental distress and fear when an individual is dissatisfied with their current situation (Fathi & Mohammaddokht, 2021). Psychologists categorize anxiety into three types: state anxiety, situation-specific anxiety, and trait anxiety (Liu & Yuan, 2021). In the context of language learning, anxiety is typically classified as situation-specific anxiety (Horwitz et al., 1986). This negative emotion has been found to impede the progress of some second language learners, leading Horwitz and colleagues to introduce the concept of foreign language classroom anxiety (FLCA) in 1986. FLCA is often triggered by situations that cause a sharp drop in the learner's self-esteem, such as fear of making mistakes, being ridiculed or criticized by peers, struggling to comprehend the teacher's instructions, or difficulty completing homework (Inada, 2022). It is crucial to minimize these anxiety-inducing situations to promote a positive learning environment for language learners.

It is evident that anxiety has been the most extensively researched negative emotion in the field of language education. Numerous studies (e.g., Alrabai, 2022; Botes et al., 2020; Albuquerque et al., 2023; Han et al., 2022; Khodadady & Khajavy, 2013) have demonstrated the adverse impact of anxiety on learners' motivation, progress, and overall foreign language proficiency. Researchers have not overlooked this issue, and the introduction of the concept of FLCA has facilitated further research on anxiety in language learning (Fathi & Mohammaddokht, 2021). These studies have revealed that FLCA not only negatively affects learners' foreign language development but also interacts with various time-varying variables such as peer participation, enjoyment of using the target language, motivation, and self-confidence (Liu & Yuan, 2021).

Language learners encounter numerous challenges during their language-learning journey and rely on feedback from their teachers and environment to evaluate their progress. Receiving positive feedback and encouragement can help learners gain confidence and motivate them to improve their language skills. However, for anxious learners, receiving feedback on their weaknesses can be a distressing and disappointing experience (Budak & Mede, 2022). When learners experience high levels of anxiety and struggle to cope with classroom situations, they may lose their motivation to progress and even drop out of language learning altogether. High levels of anxiety can also impair learners' communication ability and willingness to participate in conversational exercises in class (Inada, 2022). Thus, it is

imperative to investigate the variables that could potentially mitigate anxiety levels in foreign language classrooms.

2.3. Willingness to Communicate

Lack of inadequate communication skills has long been among the reasons why many second language (L2) learners fail to achieve their language learning goals. Therefore, paying attention to learners' WTC is crucial in the process of L2 acquisition. The concept of WTC was first introduced by McCroskey and Baer (1985) in the context of first language acquisition and was regarded as a stable and structural individual trait (McCroskey & Richmond, 1990). Later, MacIntyre et al. (1998) defined L2 WTC as the readiness to initiate or sustain a conversation or relationship using L2. Following the emergence of WTC as a research topic, scholars have conducted numerous quantitative, qualitative, and mixed-method studies, which have consistently demonstrated the significant impact of WTC on L2 learning outcomes (Alam et al., 2022; Dost Mohammadi, in press).

It should be emphasized that while L2 WTC researchers have focused primarily on speaking, it is essential to recognize that learners may be inclined to communicate in some language skills but not others, such as writing, reading, or listening. Therefore, it is advisable to consider other types of WTC, such as willingness to read (WTR), willingness to write (WTW), and willingness to listen (WTL; Makiabadi et al., 2019) as well. Accordingly, the activities that students engage in during L2 classes and the degree of classroom engagement are crucial in facilitating their WTC (Fernández-García & Fonseca-Mora, 2022). Moreover, based on MacIntyre et al.'s (2001) layered pyramid model of L2 WTC (Figure 1), learners' personality, intergroup atmosphere, intergroup attitudes, intergroup motivation, L2 confidence, and communication competence can affect L2 WTC.

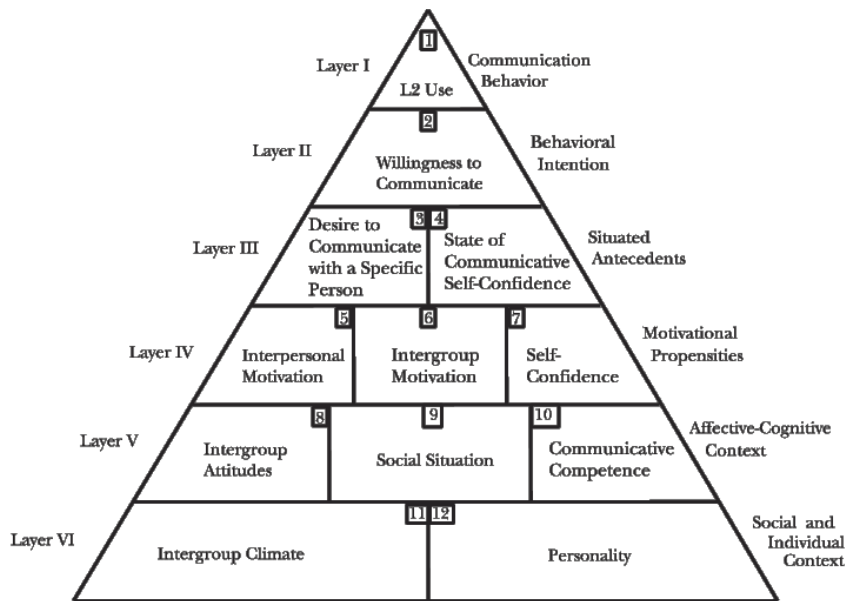


Figure 1

Heuristic Model of Variables Influencing WTC

Note. Adapted from "Willingness to communicate, social support, and language-learning orientations of immersion students", by MacIntyre et al., 2001, *Studies in Second Language Acquisition*, 23(3), p. 371.

Along the same line, recent empirical studies have revealed that various learner-psychology factors, including emo-sensory quotient, personality, self-esteem, age, attitude, motivation, self-confidence, gender, participation, and cultural orientation, have a significant impact on WTC in L2 contexts (e.g., Dornyei & Ryan, 2015; Ghadirzade Toosy & Jajarmi, in press; Gu & Sun, 2021; Pishghadam et al., 2019). This suggests that a learner's decision to initiate communication is influenced by multiple factors, indicating the multidimensional and dynamic nature of WTC.

The WTC level of a learner can fluctuate over time, sometimes decreasing and sometimes increasing (MacIntyre et al., 1998). One of the most influential factors on L2 WTC is communication confidence, which comprises two dimensions: perceived competence and lack of anxiety (Clement, 1986; Peng, 2012). Perceived competence refers to the learners' self-assessment of their L2 skills (Peng, 2012), whereas lack of anxiety implies that learners are not triggered by anxiety or negative internal reactions during the language acquisition process (MacIntyre, 1999). Many researchers (e.g., Cetinkaya, 2005; Khajavy et al., 2016; Khajavy et al., 2018; Yashima, 2002) propose that reinforcing a lack of anxiety can facilitate learners' WTC. Moreover, Cai (2021), investigating the predictability of Chinese EFL students' WTC based on the immediate teacher-student rapport, showed that to foster students' WTC in the classroom, teachers must prioritize building positive interpersonal relationships with their students.

Therefore, taking these into consideration, the aim of the current study was to 1) examine the relationships among teacher stroking behavior, FLCA, WTC, and ELA among Iranian EFL learners; 2) investigate the mediating role of FLCA in the relationship between teachers' stroking behavior and Iranian EFL learners' WTC; and 3) explore the mediating role of FLCA in the relationship between teachers' stroking behavior and Iranian EFL learners' achievement.

3. Methodology

3.1. Participants

The present quantitative study recruited 281 Iranian EFL learners, comprising 100 males and 181 females. Participants were selected through convenience sampling and ranged in age from 17 to 69 years ($M = 24.27$, $SD = 7.71$) with a minimum of one term of language class experience. Participants' English proficiency levels were classified as advanced, intermediate, and elementary, with 45, 219, and 35 participants, respectively. Participants had diverse educational backgrounds, with 126 holding diplomas, 124 holding bachelor's degrees, 30 holding postgraduate degrees, 4 holding PhDs, and 15 holding other degrees. Participants were informed that their responses would be kept confidential and only used for the purposes of the research.

3.2. Instruments

3.2.1. Learner Stroke Quotient Scale (LSQS)

To elicit the stroking patterns of teachers, we employed the Learner Stroke Quotient Scale (LSQS), a 30-item questionnaire that was designed and validated by Haddadi in 2017. Using a scoring system that ranged from -10 to 10, participants were asked to indicate the degree of pleasantness (positive scores), unpleasantness (negative scores), or neutrality (0 scores) associated with each of the stroke types presented. Specifically, the LSQS included six sub-constructs, namely verbal unconditional positive (5 items), verbal unconditional negative (5 items), verbal conditional positive (5 items), verbal conditional negative (4 items), nonverbal positive (5 items), and nonverbal negative (6 items). The scale exhibited high internal consistency, with a reported reliability coefficient of .89 (Haddadi, 2017).

3.2.2. Foreign Language Classroom Anxiety Scale (FLCAS)

In this study, we used the Persian version of the Foreign Language Classroom Anxiety Scale (FLCAS), validated by Akbari and Sadeghi (2013). Originally designed and validated by Horwitz et al. (1986), it is a 33-item questionnaire based on the Likert scale. The sub-constructs of this questionnaire include fear of negative evaluation (9 items), test anxiety (5 items), anxiety in the English classroom (11 items), and communication anxiety (8 items). Participants were instructed to rate their level of anxiety in each scenario on a scale of 1 to 5, with 1 indicating strong disagreement and 5 indicating strong agreement. The Persian version of the questionnaire demonstrated high internal consistency, with a reported reliability coefficient of 0.83 (Akbari & Sadeghi, 2013).

3.2.3. Willingness to Communicate Scale (WTCS)

To measure participants' willingness to engage in various English language-learning activities, we utilized the Persian version of the Willingness to Communicate Scale (WTCS), validated by Makiabadi

et al. (2019). This 27-item Likert scale was originally designed and validated by MacIntyre et al. (2001). Participants were asked to indicate their level of willingness to speak, listen, read, and write in English using a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). The questionnaire consisted of four sub-constructs, namely Willingness to Speak (8 items), Willingness to Listen (5 items), Willingness to Read (6 items), and Willingness to Write (8 items). The Persian version of the questionnaire exhibited high internal consistency, with a reported reliability coefficient of 0.86 (Makiabadi et al., 2019).

3.3. Procedure

The researchers administered the three questionnaires via Google Forms, which were subsequently distributed to the participants through social networking platforms such as Telegram and WhatsApp. It took 20 minutes for each participant to complete the questionnaires, and no restrictions were placed on their responses to ensure the results were not influenced by personal judgments. Moreover, the participants were requested to disclose their final English language lesson grade as a proxy for their level of achievement. They were assured that their responses would remain confidential. Following data collection, the reliability of the scales was assessed using Cronbach's Alpha. The relationships between teacher stroke, FLCA, WTC, and English language achievement (ELA) were analyzed using Pearson product-moment correlation. Structural equation modeling (SEM) was utilized to examine the predictive power of teacher stroke with respect to EFL learners' WTC and ELA while also considering the mediating role of FLCA.

4. Results

4.1. Descriptive Statistics

Table 1 presents the descriptive statistics for LSQS, FLCAS, and WTCS. The data exhibited normal distribution as evidenced by the Skewness and Kurtosis values falling within the acceptable range of -2 and +2. Additionally, the reliability estimates for the variables exceeded the acceptable threshold of .70, indicating satisfactory levels of reliability.

Table 1
Descriptive Statistics and Reliability Estimates for LSQS, FLCAS, and WTCS and Their Pertaining Sub-Constructs

	Min	Max	Mean	SD	Skewness	Kurtosis	Cronbach's α
LSQS	184.00	630.00	357.12	79.15	.84	.39	.91
<i>Positive</i>	111.00	315.00	228.30	38.76	-.15	-.44	.87
Verbal Unconditional Positive (VUP)	39.50	105.00	81.36	13.47	-.34	-.35	.75
Verbal Conditional Positive (VCP)	30.00	105.00	76.03	13.90	-.18	-.09	.71
Nonverbal Positive (NP)	17.50	105.00	70.90	18.67	-.34	-.41	.85
<i>Negative</i>	35.00	315.00	128.82	56.85	1.04	.32	.93
Verbal Unconditional Negative (VUN)	5.00	105.00	34.36	22.01	1.06	.27	.89
Verbal Conditional Negative (VCN)	4.00	84.00	41.16	16.33	.29	-.46	.78
Nonverbal Negative (NN)	11.00	126.00	53.29	23.29	.83	.13	.86
FLCAS	23.00	113.00	65.58	18.28	-.07	-.31	.95
English Communication Fear (ECF)	5.00	25.00	12.19	4.11	.15	-.09	.86
Fear of Negative Evaluation (FNE)	8.00	40.00	25.41	7.68	-.19	-.47	.78
Negative Attitude toward English Class (NAEC)	7.00	34.00	20.28	5.64	-.06	-.48	.81
Lack of Comfortableness with English Class (LCEC)	3.00	15.00	7.69	3.25	.38	-.63	.75
WTCS	29.00	135.00	90.76	25.59	-.10	-.67	.96
Willingness to Speak (WS)	8.00	40.00	26.22	8.62	-.01	-.84	.91
Willingness to Read (WR)	6.00	30.00	22.07	5.87	-.37	-.61	.86

Willingness to Write (WW)	8.00	40.00	25.59	9.13	-.12	-.94	.92
Willingness to Listen (WL)	5.00	25.00	16.88	4.79	-.03	-.67	.81

4.2. Correlational Analysis

To investigate the possible correlations between the variables, the Pearson product-moment correlation was used. As Table 2 reveals, some of the variables are significantly correlated with each other. In particular, FLCA is negatively correlated with VCP ($r = -.12, p < .05$) and positively correlated with NN ($r = .16, p < .01$). Moreover, FLCA is negatively correlated with WTC ($r = -.42, p < .01$) and all its subconstructs, including WS ($r = -.44, p < .01$), WR ($r = -.31, p < .01$), WW ($r = -.33, p < .01$), and WL ($r = -.45, p < .01$).

There exists a significant relationship between WTC and LSQ ($r = .17, p < .01$). While there are positive correlations between WTC and the positive subconstructs of LSQ (i.e., VUP ($r = .15, p < .05$), VCP ($r = .33, p < .01$), and NP ($r = .17, p < .01$)), this variable is negatively correlated with FLCA ($r = -.42, p < .01$) and all its subconstructs (i.e., ECF ($r = -.33, p < .01$), FNE ($r = -.34, p < .01$), NAEC ($r = -.39, p < .01$), and LCEC ($r = -.48, p < .01$)).

The participants' ELA is positively correlated with LSQ and the positive subconstructs of LSQ (i.e., VUP ($r = .12, p < .05$), VCP ($r = .12, p < .05$), and NP ($r = .17, p < .01$)). The participants' ELA are positively correlated with WTC ($r = .28, p < .01$) and all its subconstructs (i.e., WS ($r = .22, p < .01$), WR ($r = .26, p < .01$), WW ($r = .27, p < .01$), and WL ($r = .27, p < .01$)). The participants' ELA are negatively correlated with FLCA ($r = -.28, p < .01$) and all its subconstructs (i.e., ECF ($r = -.24, p < .01$), FNE ($r = -.25, p < .01$), NAEC ($r = -.26, p < .01$), and LCEC ($r = -.24, p < .01$)).

Table 2
Correlational Analysis for the Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. LSQS	1																			
2. Positive	.74**	1																		
3. VUP	.55**	.80**	1																	
4. VCP	.67**	.83**	.55**	1																
5. NP	.63**	.88**	.54**	.58**	1															
6. Negative	.89**	.35**	.22**	.37**	.29**	1														
7. VUN	.86**	.36**	.26**	.36**	.29**	.95**	1													
8. VCN	.80**	.37**	.25**	.38**	.30**	.86**	.76**	1												
9. NN	.79**	.25**	.11	.30**	.21**	.93**	.85**	.69**	1											
10. FLCAS	.03	-.11	-.07	-.12*	-.09	.11	.11	.02	.16**	1										
11. ECF	-.01	-.07	-.03	-.09	-.06	.04	.03	-.04	.10	.92**	1									
12. FNE	.03	-.12	-.09	-.13*	-.08	.12*	.13*	.01	.16**	.90**	.78**	1								
13. NAEC	.12*	-.02	.01	-.07	.01	.18**	.17**	.11	.20**	.86**	.72**	.71**	1							
14. LCEC	.01	-.18**	-.13*	-.15*	-.16**	.13*	.12*	.08	.15*	.80**	.60**	.63**	.70**	1						
15. WTCs	.17**	.25**	.15*	.33**	.17**	.07	.05	.06	.07	-.42**	-.33**	-.34**	-.39**	-.48**	1					
16. WS	.21**	.29**	.17**	.35**	.22**	.09	.09	.10	.08	-.44**	-.36**	-.37**	-.39**	-.49**	.90**	1				
17. WR	.07	.14*	.08	.24**	.06	.01	-.01	-.01	.02	-.31**	-.21**	-.24**	-.31**	-.39**	.86**	.69**	1			
18. WW	.18**	.24**	.15*	.31**	.16**	.08	.07	.05	.10	-.33**	-.27**	-.26**	-.29**	-.38**	.93**	.75**	.75**	1		
19. WL	.13*	.20**	.12*	.26**	.14*	.04	.01	.06	.04	-.45**	-.35**	-.37**	-.43**	-.50**	.88**	.75**	.73**	.78**	1	
20. English Score	.08	.17**	.12*	.12*	.17**	.01	-.01	.02	-.01	-.28**	-.24**	-.25**	-.26**	-.24**	.28**	.22**	.26**	.27**	.27**	1

Note. **. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

4.3. SEM Analysis

To check the predictive power of LSQ mediated by FLCA, SEM analysis was conducted through Amos. Eight models were proposed for the prediction of the participants' WTC (Figures 2, 3, 4, & 5) and their ELA (Figures 6, 7, 8, & 9). The bootstrap analysis of mediation was performed for the indirect effects. The goodness of fit indices showed whether the models fit the data adequately (see Table 3).

The first model verifies the predictive power of LSQ, mediated by FLCA, in the participants' WTC. As Figure 2 illustrates, LSQ could directly ($\beta = .30, p < 0.001$) predict the participants' WTC. However, mediated by FLCA, LSQ is not a predictor of the participants' WTC ($\beta = .01, p = 0.73$).

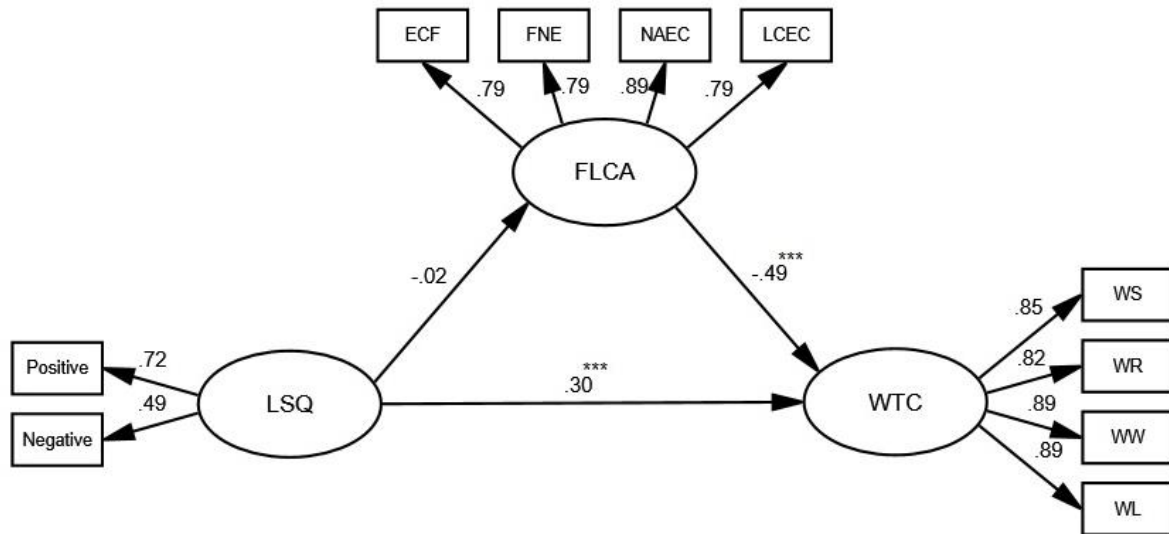


Figure 2
The Schematic Representation of the Relationships among LSQ, FLCA, and WTC

The second model verifies the predictive power of positive and negative LSQ, mediated by FLCA, in the participants' WTC. As Figure 3 illustrates, unlike the negative LSQ, positive LSQ could directly ($\beta = .26, p < 0.001$) predict the participants' WTC. Mediated by FLCA, positive LSQ is a positive predictor of WTC ($\beta = .11, p < 0.01$), whereas negative LSQ is a negative predictor of WTC ($\beta = -.12, p < 0.01$). Positive LSQ and negative LSQ could also predict FLCA ($\beta = -.23, p < 0.001$; $\beta = .26, p < 0.001$).

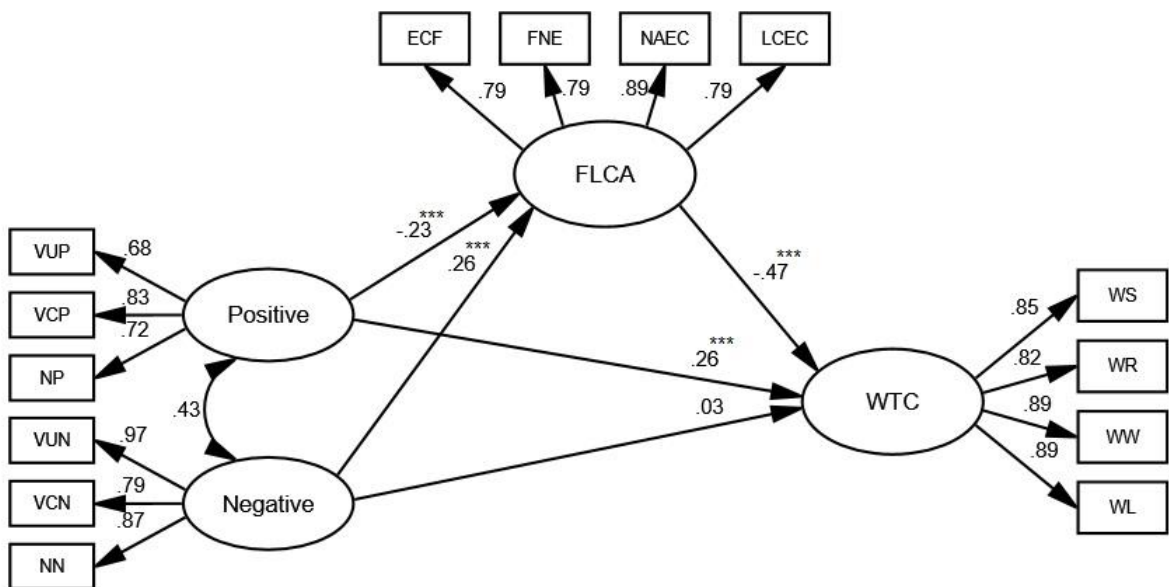


Figure 3
The Schematic Representation of the Relationships among Positive LSQ, Negative LSQ, FLCA, and WTC

The third and fourth models (Figure 4) verify the predictive power of verbal/nonverbal and conditional/unconditional LSQ, mediated by FLCAS, in the participants' WTC. According to the goodness of fit indices, these models did not fit the data adequately.

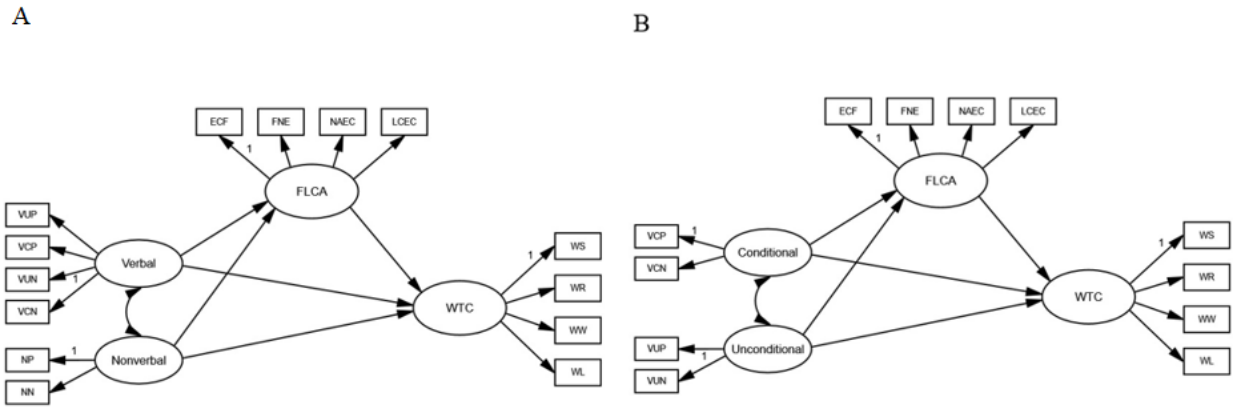


Figure 4

The Schematic Representation of (A) the Relationships among Verbal LSQ, Nonverbal LSQ, FLCA, and WTC and (B) the Relationships among Conditional LSQ, Unconditional LSQ, FLCA, and WTC

The fifth model verifies the predictive power of LSQ, mediated by FLCA, in the participants' ELA. As Figure 5 illustrates, LSQ could directly ($\beta = .50, p < 0.05$) predict the participants' ELA. Moreover, mediated by FLCA, LSQ is a positive predictor of the participants' ELA ($\beta = .02, p < 0.01$).

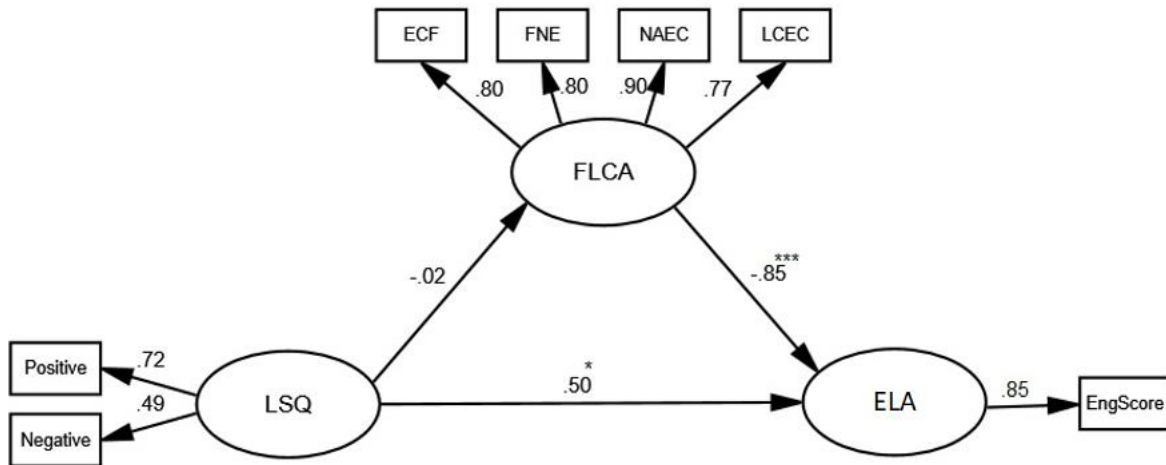


Figure 5

The Schematic Representation of the Relationships among LSQ, FLCA, and ELA

The sixth model verifies the predictive power of positive and negative LSQ, mediated by FLCA, in the participants' ELA. As Figure 6 illustrates, unlike the negative LSQ, positive LSQ could directly ($\beta = .49, p < 0.05$) predict the participants' ELA. Mediated by FLCA, positive LSQ is a positive predictor of ELA ($\beta = .18, p < 0.01$), whereas negative LSQ is a negative predictor of ELA ($\beta = -.21, p < 0.01$). Positive LSQ and negative LSQ could also predict FLCA ($\beta = -.22, p < 0.001$; $\beta = .26, p < 0.001$).

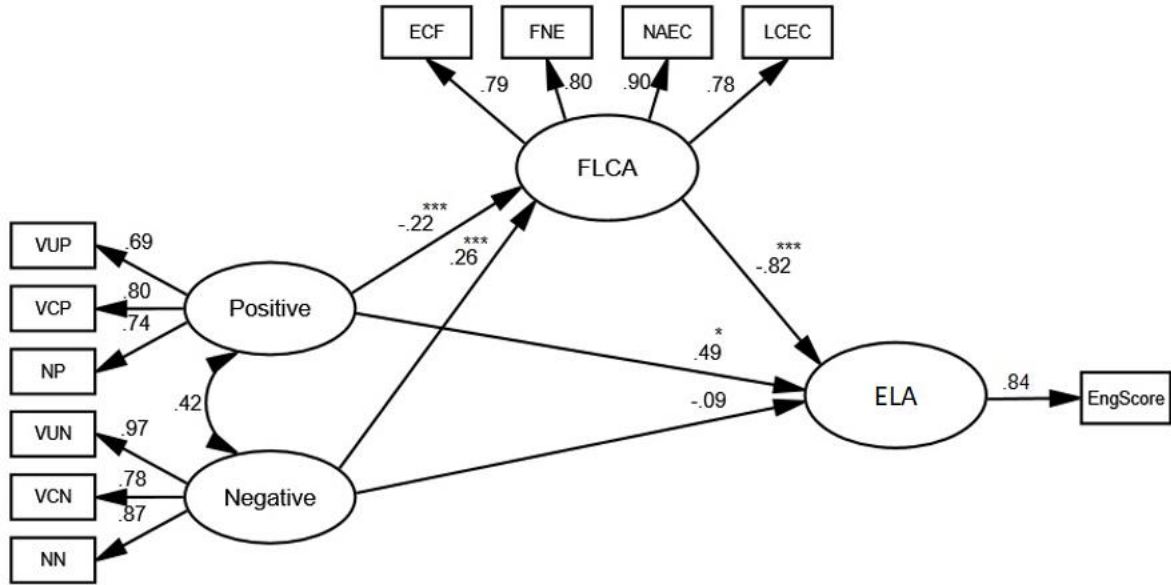


Figure 6

The Schematic Representation of the Relationships among Positive LSQ, Negative LSQ, FLCA, and ELA

The seventh and eighth models (Figure 7) verify the predictive power of verbal/nonverbal LSQ and conditional/unconditional LSQ, mediated by FLCAS, in the participants' ELA. According to the goodness of fit indices, these models did not fit the data adequately.

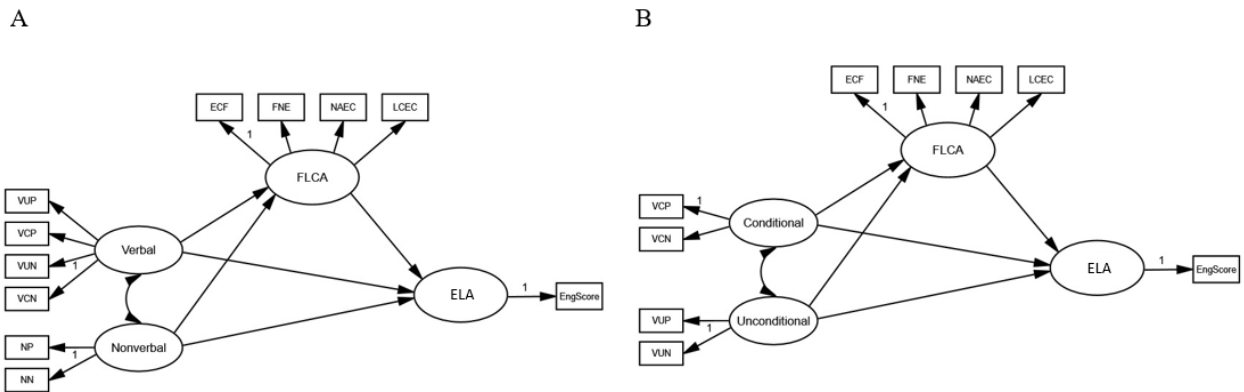


Figure 7

The Schematic Representation of (A) the Relationships among Verbal LSQ, Nonverbal LSQ, FLCA, and ELA and (B) the Relationships among Conditional LSQ, Unconditional LSQ, FLCA, and ELA

To see whether the models fit the data, goodness of fit indices were calculated using Amos. Table 3 shows the relative chi-square (i.e., chi-square index divided by the degrees of freedom (χ^2/df)), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Squared Error (SRMR). The criterion for acceptance is different across researchers. In the present study, values for χ^2/df were within the acceptable limit of 5 or less (Hair et al., 2010), TLI and CFI were over .90, and RMSEA and SRMR were equal to or less than .08 (Browne & Cudeck, 1993).

Table 3*Goodness of Fit Indices for the Models*

	χ^2/df	df	CFI	TLI	RMSEA	SRMR	
Model 1 (Figure 2)	3.23	32	.96	.94	.08	.07	Fit
Model 2 (Figure 3)	2.54	70	.96	.95	.07	.05	Fit
Model 3 (Figure 4A)	4.35	67	.91	.88	.11	.11	Not Fit
Model 4 (Figure 4B)	4.37	47	.92	.89	.11	.09	Not Fit
Model 5 (Figure 5)	3.54	12	.96	.93	.08	.07	Fit
Model 6 (Figure 6)	2.40	38	.97	.95	.07	.05	Fit
Model 7 (Figure 7A)	5.67	37	.90	.85	.13	.11	Not Fit
Model 8 (Figure 7B)	5.71	21	.91	.85	.13	.10	Not Fit

4. Discussion

The present study aimed to explore the interrelationships among teacher stroke, EFL learners' FLCA, WTC, and ELA. To this end, the investigation proceeded in three stages: firstly, the correlations between the four variables were examined; secondly, the potential mediating role of FLCA in the relationship between teacher stroke and WTC was tested; and finally, an attempt was made to determine whether the prediction of learner achievement could be enhanced by incorporating teacher stroke with FLCA as a mediator.

Upon investigating the first research question, our findings revealed a significant association between teacher stroke and WTC. This outcome is consistent with prior research by Pishghadam et al. (2019) and Rajabnejad et al. (2017), which reported a positive correlation between stroke and WTC. Additionally, our study found positive correlations between WTC and the positive sub-constructs of the LSQ pertaining to verbal unconditional, verbal conditional, and nonverbal communication. This finding aligns with previous research indicating that the use of stroke as a positive communication behavior by teachers in educational settings is associated with positive changes in the learning process (Frymier & Houser, 2000; McIntyre et al., 2020).

Furthermore, our study revealed a positive correlation between participants' ELA and LSQ as well as its positive sub-constructs. This finding is consistent with previous research by Pishghadam et al. (2021) and Rajabnejad et al. (2017), who also reported positive correlations between ELA and teacher stroke. In addition, we found a negative correlation between FLCA and WTC as well as all WTC subconstructs. This finding is supported by previous research conducted by Liu and Jackson (2008) and Horwitz et al. (1986). Moreover, we observed a negative correlation between FLCA and Verbal Conditional Positive (VCP) and a positive correlation between FLCA and Nonverbal Negative (NN) stroke. Considering the impact of culture on the teaching and learning of foreign languages (Baumgratz-Gangl, 1990; Ivenz & Klimova, 2022; Pishghadam et al., 2021), our findings may be attributed to the collectivist culture prevalent in Iran. Prior research suggests that interpersonal relationships hold great significance in Asian societies, leading individuals to feel ignored or neglected when they do not receive sufficient attention (Pishghadam et al., 2020). This is reflected in the use of "we" over "I" in such cultures (Hofstede, 2011). Overall, in line with the findings of McIntyre et al. (2020), these results suggest that positive teacher stroke has a positive impact on students' emotions, as evidenced by the positive correlation between teacher stroke and WTC, and the negative correlation between positive teacher stroke and FLCA, highlighting the importance of recognition by teachers.

Regarding the second research question, our findings suggest that while a teacher's stroke can directly predict WTC, it is not a predictor of WTC through the mediation of FLCA. However, we found that positive LSQ, mediated by FLCA, is a positive predictor of WTC. This finding is consistent with previous research (e.g., Pishghadam et al., 2019; Rajabnejad et al., 2017), which has highlighted the use of stroke as a positive communication behavior of teachers in educational contexts, promoting a desire to communicate in the learning process. Furthermore, upon further exploration of the predictive power of positive/negative stroke with FLCA mediation on WTC, our results indicate that WTC was higher in the presence of positive stroke and lower in the presence of negative stroke. These results can be interpreted in light of Hall's (1976) context theory, which distinguishes high-context cultures from low-

context cultures. In high-context cultures, most information is implicit and internalized, while in low-context cultures, information is more explicit and transmitted through codes. In this sense, the ability to understand the message depends on the cultural background of the individuals (Hall & Hall, 1990). As Iran is a high-context culture, nonverbal communication cues such as tone of voice, facial expression, eye contact, and gestures play a significant role in conversations (Hall, 1976). Therefore, a teacher's positive stroke can potentially increase students' motivation, leading to an increase in WTC. This finding is consistent with prior research by Amini et al. (2019) and Cohen and Steele (2002), emphasizing that positive stroke is an important predictor of WTC.

Finally, our analysis of the third research question demonstrated the predictive power of LSQ, mediated by FLCA, on participants' ELA. More explicitly, concerning the mediating role of FLCA in the predictability of ELA with stroke, positive LSQ was found to be a direct positive predictor of participants' ELA, while negative LSQ was not. This finding indicates that a teacher's positive stroke can promote student progress and success, which is consistent with those of prior studies (e.g., Abdulhussien et al., 2022; Haddadi, 2017; Pishghadam & Karami, 2017; Pishghadam et al., 2021). Specifically, in collectivist cultures such as Iran, where receiving positive recognition is highly valued, positive feedback may motivate students to study and perform better (Hofstede, 1980, 2007). Overall, our results suggest that positive teacher stroke, as measured by LSQ, can be a significant predictor of ELA, particularly in collectivist cultures. These findings have practical implications for foreign language teachers, highlighting the importance of positive communication behaviors in promoting student achievement.

The findings of this study have important implications for educators regarding the adoption of effective teaching techniques and strategies to enhance student behavior. Specifically, teachers should be aware that the type of stroke they employ can impact students' WTC, FLCA, and ELA, leading to better learning outcomes. It is crucial for teachers to have a nuanced understanding of how different types of strokes should be presented in diverse classroom contexts. Furthermore, university curriculum designers and institute managers can leverage the findings of this study to enhance teacher education programs on strokes, as educators may possess theoretical knowledge but may lack the practical skills to execute such strategies effectively.

However, it is important to acknowledge that the generalizability of our results is limited. Our sample consisted of Iranian students who were selected through convenience sampling, implying that further studies are necessary to establish the generalizability of our proposed models and to enhance the applicability of these findings in diverse contexts. Moreover, this research did not delve into the potential influence of specific student attributes, such as age, gender, and pre-existing language proficiency, on the correlation between teachers' stroking behavior and students' achievement. It may be worthwhile for subsequent studies to examine whether these individual characteristics act as moderators in the association between these variables. Finally, this study provides preliminary evidence that fostering a positive stroking behavior by teachers may yield beneficial effects on EFL learners' FLCA, WTC, and ELA. Subsequent research endeavors might examine the efficacy of interventions aimed at cultivating teachers' stroking behaviors and how these interventions may influence student outcomes.

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References

- Abdulhussien, S. H., Pishghadam, R., & Haddadi, M. S. (2022). Iraqi EFL learners' conceptions of strokes with respect to teachers' age. *Transactional Analysis Journal*, 52(2), 1-13. <https://doi.org/10.1080/03621537.2022.2045537>

- Akbari, M., & Sadeghi, M. R. (2013). Foreign language learning anxiety: The case of Iranian Kurdish Persian bilinguals. *International Research Journal of Applied and Basic Sciences*, 4(9), 2517-2525.
- Alam, M. R., Ansarey, D., Abdul Halim, H., Rana, M. M., Milon, M. R. K., & Mitu, R. K. (2022). Exploring Bangladeshi university students' willingness to communicate (WTC) in English classes through a qualitative study. *Asian-Pacific Journal of Second and Foreign Language Education*, 7(1), 1-17. <https://doi.org/10.1186/s40862-022-00129-6>
- Albuquerque, F., Silva, B., & Silva, D. (2023). A cultural approach to oral communication apprehension by accounting students in Brazil and Portugal. *International Journal of Society, Culture & Language*, 11(1), 30-46. <https://doi.org/10.22034/ijsc.2023.1985832.2896>
- Alrabai, F. (2022). The predictive role of anxiety and motivation in L2 proficiency: An empirical causal model. *Language Teaching Research*. <https://doi.org/10.1177/13621688221136247>
- Amini, A., Pishghadam, R., & Saboori, F. (2019). On the role of language learners' psychological reactance, teacher stroke, and teacher success in the Iranian context. *Journal of Research in Applied Linguistics*, 10(2), 25-44. <https://doi.org/10.22055/RALS.2019.14716>
- Azher, M., Anwar, M. N., & Naz, A. (2010). An investigation of foreign language classroom anxiety and its relationship with students' achievement. *Journal of College Teaching and Learning*, 7(11), 33-40. <https://doi.org/10.19030/tlc.v7i11.249>
- Baumgratz-Gangl, G. (1990). *Persönlichkeitsentwicklung und Fremdsprachenerwerb: transnationale und transkulturelle Kommunikationsfähigkeit im Französischunterricht* [Personality development and foreign language acquisition: Transnational and transcultural communication skills in French lessons]. Schöningh.
- Berne, E. (1958). Transactional analysis: A new and effective method of group therapy. *American Journal of Psychotherapy*, 12(4), 735-743. <https://doi.org/10.1176/appi.psychotherapy.1958.12.4.735>
- Berne, E. (1988). *Games people play: The psychology of human relationships*. Grove Press.
- Botes, E., Dewaele, J. M., & Greiff, S. (2020). The foreign language classroom anxiety scale and academic achievement: An overview of the prevailing literature and a meta-analysis. *Journal for the Psychology of Language Learning*, 2(1), 26-56.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136-162). Sage.
- Budak, T., & Mede, E. (2022). The relationship between emotional intelligence, foreign language anxiety, and demotivational factors in language preparatory programs. *Colombian Applied Linguistics Journal*, 24(1), 6-22. <https://doi.org/10.14483/22487085.17859>
- Cai, M. (2021). The predictability of Chinese English as a foreign language students' willingness to communicate through teachers' immediacy and teacher-student rapport. *Frontiers in Psychology*, 12, 1-10. <https://doi.org/10.3389/fpsyg.2021.769424>
- Cetinkaya, Y. B. (2005). *Turkish college students' willingness to communicate in English as a foreign language* [Unpublished doctoral dissertation]. Ohio State University.
- Clement, R. (1986). Second language proficiency and acculturation: An investigation of the effects of language status and individual characteristics. *Journal of Language and Social Psychology*, 5, 271-290. <https://doi.org/10.1177/0261927X8600500403>
- Cohen, G. L., & Steele, C. M. (2002). A barrier of mistrust: How negative stereotypes affect cross-race mentoring. In J. Aronson (Ed.), *Improving academic achievement: Impact of psychological factors on education* (pp. 303-327). Academic Press. <https://doi.org/10.1016/B978-012064455-1/50018-X>
- Dornyei, Z., & Ryan, S. (2015). *The psychology of the language learner revisited*. Routledge. <https://doi.org/10.4324/9781315779553>
- Dost Mohammadi, Y. (2023). How to enhance the communicative ability of L2 learners: A case of Afghan cadets. *Journal of Business, Communication & Technology*.
- Fathi, J., & Mohammaddokht, F. (2021). Foreign language enjoyment and anxiety as the correlates of the ideal L2 self in the EFL context. *Frontiers in Psychology*, 12, 1-11. <https://doi.org/10.3389/fpsyg.2021.790648>

- Fernández-García, A., & Fonseca-Mora, M. C. (2022). EFL learners' speaking proficiency and its connection to emotional understanding, willingness to communicate and musical experience. *Language Teaching Research*, 26(1), 124-140. <https://doi.org/10.1177/1362168819891868>
- Frymier, A. B., & Houser, M. L. (2000). The teacher-student relationship as an interpersonal relationship. *Communication Education*, 49(3), 207-219. <https://doi.org/10.1080/03634520009379209>
- Gao, Y. (2021). Toward the role of language teacher confirmation and stroke in EFL/ESL students' motivation and academic engagement: A theoretical review. *Frontiers in Psychology*, 12, 1-8. <https://doi.org/10.3389/fpsyg.2021.723432>
- Ghadirzade Toosy, S., & Jajarmi, H. (in press). ESQ in L2 willingness to communicate and communicative ability. *Journal of Business, Communication and Technology*.
- Gu, L., & Sun, P. (2021). The role of nested systems in EFL students' willingness to communicate (WTC) and engagement. *Frontiers in Psychology*, 12, 1-5. <https://doi.org/10.3389/fpsyg.2021.759393>
- Haddadi, M. S. (2017). *What strokes you may not stroke me: Designing and validating learner stroke quotient scale and examining Iranian EFL learners' conceptions of stroke* [Unpublished master's thesis]. Ferdowsi University of Mashhad.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Pearson Prentice Hall.
- Hall, E. T. (1976). *Beyond culture*. Doubleday.
- Hall, E. T., & Hall, M. R. (1990). *Understanding cultural differences: Germans, French and Americans*. Intercultural Press.
- Han, S., Yiman, L., & Hider, S. A. (2022). Impact of foreign language classroom anxiety on higher education students' academic success: Mediating role of emotional intelligence and moderating influence of classroom environment. *Frontiers in Psychology*, 13, 1-12. <https://doi.org/10.3389/fpsyg.2022.945062>
- Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Sage.
- Hofstede, G. (2007). Asian management in the 21st century. *Asia Pacific Journal of Management*, 24, 411-420. <https://doi.org/10.1007/s10490-007-9049-0>
- Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture*, 2(1), 8-18. <http://doi.org/10.9707/2307-0919.1014>
- Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern Language Journal*, 70(2), 125-132.
- Inada, T. (2022). The causes of anxiety in highly anxious students in Japanese communicative EFL classes. *English Language Teaching*, 15(2), 1-9. <https://doi.org/10.5539/elt.v15n2p1>
- Ivenz, P., & Klimova, B. (2022). A review study of activities used in the development of intercultural communication competence in foreign language classes. *International Journal of Society, Culture & Language*, 10(2), 137-150. <https://doi.org/10.22034/ijsc.2022.556666.2681>
- Khajavy, G. H., Ghonsooly, B., Hosseini Fatemi, A., & Choi, C. W. (2016). Willingness to communicate in English: A microsystem model in the Iranian EFL classroom context. *TESOL Quarterly*, 50(1), 154-180. <https://doi.org/10.1002/tesq.204>
- Khajavy, G. H., MacIntyre, P. D., & Barabadi, E. (2018). Role of the emotions and classroom environment in willingness to communicate: Applying doubly latent multilevel analysis in second language acquisition research. *Studies in Second Language Acquisition*, 40(3), 605-624. <https://doi.org/10.1017/S0272263117000304>
- Khodadady, E., & Khajavy, G. H. (2013). Exploring the role of anxiety and motivation in foreign language achievement: A structural equation modeling approach. *Porta Linguarum*, 20, 269-286.
- Liu, M., & Jackson, J. (2008). An exploration of Chinese EFL learners' unwillingness to communicate and foreign language anxiety. *The Modern Language Journal*, 92(1), 71-86. <https://doi.org/10.1111/j.1540-4781.2008.00687.x>
- Liu, M., & Yuan, R. (2021). Changes in and effects of foreign language classroom anxiety and listening anxiety on Chinese undergraduate students' English proficiency in the COVID-19 context. *Frontiers in Psychology*, 12, 1-15. <https://doi.org/10.3389/fpsyg.2021.670824>

- MacIntyre, P. D. (1999). Language anxiety: A review of the research for language teachers. In D. Young (Ed.), *Affect in foreign language and second language learning* (pp. 24-46). McGraw-Hill College.
- MacIntyre, P. D., Baker, S. C., Clément, R., & Conrod, S. (2001). Willingness to communicate, social support, and language-learning orientations of immersion students. *Studies in Second Language Acquisition*, 23(3), 369-388. <https://doi.org/10.1017/S0272263101003035>
- MacIntyre, P. D., Clément, R., Dörnyei, Z., & Noels, K. A. (1998). Conceptualizing willingness to communicate in a L2: A situational model of L2 confidence and affiliation. *The Modern Language Journal*, 82(4), 545-562. <https://doi.org/10.1111/j.1540-4781.1998.tb05543.x>
- Makiabadi, H., Pishghadam, R., Meidani, E. N., & Khajavy, G. H. (2019). Examining the role of emotioncy in willingness to communicate: A structural equation modeling approach. *Revista de Psicodidáctica (English ed.)*, 24(2), 120-130. <https://doi.org/10.1016/j.psicod.2019.03.002>
- McCroskey, J. C., & Baer, J. E. (1985, November). *Willingness to communicate: The construct and its measurement* [Paper Presentation]. The annual meeting of the Speech Communication Association 1985, Denver, CO. (ERIC Document Reproduction Service No. ED265604)
- McCroskey, J. C., & Richmond, V. P. (1990). Willingness to communicate: Differing cultural perspectives. *Southern Journal of Communication*, 56(1), 72-77. <https://doi.org/10.1080/10417949009372817>
- McIntyre, N. A., Mulder, K. T., & Mainhard, M. T. (2020). Looking to relate: Teacher gaze and culture in student-rated teacher interpersonal behavior. *Social Psychology of Education*, 23(2), 411-431. <https://doi.org/10.1007/s11218-019-09541-2>
- Newell, S., & Jeffery, D. (2002). *Behavior management in the classroom: A transactional analysis approach*. Routledge.
- Peng, J. (2012). Towards an ecological understanding of willingness to communicate in EFL classrooms in China. *System*, 40(2), 203-213. <https://doi.org/10.1016/j.system.2012.02.002>
- Pishghadam, R., & Karami, M. (2017). Probing language teachers' stroking and credibility in relation to their success in class. *Alberta Journal of Educational Research*, 63(4), 378-395. <https://doi.org/10.11575/ajer.v63i4.56431>
- Pishghadam, R., & Khajavy, G. H. (2014). Development and validation of the student stroke scale and examining its relation with academic motivation. *Studies in Educational Evaluation*, 43, 109-114. <https://doi.org/10.1016/j.stueduc.2014.03.004>
- Pishghadam, R., Derakhshan, A., Jajarmi, H., Tabatabaee Farani, S., & Shayesteh, S. (2021). Examining the role of teachers' stroking behaviors in EFL learners' active/passive motivation and teacher success. *Frontiers in Psychology*, 12, 1-17. <https://doi.org/10.3389/fpsyg.2021.707314>
- Pishghadam, R., Derakhshan, A., & Zhaleh, K. (2019). The interplay of teacher success, credibility, and stroke with respect to EFL students' willingness to attend classes. *Polish Psychological Bulletin*, 50(4), 284-292. <https://doi.org/10.24425/ppb.2019.131001>
- Pishghadam, R., Ebrahimi, S., Naji Meidani, E., & Derakhshan, A. (2020). An Introduction to cultuling analysis in light of variational pragmatics: A step toward euculturing. *Journal of Research in Applied Linguistics*, 11(2), 44-56. <https://doi.org/10.22055/RALS.2020.15945>
- Rajabnejad, F., Pishghadam, R., & Saboori, F. (2017). On the influence of stroke on willingness to attend classes and foreign language achievement. *Applied Research on English Language*, 6(2), 141-158. <https://doi.org/10.22108/are.2017.21344>
- Sparks, R. L., & Ganschow, L. (2007). Is the foreign language classroom anxiety scale measuring anxiety or language skills? *Foreign Language Annals*, 40(2), 260-287.
- Stewart, I., & Joines, V. (1987). *TA today: A new introduction to transactional analysis*. Lifespace Pub.
- Xie, F., & Derakhshan, A. (2021). A conceptual review of positive teacher interpersonal communication behaviors in the instructional context. *Frontiers in Psychology*, 12, 1-10. <https://doi.org/10.3389/fpsyg.2021.708490>
- Yashima, T. (2002). Willingness to communicate in a second language: The Japanese EFL context. *Modern Language Journal*, 86, 54-66. <https://doi.org/10.1111/1540-4781.00136>
- Yuan, L. (2022). Enhancing Chinese EFL students' grit: The impact of teacher stroke and teacher-student rapport. *Frontiers in Psychology*, 12, 1-11. <https://doi.org/10.3389/fpsyg.2021.823280>