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An Investigation into the Relationship among Personality Types, Foreign Language Anxiety, and Locus of Control: Iranian EFL Learners in Focus

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Abstract: One of the key components for effective communication and promoting second/foreign language learners' ability to produce meaningful performance is controlling their language anxiety. This study investigated the relationships among personality types, locus of control, and foreign language anxiety within the context of Iranian EFL learners. A non-experimental type based on a quantitative approach, the present study enjoyed a correlational design. Its participants were 317 Iranian EFL learners who all were undergraduate university students from both genders. The context of this study was the EFL face-to-face educational settings and the participants were from different fields of study at the university level in Iran. Data collection was conducted via three psychological questionnaires for measuring the variables. For data analysis, Pearson correlation and Regression analysis were used to specify the correlation between variables. To examine the mediation role of variables, Z Sobel and Bootstrapping tests were incorporated in the analysis. This study revealed significant relationships among participants' personality types (extroversion and introversion), locus of control, and foreign language anxiety. The findings showed that there was a significant negative relationship between personality and locus of control and also a significant negative relationship between personality types and foreign language anxiety. Mediation analyses further illuminated the negative mediating role of the locus of control and the positive mediating role of the personality, shedding light on their nuanced dynamics. This study has implications for language educators, practitioners, and policymakers in terms of tailoring interventions to address individual differences and create supportive learning environments.

Keywords: Personality Types, Foreign Language Anxiety, and Locus of Control, EFL Learners.

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Introduction

Effective communication and the ability to produce meaningful language performance without language anxiety are key skills for second/foreign language learners. Addressing this, it is crucial to delve into the psychological aspects that facilitate communication. Among these factors, personality types like extraversion and introversion play a pivotal role in language learning and attainment (Brown, 1973; Almusharraf et al., 2021). MacIntyre (1999) states that introverts' communication inhibition arises from heightened sensitivity to linguistic accuracy, whereas extroverts excel as communicators due to their disregard for language correctness.

Accordingly, Hampson (2019) highlights that extroversion is linked to tendencies of hysteria, while introversion is associated with depression and language-related anxiety. In fact, it is posited that introverts experience higher levels of language anxiety compared to extroverts, impacting their language learning journey. Furthermore, introverts tend to exhibit slower information retrieval processes, contrasting with extroverts who are less concerned about language accuracy, leading to quicker information processing. Extroverts are also more inclined to take risks in language production, a quality vital for effective communication in foreign languages due to less anxiety.

Language Anxiety, a concept deeply ingrained in the realm of language acquisition, encapsulates the intricate web of emotions experienced by learners when confronted with the task of using or acquiring a new language (MacIntyre & Gardner, 1994). This phenomenon, extensively explored by researchers such as MacIntyre and Gardner (1994) and Horwitz et al. (1986), delves into the psychological landscape of language learners and unravels the intricate threads of tension, unease, and apprehension that arise in specific linguistic contexts.

At its core, language anxiety can be succinctly explained as the subjective emotion in a person characterized by a surge of nervousness, apprehension, and worry, often accompanied by physiological responses triggered by the autonomic nervous system. In their seminal work, MacIntyre and Gardner (1994) emphasized the encompassing nature of language anxiety, encompassing the spectrum of negative emotions and fear-related sentiments that often engulf language learners in their pursuit of linguistic mastery.

Moreover, based on Horwitz et al. (1986), language anxiety erects psychological barriers that inhibit learners from fully engaging with the language-learning process. These barriers often manifest as an aversion to communicative situations or a reluctance to participate in activities that demand linguistic performance. The fear of making errors or facing judgment from peers and instructors further exacerbates these barriers, constraining

learners within their comfort zones and hindering the natural progression of language acquisition. Consequently, language anxiety fosters a self-perpetuating cycle wherein learners' avoidance of anxiety-inducing situations stifles opportunities for language practice, thereby impeding their growth and development as proficient language users.

The above emotional concoction can be traced back to the vulnerability inherent in communicating or learning in a language that deviates from one's mother tongue (MacIntyre & Gregersen, 2012). They explained that the profound impact of language anxiety on second language acquisition becomes evident when scrutinizing its multifaceted influence on learners' cognitive and emotional domains. One of its chief repercussions is the impediment it poses to effective language learning. The stress induced by language anxiety creates a hostile cognitive environment, where learners' attention and concentration are hijacked by emotional turmoil, leaving limited mental space for the complex process of language acquisition. In essence, language anxiety operates as an obstructive force, diverting cognitive resources away from the linguistic task at hand and impairing the learners' ability to absorb and internalize new language patterns.

MacIntyre and Gregersen (2012) also explained that the intricate interplay between cognitive and affective factors further underscores the complexity of language anxiety's impact on language acquisition. Cognitive load theory, a cornerstone in educational psychology, posits that an excessive cognitive burden can overwhelm learners and impede their ability to process and retain information. In fact, language anxiety contributes to this cognitive overload by monopolizing mental resources with apprehension and worry, thereby diminishing the cognitive capacity available for encoding and storing linguistic elements. As a result, learners find themselves grappling with a reduced ability to internalize new vocabulary, grammatical structures, and language nuances, impeding their journey toward fluency (Bailey, 1999).

In terms of an individual’s pattern of thinking about the leading causes of various events, including second/foreign language anxiety, locus of control is related to the attribution of one’s life incidents to internal or external factors (Rotter, 1966). Internal factors are basically individual-oriented, while external factors are environmental and out of control of individuals. Akin to language anxiety, locus of control can significantly impact the acquisition of foreign or second languages. This psychological factor delves into an individual's perceptions and beliefs concerning the underlying causes of events in their life (Rotter, 1966). When an individual attributes events to external forces like luck or fate, they

possess an external locus of control. Conversely, when events are attributed to one's own actions, an internal locus of control is present.

Rotter (1966) also states that the notion of locus of control has garnered attention due to its potential implications for language learning. In addition, he discussed that in the external locus of control, individuals perceive language learning outcomes as determined by external factors. They may feel that their progress hinges on luck, the quality of instruction, or other people's judgments. Such individuals might find it challenging to take responsibility for their linguistic development and may experience heightened language anxiety due to a perceived lack of control. This anxiety could manifest as apprehension when speaking, fear of making mistakes, or avoidance of language-related activities.

Conversely, internal locus of control individuals attribute their language learning achievements to their own efforts and capabilities. They believe that their dedication, study habits, and practice directly impact their progress. This mindset can foster a sense of empowerment and resilience, enabling learners to approach challenges with a proactive attitude. Internal locus of control individuals are more likely to view mistakes as invaluable chances for growth and are generally better equipped to manage language anxiety, as they feel more in control of their learning journey.

In a nutshell, neglecting the individual differences in teaching and learning the language will lead to negative results for both groups and will have detrimental effects on the whole process (Chesser et al., 2020). In other words, student's personality characteristics (e.g., extroversion and introversion) lead to significant and identifiable changes in their performance of a variety of different tasks and activities such as talking, processing, listening, reflecting, and consequently have crucial impacts on the whole process of teaching and learning a foreign language (Sun et al., 2021).

Besides, language anxiety is one of the most crucial and influential issues in the area of language learning that has been in the limelight of many studies in this regard, (Dornyei & Ryan, 2015) yet is affecting the performance of the learners and also is playing a deciding role in determining their level of success in the process of language learning (Horwitz et al., 1986; MacIntyre & Gardner, 1994; Liu, 2006; Liu, 2019). According to many of the previous studies, there are consistent results confirming the fact that language anxiety, cripples the ability of the learners in grasping the information and prevents the learning process to take place effectively (Chen & Chang, 2004; Marwan, 2007; Gargalianou et al., 2016) High levels of anxiety in learners lead to their unwillingness toward the attendance in the class and finally make many of them drop out the course (Dewaele, 2009).

Moreover, foreign language anxiety makes the students get distracted by drowning in negative self-talk and overthinking about a weak performance or a failure and also affects the learner's fluency in speaking tasks and their general capability of information processing and learning. (MacIntyre & Gardner, 1994; Marwan, 2007). Therefore, with regard to the fact that language anxiety is regarded as an impressive predictor of language learner's success in learning a foreign language and a serious hindrance to many students, it needs to be investigated more thoughtfully in relation to other important variables that affect the efficiency of language learning procedure (Horwitz et al.,1986).

Furthermore, studies have shown that generally student's sense of personal control over the educational process is one of the most significant factors in arousing and maintaining individuals' interest and involvement in learning activities (Nodoushan, 2012). Hence, to ensure a more structured and efficient way of teaching, there is a requirement to integrate students' cognitive and attentive differences with teaching needs and the teaching methods and approaches need to be adapted to these characteristics (Gökçearslan & Alper, 2015).

The findings of this study would be a great help to all the EFL teachers and instructors to gain more profound and extensive knowledge about their students' personality differences and to learn how their personalities may be decisive on other important factors such as the student's locus of control and their language anxiety, all of which have powerful effects on the language learning process. Therefore, the findings of this research would definitely be of great help to give the EFL instructors the knowledge to understand how the different needs of each of the learners in an EFL classroom should be treated and consequently what kinds of appropriate approaches or methods needs to be implemented to help the learners to overcome their deficiencies and how to benefit from their distinctive inner capabilities and potentials and help them to become the best version of themselves in all their uniqueness.

Literature Review

The notions of extroversion and introversion were introduced to the field of human personality psychology for the first time by Carl Gustav Jung, a Swiss psychiatrist in 1921. According to Jung (1971), extroversion and introversion are considered two contrasting behaviors with lots of behavioral differences that lead to the creation of pressure for the individuals or the society.

The link between personality traits and language-related behaviors has been a subject of interest for researchers (Berry, 2007; Boroujeni et al., 2015; Beebe, 2020; Busch, 1982; Doqaruni, 2022). According to MacIntyre (1999), extroverts seem to display a more carefree

attitude towards language accuracy. Their lesser concern for inaccuracies allows them to be more daring in their language production, leading to a perception of them as risk-takers. This fearless approach could contribute to their better language communication skills, particularly in foreign language contexts. MacIntyre (1999) reinforced this idea by suggesting that introverts' inhibitions in communication are a consequence of their elevated language anxiety and reduced willingness to take risks. In contrast, extroverts' improved communication abilities arise from their ability to overlook incorrect language structures, enabling them to navigate foreign language interactions more effectively.

The intricate interplay between personality traits and language anxiety also sheds light on the differing information retrieval processes of introverts and extroverts. MacIntyre (1999) suggests that introverts may experience more time-consuming information retrieval compared to extroverts. According to MacIntyre (1999), the implications of the relationship between introversion/extroversion and language anxiety are particularly noteworthy in the context of foreign language acquisition. Effective communication in a foreign language demands a certain level of risk-taking and a tolerance for potential inaccuracies. Extroverts, with their propensity for risk-taking and reduced concern for correctness, seem to possess a natural advantage in this regard. Their willingness to venture into uncharted linguistic territory facilitates their language-learning journey.

Locus of control is another important individual characteristic that may have a huge impact on learner's academic success, performance, and the way they can handle different challenges or how they cope with stress (Lefcourt, 2014; Findley & Cooper, 1983; Yang et al., 2017; Klein & Keller, 1990). An individual who considers that he/she is personally in charge of the result of an incident is said to have an internal locus of control, while an individual who thinks the consequence was due to some outside factors is said to have an external locus of control (Williams & Andrade, 2008). As a consequence, the mentioned different locus of control orientations held by the students, make them able to deal with different phases and challenges of the language learning process differently (Ehsani & Moghaddam, 2021).

Numerous researchers have probed this concept in relation to other variables during these years. For example, Ghonsooly and Elahi (2010) investigated the critical effects and importance of locus of control in language learning. They concluded that it has an undeniable influence on the quality of EFL learning and that it can differentiate good language learners from those with poor performance. In another survey, they looked into the relation of locus of control with student's achievements in L2 reading and writing skills (Ghonoosly & Elahi,

2010). Their findings indicated that the students that considered themselves to be able to affect their own learning process, have a higher chance of being more successful in learning and doing L2 reading and writing skills tasks. Conversely, the more the learners attribute their failures and nonfulfillments to external factors, the less they try to enhance their learning, and ultimately this would lower the level of achievement.

In another study, Ghasemzadeh and Saadat (2011) examined the relationship between university students' locus of control with academic achievement, and the results were noteworthy to consider. The findings revealed that there is a significant and meaningful relationship between internal locus of control and students' level of progress in the educational setting. To put it in other words, learners with an internal locus of control could accomplish more educational progress and outperform compared with their counterparts with external locus of control (Ghasemzadeh & Saadat, 2011).

Rastegar et al. (2013) investigated the relationship among locus of control (LOC), religious orientation (RO), and test anxiety (TA) among Iranian EFL learners. Furthermore, it scrutinized the role of gender, among 100 Iranian EFL learners on these variables. For the analysis of data, Pearson Product Moment Correlation and T-test were used. The results revealed that there was a significant negative relationship between ILOC and TA and a significant positive relationship between ELOC and TA. Furthermore, there was a significant positive relationship between ILOC and IRO and a significant positive relationship between ELOC and ERO. Also, there was a significant negative relationship between ILOC and TA, and a significant positive relationship between ELOC and TA. Finally, there were not any significant differences among males and females regarding ILOC, ELOC, TA, IRO, and ERO.

Naseri and Ghabanchi (2014) examined the relationship between self-efficacy beliefs, locus of control, and reading comprehension ability of Iranian advanced learners. They applied the Michigan reading comprehension test reading self-efficacy questionnaire and an internal control index by application of the Pearson correlation coefficient to perform the analysis. The findings of their study indicated, "motivating the students, to improve their self-efficacy and Locus of Control can be of great help for them to receive higher scores in their reading comprehension tests" (Naseri & Ghabanchi, 2014, p. 125).

Katirayifar and Rezvani (2017) also studied the effects of Iranian EFL learners' locus of control (external versus internal) on their test anxiety and their scores. Based on the results of their study, they realized that external locus of control could affect the learner's test anxiety and also their scores in a negative way while on the other hand, learners with an internal locus of control could perform better in comparison with the first group.

In another study, Oda (2018) investigated the correlation between locus of control and foreign language performance. To achieve this purpose, 88 third-year students for the academic year 2016-2017 in the Department of English, College of Education for Human Sciences, University of Basrah were selected. Trice's Academic Locus of Control Scale was used as the data collection instrument in this study. The results of the Independent Sample t-test demonstrated that there was no statistically significant relationship between locus of control and foreign language performance in most of the courses.

Moreover, Ehsani and Moghaddam (2021) examined the relationship between willingness to communicate, locus of control, and anxiety among EFL learners. Their examination of 80 participants from the Ibn Sina Institute indicated that "there was not any relationship between WTC and LOC among Iranian EFL learners; there was a significant but negative correlation between WTC and FL anxiety; and LOC and FL anxiety were not significantly correlated" (p. 319). Accordingly, those groups of students who have higher WTC are supposed to be more eager to make use of L2 in their everyday interactions and conversations as well as to operate in a more autonomous manner for trying to learn a second language.

Mirzaie and Sahragard (2022) also examined the interplay between anxiety, locus of control, and language proficiency. By conducting an analysis on 67 upper-intermediate students using the Pearson product test they indicated that there is a negative correlation between language proficiency and locus of control. In fact, students with higher scores in proficiency tests had an internal locus of control. In addition, there was a "strong negative correlation was found between language anxiety and language proficiency, indicating that anxiety has adverse effects on language proficiency" (Mirzaie & Sahragard, 2022, p. 2).

Recently, Filipiak and Łubianka (2024) examined the associations between the five-factor model personality traits and locus of control of successes and failures based on the theory of social learning. This study also assessed whether gender moderated the relationships between these variables in Polish early adolescents. The instruments used were the Picture Based Personality Survey for Children and the Locus of Control Questionnaire. A total of 1016 students participated in the study, including 49% boys and 51% girls. Both for girls and boys, the highest correlations were found between conscientiousness and locus of control in success situations. Neuroticism correlated negatively with the two types of locus of control. A moderating effect of gender was observed between openness to experience and locus of control of successes, and it was stronger in girls than in boys.

To investigate migrant middle school students' learning anxiety and the relationship between their unknown locus of control and learning anxiety, Hu et al. (2024) studied 351

migrant middle school students using Mental Health Test, Multidimensional Measure of Children's Perceptions of Control, and Middle School Students Learning Motivation Scale. The data analysis revealed that there was a positive prediction of learning anxiety from an unknown locus of control (β=0.139, $p<0.05$) and the unknown locus of control indirectly influenced learning anxiety through both learning goal distress and excessive learning motivation. Learning goal distress and excessive learning motivation partially mediated the relationship between unknown locus of control and learning anxiety. The total magnitude of the indirect effects was 0.15 ($p<0.05$). The research findings suggested increasing opportunities for students to make independent choices and to develop their sense of self-control in daily lessons; guiding students to set appropriate learning goals, avoiding too high or too low, emphasizing refinement of goals and the combination of long-term and short-term goals.

Despite the growing emphasis on understanding the interactive dynamics between variables like anxiety and students' motivation in language learning, the interplay of introversion, extraversion, language anxiety, and locus of control remains relatively unexplored. In fact, previous studies did not examine the interrelationship between these psychological variables like the role of extraversion/introversion on language anxiety or locus of control. Accordingly, the present study investigated the interrelationship among three variables of introversion/extroversion, anxiety, and locus of control.

The main purpose of this study was to discover the probable significant relationship that may exist among the Iranian student's personality traits in terms of extroversion and introversion, their locus of control, and foreign language anxiety in an EFL context. Accordingly, the present study tried to answer the following four research questions:

1) Is there any significant relationship between Iranian students' personality types (extroversion and introversion) and their locus of control?

2) Is there any significant relationship between students' personality types (extroversion and introversion) and their foreign language anxiety levels?

3) Can personality (extroversion-introversion) predict foreign language anxiety with the mediating role of locus of control?

4) Can locus of control predict foreign language anxiety with the mediating role of personality (extroversion-introversion)?

Participant

For this correlational research, the total number of participants was 317 EFL learners from both genders who were chosen randomly from students in different fields of study from

different universities in Isfahan, Iran. To conduct the present study, the online questionnaire was sent to a large population of EFL learners among which 317 individuals completed all three questionnaires.

Instruments

Three questionnaires were used in this study to collect the required data. The first one was the Personality Type (Introversion/Extroversion) Scale from Richmond and McCroskey (1998) in order to determine the participant's personality type. The questionnaire included 18 Likert-type items and the items were drawn from the work of Eysenck and Chan (1982). The Alpha reliability estimated by the present study was above .80. The validity of the questionnaire was measured using confirmatory factor analysis explained in more detail in the following sections. The Cronbach's alpha of this questionnaire was .733 and therefore the questionnaire was also approved in terms of its reliability.

To measure the foreign language anxiety level, the Short-Form Foreign Language Classroom Anxiety Scale (S-FLCAS) was used. S-FLCAS is a short form of the 33-item foreign language anxiety scale developed by Horwitz et al. (1986). S-FLCAS includes 8 items and was developed by MacIntyre (1999) and later employed by Dewaele and MacIntyre (2014). The Cronbach's alpha of the FLCAS questionnaire was .833 that proved this questionnaire to be reliable. Also, in order to approve the validity of the questionnaire, confirmatory factor analysis was used.

The third questionnaire used in the present study was the Locus of Control Scale developed by Rotter (1966). It is a 29-item questionnaire that measures an individual's internal-external locus of control. Each item offers the participant two choices to choose from according to their point of view. Out of the 29 items, 23 items are supposed to determine the kind of locus of control and the other 6 items work in disguise to make sure that the respondents have not answered the questions randomly without enough attention. The test validity was previously reported by Morris and Carden (1981) as .86 and Yuniar Sari and Masruri (2018) as .92 which are acceptable levels of test validity. In two studies conducted in the Iranian context, the validity of the questionnaire was measured and approved (Eslami-Rasekh et al., 2012; Ehsani & Moghaddam, 2021). The reliability of this scale was also measured using Cronbach's alpha and showed a reliability coefficient of .694.

Data Analysis

In the present study, a total of 317 individuals took part, among which 39 individuals (12.3%) were male, 100 (31.5%) were female, and the gender of 178 individuals was not recorded. The ages of the participants ranged from 17 to 43 years, with an average age of 22.47 years. The standard deviation of their ages was 4.88 years.

Three questionnaires were employed in this study including the Personality Type Scale, Foreign Language Classroom Scale, and Locus of Control Scale. The validity of the two of the questionnaires i.e., the foreign language classroom scale and personality scale, were not analyzed and confirmed in the context of Iran by previous researchers. Therefore, confirmatory factor analysis was conducted on these two scales in order to check their validity. The results, including model fit indices and graphs, are presented below.

Confirmatory factor analysis was performed on the PT questionnaire using a sample of 293 participants, and a factor analysis was conducted on the FLCAS questionnaire with a sample size of 271 participants. The analysis was carried out using AMOS version 24 software. The results, including model fit indices and graphs, are presented below.

According to the fit indices (Table 1), both models exhibited relatively good fits. Additionally, with the exception of item 7 in the PT questionnaire, the factor loadings for all items in both questionnaires exceeded 0.3 and all items in both questionnaires demonstrated significant value (p-values < 0.05). Notably, despite its low factor loading, item 7 of the PT questionnaire also showed a significant value (p-value = 0.005). As a result, this item was retained in the model.

Table 1. Confirmatory Factor Analysis of PT and FLCAS Questionnaires

Fit index	Acceptable range	P.T (n= 293)	FLCAS (n=271)
CMIN/DF	Good: <3, Agreement:<5	2.713	2.667
X^2 P-value	>0.05	<.001	<.001
RMSEA	Good: <0.08, Nod good not bad: >0.08-0.1, Bad:> 0.1	0.077	.079
PNFI	>0.5	.67	.64
PCFI	>0.5	.71	.65
GFI	>0.9	.92	.96
AGFI	>0.9	.88	.92
IFI	>0.9	.89	.96
CFI	>0.9	.89	.96

Figure 1 shows the confirmatory factor analysis model of the foreign language classroom anxiety scale. As can be seen, the factor loadings for each of the questionnaire items are greater than 0.3. In addition, all the factor loadings are reported to have significant values (p-values < 0.05). Therefore, it confirms that all the items of the FLA questionnaire are significant and acceptable in terms of validity and there is no need to delete any of the items.

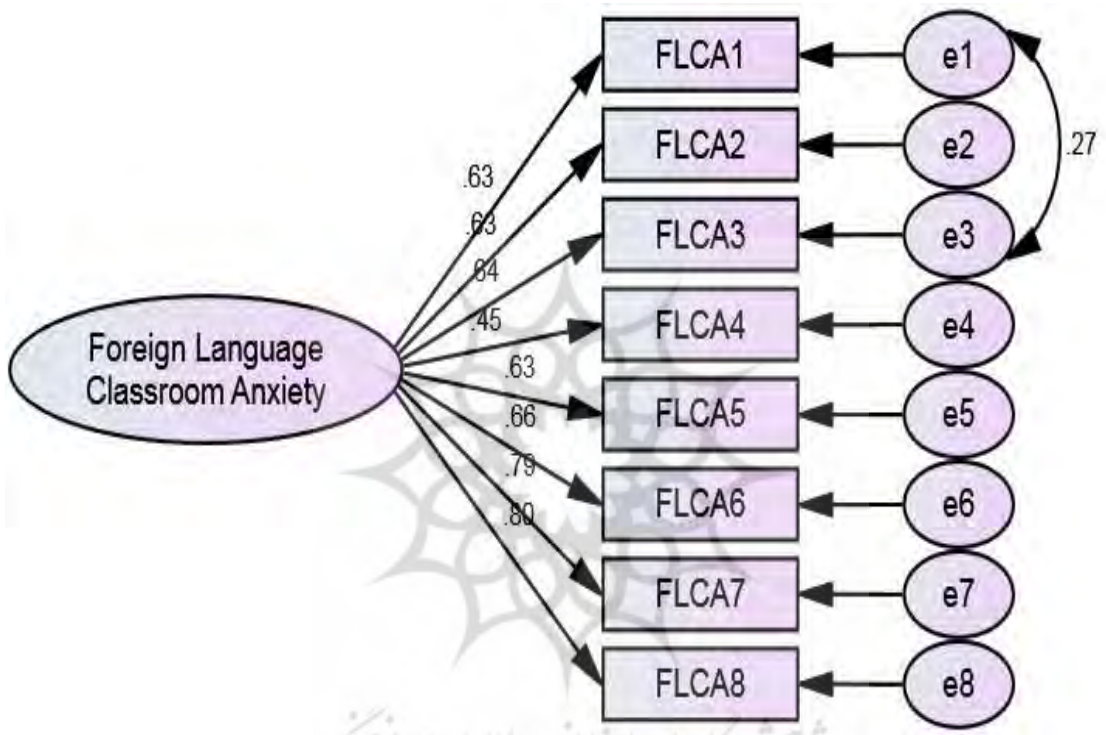

Figure 1. Confirmatory Factor Analysis of the FLCAS Questionnaire

Figure 2 shows the confirmatory factor analysis model of the personality questionnaire. As demonstrated, the factor loadings for each of the items are greater than 0.3 except for item number 7. Notably, despite its low factor loading, item 7 of the PT questionnaire also showed a significant value (p-value = 0.005). Therefore, this item was also retained in the model and none of the items of the PT questionnaire were deleted.

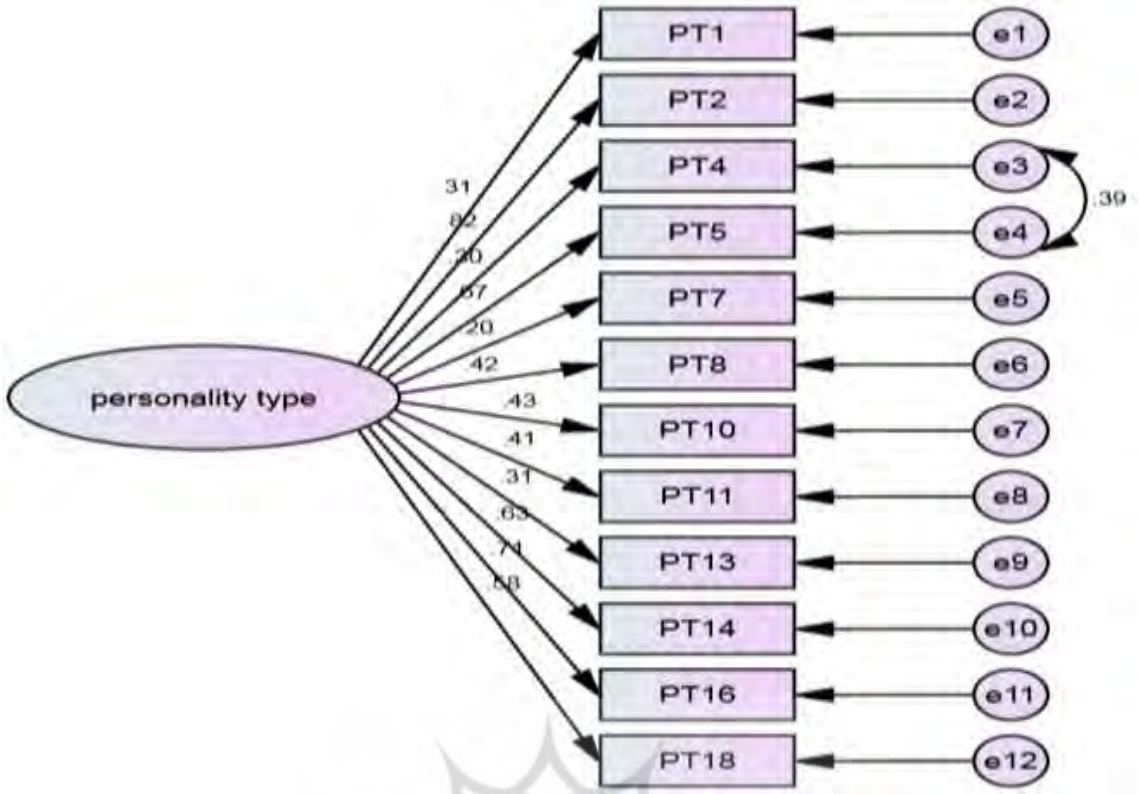

Figure 2. Confirmatory Factor Analysis of the PT Questionnaire

The demographic indexes of the study's variables are presented in the following table. These indexes include the number of participants or samples, the minimum and maximum scores for each questionnaire, the mean, standard deviation, skewness, and kurtosis. Additionally, the table provides values for Cronbach's Alpha and the number of items in the two rightmost columns, reflecting the questionnaires' acceptable reliability.

In conclusion, according to Table 1, both of the aforementioned questionnaires, i.e. PT and FLA questionnaires, that had not been checked in terms of validity in the context of Iran in previous studies showed good and acceptable fits based on the indices fits. Moreover, all items indicated significant value (p-values < 0.05) as indicated, and therefore none of the two questionnaires of PT and FLA were changed or modified in terms of deleting any of their items. All items of these two questionnaires were retained and were in accordance with the original forms of the questionnaires that were used in previous studies.

Table 2. Descriptive and Reliability Statistics of Study Variables

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	kurtosis	Cronbach's Alpha	N of Items
Personality types	297	18	57	38.42	7.20	-0.124	0.016	.733	18
Foreign Language Anxiety	305	8	40	24.56	7.24	0.012	-0.522	.883	8
Locus of Control	272	2	20	10.85	3.81	0.07	-0.336	.694	23

Table 3 represents the frequency and percentage of Personality Type (P.T) and Locus of Control (LoC) groups. Since the size of samples or the number of extraverted, introverted, and moderate individuals were unequal, the researcher used a continuous analytical method that is conventional in analytical studies. Since the size of the samples in the two groups of extroverts and introverts were not equal and were unbalanced in number, or in other words, the number of extroverts, was almost twice the number of introverts and also in the case of the Locus of control groups, the number of externals were twice the number of internals it was decided to analyze the data using continuous analytical method to attain more reliable results. The continuous analysis method is used when the number of sample groups is unbalanced and is not nearly equal or even, therefore to avoid obtaining any false or unreliable results, the researcher decides to analyze the data using a continuous analysis method. In this method, the comparison is not implemented between two separate groups e.g. extroverts vs. introverts, but the data are analyzed in a continuous range e.g. from the most extroverted score to the most introverted score.

Table 3. Descriptive Statistics of Personality Types and LoC Groups

		Frequency	Percentage
Personality Types	Extraverted	23	7.3
	Moderate	264	83.3
	Introverted	10	3.2
	Missing	20	6.3
Locus of Control	Internal	79	24.9
	Moderate	23	7.3
	External	170	53.6
	Missing	45	14.2

Inferential Analysis

The relationship of the variables of the study was assessed using the Pearson correlation coefficient in order to discover and determine the probable significant relationships among the three variables of the study. As shown in Table 4, a significant relationship ($p < 0.05$) was found among all pairs of variables. Personality types exhibited significant negative correlations with FLA and LoC, while Foreign Language Anxiety (FLA) showed a positive significant correlation with Locus of Control (LoC).

Table 4. Result of Pearson Correlation of the Three Variables of Personality Type, Language Anxiety, and Locus of Control

	Personality type	Language Anxiety	Locus of Control
Personality type	1		
Language Anxiety	-.176**	1	
Locus of Control	-.224**	.151*	1

* p-value<.05, ** p-value<.001

The relationship between Iranian student's personality type (extroversion and introversion) and their locus of control

To answer the first research question, regression analysis was conducted as shown in Table 5:

Table 5. Regression Analysis of the Correlation Between Personality Type (Extroversion and Introversion) and Locus of Control

Outcome	Predictor	B	S.E.	C.R.	Beta	P
Locus of Control	< --- Personality type	-.117	.032	-3.686	-.224	<.001

The results of the regression analysis reveal a significant finding regarding the relationship between personality types (extroversion and introversion) and locus of control. The analysis demonstrates a significant and negative relationship between these variables, as indicated by a p-value of less than 0.001 (p-value<.001). This signifies that a one-point increase in personality type score corresponds to an average decrease of approximately -0.12 in the locus of control score. Elevating the personality type score entails becoming more extroverted while lowering the score signifies a transition toward greater introversion. Consequently, the first null hypothesis, "There is not any significant relationship between Iranian students' personality type (extroversion and introversion) and their locus of control"

is rejected. In other words, there is a significant relationship between Iranian student's personality type (extroversion and introversion) and their locus of control.

The relationship between Iranian student's personality type (extroversion and introversion) and their foreign language anxiety

According to Table 4, the Pearson correlation coefficient of the three main variables of the study was estimated to demonstrate the significant relationships of each of the variables with one another. But concerning the analysis of the mediation role of two of the variables in research questions 3 and 4, regression analysis was used to demonstrate a linear relationship between the two variables, that one of them would be an independent variable and the other would be a dependent one in a mediation cycle. It was necessary to employ regression analysis to show a linear relationship among the variables and also to find out the predictability of the variables to find out the mediation roles of the variables.

The results of the regression analysis reveal a significant relationship between personality types (extroversion and introversion) and language anxiety. The analysis demonstrates a significant and negative relationship between these variables, as indicated by a p-value of 0.002 (p-value=.002). This signifies that a one-point increase in personality type score corresponds to an average decrease of approximately -0.18 in the language anxiety score. Elevating the personality type score entails having more language anxiety while lowering the score signifies a transition towards lesser language anxiety. Consequently, the second null hypothesis, "There is a significant relationship between student's personality type (extroversion and introversion) and their foreign language anxiety level" is rejected. In other words, there is a significant relationship between Iranian students' personality type (extroversion & and introversion) and their language anxiety.

Table 6. Regression Analysis of the Correlation Between Personality Type (Extroversion and Introversion) and Language Anxiety

Outcome	Predictor	B	S.E.	C.R.	Beta	P
Foreign language anxiety	< --- Personality type	-.184	.060	-3.086	-.189	<.002

The relationship between Iranian students' personality type (extroversion and introversion) and their foreign language anxiety with the mediating role of locus of control

To examine the relationship as proposed in question three, the following conditions should exist:

1. There is a significant relationship between personality type and foreign language anxiety (approved in question 2);

2. There is a significant relationship between personality type and locus of control (approved in question 1);

3. There is a significant relationship between locus of control and foreign language anxiety.

4. The addition of locus of control to the relationship between personality type and foreign language anxiety should significantly lessen the relationship between these two variables.

Analysis of the Third Condition

The analysis demonstrates a significant and positive relationship between these variables, as indicated by a p-value of 0.014 (p-value=.002). This signifies that a one-point increase in the locus of control score corresponds to an average increase of approximately .28 in the language anxiety score. Raising the locus of control score corresponds to a higher degree of external locus of control, whereas decreasing the score indicates a greater level of internal locus of control.

Table 7. Regression Analysis of Correlation between Locus of Control and Language Anxiety

Outcome	Predictor	B	S.E.	C.R.	Beta	P
Foreign Language Anxiety	< --- Locus of Control	.284	.115	2.462	.152	.014

Analysis of the Fourth Condition

This condition was examined using mediation analysis. The addition of locus of control decreased the regression coefficient model of personality type and FLA to 0.025 and the relationship between these two variables is still significant (p-value=.009). To analyze the effect of this mediation closely, Z Sobel and Bootstrapping tests were used. As observed in the two methods no significant effect is reported (p-value>.05). The mediation model along with standard deviation coefficients are exhibited in the following table.

Table 8. Regression Analysis of the Correlation for Mediation Model

Outcome	Predictor	B	S.E.	C.R.	P	Sobel-p	Boot. sig
Locus of Control	<--- Personality type	-.117	.032	-3.686	<.001		
Foreign Language Anxiety	<--- Locus of Control	.216	.117	1.845	.065	0.099	0.058
Foreign Language Anxiety	<--- Personality type	-.159	.061	-2.614	.009		

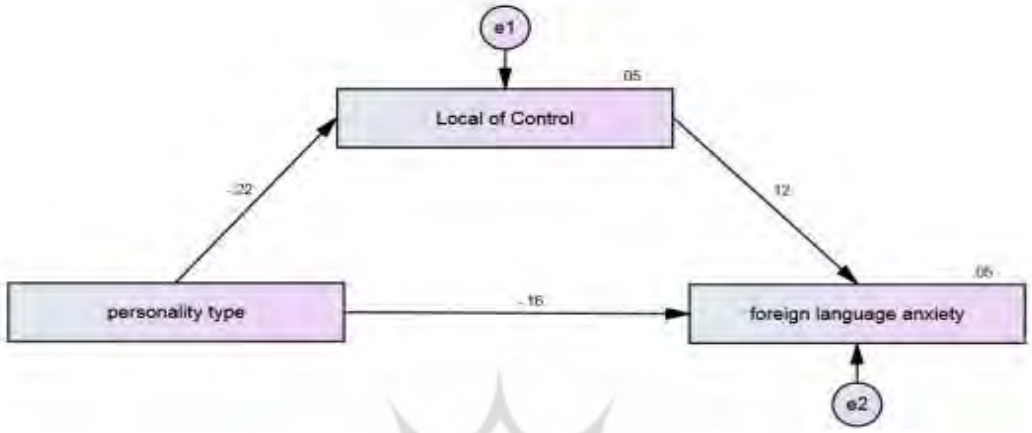

Figure 3. The Interconnection of Research Variables

The relationship between Iranian students' locus of control and their foreign language anxiety with the mediating role of personality

To examine the relationship, the following conditions should exist:

1. There is a significant relationship between personality type and foreign language anxiety (approved in question 2);

2. There is a significant relationship between personality type and locus of control (approved in question 1);

3. There is a significant relationship between locus of control and foreign language anxiety (approved in question 3);

4. The addition of personality type to the relationship between foreign language anxiety and locus of control should significantly lessen the relationship between these two variables.

Analysis of the Fourth Condition

This condition was examined using mediation analysis. The addition of personality type decreased the regression coefficient model of foreign language anxiety and locus of control to 0.07 and the relationship between these two variables is not significant (p-value=.065) which indicates the presence and effect of mediation for the variable of personality. For precise

analysis of the mediation effect, to analyze the effect, Z Sobel and Bootstrapping tests were conducted. As observed in the two methods, a significant effect is reported (p-value<.05). Based on the VAF value the effect of mediation is trivial (VAF=.240). In addition to the result of this condition that reported a trivial effect of personality type as mediation for locus of control and language anxiety, a study was conducted by Abdollahi et al., (2022) that reported the role of personality type as a mediation for language anxiety. The mediation model along with standard deviation coefficients are exhibited in the following table. (VAF<0.20: no mediation effect, 0.2<VAF<0.8: partial mediation, VAF>0.8: complete mediation)

Table 9. Regression Analysis of Correlation for Mediation Model

Outcome	Predictor	B	S.E.	C.R.	P	Sobel-p	Boot. sig	VAF
Locus of Control	<--- Personality type	-.430	.117	-3.686	<.001			
Foreign Language Anxiety	<--- Locus of Control	-.159	.061	-2.614	.009	.033	0.02	.240
Foreign Language Anxiety	<--- Personality type	.216	.117	1.845	.065			

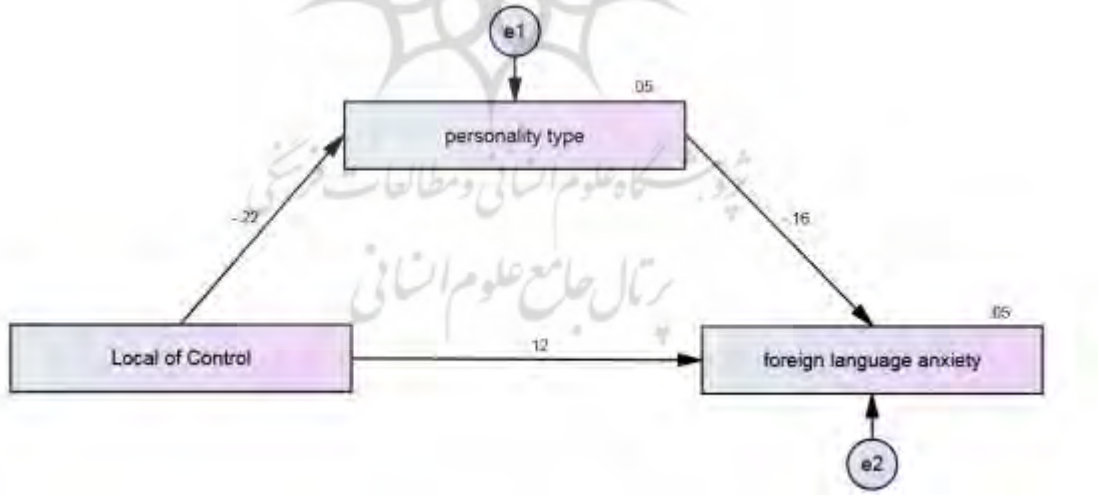

Figure 4. The Interconnection of Research Variables

Discussion

The findings of the study about the first research question indicated that there is a significant relationship between Iranian students' personality type (extroversion and introversion) and their locus of control. It indicated that types of personality influence locus of control or

intention to attribute the cause of events to internal or external factors such as fear, fate, and motivation. The relationship between personality type and locus of control found in the present study is in line with the findings of Filipiak and Łubianka (2024) which examined the associations between the five-factor model personality traits and locus of control of successes and failures based on the theory of social learning in which the researchers revealed that the highest correlations were found between conscientiousness and locus of control in success situations. Neuroticism correlated negatively with the two types of locus of control. A moderating effect of gender was observed between openness to experience and locus of control of successes, and it was stronger in girls than in boys.

Considering the second research question, this study indicated that there is a significant relationship between Iranian students' personality type (extroversion and introversion) and their language anxiety. It indicated that introverted and extroverted individuals might be different in the case of foreign language anxiety without specifying which type of personality has higher language anxiety.

The third research hypothesis suggesting "personality type (extroversion and introversion) cannot predict foreign language anxiety with the mediating role of locus of control" was examined and the results revealed that to lessen the degree of language anxiety one possible solution is to decrease students' level of locus of control. In other words, if students do not attribute the reason for events to external and internal factors such as fear and other conditions their level of language anxiety can be decreased. Findings related to the fourth condition that stated "Addition of locus of control to the relationship between personality type and foreign language anxiety should significantly lessen relationship between these two variables" indicated that adding locus of control as a mediating variable to the correlation, a trivial decrease in the relationship between personality type and language anxiety occurred that is not significant. Therefore, the third research hypothesis that indicates "personality cannot (extroversion-introversion) predict foreign language anxiety with the mediating role of locus of control" is rejected, because although mediation of locus of control decreases the correlation, it is so trivial that does not significantly change the results.

The fourth research hypothesis that indicated locus of control can predict foreign language anxiety with the mediating role of personality (extroversion-introversion) was examined and to answer the question four conditions were imagined in which the first three conditions were met. For the fourth condition, the addition of personality type to the relationship between foreign language anxiety and locus of control should significantly decrease the relationship between these two variables. Findings of examining this hypothesis

showed that regression analysis of locus of control and foreign language anxiety increases by the mediation of personality type significantly representing the importance of personality type in determining the relationship between variables.

The findings of the study were similar to the findings of another research conducted by Saffarian and Ashoori (2014) that showed a positive significant relationship between internal locus of control and extroversion. Another study done by Gargalianou et al. (2016) reached the same results as the present study. The results of their research also showed that there is a significant negative relationship between extroversion and foreign language anxiety. This was also reconfirmed in a pioneering study conducted previously by Dewaele and Furnham (1999).

In another study conducted by Katirayifar and Rezvani (2017), similar results were found. The results of their study showed a positive significant relationship between the learners' external locus of control and their test anxiety. The results of another study done by Hovenkamp-Hermelink et al. (2019) also aligned with the findings of the present study, regarding the positive significant relationship between the learners' external locus of control and their anxiety.

Prior research has also explored the interconnectedness of personality type, locus of control, and/or language anxiety with some other dimensions and concepts of language learning (Katirayifar & Rezvani, 2017). For example, Ehsani and Moghaddam (2021) scrutinized the relationship between willingness to communicate, locus of control, and anxiety in EFL learners. The investigation indicated that heightened foreign language anxiety diminishes willingness to communicate. Interestingly, the current study's findings align with this pattern, as an increased locus of control corresponds to amplified foreign language anxiety. In essence, these past and present studies collectively emphasize the intricate connections between personality dimensions, locus of control, and language-related apprehensions.

Furthermore, a study by Mirzaie and Sahragard (2022) studied the interplay of anxiety, locus of control, and language proficiency. The findings suggested that anxiety detrimentally affects language proficiency—an outcome in line with the current study's results. Specifically, the present study reveals that a higher locus of control contributes to elevated levels of language anxiety.

The relationship between locus of control and learning anxiety was investigated in another study by Hu et al. (2024) which, in line with the present study, revealed that there was a positive prediction of learning anxiety from an unknown locus of control. In fact, this

indirect impact caused by locus of control on learning anxiety was through difficulties with learning goals and excessive learning motivation. The suggestion made by the researchers was increasing opportunities for students to make independent choices and to develop their sense of self-control in daily lessons; guiding students to set appropriate learning goals, avoiding too high or too low, emphasizing refinement of goals and the combination of long-term and short-term goals.

Conclusion

This study has shed light on the intricate web of relationships between personality types, locus of control, and foreign language anxiety among Iranian students. The findings underscore the substantial impact of personality types on individuals' attributions of events to internal or external factors, as well as their varying degrees of language anxiety. The interplay between these variables has been explored, offering valuable insights into the dynamics of language learning and the psychological factors that shape it.

This study contributes to the existing literature by revealing the nuanced connections between these dimensions, opening avenues for further investigation and understanding. While not all hypotheses were fully confirmed, the study has offered a deeper understanding of the mediating roles of personality and locus of control in influencing foreign language anxiety. The study's results emphasize that personality types and locus of control play vital roles in shaping language anxiety, highlighting their relevance in language learning contexts.

The findings of this study hold implications for educators, practitioners, and policymakers in the field of language education. Acknowledging the impact of personality and locus of control on language anxiety can guide tailored interventions and strategies to create supportive and motivating learning environments. By addressing individual differences and their implications for language anxiety, educators can help students navigate the challenges of language learning more effectively. As language education continues to evolve, recognizing the intricate connections between psychological variables and language learning outcomes becomes paramount. Future researchers may consider cultural variability, longitudinal studies, intervention strategies, personality profiles, and multilingual contexts. By exploring these new areas, researchers can deepen their understanding of the complex interplay between personality, locus of control, and language anxiety, providing valuable insights for educators and practitioners to create more effective language learning environments and support systems. In fact, the findings of this research would definitely be of great help to give the EFL instructors the knowledge to understand how the different needs

of each of the learners in an EFL classroom should be treated and consequently what kinds of appropriate approaches or methods need to be implemented to help the learners to overcome their deficiencies and how to benefit from their distinctive inner capabilities and potentials and help them to become the best version of themselves in all their uniqueness.

This study also had some limitations that can be taken into consideration in future works and studies. One of the main limitations of this study was the limited size of the sample. In fact, because of this limitation in the sample size, we could not control the factors of age and field of study. The number of participants in each group is specified but the number of participants in some age groups was so limited that we decided not to categorize them based on their age range. Another limitation is in regard to the data analysis method in this research. The collected data was analyzed using quantitative methods, while in future works a mixture of quantitative and qualitative data analysis methods such as interview, observation, etc., can give us more reliable and more comprehensive results.

Building upon the findings of the present study, future researchers are suggested to investigate cultural variability to explore how cultural differences might influence the relationships between personality types, locus of control, and language anxiety and to find out whether these relationships hold true across different cultural contexts or if there are variations in how these variables interact in diverse cultural settings. Longitudinal studies can also be conducted to examine how these relationships evolve over time. Tracking participants' personality traits, locus of control, and language anxiety levels across multiple points in their language learning journey could provide insights into the dynamic nature of these variables. Intervention Strategies can be considered another area for researchers to develop and test intervention strategies aimed at reducing language anxiety by targeting locus of control and investigating whether interventions that help students develop a stronger sense of internal locus of control can lead to reduced language anxiety and improved language learning outcomes. Instead of just considering extroversion and introversion, researchers can delve into more comprehensive personality profiles using established personality assessment tools. This could provide a richer understanding of how specific personality traits contribute to language anxiety and locus of control. Future researchers are also expected to extend the research to multilingual contexts, where individuals are learning multiple foreign languages. Investigate whether the relationships between personality, locus of control, and language anxiety differ when individuals are navigating more than one language learning experience.

Declaration of Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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