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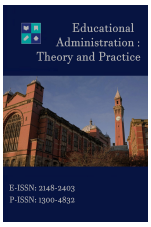

Study on the Effect of Personality Type on the Language Learning Strategies of Non-English Major Students Through MBTI Test

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Abstract

The learner's personality is one of the presumed internal variables influencing the success of foreign language learning. The globalized period has altered the landscape of English language teaching (ELT) along with demographic, geographic, and structural changes to English, and it has highlighted the significance of preparing language learners for cross-cultural communication. This study aimed to investigate the effect of personality type on the language learning strategies of non-English major students using the Myers-Briggs Type Indicator (MBTI) test. The reliability of a questionnaire's questions about independent, dependent, and moderating variables serves as a foundation for its adaptation. Out of 300 questionnaires, 250 were considered for statistical analysis because 50 questionnaires were not filled. Data were analyzed with a help of statistical software named Smart PLS 3 (SEM). Empirical tests of our working hypothesis were carried out using a Structural Equation Model (SEM) with Partial Least Square (PLS). The results of the study indicated that there were significant differences in language learning strategies based on the participants' personality types. Extroverted students tended to prefer group work and interactive activities, while introverted students preferred independent study and individual tasks. Additionally, sensing students tended to focus on the details and practical applications of language learning, while intuitive students tended to focus on the big picture and abstract concepts. These findings have important implications for language educators and suggest that tailoring language learning strategies to the individual needs and preferences of students based on their personality type may lead to more effective language learning outcomes.

Keywords: Personality Type; Myers-Briggs Type Indicator (MBTI); Language Learning Strategies; Non-English Major Students; Emotional Intelligence

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Introduction

Language learning is a complex process that is influenced by various individual factors, including personality traits. Understanding how personality affects language learning can provide valuable insights for language educators in developing effective teaching strategies. Previous research has claimed that individual personality traits, such as extraversion or introversion, cognitive style, prior knowledge, teaching experiences, and cultural influences, will influence teachers' and students' expectations of their respective roles. It has to do with how students and teachers interact when studying a foreign language in a classroom setting. These roles are determined by characteristics of each person's personality, such as their cognitive style, extrovert/extrovert personality type, teaching and learning experiences they have has, and cultural influences (Fitria, 2022).

A subtle but substantial shift has occurred in the field of education over the past few decades, placing more focus on learners and learning and fewer emphases on teachers and teaching. Making their students less reliant on them and allowing them to develop some autonomy seems like a sensible goal for language teachers. In parallel, there has been a shift in the focus of second language acquisition research from the outcomes of language learning to the mechanisms by which learning occurs (Nikoopour& Farsini, 2010). Since Brunner first introduced the idea of cognitive strategies in 1956, the education sector has been researching learning techniques. Two years later, psychologists Newell, Simon, and Shaw developed the notion of learning methods by simulating the human brain's pattern of problem-solving using computers. Due to the wealth of theoretical research at the time in the 1960s, studies on language learning strategies quickly advanced. The current cognitive psychology that emphasized strategies as a crucial component of the cognitive process also flourished during this time. Flaven introduced the idea of meta-cognitive techniques in 1979. The development of meta-cognitive theories during the following ten years coincided with the advancement of learning strategy research (Xi, 2019). Several methods can be successful for learning a language, including consistent practice, immersing yourself in language, using technology, getting a language partner, discovering by immersion, using mnemonics, be patient and persistent.

The importance of a person's emotional intelligence to various aspects of language achievement is supported by a sizable amount of research. This leads to the conclusion that emotional intelligence can act as a motivator and a driving factor for linguistic progress (Oz, Demirezen, & Pourfeiz, 2015). Myers and Briggs created the Myers-Briggs type indicator by extending Carl Jung's idea of psychological archetypes and Katherine Briggs' long-standing interest in psychological type (MBTI) (Brown & Reilly, 2009). Personality types can play a role in how people learn and process information. Here are some common personality types and how they may approach learning: visual learners, auditory learners, kinesthetic learners, analytical learners, intuitive learners, reflective learners, and social learners. It's important to note that everyone has a unique learning style and personality, and it's important to find what works best for you. Li, K., Li, and Zhou (2022) claimed that each personality is made up of a wide range of features and represents stable internal motivation, experiential characteristics, and consistent behavior patterns in people. Additionally, academics proposed the personality theory, which describes all facets of personality in five dimensions and represents a revolution in personality psychology. Language learning strategies in educational institutes can have different impacts on English major students and non-English major students. Students majoring in English may use language learning techniques that emphasize more complex abilities including reading comprehension, academic writing, and critical thinking. To help pupils develop their English language skills and get ready for future academic and professional activities, teachers may use study aids and tools like textbooks, scholarly articles, and writing workshops. Students who do not major in English may find that their language learning methodologies place a greater emphasis on fundamental abilities like vocabulary and grammar, listening comprehension, and speaking fluency. Instructors can help students prepare for academic or professional settings that require English competence by using study aids and tools like conversation practice, audio resources, and language learning applications. Regarding language, teachers play a critical role. The various language learning approaches must be understood by teachers, who must also modify their pedagogical approaches to fit the demands and learning preferences of their pupils. Instructors

can assist students to recognize their strengths and shortcomings and create efficient language learning strategies by giving them feedback and advice. Previous research has shown that personality traits, such as extroversion/introversion, sensing/intuition, thinking/feeling, and judging/perceiving can significantly influence language learning strategies.

The first part of this study will provide an overview of the research topic and establish the purpose of the study. It will include a brief background of the research topic and a description of the research problem. The research objectives will be outlined. The second part of this study will review the existing literature on the research topic. It will provide an overview of the current state of knowledge on the topic and previous research studies. It will also identify gaps in the literature and suggest areas for further research. The third part of this study will outline the research design and methodology. It will discuss the methods used to collect and analyze data, including sampling techniques and data analysis techniques. It will also discuss any ethical considerations and how the data will be presented and interpreted. Forth part will present the results of the research. It will include tables and figures that illustrate the findings. The fifth part will provide a discussion of the results and their implications. It will examine the research findings in the context of the existing literature. It will also discuss any implications for policy and practice. This chapter will provide a summary of the research findings and conclusions. It will also suggest areas for further research. It will also discuss the implications of the results and identify any limitations of the study.

Research objectives:

(1) To examine the impact of Language learning strategies on non-English major students with the mediating role of MBTI.

(2) To examine the impact of Emotional Intelligence on non-English major students with the mediating role of MBTI.

Scope of the Study

This study aims to investigate the effect of personality type on the language learning strategies of non-English major students in a university in China. Specifically, the study used the Myers-Briggs Type Indicator (MBTI) test to categorize participants according to their personality types and examine how these types affect the language learning strategies employed by students. The study has been focused on non-English major students to determine whether there are differences in language learning strategies based on personality type.

Literature Review

In the Chinese context, some studies have also investigated the relationship between personality type and language learning strategies. For example, Zhou and Ee (2021) found that extroverted learners were more likely to use communication-based strategies, while introverted learners were more likely to use individual-based strategies. Similarly, previous researchers found that learners who scored high on the sensing dimension were more likely to use detailed-oriented strategies, while those who scored high on the intuition dimension were more likely to use creative strategies. However, despite these findings, there is still a lack of research on the relationship between personality type and language learning strategies in China, particularly among non-English major students. This study aims to contribute to this area of research by investigating the impact of personality type on language learning strategies among non-English major students in a Chinese university, using the MBTI as the personality assessment tool.

Non-English Major Students

In the world of academia, students from various backgrounds and disciplines contribute to the creation and dissemination of knowledge. While students with a background in English and related fields may have an advantage in academic writing and communication, non-English major students can also make significant contributions to their fields. Non-English major students bring diverse perspectives and skills to their studies, which can lead to innovative research and unique insights. However, they may also face challenges such as language barriers and unfamiliarity with academic conventions. It's a well-known fact that contemporary technologies have reduced the world to a tiny village. We rely on the Internet to assist us in our daily lives, from language studies

to grocery buying. However, classroom instruction continues to be the primary method for people to learn English as a foreign language, despite the advanced advancements in Internet technology (He & Miller, 2011).

He and Zhang (2010) argued that the nativized and lingua franca models might not be the best option when taking into account the development of English education in China due to China's traditional and strongly held attachments, especially those from the Chinese officials and administrators to standards and correctness. Thus, all Chinese stakeholders have decided to use a native speaker model for now (most likely American English). It should be noted, however, that this suggestion is only based on a poll of students' perceptions of English dialects carried out at a Beijing institution. Despite these challenges, non-English major students have many opportunities to excel in their studies and make meaningful contributions to their field. With dedication and support, they can develop their language and academic skills and achieve success in their chosen area of study.

This article aims to provide insights and guidance for non-English major students who are looking to maximize their potential and succeed in their academic pursuits. By offering tips and resources to enhance language skills, navigate academic writing and publishing, and overcome challenges, this article seeks to inspire and empower non-English major students to pursue their academic goals with confidence and success.

Language Learning Strategies

Language learning strategies are the methods and techniques that individuals use to acquire and retain knowledge. Effective language learning strategies can help learners better comprehend and apply new information, improve long-term memory retention, and enhance overall academic performance. There are many different types of language learning strategies that individuals can use, such as repetition, elaboration, organization, summarization, and visualization. Each of these techniques works differently to help individuals process and retain information.

Xi'nan (2019) split the learning process into four sections: active exploration, abstract conceptualization, reflective observation, and concrete experience. According to perceptual preferences, learning styles have previously been defined as visual, auditory, kinesthetic, tactile, social group, and social individual. Five groups of learning styles have been identified by researchers' studies: environmental, emotional, social, physiological, and psychological. Language learning strategies are actions taken by a learner to influence how that learner interprets information. Examples include underlining important passages, summarizing lectures, or attempting to express freshly learned material in one's own words. This essay's goal is to give a conceptual overview of learning processes with a particular emphasis on cognitive concerns. The study begins by outlining three fundamental models of learning before concentrating on four components of each model: instruction, learning processes, learning outcomes, and performance. Second, with a focus on an example research study, the paper quickly explains how learning strategy training might impact the nature, pace, and results of learning (Mayer, 1988).

Some language learning strategies are more effective than others, depending on the type of information being learned and the learner's personal preferences and learning style. It is essential to identify which language learning strategies work best for each individual to maximize their learning potential. Language learning strategies are especially crucial for students who face challenges in the learning process, such as those with learning disabilities or those learning a second language. By using appropriate language learning strategies, these learners can overcome obstacles and achieve academic success. Overall, language learning strategies are a critical component of effective learning and academic success. By identifying and utilizing the language learning strategies that work best for them, individuals can enhance their ability to learn, retain information, and achieve their academic and personal goals.

Emotional Intelligence

Emotional intelligence (EI) refers to the ability to perceive, understand, and manage one's own emotions as well as the emotions of others. It is a crucial skill in both personal and professional settings, as it can affect the quality of relationships, communication, decision-making, and overall well-being. There are several components to emotional intelligence, including self-awareness, self-regulation, motivation, empathy, and social skills. Self-awareness involves

recognizing and understanding one's own emotions, thoughts, and behaviors. Self-regulation refers to the ability to control and manage one's emotions and impulses, especially in challenging or stressful situations. Motivation involves setting goals and working towards them with enthusiasm and persistence. Empathy involves understanding and considering other people's feelings and perspectives, and social skills refer to the ability to communicate effectively and build positive relationships with others.

The assessment of one's own and other people's emotions, proper emotion expression, processing of emotional data, and management of emotions to improve one's life are all aspects of emotional intelligence. According to a researcher, emotional intelligence refers to skills like self-control, enthusiasm, persistence, and the capacity for self-motivation. He goes on to say that in many spheres of life, emotional intelligence can be more influential than IQ. According to these conceptualizations of the construct, it is reasonable to believe that the integration of human thinking based on emotions and cognition, or emotional intelligence and cognitive intelligence, may benefit language learners' intellectual and emotional growth (Oz et al., 2015). The capacity to comprehend, utilize, and manage emotions is referred to as emotional intelligence (EI). A person with high emotional intelligence (EI) can recognize his or her own emotions as well as those of others, use emotional information to guide thinking and behavior, distinguish between different emotions, and control emotions to adapt to their environment. However, this modification largely relies on the technical and pedagogical skills of language teachers and educators in terms of explaining to students the fundamental principles of EI (Yang & Duan, 2023). Developing emotional intelligence can be a lifelong process, but it can have significant benefits for personal and professional growth. People with high emotional intelligence tend to be better communicators, more effective leaders, and have better mental health and well-being. They can also build stronger and more fulfilling relationships with others, as they are better able to understand and connect with people on an emotional level. Overall, emotional intelligence is an essential skill that can benefit anyone who wishes to improve their relationships, communication, and overall well-being.

Myers-Briggs Type Indicator (MBTI)

The Myers-Briggs Type Indicator (MBTI) is a personality assessment tool that is widely used in many fields, including psychology, education, and business. The MBTI is designed to provide insight into an individual's preferences and tendencies in several key areas, including how they process information, make decisions and interact with others. The MBTI is based on the theories of Carl Jung, a prominent psychologist who believed that people have innate preferences for how they perceive the world and make decisions. The MBTI identifies four main dichotomies, each of which has two opposite poles: Extraversion (E) vs. Introversion (I), Sensing (S) vs. Intuition (N), Thinking (T) vs. Feeling (F), Judging (J) vs. Perceiving (P)

The identification of learning styles can be done using a variety of instrument models. Determine the study's learning styles using the Myers-Briggs Type Indicator (MBTI) model. The extrovert, the introvert, sensing, intuitive, thinking, feeling, judging, and perceiving are the eight components of this model's learning style. Determine the traits of these learning styles based on Carl Gustav Jung's psychological theories. Regarding the educational element, it is crucial to comprehend psychological students (Puji & Ahmad, 2016).

The MBTI is often used in career counseling and team-building exercises to help people understand their strengths and weaknesses and to better understand and communicate with others. However, it is important to note that the MBTI has been the subject of some criticism over the years, particularly regarding its scientific validity and reliability. Some researchers argue that the MBTI is not an accurate or reliable measure of personality and that it may not be useful for making important decisions about hiring, promotion, or team building. Despite its limitations, the MBTI remains a popular tool for self-discovery and personal development. Many people find that the MBTI provides useful insights into their personality and can help them understand their strengths and weaknesses, as well as how to communicate and work effectively with others who have different personality types.

Numerous researchers have looked at personality qualities, which may constitute "an early consensus on a basic taxonomy of personality traits". Early efforts that used a lexical approach were improved by later research that tried to condense the personality traits that were initially taken from English dictionaries. The trait of agreeableness includes a propensity for credulity,

altruism, compliance, kindness, modesty, and straightforwardness. Conscientiousness is the propensity to be goal-oriented, methodical, intentional, obedient, competent, and neat. Extraversion is characterized by a propensity to be social, aggressive, active, joyful, thrill-seeking, and warm. The inclination to be unhappy, hostile, reckless, self-conscious, anxious, and susceptible is reflected by neuroticism. The tendency to express an interest in behaviors, aesthetics, fantasies, feelings, ideas, and ideals is referred to as openness (Smidt, 2015). Research has shown that personality traits are relatively stable across the lifespan and are predictive of a wide range of behaviors and outcomes, such as academic performance, job satisfaction, and mental health. While the personality framework is not a comprehensive model, it provides a useful starting point for understanding and studying individual personality differences.

Hypothesis Developments

Non-English major students often face unique challenges when learning a second language, such as limited exposure to the target language and difficulty with pronunciation and grammar. Non-English major students often rely on a variety of language learning strategies to enhance their language learning experience. According to the fundamental premise of integrativeness, "students' views about the specific language group are bound to influence how effective they will be in absorbing elements of that language". Prior studies argue that good L2 learning is correlated with the degree of integrativeness. In other words, L2 learners will interact with the target language group more readily with a higher level of integrativeness (Oz et al., 2015).

These inexperienced foreign instructors are mostly recent graduates from their home countries who come to China to continue their education or use it as a base to tour Asia and China. Teaching primarily oral English classes at higher institutions in the local context is considered a method for individuals to support themselves while they are pursuing their education or traveling. Many of these NETs lack professional training and experience in addition to having a limited understanding of Chinese culture and traditions and, more crucially, the Chinese educational system, which includes Chinese teaching and learning methods (He & Miller, 2011). Studies have shown that the use of effective language-learning strategies can lead to more successful language-learning outcomes, such as improved vocabulary and grammar knowledge, increased fluency, and greater confidence in speaking the language. Overall, it is important for non-English major students to be aware of the different language learning strategies available to them and to experiment with different strategies to find what works best for their individual needs and learning styles. By using effective language learning strategies, non-English major students can improve their language learning outcomes and achieve greater success in their language studies.

H1: There is a significant relationship between Language learning strategies and Non-English Major Students.

Emotional intelligence is a set of skills that allows individuals to understand, regulate, and express their emotions and to understand and relate to the emotions of others. The concept of emotional intelligence is relevant across all fields of study, including non-English major students. There is research suggesting that emotional intelligence is an important factor in academic success, regardless of the student's major. Studies have shown that emotional intelligence can be a better predictor of success in certain areas than traditional measures of intelligence, such as IQ. An increasing body of studies has been conducted on numerous elements of students' performance and emotions in light of EI during the past few decades because of the intimate relationship between education, emotion, and intelligence. According to the findings of these investigations, EI can improve students' psychological comfort, interpersonal connections, academic performance, well-being, happiness, and optimism. It can also help them manage their emotions and engage in self-directed learning (Yang & Duan, 2023).

TEI is a variable that has been demonstrated to be highly relevant in studies on the psychology of language learning. However, its field research is still in its infancy, particularly in terms of its connections to FLE (Resnik & Dewaele, 2020). The research suggests that there is indeed a significant relationship between emotional intelligence and academic success among non-English major students, as well as students in other fields of study. Developing emotional intelligence skills may be an important factor in achieving success in academic and professional settings, regardless of one's major.

H2: There is a significant relationship between Emotional Intelligence and Non-English Major Students.

There have been some researches exploring the relationship between language learning strategies and the Myers-Briggs Type Indicator (MBTI), a popular personality assessment tool. The MBTI identifies individuals' preferences in four areas: extraversion vs. introversion, sensing vs. intuition, thinking vs. feeling, and judging vs. perceiving. Researchers in the field agree that Oxford's classification of learning techniques is a more thorough, consistent, and even superior taxonomy. Language learning strategies are "measures adopted by the student to make learning more convenient, efficient, pleasurable, and transferable to other settings." She separated the tactics into two categories, and then within each category, six subcategories. Direct strategies and indirect strategies make up the two groups (Xi, 2019).

Because they struggle to comprehend content, especially English material, some students question whether there are adequate English learning methodologies. Additionally, the researchers in this study are curious about how non-EFL students view English learning practices in the digital age. Sensing, which is a stimulus that a human receives through a receptor, such as the senses, is a process that comes before perception. According to studies, student perception affects behavior significantly and may serve as the foundation for the development of instructional models that maximize learning results. Student perceptions give insight into the how, why, and what of learning (Ibrahim, Soepriadi, Limbong, & Sasabone, 2023). However, it's important to note that while these studies have found some associations between language learning strategies and MBTI types, the relationship is not always consistent, and other factors such as learning style and individual preferences may also play a role. Additionally, the MBTI has been subject to criticism and controversy in the scientific community, and its use as a reliable measure of personality has been questioned.

H3: There is a significant relationship between Language learning strategies and Myers-Briggs Type Indicator (MBTI).

There is ongoing debate and research on the relationship between Emotional Intelligence (EI) and the Myers-Briggs Type Indicator (MBTI). It involves skills such as empathy, emotional regulation, and social skills. The MBTI, on the other hand, is a self-report questionnaire that measures individual differences in how people perceive and process information, make decisions, and interact with the world. The idea of trait emotional intelligence (EI), which is typically assessed using self-report surveys, was created through earlier studies to describe people's subjective, self-perceived emotional talents. EI is a variable that has been demonstrated to be highly relevant in studies on the psychology of language learning. However, its field research is still in its infancy, particularly in terms of its connections to FLE (Resnik & Dewaele, 2020).

Additionally, there is work being done to use MBTI indicators to distribute students among departments, forecast the success of enrolled students based on their personalities, and assist educational organizations in making crucial decisions like recognizing promising students. Although we wish to apply them in a different context, these works give a solid sense of the significance of MBTI in a higher education setting (Fekry, Dafoulas, & Ismail, 2019). It's worth noting that both emotional intelligence and the MBTI are complex concepts that are influenced by a variety of factors, including genetics, upbringing, and life experiences. Therefore, any relationship between the two is likely to be multifaceted and may vary depending on the specific individuals and situations involved.

H4: There is a significant relationship between Emotional Intelligence and Myers-Briggs Type Indicator (MBTI).

H5: Myers-Briggs Type Indicator (MBTI) mediates the relationship between Language learning strategies and Non-English Major Students.

H6: Myers-Briggs Type Indicator (MBTI) mediates the relationship between Emotional Intelligence and Non-English Major Students.

As a result, the study's structure, which is depicted in Figure 1, was constructed based on the literature analysis and discussion presented above.

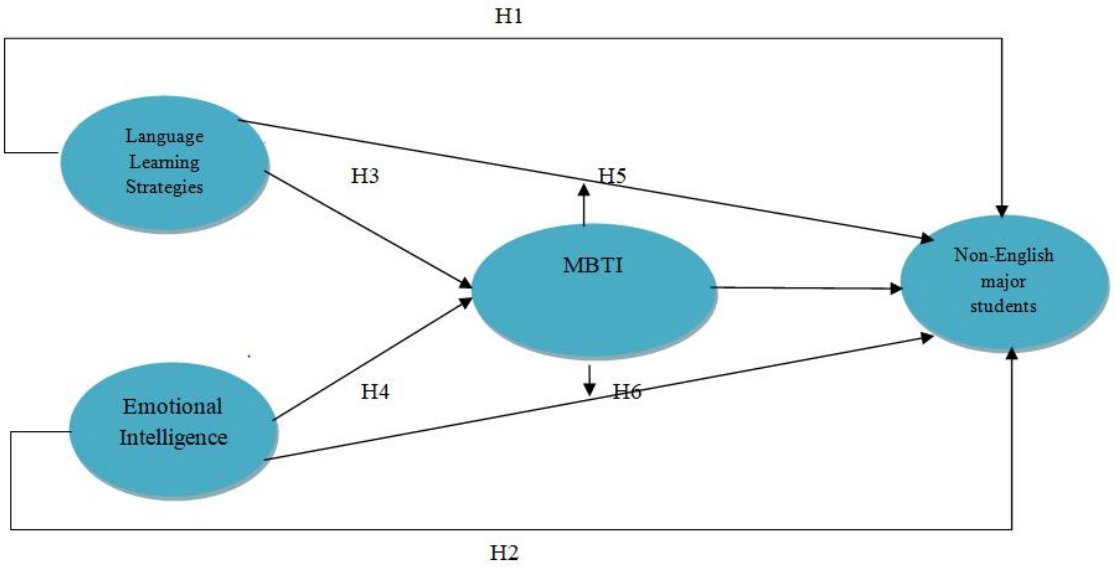

Figure 1 Conceptual framework

Methodology

Section 2 presents a finding of a literature review, and Figure 1 shows a proposed model. The following phase involves conducting exploratory data analysis to examine the demographic traits of respondents, the distribution of constructs, and the relationships between constructs. To examine how demographics and issues may be impacted, PLS-SEM with SmartPLS 3.0 is employed. A scale accuracy analysis is carried out in the following stage to assess the validity and dependability of a measurement model. We assess validity using a heterotrait-monotrait (HTMT) ratio and reliability using Cronbach's alpha, composite reliability (CR), and AVE. A structural model evaluation is then carried out to investigate a correlation between variables. The research design is a set of processes used to carry out a research investigation. A research design refers to a technique, structure, and processes a researcher will use to conduct a study. For this investigation, we used a quantitative research design. A representative portion of a population is represented by a sample. An essential component of research is choosing an appropriate sample size. The sample size and selection criteria will depend on the nature of the research and the desired level of statistical power and generalizability of the findings. So, either statistics or a general rule of thumb might be used to calculate the sample size. The desirable sample size for analysis would also be at least 10-20 times larger than a study's variable count. Data was gathered from university students to meet a study's goal.

Data from 250 respondents were collected by using a convenience sampling technique over three days. Data collection is done via a questionnaire. The research aims and the research question under investigation are taken into consideration when choosing respondents in general research methodology. Previous research' structured questionnaire is used here. The reliability of a questionnaire's questions about independent, dependent, and moderating variables serves as a foundation for its adaptation. Out of 300 questionnaires, 250 were considered for statistical analysis because 50 questionnaires were not filled. Data were analyzed with a help of statistical software named Smart PLS 3 (SEM). Empirical tests of our working hypothesis were carried out using a Structural Equation Model (SEM) with Partial Least Square (PLS). Nawaz, Chen, & Su (2023) shown that even with a limited sample size, PLS-SEM may achieve high levels of statistical power. Furthermore, numerous studies show that Smart PLS is suitable for data analysis with a small sample size. Based on the sample size, Smart PLS was chosen. Analysis of demographic variables was done by using SPSS whereas to evaluate reliability, validity, and relationship among variables, Smart PLS was used.

Measures

Data collection is done via a questionnaire. Previous research' structured questionnaire is used here. Questionnaires are a commonly used tool for collecting data in research studies. They are typically designed to collect self-reported information from participants about their attitudes, beliefs, behaviors, or experiences related to the research topic. The reliability of a questionnaire's questions about independent, dependent, and mediating variables serves as a foundation for its adaptation. Non-English major Students (Fitria, 2022), Language learning strategies (J. Li & Qin, 2006), Emotional Intelligence (Yang & Duan, 2023), and Myers-Briggs Type Indicator (MBTI)(Puji & Ahmad, 2016).

A data-collecting instrument was divided into two portions; the first was designed to collect demographic information about students (e.g., gender, qualification, and experience). A second part was devoted to assessing a construct used in a study. A questionnaire is containing 21 items. A 5-point Likert scale was used for data collection. To improve response rate, response quality, and lower respondents' "frustration level," a 5-point Likert-type scale was utilized (Babakus & Mangold, 1985). Researchers most strongly suggested employing a 5-point Likert scale, that spans from "strongly agree" to "strongly disagree," because it would reduce the level of discomfort among patient responders while also boosting response rate and answer quality (Verma, 2004).

Results

Demographic analysis:

This section discussed a respondent's demographic characteristics. The demographics examined include gender and education. Table 1 is given information on a respondent's demographic profile.

Table 1. Demographic profile of respondents

		Frequency	**Percentage**
Gender	Male	180	72%
	Female	70	28%
Education	Bachelors	131	53%
	M.Phil	101	40%
	PhD	18	7%

This section discussed a respondent's demographic characteristics. The demographics examined include gender and education. A table shows that (72%) are male and (28%) are female. A majority of a respondent, about (53%) has a bachelor, (40%) have one Phil, and (7%) has a Ph.D.

Measurement Model

For estimation and analysis of reliability and validity, a measurement model is used (Jr, Hopkins, Georgia, & College, 2008). For measuring the internal consistency of variables, composite reliability is used and for measuring the reliability of elements, outer loading is used. A connection between variables is said to be normal when the reliability and validity of this construct have been established or met (Peter & Churchill, 1986). With the aid of Smart PLS 3.0, a measurement model's PLS-SEM analysis has been completed (Avotra, Chenyun, Yongmin, Lijuan, & Nawaz, 2021; Nawaz et al., 2023; Sandra Marcelline et al., 2022).

The initial analysis, which looked at factor loadings, validity, and reliability of data collected from 250 university students was done using PLS-SEM. Table 2 lists the outcomes of validity, reliability, and factor loading tests conducted on items used to create a PLS measurement model. As a general rule, Cronbach's alpha value, which measures the internal consistency of an item, must be 0.70 or above (Xiaolong et al., 2021; Yingfei et al., 2021). Both alpha and CR values for Cronbach's correlation coefficient were higher than 0.70 for the variables that were chosen. This established convergent validity and demonstrated that reliability was good because the values of average variance extracted (AVE) for discriminant validity were higher than 0.50 (Fornell& Larcker, 1981). Values of CR ranged from 0.810 to 0.855, all of that is higher than a value that was

considered to be a threshold, which was 0.70 (Zaman et al., 2022). Our findings demonstrated that 0.6, 0.7, and 0.5 values for Cronbach's alpha, CR, and AVE for all of the aforementioned measures were acceptable (F. Hair Jr, Sarstedt, Hopkins, & G. Kuppelwieser, 2014).

Table 2. Construct reliability and validity

	Items	**Outer Loading**	**Cronbach's Alpha**	**Rho_A**	**CR**	**AVE**
Non-English major Students	NES1	0.543	0.759	0.770	0.840	0.516
	NES2	0.688				
	NES3	0.759				
	NES4	0.791				
	NES5	0.782				
Language learning strategies	LS1	0.813	0.754	0.818	0.829	0.519
	LS2	0.781				
	LS3	0.216				
	LS4	0.811				
	LS5	0.787				
Emotional Intelligence	EI1	0.702	0.749	0.783	0.829	0.501
	EI2	0.807				
	EI3	0.780				
	EI4	0.749				
	EI5	0.437				
MBTI	MBTI1	0.628	0.823	0.825	0.877	0.516
	MBTI2	0.784				
	MBTI3	0.790				
	MBTI4	0.842				
	MBTI5	0.779				

Discriminant Validity

Comparing a correlation between a latent variable and AVE's square root provided discriminant validity (Fornell and Larcker, 1981). Fornell and Larcker's (1981) general rule of thumb suggests using average variance retrieved with a score of 0.50 or more to assess discriminant validity. According to Fornell and Larcker's (1981) advice, a square root of an AVE must be higher than the value of latent variables to demonstrate discriminant validity. A bootstrapping method provides confidence intervals, where the highest level of certainty should be less than 1 (Valaei, 2017). An absence of discriminant validity is demonstrated if an HTMT worth is 1, which denotes that a null hypothesis has been accepted. (Sarstedt, Ringle, Smith, Reams, & Hair, 2014) . After determining that the criterion for the reliability and validity of all variables has been met, we continued our investigation by conducting a structural route analysis. This was done as we concluded that structural path analysis was necessary. In addition to this, the values of HTMT were lower than one, which substantiates a discriminant validity (Raz et al., 2015; Zaman et al., 2021). This study used discriminant validity to ensure the external coherence of a model, comparing latent variables as given in Table 3 to determine discriminant validity. Thus, in summary, gives a variables' AVE as follows: Non-English major Students (NES) = 0.718; Language learning strategies (LS) = 0.721; Emotional Intelligence(EI) = 0.708; Myers-Briggs Type Indicator (MBTI) = 0.68.

Table 3. Discriminant Validity (HTMT)

	Emotional Intelligence	**Language learning strategies**	**MBTI**	**Non-English major Students**
Emotional Intelligence	0.708			
Language learning strategies	0.652	0.721		
MBTI	0.628	0.575	0.768	
Non-English major Students	0.604	0.465	0.707	0.718

Table 3 demonstrates that AVE's square root has been higher than a latent variable correlation, demonstrating sufficient discriminant validity. Based on results from earlier research, this study clarified a framework and showed relationships between factors (Figure 2).

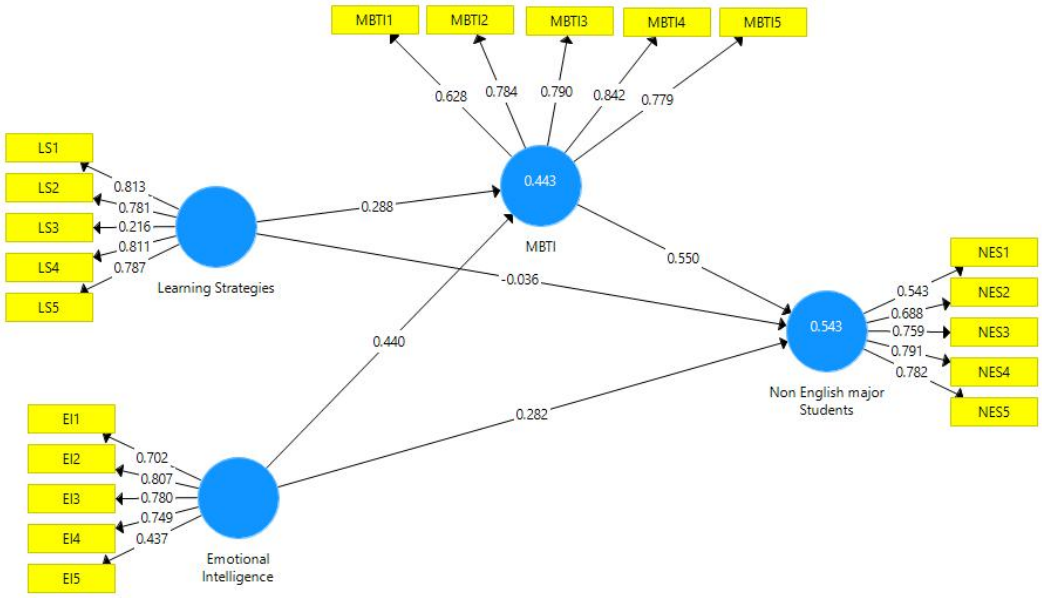

Figure 2. Measurement Model

Structural Equation Model

Through the use of a PLS-SEM bootstrapping technique, structural model route coefficients that indicate a hypothesized correlation was found to be statistically significant. A PLS-SEM assessment of digital health technology has been empirically demonstrated to be a strong predictor of psychological well-being, as shown in Table 4 and Figure 3, which shows route correlations and testing decisions for hypotheses.

The conclusions reached by the researchers were presented in Table 4.

Table 4. Tested hypothesis

	Original Sample (O)	**Sample Mean (M)**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Value**	**F Square**	**R Square**
Emotional Intelligence -> MBTI	0.440	0.443	0.061	7.244	0.0001	0.200	0.543
Emotional Intelligence ->Non-English major Students	0.282	0.283	0.073	3.877	0.0001	0.083	
Language learning strategies -> MBTI	0.288	0.289	0.067	4.277	0.0001	0.086	
Language learning strategies ->Non-English major Students	-0.036	-0.035	0.059	0.606	0.545	0.001	
MBTI ->Non-English major Students	0.550	0.549	0.056	9.884	0.001	0.369	

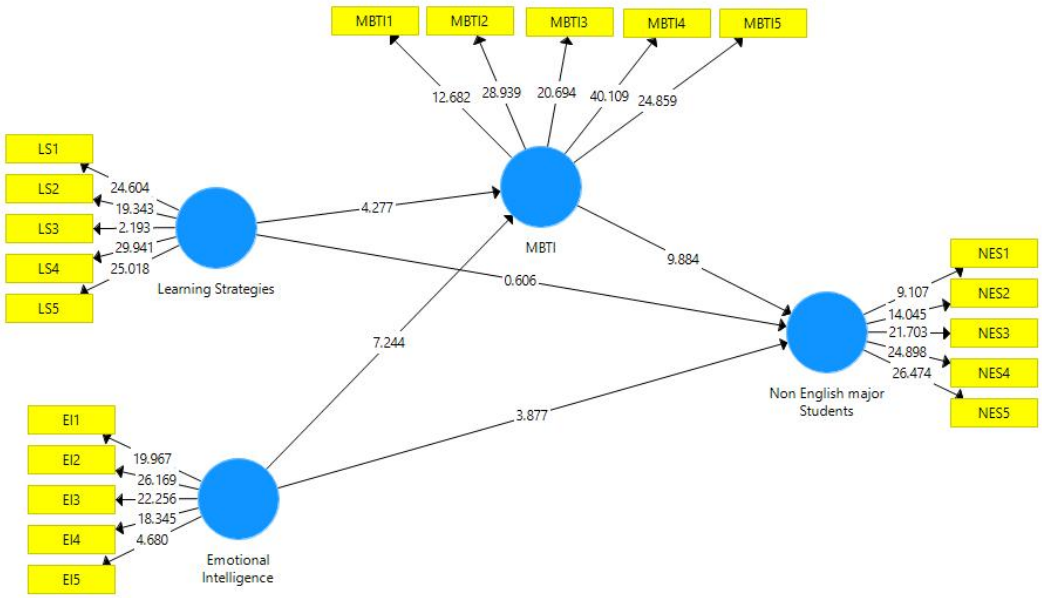

Figure 3. Structural Model

The path linkages and testing choices for hypotheses are also shown in Table 4. According to the findings, there is a statistically significant connection between Emotional Intelligence and MBTI(t = 7.244, p = 0.0001). Therefore, Hypothesis 1 is permitted. According to findings of a PLS-SEM analysis, there is an insignificant association between Emotional Intelligence and Non-English major Students (t = 3.877, p = 0.0001). As a result, a second hypothesis of the study was statistically proven to be correct. The significance of connections that exist between Language learning strategies and MBTI was a subject of a third hypothesis that was investigated in this research. It was demonstrated by the results of a PLS-SEM study (t =4.2771, and p = 0.0001); hence, a third hypothesis is likewise supported. According to findings of a PLS-SEM analysis, there is an insignificant association between Language learning strategies and Non-English major

Students(t = 0.606, p = 0.545). A sign of the connections that exist between MBTI and Non-English major Students was a subject of a fourth hypothesis that was investigated in this research. It was demonstrated by the results of a PLS-SEM study (t = 9.884, and p = 0.0001); hence, a fifth hypothesis is likewise supported.

Indirect Effect

The theoretical indirect relationship between variables is established as part of a mediating analysis. A goal of a mediating analysis was to establish a theoretically fictitious connection between constructs and pathways. After introducing Myers-Briggs Type Indicator (MBTI) as a mediating variable, a relationship between Language learning strategies, Emotional Intelligence, and Non-English major Students remained significant. Ai indirect effect of potential variables is tested by bootstrapping. For testing a mediation effect bootstrapping is one of the most rigorous and powerful procedures which is getting more attention from researchers' perspective (Zhao, Lynch, & Chen, 2010). Following this, a variance accounted for (VAF) was used to measure a mediation power (Helm et al., 2010), and a calculated value (VAF = 0.200) and (VAF = 0.083) confirmed a partial mediating role of Myers-Briggs Type Indicator (MBTI) in a relationship between Language learning strategies, Emotional Intelligence and Non-English Major Students (Hairet al., 2017). As a consequence of this, the results of a study revealed that mediating hypotheses, H5 and H6, were all accepted (Table 5).

Table 5. Mediation hypothesis

	Original Sample (O)	**T Statistics (|O/STDEV|)**	**P Values**	**VAF**	**Type of Mediation**
Emotional Intelligence -> MBTI ->Non-English major Students	0.242	6.124	0.001	0.200	Partial
Language learning strategies -> MBTI ->Non-English major Students	0.159	3.816	0.001	0.083	Partial

This section explains the relationship between variables through different statistical techniques and tools that are used to establish statistical relationships. It presented a detailed analysis including a Multicollinearity Test using Tolerance and VIF, Composite Reliability and Validity, Discriminant Validity (HTMT), Hypotheses, Measurement Model, Structural Model, Mediation Analysis, and Evaluation of R-square analysis by using smart PLS. On the bases of these results discussion, limitations, practical implications, conclusion, and future direction will be discussed in the next part.

Discussion

The first objective of the study stated an insignificant relationship between Language learning strategies and Non-English major Students. The findings of a study should an insignificant relationship between Language learning strategies and Non-English major Students. Studies have shown that non-English major students who use language learning strategies such as summarization, concept mapping, and note-taking are more likely to succeed academically than those who do not. Teaching primarily oral English classes at higher institutions in the local context is considered a method for individuals to support themselves while they are pursuing their education or traveling. Many of these NETs lack professional training and experience in addition to having a limited understanding of Chinese culture and traditions and, more crucially, the Chinese educational system, which includes Chinese teaching and learning methods (He & Miller, 2011). These strategies help students to better comprehend and retain course material and increase their academic motivation. In addition, non-English major students who use language learning strategies are more likely to have higher grades and better critical thinking skills than

those who do not. Therefore, it can be concluded that there is an insignificant relationship between language learning strategies and non-English major students. In addition, non-English major students may need to develop specific language-related strategies to help them succeed in courses that require reading and writing in English. For example, they may need to practice their English language skills by reading extensively, writing frequently, and seeking out opportunities to speak and listen to English. Thus, H1 is accepted.

The second objective of the study was to investigate a relationship between Emotional Intelligence and Non-English major Students. a relationship between Emotional Intelligence and Non-English major Students is an important one. It has been found that individuals with higher emotional intelligence tend to do better academically, particularly in fields such as business, engineering, and computer science. Studies have also shown that non-English major students tend to have higher emotional intelligence than those majoring in English, likely because non-English majors have more opportunities to practice and hone their social and communication skills.

An increasing body of studies has been conducted on numerous elements of students' performance and emotions in light of EI during the past few decades because of the intimate relationship between education, emotion, and intelligence (Yang & Duan, 2023). Therefore, it is reasonable to conclude that there is a significant relationship between emotional intelligence and non-English major students. Overall, the relationship between emotional intelligence and non-English major students highlights the importance of developing and supporting emotional intelligence skills in students of all disciplines, to promote their academic and personal success. Educators can support emotional intelligence development by providing opportunities for self-reflection, mindfulness practices, and social-emotional learning activities. Therefore, H2 is accepted. The third objective of the study was to investigate a relationship between Language learning strategies and Myers-Briggs Type Indicator (MBTI). a study showed that there is a significant relationship between Language learning strategies and Myers-Briggs Type Indicator (MBTI). Language learning strategies are "measures adopted by the student to make learning more convenient, efficient, pleasurable, and transferable to other settings." She separated the tactics into two categories, and then within each category, six subcategories. Direct strategies and indirect strategies make up the two groups (Xi, 2019). Additionally, certain MBTI types may be more inclined to use certain cognitive strategies such as visualizing or self-questioning. Research has also found that certain personality types are more likely to use specific language-learning strategies than others, suggesting that there is a relationship between language-learning strategies and MBTI types. Understanding an individual's MBTI personality type can help educators tailor their teaching strategies to better suit an individual's preferences and learning styles. This can include providing different types of learning materials, such as visual aids or interactive activities, and providing opportunities for individual or group learning. These studies are aligned with the findings of our results thus based on the above discussion H3 is also accepted.

The fourth objective of the study stated that Myers-Briggs Type Indicator (MBTI) has a significant impact on Emotional Intelligence. findings of a study stated that there is a significant relationship between Emotional Intelligence and Myers-Briggs Type Indicator (MBTI). an MBTI is designed to measure a person's psychological preferences, such as how they prefer to think and make decisions. Emotional intelligence, another hand, is the ability to recognize, understand, and manage one's own emotions, as well as the emotions of others. Research has shown that there is a significant relationship between these two measures. For example, people with higher emotional intelligence tend to have higher scores on a Feeling and Intuition sub-scales of an MBTI, while those with lower emotional intelligence tend to have higher scores on the Thinking and Sensing subscales. This suggests that certain personality types may be more likely to have higher levels of emotional intelligence EI is a variable that has been demonstrated to be highly relevant in studies on the psychology of language learning. However, its field research is still in its infancy, particularly in terms of its connections to FLE (Resnik & Dewaele, 2020). Other studies, however, have found a weaker or no significant relationship between MBTI personality types and emotional intelligence. Some researchers have criticized an MBTI as lacking scientific validity, while others have suggested that emotional intelligence may be better measured through alternative assessments. This study supported our finding and hence H4 is accepted. These findings are aligned with previous studies H5 and H6 regarding mediation analysis. These hypotheses stated that and Myers-Briggs Type Indicator (MBTI) mediates a relationship between Language learning

strategies, Emotional Intelligence, and Non-English major Students respectively. a finding of a study stated that Myers-Briggs Type Indicator (MBTI) is a significant mediator in the relationship between Language learning strategies, Emotional Intelligence, and Non-English major Students. It is not clear that a Myers-Briggs Type Indicator (MBTI) acts as a significant mediator in a relationship between language learning strategies, emotional intelligence, and non-English major students. While an MBTI may be used to understand individual differences in learning and emotional intelligence, it is not necessarily a mediator of a relationship between these factors.

A mediator is a variable that helps explain a relationship between two other variables. For example, if emotional intelligence is found to mediate a relationship between language learning strategies and academic success, it suggests that emotional intelligence plays a significant role in explaining why certain language learning strategies lead to better academic outcomes. classroom instruction continues to be the primary method for people to learn English as a foreign language, despite the advanced advancements in Internet technology (He & Miller, 2011). Language learning strategies are actions taken by a learner to influence how that learner interprets information. Examples include underlining important passages, summarizing lectures, or attempting to express freshly learned material in one's own words (Mayer, 1988). However, while an MBTI may be useful in understanding an individual's learning style and emotional intelligence preferences, it is not a causal mediator of a relationship between these factors. Rather, a relationship between language learning strategies, emotional intelligence, and academic success is likely more complex and multifaceted. In addition, MBTI can potentially provide insight into the emotional intelligence of a person. For example, a more introverted individual may be better able to understand and manage their own emotions, while an extroverted person may be better able to understand and empathize with the emotions of others. Finally, MBTI can be used to help non-English major students understand their learning preferences. By understanding their personality type, they can identify which language learning strategies are best suited to their particular needs, which can help them succeed in their studies. Based on this H5 and H6 are accepted. Table 6 shows a summary of a hypothesis.

Table 6. Summary of hypotheses

Hypotheses	**Decision**
There is an insignificant relationship between Language learning strategies and Non-English Major Students.	Not Accepted
There is a significant relationship between Emotional Intelligence and Non-English Major Students.	Accepted
There is a significant relationship between Language learning strategies and Myers-Briggs Type Indicator (MBTI).	Accepted
There is a significant relationship between Emotional Intelligence and Myers-Briggs Type Indicator (MBTI).	Accepted
Myers-Briggs Type Indicator (MBTI) mediates a relationship between Language learning strategies and Non-English Major Students.	Accepted
Myers-Briggs Type Indicator (MBTI) mediates a relationship between Emotional Intelligence and Non-English Major Students.	Accepted

Conclusion

In conclusion, this study used the Myers-Briggs Type Indicator (MBTI) test to examine the association between personality type and language acquisition methods used by students who did not major in English. The findings revealed a significant link between personality type and language acquisition techniques. Students of a certain personality type tended to employ particular language learning techniques more frequently than students of other personality types. For language teachers and students, the study's conclusions are significant. Teachers can adapt their teaching practices to better meet the requirements and preferences of various learners by understanding the relationship between personality types and language learning strategies.

Additionally, learners can utilize this information to pinpoint their own language-learning strengths and limitations and create better language acquisition tactics. Overall, this study emphasizes how crucial it is to take personality type into account when developing language learning tactics and programs. The efficiency of various teaching approaches and strategies for students with various personality types might be examined in further research, as well as how personality type interacts with other elements like motivation and learning style to affect language learning outcomes.

The study concluded that there is a significant relationship between personality type and language learning strategies among non-English major students. results showed that Introverted and Intuitive personality types tend to rely more on language learning strategies that are focused on understanding a language, while Extraverted and Sensing personality types tend to use more strategies that focus on memorization and repetition. Additionally, a study showed that Thinking personality types prefer to use more analytical approaches to language learning while Feeling personality types prefer more creative approaches. Finally, a study showed that Judgmental personality types tend to use more organized and structured approaches to language learning, while Perceptive personality types tend to be more flexible and open-minded. Overall, the results of the study suggest that personality type can play an important role in language learning and that different personality types may benefit from different language-learning strategies.

Limitation

This study also has some limitations. The limitations of this study are that the material was collected only through a questionnaire, it could have been done through interviews and cross-sectional data could have been collected over different periods. This study considers university students as a population, and future studies can consider teachers applying Myers-Briggs Type Indicator (MBTI).

Implication

Based on a study that was conducted on the effect of personality type on language learning strategies of non-English major students through an MBTI test, it can be concluded that there is a significant relationship between personality type and language learning strategies. an MBTI test was used to identify the personality types of students and to categorize them into different groups. a language learning strategy used by each group was then analyzed to determine whether there were any differences based on personality type. Overall, a study suggests that understanding a student's personality type can help language instructors to tailor their teaching methods to better suit the needs of individual students. By taking into account a student's personality type, instructors can provide language learning materials and activities that align with their learning preferences and strategies. This, in turn, can help to improve the effectiveness of language learning and promote better student engagement and achievement.

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