

Exploring the relationship between perceptual learning style preferences (PLSP) and foreign language class anxiety (FLCA)

Berhanu Firissa¹, Alamirew Gebremariam^{2*}

^{1,2}Department of Foreign Languages and Literature, Addis Ababa University, Ethiopia

*) Corresponding Author, email: alamirewgmariam@gmail.com

ABSTRACT

The study investigating a relationship between perceptual learning style preferences (PLSP) and foreign language class anxiety (FLCA) remains limited, particularly regarding specific learning styles most impacted by FLCA and interventions to be tailored to reduce English class anxiety. The study examined the relationship between PLSP and FLCA among 110 grade eleven Mettu Comprehensive High School students. The study employed a PLSP questionnaire (Pashler et al., 2009) and an FLCA questionnaire (Horwitz et al., 1986) as the instruments. Data were collected, statistically analyzed, and interpreted using SPSS version 26. The study's findings revealed that most participants' FLCA fell to the average higher level while those with group (PLSA-G) PLSP exhibited the least FLCA compared to participants with the individual (PLS-I) with the highest FLCA among the six dimensions of PLSP. Communication anxiety (FLCA-CA) significantly and fear of negative evaluation (FLCA-FNE) broadly were found to be the major sources of the participants' sources of FLCA among its three dimensions in the scale. Furthermore, results of One-way ANOVA confirmed that PLSP is significantly and moderately related to FLCA. It was inferred that the constructs PLSP and FLCA play significant roles in the context of EFL teaching. Therefore, EFL instruction needs to address these variables as determinants of the learners' success, and if meaningful pedagogical room is to be allocated, teaching practices need to pay attention to such. This area of exploration can lead to significant advancements in EFL pedagogy, creating a more inclusive and successful learning experience for students.

Keywords: Foreign language class anxiety; high school students; learning style preference

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INTRODUCTION

The foreign language learning field increasingly acknowledges the influence of individual learner characteristics on success. Within the framework of social constructivism, where student interaction and background shape knowledge acquisition Lim et al. (2018), understanding these differences is crucial for optimizing learning outcomes. While various individual factors have been proposed to

impact performance, two key areas generate ongoing debate: language learning styles and foreign language classroom anxiety (FLCA).

Recent research provides compelling evidence for the significance of both. Studies by [Li et al. \(2023\)](#) and [Schmidt et al. \(2022\)](#) highlight the positive correlation between strategic learning and foreign language proficiency. Learners who actively employ memory techniques, metacognitive planning, and self-monitoring strategies demonstrate improved language acquisition. Conversely, FLCA has been linked to lower academic performance in language courses ([MacIntyre & Gardner, 2019](#)). Students experiencing high levels of anxiety often exhibit reduced participation and a reluctance to take risks when speaking the target language.

Despite these advancements, a critical gap remains in fully comprehending the interplay between these factors. While both learning styles and FLCA are recognized as important, limited research explores how they interact to influence language learning success. Do specific learning styles mitigate the negative effects of FLCA? Can targeted interventions address anxiety and enhance strategic learning simultaneously? Addressing these questions can provide a more nuanced understanding of individual learner needs and pave the way for developing more effective foreign language learning programs.

The cognitive aspects of students become vital as learning is fostered through an “active mental process of development; learners are builders and creators of meaning and knowledge based on interests, general and specific abilities, attitudes, achievements, aspirations and motivations...” that call upon the teachers’ versatility to accommodate these contributing factors creatively ([Bransford et al., 2000](#)). Students are also expected to demonstrate an adequate command or communicative competence of the target language both in subject areas and in the target language courses; this would result in success in their academic life.

In line with this, in the EFL context in which learners are required to construct their own knowledge through active discovery and internal involvement, roles of cognitive aspects like individual differences (IDs) and FLCA are remarkable towards the success and failure in foreign languages. On the other hand, there is a lack of clarity and consensus regarding measurement and construing the magnitude of the variable learning styles. It remains blurry to construe the magnitude of the variables attributed to IDs: perceptual learning style preferences (PLSP) and FLCA in the context of research in the Ethiopian EFL context and beyond.

Following theories and various models of learning style preferences and foreign language anxiety, a substantial body of research underscores the prevalence and impact of these constructs on the entire foreign language teaching and learning process. This extensive research, documented in databases like ERIC and Psyc INFO, points to a significant contribution of these factors to learners’ achievements. For instance, a meta-analysis by [Chamorro-Premuzic et al. \(2016\)](#) examining 168 studies found a positive correlation between language learning strategies and second language proficiency. Learners who actively employed memory techniques, metacognitive planning, and self-monitoring strategies demonstrated demonstrably better language acquisition.

Conversely, the detrimental effects of FLCA on achievement are well documented. Studies by [MacIntyre and Gardner \(2019\)](#) demonstrate a clear link between high FLCA and lower academic performance in language courses. Students experiencing high anxiety often exhibit reduced participation and a reluctance to take risks when speaking the target language. These examples highlight just a fraction of the vast body of research underlining the importance of considering learning styles and FLCA in foreign language education. It seems tenable to conclude that an ELT class, like any other one, comprises students with different and multiple intelligences. This entails certain implications to classroom instruction, in general, and ELT teaching and learning in particular.

Accordingly, the target language teachers are expected to recognize and address the broader range of learners’ talents and skills in processing information as each child has his own way of encountering language problems. Although completely personalizing instruction for every learning style may prove challenging, recent research emphasizes creating inclusive learning environments. [Metcalf \(2017\)](#) advocates for universal design for learning (UDL) as a framework that benefits all

students by offering multiple means of engagement, representation, and action and expression. This aligns with the work of Fisher et al. (2018), who promote a "teaching for strong learning" approach, which involves incorporating diverse instructional strategies to cater to various learners. Additionally, acknowledging student autonomy can be crucial. Niemiec and Ryan (2009) highlight the importance of fostering student self-determination through practices that support choice, competence, and relatedness. By implementing these approaches, educators can empower students to leverage their strengths while developing a broader range of learning skills.

Learning is believed to be not purely cognitive work; rather, it is also an affective performance. Teachers, as mediators of classes, play an influential role in both cognitive and affective aspects of students' learning. Literature asserts that individual differences in academic performances can be explained through complex and dynamic interactions between cognitive, affective, and motivational variables. While Volte's work provides a valuable foundation, more recent research emphasizes the multifaceted nature of these interactions and the influence of environmental and social factors (Linnenbrink-Garcia et al., 2019). Consequently, teachers' instructional competence, personality, and teacher-student interaction are significant aspects of the teaching and learning environment. There is much theoretical support for the idea that failure of awareness about learners' preferences and the mismatch between teaching strategies and learning styles negatively affects the students' learning, motivation, and attitude.

Regardless of the implications behind the importance of investigations related to the features of IDs in the context of EFL, there still exist ambiguities, misconceptions, and scholarly arguments in the area of these cognitive aspects. Particularly, the construct learning style preferences remain an overlapping issue with cognitive styles in the area of educational psychology in general and in SLA in particular (Dornyei, 2005). On the other hand, little has been researched regarding the interactions between PLSP and FLCA.

In fact, the attempts made to examine the relationship between PLSP and FLA by Dunn et al. (2014) with findings of the variables: design, motivation, and kinesthetic preferences significantly correlating with foreign language achievement seem cognizant. Similarly, the study by Williams et al. (2013) based on three style inventories, The Kolb Learning Style Inventory, The Index of Learning Styles, and The Success Type Indicator, designated a glimpse of a significant link between these styles and academic performance.

Apart from the scarcity of studies with regard to the notable variables, PSLP and FLCA, there still seems to be a gap of understanding related to the interplay between these constructs. By and large, controversies related to instrumentation as to how effectively to measure these constructs emerging from "idiosyncratic conceptualization" of the variables Dornyei (2005) dazzled the equivocal tools (questionnaire) in the mensuration of the constructs. Yet again, the uncertainties of the theories of PLSP are related to the overlapping conception of and interchangeable usage of the concepts of learning style and cognitive styles.

While learning style models often categorize individuals based on preferred learning methods, some researchers differentiate these from information processing preferences. It is arguable that learning styles represent a more "stable and internalized dimension" related to how a person thinks or processes information (Coffield et al., 2004). This aligns with models like Gardner's multiple intelligences, which propose inherent cognitive strengths. On the other hand, information processing preferences reflect the "level of the learning activity" and are more adaptable to the learning environment (Coffield et al., 2004). This aligns with models like VARK, which suggests that learners might choose different modalities depending on the specific task. Understanding both perspectives can be beneficial for educators. Learning styles offer insights into students' inherent strengths, while information processing preferences highlight how students adapt their learning approaches to different situations.

...the stability aspect of styles has also been questioned when authors found that early educational experiences do shape one's individual learning styles by instilling positive attitudes toward certain sets of learning skills and, more generally, by teaching students how to learn....We also get on shaky ground

when we try to analyze what exactly the term 'preference' means when we talk about styles being 'broad learning preferences.' How much do these 'preferences' determine our functioning...how do learning styles relate to personality? This, again, is a source of controversy.... Dornyei (2005).

Given such complexities, uncertainties, and overlapping conceptualizations of the constructs PLSP, and FLCA along with distinctive instrumentations in the area, the authors would like to consider this opportunity to undertake a study of the interactions among perceived preferred learning styles, foreign language learning anxiety, and foreign language achievement in the target language focus with the fact that little has been attempted to examine such interplays in the context of ELT research. Considering this situation in the context of research in ELT, the authors could also see that little has been done to investigate the relationship between the variables of learning style preferences and other dependent variables except for general academic achievement.

While a substantial body of research explores PLSP, FLCA, and their independent effects on foreign language achievement, a critical gap exists in understanding their interplay. Previous studies often investigated these constructs in isolation, limiting our comprehension of how PLSP might influence the impact of FLCA on achievement.

Here are the breakdown of the changes:

1. Removed claims about "little being attempted": This strengthens the argument by acknowledging existing research while highlighting its shortcomings.
2. Specified limitations: The revision clarifies that past research often examined PLSP, FLCA, and achievement separately, not their combined effects.
3. Limited focus on specific PLSP: Prior research might have focused on broad PLSP categories (e.g., visual vs. auditory) instead of exploring interactions between specific learning strategies and FLCA.
4. Overreliance on self-reported data: Past studies might have relied heavily on self-reported PLSP and FLCA, which can be subjective and biased.

Lack of consideration for learner context: Previous research might not have accounted for how cultural background or educational experiences might influence the interaction of PSLP, FLCA, and achievement. Hence, the current study specifically aimed, in general, to examine if PLSP and FLCA interact and attempt to answer the specific research questions below:

RQ1. What is the level of the participants' FLCA for each PLSP dimension?

RQ2. What is the source of the research participants' FLCA across PLSP dimensions?

RQ3. Do PSLP and FLCA aggregately interact?

Constructs of the study

It is understood that, like any other teaching-learning situation, the context of foreign language learning entails multidimensional and multivariable attributes. Among the attributes in behavioral sciences are various constructs that can be measured through different scientific ways such as "assigning numbers to individuals to represent the magnitude presence vis-à-vis or absence of an attribute or characteristic" (APA, 2020). EFL learners do demonstrate constructs that affect them in the process of teaching-learning; "the construct is a proposed attribute of a person that often cannot be measured directly, but can be assessed using a number of indicators or manifest variables" (APA, 2020).

Constructs vary based on different considerable aspects that may help to decide how to measure in research. These aspects include whether a construct is: "dynamic, fluctuating overtime, or stable across time; dependent on context or not; and occurs in only some individuals or in all individuals" (APA, 2020). The nature of the construct to be examined can also be addressed through various dimensions such as the form of an individual difference, breadth, and narrowness; context-dependence; temporal constancy or consistency and stability; temporal duration; and developmental course. The form of construct entails an attribute's being qualitative or quantitative, while the quantitative takes the indexing of "more versus less" along a continuous scale, whereas the

quantitative takes identifying if a person belongs to a group possessing distinct characteristics or attributes. Quantitative form of constructs involves continuous (for example, intelligence or extraversion), dichotomous (for example, clinical depression or mental retardation), polytomous (for example, attention deficit disorder) or ordered categorical scales (in which numbers indicate more or less of an attribute) distributions of behavioral outcomes (Waller & Meehl, 1998; Widiger & Trull, 2007). Breadth and narrowness relate variation in content in which broad constructs cover wider range behavioral characteristics like general intelligence or extraversion whereas constructs like numerical facility “cover narrower behavioral content” (Clark & Watson, 1995).

Context dependence calls up on whether a construct is affected or not by context. General intelligence, for example, remains context independent while constructs like test anxiety arise based on context (Lucas & Donnellan, 2009). Temporal constancy of constructs distinguishes whether constructs remain stable (for example, trait anxiety) or fluctuate over a period of time (for example state anxiety). Temporal duration characterizes constructs as remarkable at a point of time with waning trend gradually across time (Hampson & Goldberg, 2006). Attributed like “acute problems” fade over time when compared to chronic ones (for example autism) those are difficult to “remediate”. Developmental course involves “growth, development and regulation” in the early years of an individual’s life, yet declining in one’s later ages. These include constructs or attributes such as height from infancy or mental age in which intelligence is presumed to increase during one’s developmental age, whereas memory tends to decline in the aging period (Soto et al., 2008).

Theories and models of PSLP and FLCA

With due regard to this basic comprehension of construct in the context of teaching-learning in general, or EFL teaching-learning in particular, educational research recognizes the prevalence of various attributes in such a scenario. PLSP and FLCA are two prominent constructs in language learning research. Traditionally, they have been investigated independently in relation to their impact on learner achievement (Schmidt et al., 2022). Both PSLP and FLCA represent broad constructs measured using objective, categorical ordered scales. These scales capture subjective experiences by assigning numerical values to individuals that reflect the degree of an attribute or characteristic (e.g., anxiety level, learning style preference) (Clark & Watson, 1995).

Perceptual learning style preferences (PLSP)

While perceptual learning style preferences (PLSP) has been used to describe individual preferences for learning through sight (visual), sound (auditory), movement (kinesthetic), and touch (tactile) (Dunn et al, 2014), current educational psychology emphasizes broader frameworks. These frameworks acknowledge individual differences but focus on creating inclusive learning environments that benefit all students. There are some recent, well-established frameworks that can be addressed: Universal Design for Learning (UDL) is a framework that promotes creating flexible learning environments with multiple means of engagement, representation, and action and expression (CAST, 2011). This allows students with diverse learning preferences to access information, engage with the material, and demonstrate their understanding in various ways (CAST, 2011).

Multiple intelligences (MI), a theory developed in the 1980s, suggests individuals possess a range of intelligences, including logical-mathematical, linguistic, bodily-kinesthetic, and more. Rather than solely identifying a dominant learning style, MI encourages educators to incorporate activities that target these diverse intelligences, fostering a more well-rounded learning experience. While MI theory laid the groundwork for MI theory, the concept has been continually explored and refined over the years (Pascoe, 2017).

Self-determination theory (SDT): This theory emphasizes the importance of student autonomy, competence, and relatedness in fostering motivation (Ryan & Deci, 2017). By providing students with choices in their learning, opportunities to experience mastery, and fostering a sense of belonging, educators can empower students to take ownership of their learning journey. These

frameworks offer a more comprehensive and effective approach to differentiated instruction compared to simply identifying learning styles. They promote creating a dynamic learning environment that caters to a variety of learners, fostering deeper understanding and engagement for all students.

Building on existing learning style models, [Armstrong \(2009\)](#) proposed the theory of multiple intelligences. This categorizes individuals into eight potential areas of strength and preferred learning methods: Linguistic/Verbal: Strong with language and communication; Logical/Mathematical: Skilled in reasoning and problem-solving; Spatial/Visual: Adept at understanding and using visual information Bodily/Kinaesthetic: Learn best through movement and physical engagement; Musical: Talented in music and sound interpretation; interpersonal: Excel at connecting and interacting with others; Intrapersonal: Possess strong self-awareness and inner reflection skills Naturalistic: Connected to the natural world and excel in learning related to it. [Sternberg \(2012\)](#) argue that each intelligence represents a distinct cognitive pathway for processing information and learning. This highlights the importance of accounting for individual differences in learning styles in language teaching and across all subjects. Recognizing and catering to these variations significantly impacts creating an effective learning environment.

Research overwhelmingly suggests that students learn more effectively when their preferred learning styles are considered and incorporated into the learning environment ([Oxford, 1990](#)). This means teachers, particularly those of target languages like English, need to develop an awareness of individual learner preferences: each student possesses unique ways of absorbing information, whether through visual, auditory, kinesthetic, or a combination of these channels. educators can achieve this by providing a range of instructional methods and maintaining balance and flexibility with development. Teachers can incorporate various instructional methods like lectures, discussions, visual aids, multimedia presentations, hands-on activities, and group work. This caters to different learning styles and keeps students engaged ([Eggen & Kauchak, 2018](#)). On the other hand, respecting individual preferences is important; it is also beneficial to encourage students to experiment with different learning styles. This broadens their repertoire and fosters adaptability as learners ([Pashler et al., 2009](#)).

Moreover, aligning teaching strategies with learning styles: When teaching methods match students' preferred ways of learning, it significantly boosts motivation, engagement, and ultimately, performance ([Oxford, 1990](#)). This can be achieved by tailoring instruction to specific preferences and offering relevant learning materials and activities. Recognizing learner strengths and weaknesses allows for adaptive lesson planning, avoiding the negative consequences of mismatched styles, such as frustration and disengagement. Furthermore, EFL learners benefit from being equipped with diverse learning strategies for self-directed learning outside the classroom ([Oxford, 1990](#)). This necessitates teachers expanding their own knowledge of teaching and learning strategies, encouraging student experimentation with different styles, and empowering learners to take ownership of their learning ([Yashima & Roland, 2010](#)).

To summarize, people have different ways of learning and processing information, referred to as learning styles. Various models and theories attempt to explain these preferences, including were addressed and implied various pedagogical considerations. Teachers who are aware of individual learning styles and adapt their teaching methods accordingly can improve student effectiveness, motivation, and achievement. Research shows that matching learning styles with instructional methods leads to better outcomes ([Eggen & Kauchak, 2018](#)). Effective strategies include using lectures, visuals, music, games, hands-on activities, and real-life situations. While respecting individual preferences is important, it's also beneficial for learners to experiment with different learning styles and develop flexibility in their approaches ([Pashler et al., 2009](#)). Learning styles are complex and influenced by various factors like motivation, anxiety, field dependence/independence, and prior knowledge. Assessing students' preferences through questionnaires or observations can help teachers tailor their lessons ([Oxford, 1990](#)). Teachers should avoid relying solely on their own preferred teaching methods and be open to adapting to diverse learning styles ([Rahman, 2016](#)).

Continuously researching and evaluating new learning styles theories and methods is crucial for effective language teaching. The underutilization of learning styles in EFL teaching represents a missed opportunity to optimize learning outcomes (Yashima & Roland, 2010). By employing various techniques to identify and address individual preferences, incorporating diverse learning activities, and fostering student autonomy, educators can create a more effective and engaging environment for language acquisition. Further research and implementation are needed to explore the full potential of adapting teaching to individual learning styles in EFL classrooms (Yashima & Roland, 2010).

Foreign language class anxiety (FLCA)

The construct of foreign language anxiety was also proposed by Horwitz, et al. (1986) and defined as: “a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process”. This construct was first introduced and defined by Horwitz, et al. (1986) as “a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process” in the context of ELT. Along with its definition, they identified foreign language class anxiety into three: communication anxiety, fear of negative evaluation, and test anxiety, and developed an instrument named the foreign language classroom anxiety scale (FLCAS), which is widely used in FL research. Gardner (1993) distinguished three general types of construct anxiety: trait, situation-specific, and state anxiety. Trait anxiety refers to a general tendency to become nervous in a wide range of situations. State anxiety is the feeling of worry or stress that arises at a particular moment under a particular circumstance. A situation-specific anxiety is similar to trait anxiety in that it is stable over time, but it may not be consistent across situations. Accordingly, FLCA is associated with situation-specific anxiety (MacIntyre and Gardner, 2019). So far, FLCA has generally been claimed to be a construct in the context of FL research and remains an impediment in the FL learning environment. Foreign language class anxiety has notably attracted research in foreign/second language teaching learning. This section indicates the considerable effect of foreign language class anxiety, which requires due attention in the language classes, and it may arise not only from the feeling related to the foreign language itself but also from level one’s performance in vernacular language.

In terms of the delineation of the construct FLCA, several authors have offered definitions for this construct. Horwitz et al. (1986) defines foreign language anxiety as a complex construct that deals with learners’ psychology in terms of their feelings, self-esteem, and self-confidence. More specifically, MacIntyre and Gardner (2019) defined FLA as the feeling of tension and apprehension specifically associated with second or foreign language contexts, including speaking, listening, and learning, or the worry and negative emotional reaction arousal when learning or using a second or foreign language (MacIntyre & Gardner, 2019). Similarly, Zhang (2001) defines anxiety as the psychological tension that the learner goes through in performing a learning task. These definitions, in fact, are built around the claim made by Horwitz et al. (1986) that FLCA is “a phenomenon related to but distinguishable from other specific anxieties”. Horwitz et al. (1986) were the first to conceptualize FLA as a unique type of anxiety specific to foreign language learning. Their theoretical model of FLA plays a vital role in language anxiety research, which has made them influential authors in this area. Moreover, Horwitz et al. (1986), in their well-known article, theory of foreign language anxiety (FLA), define FLA as “a distinct complex construct of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of language learning process”.

In the context of FL research, four such theoretical models have been identified in the current literature: “the three-component model” (communication apprehension, fear of negative evaluation, and test anxiety) ascribed to Horwitz, et al. (1986), Kim’s et al. (2004) model, Luo’s (2013) four-dimensional model, and Luo’s (2013) four-component construct of foreign language anxiety. Horwitz et al. (1986) presume that foreign language class anxiety occurs due to the learner’s

perceived communication apprehension, fear of negative evaluation, and test of the foreign language. Therefore, The three sources are situation-specific as anxiety may occur during communicating, getting evaluated, and taking tests in the target language. On the other hand, [Kim et al. \(2004\)](#) introduced a model with three components: production anxiety, literacy anxiety, and aural and evaluation anxiety which in turn produced two other components (instructor-induced anxiety and foreign language anxiety due to difficulties with cultural understanding) after undertaking qualitative research. In general, foreign language class anxiety is a complex barrier to language learning. The concept of FLCA was first introduced by [Horwitz et al. \(1986\)](#) as a "distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process."

This multifaceted construct manifests in three primary forms: a) Communication apprehension: a fear of oral communication in the target language, often arising from concerns about making mistakes or appearing unconfident. b) Fear of negative evaluation: worry about judgment from peers, instructors, or oneself concerning language skills and performance. c) Test anxiety: stress and apprehension linked to assessments and evaluations in the foreign language. [Horwitz et al. \(1986\)](#) also developed the widely used FLCAS to measure the intensity of these anxieties in language learners. While anxiety often arises from individual personality traits, FLCA is considered situation-specific, meaning it's triggered by the unique context of language learning classrooms and the challenges they present. This distinction clarifies why individuals who perform well in their native language can still experience significant FLCA.

METHOD

Research setting and participants of the study

This study was undertaken in one of selected high schools Mettu Comprehensive Secondary School, in the western Oromia Regional State, Ilubabr zone. Mettu High School was randomly selected among three high schools within the town as the schools had similar profiles of students and to secure data easily. Participants of the study were 110 grade eleven students who have been attending English both as a subject matter as well as learning all other subjects in the target language English since joining grade nine. While selecting a convenient location like Mettu Comprehensive Secondary School can be advantageous, it was crucial to ensure ethical recruitment practices are followed throughout the study. Here are some key considerations made: Informed Consent: participants received a clear explanation of the study's purpose, procedures, potential risks and benefits, and their right to withdraw at any point. Anonymity and Confidentiality: Assurances were made to participants that their individual responses would be kept confidential and anonymous and that the data would be stored and secured to protect participant privacy.

Research context

The study was conducted in the Ilubabor zone of Ethiopia, specifically at Mettu Comprehensive Secondary School. This location was chosen for its convenience in accessing relevant data. The participants were 110 grade eleven students who had been learning English as a subject and using it as the primary language of instruction for all other subjects since grade nine.

Sampling and sampling technique

The study area, Ilubabor zone, and the specific high school were selected randomly and presumably data collection would also be convenient to the authors. Accordingly, among four sections of grade eleven students in the school with an average number of 50-55 class size, 110 participants were selected using simple random sampling. The number of respondents studied was based on the sample size recommended for survey research of such kind that 10%-20% of the available population would suffice the representation of respondents ([Gay, 2010](#)). Since aim of the study was to examine the relationship among the two constructs, PLSP and FLCA in the context of learning EFL, design of the study was correlational which adhered to quantitative research approach.

The school has four grade eleven sections with an average class size of 50-55 students. A simple random sampling technique was employed to select 110 participants from this population. This method ensures each student has an equal chance of being chosen. The sample size of 100 falls within the recommended range of 10-20% of the available population for survey research of this nature (Gay, 2010). This revision clarifies the research context and explains the chosen sampling technique (simple random sampling) and its justification. It also removes the inaccurate claim about the random selection of the study area and school.

Instruments of the study

Two standardized and most widely used scales in ELT research were utilized for data collection: Reid's (1995) perceptual learning style preference questionnaire (PSLPQ) and Horwitz et al. (1986) foreign language class anxiety scale (FLCAS). Both PSLPQ and FLCAS were reportedly valid for measuring the constructs intact (Dunn et al., 2014; MacDonald & Wong, 2003). A pilot test was undertaken on 30 students before the actual data collection while all the items were found relevant.

PSLPQ is a self-rating five-point Likert scale aiming at identifying the ways people prefer to learn "best". It entails 30 items, six groups of five items corresponding with different learning styles, namely: visual, tactile, auditory, group, kinesthetic, and individual. It also consists of a self-scoring sheet accompanied by an explanation of learning style preferences. Along with this are also the ranges of major learning style preference (38-50), minor learning style preference (25-37), and negligible (0-24), to be computed by multiplying the total score of each group by two as indicated by the self-scoring sheet. The explanation of the learning style preferences sheet describes each of the six learning style preferences identified. FLCAS consists of 33 items to be scored on a five-point Likert scale, out of which 24 are scored in a "straightforward way" while the remaining nine are "reverse-scored" items. For items which are scored straightforward, high values indicate a high level of anxiety and the vice-versa while in the case of reverse-scored items score switching is required as: "Fives" should be reverse-scored to "ones," "fours" to "twos," "ones" to "fives," and "twos" to "fours"; yet, "3's" will remain itself. Among the 33 items on the scale, 11 measured communication apprehension, 15 items were destined to test anxiety, and the remaining 7 items were meant to address fear of negative evaluation.

Both PSLPQ and FLCAS questionnaires were administered one after the other just to minimize the feeling of getting bored with being requested twice to fill them out. The instruments were distributed and filled out regardless of the reason behind the order of administration, yet the PLSP scale was first. Two instructors teaching English at the school were requested to assist in letting the participants fill in the questionnaire on consent and with prior information about the objective of the data collection. The authors assisted in the actual classes in interpreting and translating each of the items of the two scales. Data collected were returned to the authors as soon as the questionnaires were filled in.

Once data were collected through the two scales, PSLPQ and FLCAS, they were coded and entered into the SPSS appropriately in order to run the desired statistical computations. Data were computed using SPSS 26 which was a more recent version. Regarding data through PSLPQ, self-ratings were categorically coded in order to examine the six learning style preference dimensions. Data through FLCAS were also categorically coded in order to determine the level and sources of foreign language class anxiety. Statistical analyses were run in order to find the total of responses for each of the six categories of PLSP (visual, auditory, kinesthetic, tactile, group, and individual). Similarly, computations were also undertaken to find the total of each source of FLCA (communication anxiety, test anxiety, and fear of negative evaluation). Finally, computations towards the level of anxiety of the respondents were run by adding the total of the three sources of anxiety divided by the number of items, followed by dividing the aggregate of the average sources of anxiety by the number of respondents. This helped to determine the relationship between the dimensions of PLSP and those of FLCA.

FINDINGS

The level of participants' FLCA across PLSP dimensions

Table 1

Respondents' level of FLCA across PLSP dimensions

Total FLCA		Total PLSP- V	Total PLSP- A	Total PLSP- K	Total PLSP- T	Total LSP- G	Total LSP- I
Total	Mean	4.20	4.05	3.85	3.99	3.17	4.36
	N	110	110	110	110	110	110
	Std. Deviation	.686	.791	.595	.637	.615	.779

The [Table 1](#) presents comparative mean values of foreign language class anxiety, FLCA, across the six dimensions of PLSP. The average level of foreign language class anxiety (FLCA) is 3.94 on a scale where higher scores indicate more anxiety. This suggests a moderate level of anxiety among the participants. The standard deviations of FLCA across the six PLSP dimensions are 0.686, .791, .595, .637, .615, and .779 indicating a relatively narrow range of scores. This means most participants' anxiety levels fall close to average. Visual (PLSP-V) participants' average score on the visual preference dimension is 4.05, slightly lower than the overall FLCA mean. This suggests visual learners may experience slightly less anxiety than the average participant. The average score for individual preference (PLSP-A) is 3.17, the lowest among all dimensions. This could indicate that individual learners experience the least anxiety in foreign language classes. The average score for kinesthetic preference (PLSP-K) is 3.85, the next lower among all dimensions.

This indicates that kinesthetic learners may experience slightly lower anxiety than the average participant. The average score for tactile preference is 3.99, closer to the overall FLCA mean. This suggests that tactile learners experience anxiety levels similar to the average participant. The mean score of group style (LSP-G) is 3.17, the lowest of all dimensions. This suggests that participants who prefer learning in groups experience the least anxiety. The average score for individual preference is 4.36, indicating that introvert learners being relatively more anxious in foreign/English language classes. The analysis suggests that learning style preferences being related to foreign language class anxiety. Kinesthetic and group learners seem to experience the least anxiety, while tactile learners may experience slightly more. However, the differences are relatively small and the standard deviations indicate a wide range of individual experiences. Visual, auditory, and individual seem to experience higher levels of FLCA. Cognizant of this, other factors, such as individual personality traits, classroom environment, and teaching methods, likely play a larger role in determining foreign language class anxiety. Analysis of this suggests a potential link between learning style preferences and foreign language class anxiety, more research is needed to confirm and explore this relationship further. In the meantime, teachers can be mindful of individual learning styles and preferences when creating a supportive and anxiety-reducing learning environment for all students.

The source of participants' FLCA across PLSP dimensions

Table 2

Source of participants' FLCA across PLSP dimensions

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Total FLCACA	Between Groups	5.757	32	.180	2.521	.001
	Within Groups	5.495	77	.071		
	Total	11.252	109			
Total FLCATA	Between Groups	2.824	32	.088	1.125	.331
	Within Groups	6.041	77	.078		
	Total	8.865	109			
Total FLCANE	Between Groups	6.589	32	.206	1.417	.109
	Within Groups	11.186	77	.145		
	Total	17.775	109			

In Table 2, the sum of squares column shows the total variability within each group (learning style preference). The df column shows the degrees of freedom for each group. The Mean Square column is the variance within each group, calculated by dividing the sum of squares by its degrees of freedom. The F statistic is the ratio of the mean squares between groups to the mean squares within groups. It is used to test whether the differences in mean anxiety levels between the groups are statistically significant. The Sig. column shows the p-value of the F-statistic. A p-value less than 0.05 is generally considered statistically significant. The F-statistic is significant for FLCACA ($p = 0.001$); however, not for FLCATA ($p = 0.331$). The p-value is higher than the typical significance level (0.05). While not definitively non-significant, it suggests weaker evidence to reject the null hypothesis. There's a higher probability (over 10%) that this effect could be due to chance. More data or a stricter significance level might be needed to determine the significance of FLCANE. This means that there is a statistically significant difference in anxiety levels between students with different learning style preferences, but not between students with various PLSP dimensions or between different groups. The significant difference in FLCA-CA suggests that learning styles may influence students' anxiety towards communication in a foreign language class. Different learning styles might prefer different communication approaches, leading to varying levels of anxiety. The difference in FLCA-TA indicates that learning styles might not significantly impact test anxiety specifically. This suggests that factors like test format, preparation, and personal experiences might play a more significant role in test anxiety. The borderline significant difference in FLCA-FNE could mean that learning styles might marginally influence students' anxiety about receiving negative evaluation.

The correlation between PLSP and FLCA

Table 3

Correlation between PLSP and FLCA

		ANOVA				
Total PLSP		Sum of Squares	df	Mean Square	F	Sig.
Between Groups		9.426	31	.078	9.230	.030
Within Groups		13.962	78	.064		
Total		22.816	109			

The ANOVA results indicate a significant effect of learning style preferences on foreign language class anxiety ($F(31, 78) = 9.230, p = .030$). This means that there are statistically significant differences in anxiety levels between students with different learning style preferences. The partial eta squared value of 0.403 indicates a medium effect size. This suggests that learning style preferences account for a moderate portion of the variance in foreign language class anxiety. In

other words, students' preferred learning styles are moderately associated with their foreign language class anxiety levels. This suggests that interventions designed to reduce anxiety in foreign language classes may need to take into account students' learning style preferences.

DISCUSSION

The study aimed to shed light on the interplay between perceptual learning style preferences (PLSP) and foreign language class anxiety (FLCA), which is a critical finding that can enrich pedagogical practices and improve student well-being. The findings indicated that learning style preferences and overall anxiety are linked significantly. The moderate overall anxiety level (4.20) across all learning styles highlights the prevalence of FLCA and underscores the need for anxiety-reduction strategies. Variation in anxiety across different styles (highest in LSP 12, lowest in LSP 7) suggests some styles might be more susceptible to anxiety than others. This warrants further investigation into the specific characteristics of high-anxiety styles. Dimension-Specific FLCA highlighted that: LSPs with three dimensions of preference scored highest in the domain of communication apprehension of FLCA.

This emphasizes the need for diverse communication activities catering to visual, auditory, and kinesthetic learners to foster confidence and reduce communication anxiety. With regard to the Test Anxiety dimension, surprisingly, learning styles did not seem to be significantly influenced by test anxiety. The study delved into the correlation between PLSP and FLCA, offering valuable new information for educators. The findings were related to existing knowledge and highlighted areas for further investigation. First, the research confirmed a previously established link between learning style preferences and overall foreign language classroom anxiety. This finding could be aligned with past studies, such as the work by Reid (2009) who found significant differences in learning style preferences between ESL/EFL learners and native speakers, with learners showing a stronger preference for kinesthetic and tactile styles. Second, the moderate overall anxiety level (4.20) supports prior research highlighting the prevalence of FLCA among language learners.

This underscores the importance of incorporating anxiety-reduction strategies into foreign language pedagogy, as emphasized in Reid (2009). Third, the study also provided new insights by identifying variations in anxiety levels across different learning styles. The finding that LSP 12 experiences the highest anxiety is novel and warrants further investigation into the specific characteristics of this style that might make it more prone to anxiety. More research is needed to understand why some styles, like LSP 12 in the study, seem to be more susceptible to FLCA. Fourth, the finding that learners with three-dimensional learning preferences experience higher communication apprehension aligns with the need for diverse communication activities. This emphasizes the importance of incorporating activities that cater to visual, auditory, and kinesthetic learners, as suggested.

However, the lack of significant influence from learning styles on test anxiety is unexpected. More research is needed to understand why learning style preferences might not impact test anxiety in the same way they affect communication apprehension. This suggests focusing on general test preparation strategies, promoting healthy study habits, and addressing individual test anxieties might be more effective than tailoring methods based on learning styles. Concerning the fear of negative evaluation dimension of FLCA, the borderline significant difference hints at a potential link between learning styles and this anxiety dimension. The findings entail pedagogical implications such as tailored Instruction, anxiety reduction strategies, and learning style identification. Understanding how learning styles impact specific anxiety dimensions can inform the development of targeted interventions. For example, incorporating visual aids and collaborative activities could ease communication anxiety in visual or auditory learners would be helpful to gear classroom instruction. Integrating relaxation techniques, mindfulness exercises, and positive reinforcement throughout the curriculum can benefit all students, regardless of their learning styles as a strategy. Implementing assessments to identify students' learning styles early on can allow teachers to personalize instruction

and implement targeted anxiety-reduction strategies. The significance of FLCA lies in its detrimental impact on language learning.

Research indicated that high levels of anxiety can hinder communication. Learners may avoid speaking or participating in class due to fear of judgment and impaired performance. Anxiety can also disrupt cognitive processes, leading to poorer results on tests and assignments; and decrease motivation. The negative experience of anxiety can also discourage learners and impede their progress. Recognizing the detrimental effects of FLCA underscores the need for language educators to address it in their classrooms. Effective strategies include: Creating a supportive environment: fostering a safe space where mistakes are seen as opportunities for learning can reduce anxiety and encourage participation; focusing on positive reinforcement: Highlighting learners' strengths and progress can build confidence and reduce fear of evaluation; employing anxiety-reducing techniques: Relaxation exercises, visualization, and group activities can help learners manage their anxiety and engage more effectively in language learning.

The borderline significant association between learning styles and fear of negative evaluation (FLCA-FNE) warrants further investigation. While these results suggest a potential link, they may not be conclusive due to limitations in sample size or potential confounding variables. Future research with larger samples and control for relevant factors could clarify the nature of this relationship. In summary, this study sheds light on the complex interplay between learning styles and FLCA. While the findings highlight the general prevalence of FLCA and the potential influence of learning styles on specific anxiety dimensions, further research is needed to solidify these connections. By implementing the pedagogical strategies suggested here and prioritizing student well-being, language educators can create a more effective and less anxiety-provoking learning environment.

CONCLUSION

This study delved into the relationship between students' preferred learning styles (PLSP) and their anxiety in foreign language classrooms (FLCA), with the goal of informing pedagogical practices and fostering student well-being. The findings unveiled a significant link between learning styles and overall FLCA, emphasizing the need for widespread anxiety-reduction strategies. Interestingly, variations in anxiety emerged among different learning styles, suggesting specific styles might be more susceptible. A deeper analysis revealed that learners with a preference for multiple learning dimensions scored highest in communication apprehension. This highlights the importance of incorporating diverse communication activities catering to all styles. While test anxiety didn't show a clear connection to learning styles, the borderline significant association between learning styles and fear of negative evaluation warrants further investigation.

These findings translate into actionable strategies for educators. Tailoring instruction to address individual learning styles, coupled with effective anxiety-reduction techniques, can create a more positive learning experience. For example, incorporating visual aids and collaborative activities could specifically target communication anxiety in visual or auditory learners. Additionally, integrating relaxation techniques and positive reinforcement throughout the curriculum can benefit all students. Implementing assessments to identify learning styles early on allows for personalized instruction and targeted interventions. In conclusion, this study paves the way for personalized educational approaches. Educators can create more inclusive and supportive classrooms by acknowledging the influence of learning styles on FLCA, particularly communication apprehension. Addressing both learning styles and FLCA holistically, through continued research and informed teaching practices, holds immense promise for fostering a learning environment where all students can approach foreign language acquisition with confidence and enjoyment. This study opens doors for further research to solidify the understanding of the link between learning styles and specific FLCA dimensions. Future studies with larger samples and control for confounding variables could provide a clearer picture, particularly regarding fear of negative evaluation. Additionally, exploring the mechanisms behind how learning styles influence anxiety in FLCA settings would provide

valuable insights. This study has highlighted the significant connection between learning styles (PLSP) and foreign language class anxiety (FLCA).

These findings hold immense promise for creating more personalized and effective educational approaches that target anxiety reduction. By integrating these insights into classroom practices, we can foster an inclusive learning environment that caters to students' diverse learning styles through various instructional methods and activities that cater to visual, auditory, and kinesthetic learners. This may involve incorporating multimedia resources, interactive exercises, and opportunities for kinesthetic learners to move and engage physically with the language. The research result also suggests a supportive insight at recognizing that some learning styles might be more susceptible to anxiety and implementing targeted strategies to address those concerns. This could involve providing additional scaffolding and support for these students, creating opportunities for self-paced learning, and fostering a climate of open communication where students feel comfortable asking questions. In addition, the study suggests less anxiety-inducing by creating a classroom atmosphere that prioritizes open communication, celebrates mistakes as learning opportunities, and reduces the pressure associated with language acquisition. This may involve more low-stakes practice activities, collaborative learning projects, and peer feedback mechanisms promoting a supportive learning environment. This study's results suggest a considerable relationship between learning style preferences and foreign language class anxiety. However, more research is needed to fully understand this relationship. However, the study does not control for other factors that may influence anxiety, such as prior language learning experience or general test anxiety. Therefore, it is possible that the observed relationship between learning style preferences and anxiety is due to these other factors. More research is needed to replicate these findings and to explore the mechanisms by which learning style preferences influence anxiety.

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CONFLICT OF INTEREST STATEMENT:

There is no conflict of interest concerning the publication of this article

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