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BOLU ABANT İZZET BAYSAL ÜNİVERSİTESİ
INSTITUTE OF GRADUATE STUDIES
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EDUCATION



LINGUISTIC INTELLIGENCE OF PREPARATORY
SCHOOL STUDENTS AFTER ONE YEAR OF
INTENSIVE ENGLISH EDUCATION

MASTER OF SCIENCE, ENGLISH LANGUAGE
TEACHING

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BOLU, 8/4/2025

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ABSTRACT

LINGUISTIC INTELLIGENCE OF PREPARATORY SCHOOL STUDENTS AFTER ONE YEAR OF INTENSIVE ENGLISH EDUCATION

MASTER THESIS

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This study examines the development of linguistic intelligence of preparatory school students, excluding English Language Teaching and Translation and Interpreting departments, after one year of intensive English training. The Teele Inventory of Multiple Intelligences (TIMI) was used to measure types of intelligence, including linguistic intelligence. Data were collected and descriptively analyzed to determine how many students ranked linguistic intelligence as their most dominant intelligence or among their top three dominant intelligences, whether gender, age, high school type, prior English learning duration, and future department affected linguistic intelligence. The study included 248 Turkish and international students. The results showed that linguistic intelligence was the most dominant in only 4.4% of students. Linguistic intelligence ranked second for 9.3% and third for 14.1% of the students. Female students and younger students (18-20) were found to be better in terms of linguistic intelligence. Anatolian and foreign high school graduates and those who received preparatory education were also found to have higher linguistic intelligence. Students majoring in fields such as Psychology and International Relations were also found to have higher levels of linguistic intelligence. The study shows that commonly used materials do not consider individual intelligence differences, which are key in language learning. The results showed that a one-size-fits-all approach that is not adapted to the needs of individuals is ineffective. Educators should develop materials that appeal to different intelligences to support linguistic development and motivation in intensive English programs.

KEYWORDS: Theory of multiple intelligences, Linguistic intelligence, Teele inventory of multiple intelligences, Learning English as a foreign language, Preparatory school.

ÖZET

**HAZIRLIK OKULU ÖĞRENCİLERİNİN BİR YILLIK YOĞUN
İNGİLİZCE EĞİTİMİ SONRASI DİLSEL ZEKÂLARI
YÜKSEK LİSANS TEZİ
NARJIS AL – CHALLABI
BOLU ABANT İZZET BAYSAL ÜNİVERSİTESİ
LİSANSÜSTÜ EĞİTİM ENSTİTÜSÜ
YABANCI DİLLER EĞİTİMİ
ANA BİLİM DALI
(TEZ DANIŞMANI: DOÇ. DR. KADİR VEFA TEZEL)
BOLU, 8 NİSAN 2025**

XI+ 48

Bu çalışma, İngilizce Öğretmenliği ve Mütercim Tercümanlık bölümleri dışındaki hazırlık okulu öğrencilerinin bir yıllık yoğun İngilizce eğitiminden sonra dilsel zekâlarının gelişimini incelemektedir. Dilsel zekâyı ölçmek için, diğer zekâ türlerini de ölçen Teele Çoklu Zekâ Envanteri (TIMI) kullanılmıştır. Veriler, kaç öğrencinin dilsel zekâyı en baskın zekâ olarak veya ilk üç baskın zekâ arasında sıraladığını, cinsiyet, yaş, lise türü, önceki İngilizce öğrenme süresi ve gelecekteki bölümün dilsel zekâyı etkileyip etkilemediğini belirlemek amacıyla toplanmış ve betimsel olarak analiz edilmiştir. Çalışmaya 248 Türk ve yabancı uyruklu öğrenci katılmıştır. Sonuçlar, dilsel zekanın öğrencilerin sadece %4,4'ünde en baskın zekâ olduğunu göstermiştir. Dilsel zekâ öğrencilerin %9,3'ünde ikinci, %14,1'inde ise üçüncü sırada yer almıştır. Kız öğrencilerin ve genç yaştaki öğrencilerin (18-20) dilsel zekâ açısından daha iyi olduğu görülmüştür. Anadolu ve yabancı lise mezunları ile hazırlık eğitimi alanların da dilsel zekâlarının daha yüksek olduğu tespit edilmiştir. Psikoloji ve Uluslararası İlişkiler gibi bölümlerde okuyan öğrencilerin de dilsel zekâ düzeyleri daha yüksek bulunmuştur. Çalışma, yaygın olarak kullanılan materyallerin dil öğreniminde kilit öneme sahip olan bireysel zekâ farklılıklarını dikkate almadığını göstermektedir. Sonuçlar bireylerin ihtiyaçlarına göre uyarlanmamış, herkese uyan tek tip bir yaklaşımın etkisiz olduğunu göstermiştir. Eğitimciler, yoğun İngilizce programlarında dilsel gelişimi ve motivasyonu desteklemek için farklı zekâlara hitap eden materyaller geliştirmelidir.

ANAHTAR KELİMELER: Çoklu Zekâ Kuramı, Dilsel zekâ, Teele Çoklu Zekâ Envanteri, İngilizcenin yabancı dil olarak öğrenimi, Hazırlık okulu.

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LIST OF ABBREVIATIONS AND SYMBOLS

BAİBÜ: Bolu Abant İzzet Baysal University

TMI : Theory of Multiple Intelligences

TIMI : Teele Inventory Multiple Intelligences



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1. INTRODUCTION

This chapter starts with the background of the study. The statement of the problem and the purpose of the study follow. It will then present the research questions and continue with the significance of the study. The definitions of the terms used in the study will conclude the chapter.

1.1 Background of the Study

Intelligence is one of the most elusive concepts to define precisely. Its intangible nature has made it a major topic of interest to scholars and philosophers throughout the ages. It is also a fertile field for contemporary psychologists, sociologists, and anthropologists. Neuroscientists have recently begun to contribute to the field. Scientists are researching and delving deeper into its foundations and various attributes because it is a word that does not instantly bring a clear image or ideas into the minds of people.

Etymologically, the word "intelligence" has Latin roots (*ingenio*) it shares with words that have a different meaning, such as "engender" or "generate" (Chomsky, 2006, p. 8). Following this simple-to-understand information about the word's etymology or considering examples would not suffice. To elaborate, people such as Albert Einstein (physicist), Virginia Woolf (writer), Igor Stravinsky (musician and composer), Pablo Picasso (painter), Martha Graham (choreographer), Mahatma Gandhi (politician and social activist), and Sigmund Freud (psychologist) are all prominent figures who have left delible marks in their fields. However, it becomes difficult to determine, based on what definition or criteria, one of these people would be considered intelligent or more intelligent than the others. Bajoulvand (2015) states that Howard Gardner, the developer of the theory of multiple intelligences (TMI), asserts that it is not possible to compare these figures fairly because they have unique and various skills that cannot be placed in a single framework.

The concept of intelligence, in the sense known today, was developed by Alfred Binet in 1905 and is defined as the individual's ability to adapt to his environment, understand complex ideas, and solve problems. In Binet's conception, intelligence is a single ability or general cognitive ability that can be measured by an intelligence test. This view is later shared by the British psychologist Spearman,

who holds that intelligence comprises two components, the first representing general cognitive skills (general factor – g factor), just as Binet did, and the second is the personal ability to think and solve problems, namely, the s factor for specific abilities.

Other theories that follow challenge the concept of a single general intelligence. In chronological order, Thorndike (1921; Thorndike et al., 1927) proposes his theory of intelligence, which divides intelligence into different types as abstract, mechanical, and social. Similarly, Thurstone's theory (1938; Thurstone & Thurstone, 1941) defines intelligence as the combination of seven mental abilities, which are word fluency, verbal comprehension, numerical ability, spatial visualization, perceptual speed, memory, and inductive reasoning. In another theory, Guilford (1967; Guilford & Hoepfner, 1971) divides intelligence into several categories, such as content, process, and product. In another theory, Sternberg identifies three types of intelligence which are analytical, creative, and practical intelligence (Davis et al., 2011).

Another significant subsequent development in the field is the theory of multiple intelligences (TMI) proposed by Howard Gardner. According to Gardner (1983), intelligence is “an ability to solve problems or fashion a product which is valued in one or more cultural settings” (p. 25). For him, people's cognitive abilities are shown in two main ways: the ability to solve problems and the ability to create works or ideas that are helpful in a particular culture. To sum up, the difference between the earlier and later theories of intelligence lies in the fact that, unlike the earlier theories, intelligence is no longer considered a single trait. Even though there may appear to be a tacit agreement on intelligence being a human faculty with multiple dimensions, there is still no mutually agreed upon consensus on what these dimensions are and how intelligence is defined as a concept based on them.

Gardner's TMI holds that intelligence has multiple dimensions, which are linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, and intrapersonal. What sets the TMI apart from other theories is the fact that these intelligence types have been identified based on more comprehensive research. TMI challenges the previous theories because it is not only a theory but also an educational philosophy that exemplifies how people learn so that teachers, knowing this, should reconsider their teaching (Temur, 2007). The theory provides an opportunity to see the teaching/learning process differently, allowing teachers to

use it as an educational strategy (Saibani & Simin, 2015). The TMI holds that students possess various types of intelligence, and those intelligences impact their language-learning processes and overall academic success.

TMI is considered one of the important theories in education and has quietly revolutionized the educational arena. It has not only brought about new ways of teaching but also changed our understanding of how students learn. With this theory, teachers can use a wide range of teaching methods and strategies that align with the variety of intelligences in students. These tools also allow students to explore their individual talents and develop their strengths (Işık & Tarım, 2009). Mansour (2004) states that the TMI "takes an extensive view of intelligence and works towards teaching and assessing students using more than just two intelligences" (p. 1). Each of the multiple intelligences is linked in a specific way to the learning process, which helps teachers improve their curricula, teaching methods, and assessment methods. In TMI, language learning, be it foreign or second, is associated with linguistic intelligence.

1.2 Statement of the Problem

While significant emphasis is placed on developing English language skills in teaching English, the traditional one-size-fits-all approach may not cater to students' unique cognitive abilities and learning preferences. Linguistic intelligence in the TMI, on the other hand, provides a valuable tool for any party interested in the development of language knowledge and proficiency of learners, allowing researchers and teachers to assess the growth of the linguistic capabilities of learners. Determining to what extent the linguistic intelligence of students who have attended a one-year-long English-only intensive language program in Türkiye has developed is an area that has not been investigated thoroughly. Students and teachers taking part in preparatory school intensive English programs are largely unaware of whether the progress made in learning English in intensive English-only programs contributes to their linguistic intelligence.

1.3 Purpose of the Study

This study aims to examine the place of linguistic intelligence in students who attended a year-long intensive English as a foreign language program at the preparatory school of a state university. In other words, it was designed to determine the place of linguistic intelligence in the students. It used the TMI framework to determine whether a year-long English-only intensive instruction has led linguistic intelligence to appear among their higher-ranked intelligences.

1.4 Research Questions

In line with the purpose stated above, this study aims to find answers to the following research questions:

After one year of intensive English language learning in the preparatory school:

1. In how many students is linguistic intelligence the most dominant intelligence?
2. In how many students is linguistic intelligence among the top three intelligences?
3. Is gender a factor that contributes to the higher ranking of linguistic intelligence in the students?
4. Is age a factor that contributes to the higher ranking of linguistic intelligence in the students?
5. Do the types of high schools that students graduate from have an effect on their linguistic intelligence?
6. Does the length of the English learning period have an effect on the students' linguistic intelligence?
7. Is there a relationship between the ranking of the students' linguistic intelligence and the departments/faculties they will be attending after preparatory school?

1.5 Significance of the Study

This study investigates whether a one-year-long English-only intensive education that is based on the methodology and activities used in a textbook by a foreign publisher, which is designed to be used as the primary tool in teaching multiple learners in classes, has led to changes that indicate a significant development in terms of the linguistic intelligence of the students who participate

in the program. It, thus, aims to find out in how many students linguistic intelligence appears to be the most dominant intelligence. In addition, it aims to find out whether linguistic intelligence is among the first three dominant intelligences of the students after intensive English education, the rank of linguistic intelligence among the students' other intelligences by taking into account factors such as age, gender, high school type, and years of learning English prior to the preparatory school.

The findings may contribute to a shift of focus from teaching English to teaching English to develop the students' linguistic abilities and to monitor the effectiveness of teaching done for that purpose.

1.6 Definition of the terms

Theory of multiple intelligences: Proposed by Gardner (1983), the TMI is considered one of the modern educational theories. It goes against the view of intelligence as a single or general factor. TMI maintains that all human beings have different or multiple intelligences.

Language teaching: The activity aims to enable individuals to acquire a language (Stern,1983). According to Farrant (1980), teaching is the process that facilitates learning. The teacher is important because he/she acts as a catalyst, actively stimulating learning. In the teaching world, language is a crucial tool for thinking and communication among individuals.

Language learning: The process of acquiring language directly from a teacher or through study and practice. It involves not only the development of skills and knowledge but also the acquisition of interests, social roles, social values, and even changes in personality (Stern,1983).

Linguistic intelligence: The ability to use language effectively, in both terms of writing and speaking. People with linguistic intelligence are talented at using language creatively, enjoying the nuances of words, and identifying patterns in language. Gardner (1983) explains the other types of intelligences as follows:

Logical-mathematical intelligence: The capability to use patterns, solve problems, and understand relationships. Scientists and mathematicians use logical-mathematical intelligence in establishing a connection between ideas and analyzing situations.

Musical intelligence: The ability to understand the different aspects of music. People with musical intelligence are skilled at recognizing different musical

sounds and patterns. They notice subtle changes in pitch, rhythm, and intensity and often have a natural ability to play musical instruments, compose melodies, or sing with great skill.

Spatial intelligence: It shows the ability to imagine the world around you accurately and clearly. People with this type of intelligence can form mental images and see things from multiple perspectives, which helps them understand and plan space effectively. These skills are in drawing and design, where they can transform abstract ideas into clear visual forms.

Bodily-kinesthetic intelligence: It indicates the ability to mentally form a representation of the world around us and act on that representation. People with this intelligence, such as painters, sculptors, architects, engineers, geographers, and surgeons, have an exceptional ability to visualize and interact with shapes and spaces.

Interpersonal intelligence: The ability to understand and analyze the emotional reactions of others, which helps one interact effectively in social situations. It includes the ability to recognize other people's emotions, understand their motivations, such as salespeople, politicians, and teachers,

Intrapersonal intelligence: The ability to understand and adapt to oneself. This intelligence includes the ability to distinguish between personal emotions, know one's strengths and weaknesses, and understand one's own needs and motivations. Individuals with this intelligence are characterized by their ability to control themselves, think deeply about their feelings and thoughts, reflect on, set goals, and plan to achieve them.

1.7 Theoretical Framework and Related Research

This section will present the evolution of the concept of intelligence in chronological order, including TMI. It will then discuss the relevance of TMI to teaching English as a foreign language.

1.7.1 Intelligence

The concept of intelligence has long been a focal point of discussion among scholars and philosophers across various disciplines throughout history, and it continues to be a significant challenge despite the emergence of all theories that attempt to define this amazing intellectual power of human beings.

1.7.2 The evolution of the concept of intelligence

Since the dawn of civilization, philosophy has studied human cognitive abilities and how they help us understand the world. Initial studies on intelligence may be traced back to philosophy. Plato was the first philosopher to study mental activity systematically. He considered *the mind* an essential tool for understanding the world. He laid the foundation for understanding intelligence as a cognitive power distinguishing humans from other living things.

Aristotle and Socrates followed in Plato's footsteps. Socrates emphasized the importance of self-observation for understanding one's mind. Socrates' *Know Thyself* emphasizes self-reflection and understanding one's strengths, weaknesses, and motivations. Aristotle also noted that men, by nature, tend to seek knowledge, which drives them to use their minds to understand the world around them. Aristotle's *All men by nature desire to know* highlights the inherent human desire for knowledge and understanding. Aristotle believed that humans are naturally curious and driven to learn and explore the world around them. The attempts to explain intelligence were not limited to philosophy, as the construct enticed scholars in other fields.

Another field that displayed interest in intelligence is biology. Human beings possess cognitive abilities and utilize them in situations that require their use. Understanding these cognitive abilities involves analyzing different levels, from specific brain cells to cerebral hemispheres, to identify functions associated with cognitive tasks. This capacity is considered inherited rather than acquired by biologists who maintain that intelligence is influenced by genetic inheritance. Gardner (1983) defines intelligence as a biological capability. He elaborates his view, stating that people vary in the amount of intelligence they are born with, its nature, and how their intelligence develops. Gardner considers intelligence a product of the interaction between individual developmental factors and environmental influences. He maintains that a comprehensive life science (biology) has to investigate the nature and types of people's intellectual abilities (intelligences).

Another field that has investigated intelligence in much more detail is psychology. Psychologists differ in their definitions of intelligence, resulting in a lack of agreement on this vital human construct. These definitions can be categorized into three main categories: definitions that emphasize individual

adaptation to the conditions in which they live, definitions that emphasize the ability to learn, and definitions that emphasize the ability to think. The following definitions of intelligence by prominent scholars of their times are presented below to show the differences of opinion on this intangible yet undeniably existent significant entity:

1. The capability for abstract thinking (Terman, 1921).
2. The capacity for knowledge acquisition and possessed knowledge (Henmon, 1921).
3. The ability to learn from experience and adapt accordingly (Dearborn, 1921).
4. The aptitude to acquire further skills and abilities (Woodrow, 1921).
5. The ability to produce accurate responses based on truth or information (Thorndike, 1921).
6. Sensory acuity, perceptual recognition, associative flexibility, attention span, and imagination (Freeman, 1921).
7. The capacity to learn and adjust to one's environment (Calvin, 1921).
8. The ability to adapt adequately to new life situations (Pentler, 1921).
9. A biological mechanism integrating complex stimuli influences behavior (Peterson, 1921).
10. The capacity to inhibit instinctive responses, adjust based on trial and error, and adapt socially (Thurstone, 1921).
11. Encompassing sensation, perception, association, memory, imagination, discrimination, judgment, and reasoning (Haggerty, 1921).
12. Intelligence is defined by what intelligence tests measure (Boring, 1923).
13. A comprehensive concept involving purposeful action, rational thinking, and effective problem-solving (Wechsler, 1958).
14. The capacity to solve problems or create products valued within one or more cultural contexts (Gardner, 1983).
15. The skill to efficiently utilize limited resources, including time, to achieve objectives (Kurzweil, 1999).

Most of these definitions revolve around describing intelligence and affirming the learning process, while some focus on either thinking or adaptation processes. The debate continues regarding the best way to define and measure intelligence (Sternberg, 2003). Key issues in this debate include the influence of

genetics versus environment on intelligence, how intelligence is represented in the brain, and determining how many types of intelligence exist. Ultimately, if there is something that all psychologists currently agree on, it is that no single definition of intelligence exists. Nonetheless, these definitions serve the useful purpose of presenting various perspectives that can give us a more comprehensive understanding of intelligence. Some of these definitions are parts of the theories that attempt to explain intelligence. In the remainder of the chapter, a groundbreaking development in intelligence will be discussed, and theories of intelligence in psychology that subsumed will follow.

1.7.3 Foundations of work on intelligence: the Binet-Simon scale

Between 1904 and 1905, the French psychologist Alfred Binet (1857–1914) and his colleague Théodore Simon (1872–1961) began working with the French government to create a tool to identify children who might struggle with the standard school curriculum. They aimed to help teachers better support these students. They developed what is now considered the first intelligence test, which included a diverse set of tasks such as naming objects, defining words, drawing pictures, completing sentences, comparing items, and constructing sentences.

Binet and Simon developed the Binet-Simon Intelligence Scale, which was the first intelligence test in 1911. Their work laid the foundation for modern intelligence testing. Binet examined intelligence as a dynamic and multifaceted ability that can change over time and differ among people. He considered that intelligence included a range of cognitive skills and that intelligence can be affected by experience and education. The test underwent revisions in 1908 and 1911, refining its ability to assess and compare intelligence.

Building on Binet's work, Lewis M. Terman at Stanford University in the United States of America adapted the original test items for American children. He standardized the testing process and established age-based norms by administering the test to a large, diverse group of children. In 1916, this led to the creation of the Stanford-Binet Intelligence Scale, revised several times since then and remains a widely used tool in psychology. This scale underwent several revisions in 1937, 1960, 1972, 1986, and 2003, remaining one of the most used psychological tests. Terman retained Binet's concept of mental age, where each test item was graded

according to the age level at which most children could pass it. Mental age was calculated by adding the number of items passed at each level.

1.7.4 Major early theories of intelligence in psychology

Three theories of intelligence in psychology emerged following the inception of the IQ test designed by Binet and Simon. In chronological order are Spearman's, Thurstone's, and Piaget's theories of intelligence, which functioned as incremental advances in our current understanding of human intelligence.

1.7.4.1 Spearman's two-factors theory

In 1904, Charles Spearman developed his two-factor theory of intelligence using factor analysis, a statistical procedure he developed to test how well people performed on various intelligence-related tasks. He conducted experimental studies starting with 24 students in a village school. The tasks he used included mathematics, perceiving weight and colors, directions, and distinguishing pitch. When analyzing the data, Spearman found that people who did well in one area also scored higher in other areas. Based on this finding, Spearman concluded that there had to be one central factor that influences our cognitive abilities, which he termed general intelligence g . His research led him to develop the concept of the g factor of general intelligence, as well as the s factor of specific intellectual abilities. Thus, his two-factor theory proposes that intelligence has these two components. As for g , Spearman maintained that individuals had some level of general intelligence and that s varied from person to person based on the specific task.

This theory continues to play a significant role in contemporary psychology. Researchers are exploring and adapting it in current studies. The g factor remains a key focus in modern research. For instance, a study might use it alongside other similar intelligence assessments.

1.7.4.2 Thurstone's theory of primary mental abilities

Louis Leon Thurstone's 1938 work using factor analysis led him to formulate a model of intelligence centered on primary mental abilities, which were seven in number, rather than a single general ability g . He tested subjects in his study on 56 different abilities and concluded that seven of those were primary. They were *verbal comprehension*, *word fluency*, *perceptual speed*, *numerical ability*, *memory*, *inductive reasoning*, and *spatial ability*. Thurstone disagreed with

Spearman's emphasis on general intelligence and proposed that intelligence could be better understood by dividing it into several primary abilities using factor analysis. After extensive rounds of administering tests, analyzing the results through factor analysis, refining the scales, and retesting, Thurstone identified the seven factors that formed the basis of his Test of Primary Mental Abilities.

These primary abilities contribute to understanding why people differ in intelligence and how they perform specific cognitive tasks. According to Thurstone, these abilities were independent of each other. An individual's excelling in one ability, such as verbal comprehension, does not entail that he will perform equally well in any of the six remaining abilities. Based on his research, in his theory of intelligence, Thurstone proposes a model that underscores the results of these findings that the complexity of human cognition may not be accounted for by a single general factor but be understood through a diverse set of skills rather than a single, unified factor.

1.7.4.3 Piaget 's cognitive development theory

Jean Piaget's 1952 theory of cognitive development posits that children's intelligence evolves as they grow. As part of their cognitive development, children construct mental models of their environment (Miller, 2011). His contributions are foundational in developmental psychology, particularly in understanding how children's cognitive development unfolds in educational settings. During the 1920s, Piaget translated English intelligence test questions into French while working at the Binet Institute. This experience sparked his curiosity about children's seemingly illogical responses to logical questions (Meadows, 2019), leading him to propose a new framework for understanding children's cognitive abilities. Piaget emphasized that children differ from adults in their cognitive processes and perspectives, actively constructing knowledge about their environment.

Piaget in 1952 eschewed traditional measures of intelligence, such as spelling or problem-solving (Greenfield, 2019). He employed various methods, including clinical interviews and observations, controlled observations, naturalistic observations, and diary entries with charts, to track the progress of his three children. Piaget identified four stages of cognitive development: sensorimotor, preoperational, concrete operational, and formal operational. These stages suggest that intelligence develops and becomes more sophisticated over time, influenced by

both biological maturation and environmental interaction; they help educators understand what children are capable of at different ages, guiding the design of age-appropriate learning activities and materials. For example, younger children in the preoperational stage may struggle with abstract concepts, so hands-on, concrete learning experiences are more effective.

1.7.4.3.1 Sensorimotor stage (birth to 2 years)

During this initial phase, infants primarily rely on their senses and motor skills to engage with their environment. They begin to grasp the concept of object permanence, understanding that objects continue to exist even when they are not visible. Additionally, they start to exhibit rudimentary forms of symbolic thinking, such as using gestures or words to represent objects and actions.

1.7.4.3.2 Preoperational stage (2 to 7 years)

Children use language and symbols to express their thoughts and experiences. However, they tend to think egocentrically, struggling to comprehend different viewpoints. Despite their growing language abilities, they still lack the capacity for logical and concrete reasoning.

1.7.4.3.3 Concrete operational stage (7 to 11 years)

Children can think logically and tangibly about objects and events during this period. They can discern cause-and-effect relationships, categorize objects, and tackle straightforward problems. Nonetheless, abstract, or hypothetical thinking remains challenging for them.

1.7.4.3.4 Formal operational stage (11 years and beyond)

Children are now in adolescence, which is marked by puberty, which brings rapid physical changes. Adolescents straddle the line between childhood and adulthood. While they are often still considered "children" in legal or protective contexts, in terms of cognitive development and maturity, they are in a distinct development phase, marking the shift from childhood into adulthood. Their thinking is more complex than younger children's, and they begin to demonstrate more independence and responsibility.

Adolescents are able to engage in abstract, hypothetical, and logical reasoning as they progress into this final stage. They can contemplate concepts

beyond the immediate and consider various perspectives. Moreover, they cultivate metacognition, enabling them to reflect on their thoughts and emotions.

1.7.4.4 Educational implications of Piaget's theory

Piaget's work has significantly impacted multiple disciplines, including education, psychology, and philosophy. It has deepened our insights into childhood learning and development and has informed the design of educational strategies and interventions. His ideas have significantly influenced teaching methods and educational policies. For example, a primary education review commissioned by the UK government in 1966 was heavily influenced by Piaget's theory, laying the groundwork for the publication of the Plowden report in 1967.

One of the key concepts derived from Piaget's theory is discovery learning, which emphasizes that children learn best when actively exploring and engaging in activities (Piaget, 1952). Therefore, classroom learning should be student-centered and facilitated through active discovery learning, with teachers supporting it rather than employing direct instruction.

To conclude Piaget's significant contribution, it should be stated that while Piaget did not directly propose a theory of intelligence as some psychologists did, his view of cognitive development has profoundly informed how we understand intelligence. For Piaget, intelligence is about how a child's cognitive structures evolve through stages of development, shaped by ongoing adaptation to the world, and intelligence is not an inherent, unchanging trait but rather a process that evolves over time, marked by the active construction and refinement of knowledge.

1.8 Recent Theories of Intelligence

1.8.1 Gardner's theory of multiple intelligences

A recent concept in educational psychology is the theory of multiple intelligences, proposed by Howard Gardner in 1983 and further developed over the following years, particularly in 1999, 2008, and 2011. This theory marked a significant departure from tradition, classifying students based only on IQ scores (Palla, 2022). TMI is a modern theory offering a new perspective on intelligence. This theory is grounded in modern scientific discoveries in cognitive science and neuroscience, previously unknown during Binet's era, and it opposes the traditional notion of intelligence as a single measurable ability. It emphasizes the diversity of

human capabilities, highlighting the importance of developing all forms of intelligence in individuals.

Gardner thoroughly examined each type of intelligence through multiple lenses by focusing on *cognitive processes involved, observations of prodigies and exceptional individuals, findings from cases of brain injury, expressions across diverse cultures, and potential patterns of evolutionary development*. To illustrate, Gardner studied individuals who exhibited extraordinary abilities in specific mental capacities while scoring average or below average on intelligence tests, such as a child with an IQ of 50 but was proficient in playing a musical instrument, singing in foreign languages, spelling, and memorization. Gardner's research showed that humans possess multiple intelligences. The theory emphasizes the diversity of human capabilities and the importance of developing all types of intelligence in individuals.

Gardner initially proposed seven intelligences, each functioning independently within the brain as separate modules, each governed by its principles. The intelligences *were linguistic intelligence, musical intelligence, logical-mathematical intelligence, spatial intelligence, bodily-kinesthetic intelligence, intrapersonal intelligence, and interpersonal intelligence*. According to Gardner, while everyone possesses some proficiency across all intelligences, each person possesses a unique combination of strengths and weaknesses, contributing to individual variation. Gardner added naturalistic intelligence in 1995, but it did not receive wide recognition from field experts.

1.8.2 Sternberg's triarchic theory of intelligence

Sternberg proposed the triarchic theory of intelligence, which, like Gardner's theory, identifies multiple types of intelligence: analytical, creative, and practical. Analytical intelligence resembles the traditional concept of *g*, creative intelligence involves insight and novel problem-solving, and practical intelligence focuses on solving real-life problems. Sternberg's theory also includes a control hierarchy of cognitive components that manage our mental processes: performance components, knowledge acquisition components, and meta-components.

At the bottom of the hierarchy are performance components, the cognitive mechanisms used in task execution, such as encoding, inference, and response selection. Sternberg found that while performance components contribute to

intelligence, their impact is weak. Knowledge acquisition components relate to memory and information storage and help develop performance components.

At the top are meta-components, which involve planning task solutions and monitoring feedback. Sternberg argued that individual differences in intelligence are mainly due to these high-level meta-components, which are responsible for problem-solving strategies, rather than the low-level components that implement them. For example, one meta-component is responsible for recognizing the nature of a problem. Although Sternberg's work elaborates on how intelligence manifests, it does not provide a clear explanation of it.

1.8.3 Anderson's theory of intelligence

The Australian scholar Mike Anderson's theory of minimal cognitive architecture (1992) proposes an alternative intelligence theory. Anderson's research explores the development of intelligence and cognitive abilities from infancy through adulthood. In 1992, he proposed a significant theory of intelligence and development, distinguishing between the mechanisms that process information to acquire knowledge and the knowledge itself. His theory outlines two perspectives of intelligence: one that focuses on individual differences linked to processing speed and another that centers on the progression of intelligence over time through the acquisition of new competencies supported by specialized cognitive modules.

Anderson's theory contributes greatly to our understanding of cognitive and intellectual development. He differentiates between the mechanisms of information processing and the knowledge they help acquire, proposing two aspects of intelligence. The first aspect relates to individual differences, which Anderson attributes mainly to a biological factor – the speed of basic cognitive processing. He suggests that processing speed can limit how efficiently knowledge is acquired, explaining variations in intellectual abilities among individuals. According to this theory, people with faster processing speeds are better positioned to learn and apply knowledge, leading to higher intelligence levels. However, Anderson also recognizes that experience influences intelligence. He asserts that the types of information individuals are exposed to shape how they think and process information. This experiential component underscores the role of environmental factors in cognitive development, proposing that a stimulating environment can enhance knowledge acquisition and intellectual growth.

The second aspect of Anderson's theory relates to the development of intelligence over time. He argues that intelligence does not develop through increased processing speed as one ages, but rather through the acquisition of new competencies enabled by universal, specialized cognitive modules that are not dependent on individual differences in intelligence. This modular view suggests that as individuals gain new skills and knowledge through experience, their intellectual abilities become more advanced and refined.

Anderson's theory has been used to reassess various topics, such as infant intelligence, mental retardation, and cognitive development. By differentiating between processing speed and knowledge acquisition, his framework offers a thorough understanding of how intellectual abilities develop and vary among individuals. His work also holds important educational implications, suggesting that fostering an enriching environment and supporting the acquisition of new competencies can promote cognitive development and boost intelligence.

To conclude this section on early and modern theories of intelligence, it may be stated that various theories have presented diverse interpretations of intelligence, leading to diversity in its classifications and understanding of its nature and functioning. For instance, in his theory, Spearman explained mental activity through general intelligence and specific factors, which relied on statistical test analyses. In contrast, Thurstone offered an understanding of intelligence based on primary mental abilities, which he categorized into seven different abilities. On another front, Sternberg identified three sub-theories: the componential sub-theory, which focuses on cognitive processes; the experiential sub-theory, exploring the influence of experience on intelligence; and the contextual sub-theory, examining the impact of an individual's environment and culture. Despite these differences in interpretations, researchers have continued to develop scales and tests that measure intelligence and cognitive abilities. These measures have formed the basis for establishing a procedural definition of intelligence.

1.9 Types of Intelligence in TMI

This subsection will present information on the types of multiple intelligences that Gardner identifies. Gardner (1983) identified seven types of multiple intelligences, which will be discussed below.

1.9.1 Linguistic intelligence

Linguistic intelligence involves skillful use of spoken or written language in various contexts such as storytelling, public speaking, poetry, playwriting, editing, or journalism. This intelligence encompasses proficiency in manipulating language syntax, phonology, semantics, and pragmatics. It includes the ability to employ rhetoric for persuasion, mnemonics for memory enhancement, explanation for information dissemination, and metalanguage for discussing language. This type of intelligence is typically well-developed among poets, writers, and journalists. Generally, linguistic intelligence enables individuals to communicate with others effectively and to comprehend the world through language.

1.9.2 Logical-mathematical intelligence

Logical-mathematical intelligence involves effectively utilizing numbers (e.g., in roles such as mathematician, tax accountant, or statistician) and engaging in reasoned thinking (e.g., as a scientist, computer programmer, or logician). It is often associated with what is commonly referred to as scientific thinking. Individuals with this intelligence exhibit sensitivity to logical patterns, relationships, and abstract concepts, including statements and propositions such as *if-then* or *cause-effect*. Processes associated with logical-mathematical intelligence include categorization, classification, inference, generalization, calculation, and hypothesis testing.

1.9.3 Spatial intelligence

Spatial intelligence encompasses the aptitude to perceive the visual-spatial realm with precision accurately, exemplified in professions like surveyors or cartographers, and to execute transformations on those perceptions, as seen in roles such as interior decorators, architects, artists, or inventors. This form of intelligence entails a heightened sensitivity to aspects like color, line, shape, form, space, and the interconnections among these elements. It encompasses the ability to envision, visually represent spatial concepts graphically, and navigate effectively within a spatial framework.

1.9.4 Bodily-kinesthetic intelligence

Bodily-kinesthetic intelligence refers to proficiency in utilizing the entire body to communicate ideas and emotions, demonstrated in roles like actors,

mimers, athletes, or dancers. It also encompasses adeptness in employing hands to create or modify objects, evident in crafts persons, sculptors, mechanics, or surgeons. This intelligence encompasses various physical abilities such as coordination, balance, agility, strength, flexibility, speed, proprioceptive, tactile, and haptic capabilities.

1.9.5 Musical intelligence

Musical intelligence refers to the ability to recognize (as a music enthusiast), manipulate (as a composer), convey (as a performer), and distinguish among (as a music critic) various musical structures. This intelligence involves sensitivity to musical compositions' rhythm, pitch or melody, and timbre or tone color. Individuals may possess either a figurative or top-down comprehension of music, which is holistic and intuitive, or a formal or bottom-up comprehension, which is analytical and technical, or a combination of both. Musicians, singers, sound engineers, and audio experts clearly manifest this intelligence.

1.9.6 Interpersonal intelligence

Interpersonal intelligence refers to the capacity to perceive and differentiate between the emotions, intentions, motivations, and sentiments of others. This involves being sensitive to facial expressions, vocal tones, and gestures and the ability to discern various interpersonal cues. Individuals with this intelligence can respond to these cues in practical ways, such as influencing a group to pursue a particular course of action. Interpersonal intelligence is evident in political figures, educators, and psychological counselors.

1.9.7 Intrapersonal intelligence

Intrapersonal intelligence involves self-awareness and the ability to adapt based on that awareness. This intelligence encompasses clearly understanding oneself, including strengths, weaknesses, and awareness of one's inner emotions, intentions, motivations, temperaments, and desires. Additionally, it involves the capacity for self-discipline, self-understanding, and self-esteem. The intelligence of scientists, philosophers, and wise individuals can be diverse and varied.

Armstrong (2018) has opted for the following terminology to convey the essence of each intelligence more clearly and directly:

- Linguistic Intelligence → Word Smart
- Logical-Mathematical Intelligence → Number/Logic Smart
- Spatial Intelligence → Picture Smart
- Bodily-Kinesthetic intelligence → Body Smart
- Musical Intelligence → Music Smart
- Interpersonal Intelligence → People Smart
- Intrapersonal Intelligence → Self Smart
- Naturalist Intelligence → Nature Smart

Table 1.1 (Gardner & Hatch, 1989, p. 6) summarizes the seven intelligences with end-states and their core components. Although all humans generally possess these intelligences, individuals vary in their intelligence level for genetic and environmental reasons. In addition, there is no fixed association between any two types of intelligence, as each type can have distinct forms of cognition and memory.

Table 1.1. The seven intelligences with their end-states and core components

Intelligence Type	End-States	Core Components
Logical-mathematical	Scientist-Mathematician	Sensitivity to, and capacity to discern, logical or numerical patterns; ability to handle long chains of reasoning.
Linguistic	Poet -Journalist	Sensitivity to the sounds, rhythms, and meanings of words; sensitivity to the different functions of language.
Musical	Composer-Violinist	Abilities to produce and appreciate rhythm, pitch, and timbre; appreciation of the forms of musical expressiveness.
Spatial	Navigator-Sculptor	Capacities to perceive the visual-spatial world accurately and to perform transformations on one's initial perceptions.
Bodily-kinesthetic	Dancer-Athlete	Abilities to control one's body movements and to handle objects skillfully.
Interpersonal	Therapist-Salesman	Capacities to discern and respond appropriately to the moods, temperaments, motivations, and desires of other people.
Intrapersonal	People with detailed, accurate self-knowledge	Access to one's own feelings and the ability to discriminate among them and draw upon them to guide behavior; knowledge of one's own strengths, weaknesses, desires, and intelligences.

1.10 Key Findings in TMI

The key points of TMI may be summarized as follows:

- **All human beings have all intelligences.** Every individual possesses all types of intelligence. TMI does not seek to pigeonhole individuals into a single intelligence type. Instead, it views cognitive functioning as a comprehensive system in which everyone has capacities across all seven intelligences. While some individuals may excel in most or all intelligences, others may have limited capacities. Most people fall somewhere between these extremes, with varying levels of development across different intelligences.
- **Intelligence can change and grow over time; it is not set in one way forever.** Intelligence is not a static trait. Rather, it is dynamic and flexible and can be shaped and enhanced throughout one's life. In the past, intelligence was often viewed as fixed, determined largely by genetics, and measured through tests like IQ assessments. However, this perspective neglected the significant influence of environmental, cultural, and social factors on intellectual development. Nowadays, researchers recognize intelligence as a more fluid and adaptable capability, capable of growth and change over time. This evolved understanding suggests that intelligence is not predetermined at birth but can be continuously expanded and enriched through various experiences and learning opportunities (Lazear, 1992).
- **Many individuals can improve all types of intelligence to a suitable level of skill.** Gardner (1983) emphasizes that most individuals have the potential to develop proficiency in all types of intelligence with proper support and guidance. Despite feeling deficient in certain areas, people can overcome perceived limitations through encouragement, enrichment, and effective instruction. Similar educational approaches exist for other intelligences, such as enhancing Picture Smart abilities through drawing. Gardner's focus on effort aligns closely with Dweck's (2006) concept of maintaining a growth mindset in education, emphasizing that dedication and perseverance can develop intelligence and abilities.

- **Intelligences often work with each other in complicated ways.** Gardner emphasizes that intelligence does not operate independently but interacts in complex ways. He argues that each intelligence is a construct or abstraction, as no single intelligence functions in isolation in real-life scenarios except in rare cases such as savants or individuals with brain injuries. Intelligence constantly intertwines and complements each other in various tasks and activities. For instance, cooking a meal requires the use of multiple intelligences: reading the recipe (linguistic), adjusting measurements (logical-mathematical), considering family preferences (interpersonal), and satisfying personal hunger (intrapersonal). Gardner suggests that while TMI may isolate intelligences for study, it is essential to reintegrate them into their cultural contexts to understand and apply them effectively and thoroughly.
- **There are different ways to show how one is intelligent in each intelligence.** Within each intelligence many ways exist to demonstrate intelligence. There are no predefined attributes that determine intelligence in a specific area. For example, someone who struggles with reading may still exhibit high proficiency in storytelling or possess a vast oral vocabulary. Similarly, an individual lacking athleticism may showcase exceptional skill in carpet weaving. TMI highlights individuals' diverse talents within and across different intelligences, underscoring the richness and variability of human cognitive abilities (Armstrong, 2018).

1.11 TMI and Teaching and Learning English

This section will begin by presenting information briefly about language, language teaching, and language learning. It will continue with language teaching and its relationship to cognitive science and how the theory of multiple intelligences relates to foreign language teaching.

Chomsky (2002) defines language as “an integrated system of rules and principles from which the expressions of the language can be derived, each of them a collection of instructions for thought and action” (p. xi). According to Fromkin, Rodman, and Hymes (2009), language is an essential source of human life and strength. It comprises a set of rules, including phonology, which examines sounds; morphology, which focuses on the structure and properties of words; syntax, which

addresses sentence structure and the organization of words; and semantics, which investigates the relationship between sounds and meanings.

Language teaching is defined as an activity that aims to enable individuals to acquire a language (Stern, 1983). Language teaching includes two main approaches: the first aims to train learners to learn language by using it, and the second focuses on teaching learners how to analyze language and understand its structure (Celce-Murcia, 2001).

Language learning refers to the process of acquiring language directly from a teacher or through study and practice. It involves not only the development of skills and knowledge but also the acquisition of social roles, social values, and even changes in personality (Stern, 1983).

As for TMI and its relationship to language teaching, Gardner (1983) considered TMI a contribution to cognitive science. However, educators such as Armstrong (2018) explained that the theory functioned as a foundation for rethinking school education. Hopper and Hurray (2000) state that TMI is a significant approach in English teaching because it not only enhances students' motivation but also revolutionizes their learning methods. It is a powerful tool that effectively tackles the challenges students encounter in learning the language. To investigate and explain the relationship between TMI and teaching and learning English as a foreign language numerous studies have been undertaken.

Of those studies, Arnold and Fonseca (2004) examined TMI and its use in foreign language learning and noted that TMI can supply the foundation for improvement by helping learners connect with learning activities and activate linguistic information stored in memory, offering a hopeful outlook to develop more effective means of communication in the target language. There was also a significant development in education through conducting much research that made classrooms more enjoyable, with different activities in the last decades of the twentieth century. Reid (1999) says that some of the dimensions that have been researched in the field of language learning are multiple intelligences, perceptual learning methods, dependence on the field of independence, global analytical learning methods, and reflective-impulsive learning methods. In addition, Altan (2012) approached TMI from another perspective and discussed how TMI could be incorporated into ELT teacher education to train prospective English teachers to incorporate the theory into their future teaching contexts.

In TMI, "language is not seen as limited to a 'linguistics' perspective but encompasses all aspects of communication" (Richards & Rodgers, 2001, p. 117); foreign language learning can develop through different types of different intelligences. Writing lyrics of songs, for example, utilizes linguistic and musical intelligences. Similarly, in role-playing, students may need to express their feelings and consider the feelings of other students, utilizing linguistic, intrapersonal, and interpersonal intelligences.

Numerous studies have determined the use of TMI in English language teaching/learning; Tawalbeh (2016) was one of those scholars who examined the relationship between TMI and English as a foreign language and made suggestions to English teachers as to how to use TMI in their classrooms. In another study, Tiansoodeenon and Sitthitikul (2024) conducted a study to determine how to apply TMI in English language teaching in Thailand. They recommended that TMI could be incorporated into teaching with activities and assessment tools to make teaching more effective.

An area in which TMI has an effect on teaching English is language skills. TMI helps improve four skills in teaching English as a foreign language. An example is the study by Modirghamene and Azhiri (2012), who carried out an experimental study to find solutions for the challenges EFL learners faced in reading comprehension using TMI. Their results showed that male and female students in the experimental group in which MI-based reading tasks were used demonstrated more improvement in their reading comprehension scores than the students in the control group. The results also showed that females had made greater progress than males.

Ahour and Abdi (2015) conducted a study investigating the relationship between vocabulary learning strategies used by intermediate EFL learners and their intelligences using TMI. The findings revealed that linguistic and interpersonal intelligences were the MI types that male learners used in vocabulary learning, while bodily-kinesthetic intelligence was the intelligence used by female students in vocabulary learning. Sistani and Hashemian (2016) also investigated the relationship between intermediate EFL learners' vocabulary learning strategies and their intelligence types. The strategies were categorized into five types: determination, memory, social, metacognitive, and cognitive. The results showed a strong positive relationship between participants' intrapersonal intelligence and

their preference for metacognitive and cognitive strategies. It was also found that when participants' interpersonal intelligence scores increased, they were more likely to prefer social strategies. In addition, a significant positive relationship was found between spatial intelligence and memory strategies and between linguistic intelligence and determination strategies.

Sarıcaoğlu and Arıkan (2009) conducted a study with preparatory school EFL students. The aim of their study was to examine the types of intelligence that students used in learning English as a foreign language. The findings showed that logical-mathematical intelligence was the most frequently used intelligence by the students, while musical intelligence was the least commonly utilized. Similarly, Hanafiyeh (2013) conducted a study with university students to identify the types of intelligence that students used in connection with their English learning. The results revealed that logical-mathematical intelligence was the most predominant intelligence type students used, while musical intelligence was the least frequently utilized intelligence.

To conclude, this chapter presented a brief account of major theories of intelligence, starting with the initial efforts followed by important current theories. It also explored aspects of TMI and the relevance of this theory in teaching English as a foreign language. The next chapter is going to focus on the methodology of this study.

2. MATERIALS and METHOD

This chapter provides the methodology applied in this study. First, the research questions and research design are presented in detail. It continues with the description of the setting, the data collection instruments used, the participants, and the procedures used for data collection and analysis.

2.1 Design of the Study

In this descriptive study, the survey method was used to determine the place of linguistic intelligence in the preparatory school students after a year of intensive English only education made any impact in terms of linguistic intelligence. The students were surveyed using the Teele Inventory of Multiple Intelligences (TIMI) as the data collection tool. The TIMI answer sheets were distributed to the participants. The participants were explained what they had to do to respond to the items on the answer sheets.

2.2 Participants

The participants were 248 preparatory school students. Of those, 67 were males, and 181 were females. The participants' ages ranged between 18-24 years.

The participants were both Turkish students and international students from different countries. Preparatory school students from the different departments of four faculties, which were, the Faculty of Arts and Science, Faculty of Economics and Administrative Sciences, Faculty of Engineering, and Faculty of Architecture, participated in this study. Table 2.1 presents information on the distribution of the students by department in those faculties:

Table 2.1. Participant numbers per faculty and department

Faculty	Department	Number of Students
Arts and Sciences	Biology	28
	Chemistry	23
	Mathematics	34
	Physics	9
	Psychology	57
Total		151

Table 1.2. (continued). Participant numbers per faculty and department

Faculty	Department	Number of Students
Economics and Administrative Sciences	Economics	6
	Finance	3
	International Relations	24
	Management	7
	Public Administration	2
Total		42
Engineering	Chemical Engineering	24
	Computer Engineering	11
	Electrical Electronics Engineering	12
Total		47
Architecture	Architecture	8
Total		8

2.3 Setting

This study was conducted in the preparatory school of the university, where the focus is on improving the students' English language skills. The student population consists of Turkish and international students. This mixed population added significant value to learning English as it led to more interaction among students. This interaction is helpful to all students because it enhances students' command of the target language. The preparatory year is an important stage that prepares students academically and linguistically to tackle their undergraduate work before starting their university studies in different disciplines.

2.4 Data Collection Procedure

This section will explain the procedures followed to collect the data. Firstly, before starting the data collection and sample selection process, permission was needed from the university's Humanities Research Ethics Committee in Social Sciences (No. 2024/182). This step was essential to ensure compliance with the ethical standards required for conducting the research and to protect the rights of the participants.

After getting formal permission to conduct the research at the preparatory school, students were invited to participate in the study on a voluntary basis. Initially, they were informed of the scope of the study and were ensured that their

anonymity would be protected. Thus, the participants were not asked to furnish any information that would be used to identify themselves in any way.

Following this brief presentation, the volunteer students were ushered into a classroom in small groups of 10.

2.5 Data Collection

The data collection instrument for this study is the Teele Inventory of Multiple Intelligences. Sue Teele developed this questionnaire in 1992 to assess and identify different types of intelligence individuals possess. The questionnaire is based on Howard Gardner's theory of multiple intelligences and aims to measure seven main areas of intelligence, which are:

- Linguistic-Verbal Intelligence
- Logical-Mathematical Intelligence
- Spatial-Visual Intelligence
- Musical-Rhythmic Intelligence
- Bodily-Kinesthetic Intelligence
- Intrapersonal Intelligence
- Interpersonal Intelligence

The questionnaire contains 28 pairs of black-and-white illustrations, including 56 pictures. Photo 3.1 below shows an example of those sets of pictures. Each picture in the pair shows a different activity, such as reading a book or listening to music. Each action portrays a characteristic of one of the seven types of intelligence, and students are asked to choose the image that reflects their preference for one of the activities. This design aims to measure learning preferences in the different domains mentioned above.

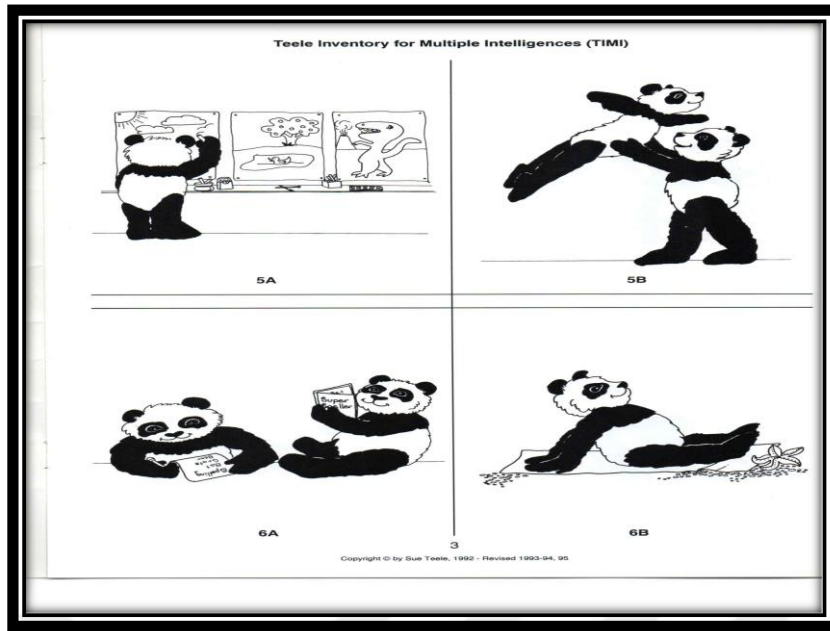


Figure 2.1. The TIMI example picture (Teele,1992)

Each picture represents a specific ability associated with an intelligence according to TMI. By choosing the pictures that they felt best expressed their abilities or intelligences, the students' intelligences were determined and ranked in terms of dominance. The process took approximately 15 minutes for each group.

The TIMI was administered at the end of the 2023-2024 academic year to assess the effect of intensive English instruction on the students' linguistic intelligence. The assessment aimed to determine if and to what extent there was a development in the students in terms of linguistic intelligence. The TIMI was used in the USA and various countries, including Türkiye.

To assess the validity of the TIMI, Teele (1995) conducted a comprehensive study that included an analysis of image correction and validity enhancement and examined test-retest reliability across three studies with samples ranging from 52 to 812 students. Test-retest reliability estimates showed results ranging from 0.46 to 0.88, depending on the type of intelligence and the retest period (Teele, 1995).

In the Turkish context, several studies have reviewed the validity of the TIMI, including a study by Göğebakan (2003) on the validity of the instrument in the Turkish educational environment and another by Oklan-Elibol (2000), Oklan-Elibol and Toğrul (2001), Özdemir (2006), and Terzioğlu (2005) that focused on examining and confirming the validity of the images used in the questionnaire.

Özdemir's (2006) study showed that the correlation between the test-retest scores was significant at the 0.01 level.

2.6 Method of Data Analysis

After data collection, the students' responses were entered into the SPSS 22 statistical software and were analyzed using descriptive statistical analyses. Thus, frequency tables and crosstabulations, which are tables that display relationships between categorical variables, were created. The results will be presented in the next chapter.



3. RESULTS

This chapter presents the results of the data analyzed descriptively using SPSS v. 22 software and cross-tabulation analyses were conducted. The study's results will be discussed according to the research questions.

3.1 FINDINGS

3.1.1 The place of linguistic intelligence as the most dominant of the students

The analysis showed that linguistic intelligence is the dominant intelligence of 11 students. This is a very low number, considering the number of participants in this study. According to the data, Linguistic intelligence was the first dominant intelligence of only 11 students (4.4%). This number is the lowest of all intelligences. The analysis revealed that Interpersonal intelligence was the most dominant intelligence of 82 students (33.1%). Bodily/Kinesthetic Intelligence followed this with 44 students (17.7%). Logical/Mathematical intelligence was the most dominant intelligence of 39 participants (15.7%). It was followed by Spatial intelligence, which was the most dominant intelligence of 33 students (13.3%). The frequency order of the students' most dominant intelligences continued with Musical intelligence, which was the most dominant intelligence of 23 students (9.3%). The sixth most dominant intelligence of the students was the Intrapersonal intelligence. Sixteen students (6.5%) had this intelligence as their most dominant intelligence. Linguistic intelligence was the last in the order of most dominant intelligences.

Table 3.1. Place of linguistic intelligence as the students' most dominant intelligence

Valid	Frequency	Percent
Linguistic	11	4,4
Logical/Mathematical	39	15,7
Spatial	33	13,3
Musical	23	9,3
Bodily/Kinesthetic	44	17,7
Intrapersonal	16	6,5
Interpersonal	82	33,1
Total	248	100,0

3.1.2 The place of linguistic intelligence among the top three intelligences of the students

The results revealed that the percentage of linguistic intelligence was considerably low as the first dominant intelligence in students, with only 11 students forming a mere 4.4% of the participants. It was the second most dominant intelligence of 23 students (9.3%). Linguistic intelligence was the third dominant intelligence for 35 students (14.1%) of the 248 students who participated in the study. The total number of students with linguistic intelligence as their first, second, and third most dominant intelligences was 69 (27.8%), which was slightly over a quarter of the participants. Table 3.2 shows the three top intelligences between students.

Table 3.2. Place of linguistic intelligence among the students' top three intelligence

Rank of Linguistic intelligence	Frequency	Percentage
1 st dominant intelligence	11	4.4 %
2 nd dominant intelligence	23	9.3 %
3 rd dominant intelligence	35	14.1 %
Total	69 students	27.8 %

3.1.3 The effect of gender on the development of linguistic intelligence

Based on the analysis, in terms of the ranking of linguistic intelligence as the first dominant, second, third, fourth, fifth, sixth, and seventh dominant intelligence in the students, the number of females (181) was higher than males (67).

The data clearly shows that female students consistently outnumbered males in terms of the ranking of linguistic intelligence. For the ranking of Linguistic intelligence as the students' first dominant intelligence, there were 7 females compared to 4 males, showing a slight advantage for females. The difference becomes more pronounced in the subsequent ranks, with 17 females and 6 males for the second dominant intelligence and 22 females and 13 males for the third dominant intelligence. The pattern repeats itself in the fourth (20 females and 13 males), fifth (47 females and 10 males), sixth rank (36 females and 11 males), and seventh rank (32 females and 10 males).

The examination of linguistic intelligence in terms of gender indicates that linguistic intelligence is significantly affected by gender; females consistently demonstrate higher dominance in linguistic intelligence across all ranks. This significant difference in representation highlights an apparent gender disparity in the development of linguistic intelligence. Table 3.3 displays the distribution of male and female students across seven ranks of dominant intelligence.

Table 3.3. Effect of gender on the development of linguistic intelligence

Linguistic intelligence Ranking by Gender	Frequency (Males)	Frequency (Females)
1 st Dominant Intelligence	4	7
2 nd Dominant Intelligence	6	17
3 rd Dominant Intelligence	13	22
4 th Dominant Intelligence	13	20
5 th Dominant Intelligence	10	47
6 th Dominant Intelligence	11	36
7 th Dominant Intelligence	10	32
Total	67	181

3.1.4 The effect of age on the development of linguistic intelligence

The results showed that age was a factor that affected the development of linguistic intelligence. In the seven age groups (18-24 years) that appeared in the analysis, younger students in the 18-20-year age groups exhibited the highest frequencies of linguistic intelligence as their primary dominant intelligence. In addition, the first three age groups had the highest scores: the 18-year group (N=98, 39.5%), the 19-year group (N=82, 33.1%), and the 20-year group (N=34, 13.7%). The median age group was 21 years (N=27, 10.9%). No student in that age group identified linguistic intelligence as their second dominant intelligence. Besides that, linguistic intelligence was one of the other intelligences of the students in that group. In the 22- to 24-year age groups, the primacy of linguistic intelligence was not observed in any student. The total number of students whose most dominant intelligence was linguistic intelligence was 11. Surprisingly, this made linguistic intelligence the seventh and lowest in ranking.

The data on the students' second dominant intelligence per age showed differences. Linguistic intelligence was the second dominant type for 12 students in the 19-year-old group. The 20-year-old group with seven students followed this.

For the 18-year-old group, the number was two, followed by one student for each of the 22- and 24-year-old groups. The total number of students whose second dominant intelligence was linguistic was 23. This was the sixth highest ranking in terms of seven intelligences.

The findings showed that the number of students identifying linguistic intelligence as their third dominant type was 14 in the 19- and 20-year-old groups. The number was 4 in the 21-year-old group, followed by three students in the 18-year-old group. No student in the 22-, 23-, and 24-year-old groups considered linguistic intelligence their third-ranking dominant intelligence. The total number of students who ranked linguistic intelligence as their third intelligence was 35. This was the fourth highest ranking among the seven intelligences.

As for the ranking of linguistic intelligence as fourth, the highest number appears in the 20-year-old group with 14 students, followed by 10 students in the 19-year-old group, and the 21-year-old group was third with five students. The 18- and 22-year-old groups succeeded with two students each. There were no students in the 23- and 24-year-old groups. The total number of students per age who ranked linguistic intelligence as their fourth intelligence was 33. This was the fifth highest ranking.

The counts for linguistic intelligence as the fifth dominant type peaked in the 19-year-old group with 21 students. This was followed by the 20-year-old group with 17 and the 18-year-old group with 11 students. Decline is seen in the 21-year-old group with six students, which continues to decrease significantly to 1 student in the 22- and 23-year-old groups. There was no student in the 24-year-old group. The total number of students ranked linguistic intelligence as their fifth intelligence was 57. This is the highest frequency in linguistic intelligence per age group ranking and the first highest ranking in terms of seven intelligences.

Linguistic intelligence was ranked the sixth dominant intelligence, reaching a peak with 20 students in the 19-year-old group. This was followed by the 20-year-old group with 17 students. Seven students in the 18-year-old group followed these groups. Two students were in the 21-year-old group. There was one student in the 22-year-old group. In the 23- and 24-year-old groups, there were no students. The total number of the students who ranked linguistic intelligence their sixth intelligence was 47. This is the second highest ranking of the seven intelligences.

Linguistic intelligence appeared as the seventh dominant type for 17 students in the 19-year-old group, followed by 10 students in the 20-year-old group, eight students in the 21-year-old group, and seven students in the 18-year-old group. No students were in the 22-, 23-, and 24-year-old groups. The total number of students who ranked linguistic intelligence as their seventh intelligence was 42. This is the third highest ranking among the seven intelligences. Table 3.4 presents a visual summary of the results:

Table 3.4. Effect of age on the development of linguistic intelligence

Age	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
18,00	2	2	3	2	11	7	7
19,00	4	12	14	10	21	20	17
20,00	3	7	14	14	17	17	10
21,00	2	0	4	5	6	2	8
22,00	0	1	0	2	1	1	0
23,00	0	0	0	0	1	0	0
24,00	0	1	0	0	0	0	0
Total	11	23	35	33	57	47	42

3.1.5 The effect of types of high school on the development of linguistic intelligenc

The participants were graduates of 12 different types of high schools. Of those, 11 were Turkish high schools, and one was international. The term “International” was used to refer to those high schools as the international students who participated in this study were from different countries.

Of the 11 types of Turkish high schools, the graduates of Anatolian High Schools led the list in all seven rankings in terms of linguistic intelligence, reaching the highest numbers across all categories (N=147), representing 59.27%. This refers to the fact that English education in those schools effectively encouraged the development of language skills. Another high school type whose graduates appeared in all rankings of linguistic intelligence was the Anatolian Religious high schools (N=18), which represented 7.26%, even though the numbers were considerably lower compared to the graduates of Anatolian high schools. Graduates of all other Turkish high school types either ranked linguistic intelligence low or did not rank it at all.

Another high school type whose graduates appeared to have linguistic intelligence in all ranks was international high schools (N=19), representing 7.66%. All international students who participated in the study reported that linguistic intelligence was one of their intelligences. Table 3.5 presents the results in tabular form.

Table 3.5. Effect of types of high school on the development of linguistic intelligence

High School Type	Rank of Linguistic Intelligence						
	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
Distance Education	0	0	4	3	5	3	1
Anatolian Religious	1	2	4	2	5	1	3
Anatolian	5	14	18	19	34	35	24
Anatolian Medical Vocational	1	0	0	0	0	0	0
Science	0	3	1	3	4	2	5
Vocational & Technical Anatolian	0	1	1	1	1	5	0
Private Anatolian	2	0	0	1	0	0	0
Private Science	0	0	0	0	0	1	1
Private	0	0	0	1	3	2	6
Private Vocational & Technical Anatolian	0	1	0	1	0	2	1
Social Sciences High School	0	0	2	0	1	0	0
International High School	3	2	4	3	4	1	1
Total	11	23	35	33	57	47	42

3.1.6 The effect of years of english learning on the development of linguistic intelligence

The results showed that all students learning English for one year (N=26) reported having linguistics intelligence in one of the seven ranks. These students are the students who learned English through the one-year-intensive English program. These students form 10% of the total participants.

Besides those students, three groups of students stated that linguistic intelligence was one of their multiple intelligences. Those students had been learning English for 8, 9, and 10 years. Of those, the highest numbers of students who reported having linguistic intelligence in all ranks were the ones who had been learning English for 9 years (N=114). These students formed 46% of the total number of the participants in this study. This group was followed by those learning English for 10 years (N=60). This group formed 24% of the participants. They must be graduates of Anatolian high schools who started learning English in preparatory classes. The third group that ranked linguistic intelligence were those who had been learning English for 8 years (N=14). This group formed 6% of the participants. The

total number of these groups is 188 (75.8%). The length of learning time for the students in these three groups might be interpreted as them being students in an Anatolian high school with preparatory classes.

It is unfortunate that students who were graduates of other Turkish high schools were not comparable in terms of possessing linguistic intelligence even though they are native speakers of at least their mother tongue, Turkish. Table 3.6 presents information of the effect of years of learning English on the development of linguistic intelligence by the students.

Table 3.6. Effect of years of english learning on the development of linguistic intelligence

Years of English learning	Rank of Linguistic Intelligence						
	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
1 Year	1	3	5	5	3	3	6
2 Years	0	0	0	1	1	1	0
3 Years	1	1	1	0	1	0	0
4 Years	0	0	1	0	0	0	0
5 Years	0	0	0	0	1	1	1
6 Years	0	0	2	1	0	3	2
7 Years	0	0	0	1	1	1	2
8 Years	1	2	2	3	4	1	1
9 Years	5	11	18	12	26	21	21
10 Years	3	6	6	5	19	13	8
11 Years	0	0	0	2	1	3	1
12 Years	0	0	0	2	0	0	0
13 Years	0	0	0	1	0	0	0
Total	11	23	35	33	57	47	42

3.1.7 The effect of department after preparatory school on the development of linguistic intelligence

Students who want to attend the Psychology and International Relations departments generally have higher rankings in linguistic intelligence. In the Psychology department, there is a strong concentration in the 3rd, 4th, and 5th dominant positions, which suggests a notable presence of linguistic skills. This trend aligns well with the nature of these fields as they require effective communication and strong analytical abilities. On the contrary, departments like Mathematics, Computer Engineering, and Electrical and Electronic Engineering tend to have fewer students ranking linguistic intelligence as their top or second dominant type. Instead, these students are more frequently found in the 5th and 7th ranks, indicating a preference for other intelligence types, such as logical-mathematical or spatial intelligence. In the case of majors like Management,

Finance, and Public Administration, the ranking of linguistic intelligence appears to be moderate, usually falling between the 4th and 6th positions. This suggests that while linguistic skills are present, there are other forms of intelligence for most students in these fields.

Furthermore, the Chemical Engineering department exhibits a broader distribution across all ranks, with many students showing linguistic intelligence in the mid-range positions (3rd to 5th ranks). Additionally, for the Physics department, the representation of linguistic intelligence is relatively lower, with fewer students ranking it highly, which aligns with a stronger inclination towards logical-mathematical intelligence. In Biology, however, there is a more balanced distribution, with linguistic intelligence appearing more frequently in the middle ranks. Table 3.7 presents the results.

Table 3.7. Effect of department after preparatory school on the development of linguistic intelligence

Department after preparatory school	Rank of Linguistic Intelligence						
	1st	2nd	3rd	4th	5th	6th	7 th
Biology	2	3	5	2	7	5	4
Physics	1	2	2	0	1	1	2
Chemistry	1	2	2	3	4	8	3
Mathematic	1	4	2	3	13	1	10
Psychology	2	5	10	11	12	9	8
Economics	0	1	0	2	3	0	0
Management	0	0	1	1	2	3	0
Public Administration	0	0	0	0	1	1	0
Finance	0	0	1	1	0	1	0
International Relations	1	1	4	3	2	8	5
Computer Engineering	1	0	1	3	2	2	2
Electrical & Electronic Engineering	0	3	3	0	2	2	2
Chemical Engineering	2	2	1	2	7	6	4
Architecture	0	0	3	2	1	0	2
Total	11	23	35	33	57	47	42

4. DISCUSSION

This study investigated the extent of language development of preparatory school students who attended a one-year intensive English as a foreign language program at a state university in Türkiye. To determine the extent of development in the students, it used the TMI framework, which primarily associates language with linguistic intelligence, and sought answers to seven research questions. The questions were formulated to analyze the factors influencing linguistic intelligence, which were gender, age, and external factors such as the type of high school students graduated from, the length of the prior English learning period, and the department students would attend after preparatory school. The Teele inventory of multiple intelligences was used to collect data to provide answers to the research questions. Descriptive statistical analyses were made subsequently.

The findings showed that one year of intensive foreign language teaching did not have any significant impact on the linguistic intelligence of the participants, even though language is primarily associated with linguistic intelligence. This result underscores the fact that teaching English using teaching methods that do not aim to develop linguistic intelligence in students or using textbooks that do not identify the intelligences of students and aim to develop it, no matter how recent they may be, does not create any significant effect on the development of that intelligence. The transformative potential of TMI in intensive English language education lends itself as a viable alternative at this point.

The study showed that linguistic intelligence was the most dominant intelligence of only 11 (4.4%) students out of 248 students in the sample. This result suggests that one year of intensive English language education, the way it was conducted, was not enough to make linguistic intelligence the dominant type in most students. This finding aligns with the work of Razmjoo (2008), who examined the link between TMI and language proficiency among Iranian EFL learners. The study found no significant correlation between linguistic intelligence and students' overall language proficiency. Instead, the interplay of multiple intelligences, such as interpersonal and intrapersonal intelligence, contributed more significantly to language learning success.

The results also showed that linguistic intelligence was among the top three dominant intelligences in 69 students (27.8%) out of 248 participants in the sample.

This finding shows that after one year of nothing but English-only intensive education, linguistic intelligence was among the top three dominant intelligences of slightly over 1/4 of the entire student population. The natural expectation would be a much higher number and percentage for anyone who considers the effect of a one-year-long intensive foreign language education on the ranking of linguistic intelligence.

To increase the effectiveness of intensive preparatory school instruction in the future, TMI stands out as a prominent alternative because there are studies that employ TMI and have obtained commendable results. For example, Sistani and Hashemian (2016) examined the relationship between TMI and Iranian preparatory school students' vocabulary learning strategies they preferred in the activities they did while learning vocabulary and their MI types. They state that "overall results revealed that the participants made a significant difference regarding their decisions for particular Vocabulary Learning Strategies (VLSs), as intrapersonal, interpersonal, linguistic, and visual learners predicted more specific and significant VLSs in comparison with other types of intelligences" (p. 216).

As for gender as a factor in the development of linguistic intelligence, the results showed that females outnumbered males in terms of linguistic intelligence. The ratio was 7 to 4 in favor of female students. The superiority of females in this study is in line with previous studies, such as Modirghamene and Azhiri (2012), whose study included male and female participants and placed them into a control group in which traditional reading instruction was used and an experimental group that integrated TMI in teaching practices. Their results demonstrated that females outperformed males in reading comprehension, indicating superior linguistic intelligence among female students. Thus, it may be stated that gender is a factor in terms of linguistic intelligence, with females generally demonstrating stronger abilities in this domain. This difference may highlight the importance of considering gender dynamics when designing teaching and educational curricula.

The results of this study also showed age as a factor that played a role in determining the ranking of linguistic intelligence in the participants. Linguistic intelligence was more prevalent among younger students, specifically among students aged 19 years. These results suggest that younger ages may be more responsive to intensive English language instruction, given the greater neural flexibility and language learning capacity at this age. The results may also be

interpreted as older students facing challenges such as a lack of flexibility or anxiety while learning a new language.

As for the effect of the type of high school students graduated from, the results showed that Anatolian high school graduates (N=147, 59%) appeared in all seven rankings regarding linguistic intelligence. This was the highest number and percentage. Another type of domestic high school whose graduates appeared in all seven rankings in terms of linguistic intelligence was the Anatolian religious high school, with 18 students (7%). The graduates of these two high school types formed a total of 165 students, representing 66% of the sample. As English is a significant component of the curricula of these schools, this may be interpreted as a positive correlation and a product of emphasis on language teaching. All graduates of international high schools, which totaled 19 students (8%), also reported having linguistic intelligence as one of their intelligences. The remaining domestic high school graduates (N=64, 26%) reported not having linguistic intelligence in one of the seven rankings. Based on the findings, it may be stated that schools that give greater importance to foreign language teaching in their curricula may be more supportive of developing students' linguistic intelligence. This is in line with Ahvan and Pour (2016), who identified a moderate correlation between linguistic intelligence and high school students' academic performances, suggesting that environments conducive to language learning can positively influence academic achievement. Similarly, research by Şener and Çokçalıskan (2018) suggests that tailoring teaching strategies to students' dominant intelligences can also enhance their learning experiences. Thus, it is logical to conclude that students from schools that place emphasis on language education are more likely to have an advantage in developing their students' linguistic intelligence due to the greater exposure to language-oriented activities.

As a factor, the length of prior learning also appears to have an effect on linguistic intelligence. The results indicate that there are statistically significant differences in terms of the period of English language learning. The data revealed that the number of students who learned English for 6-10 years was 201 (81%), and they formed the majority. It was encouraging to see that 26 students (10%) in the population reported not having received prior instruction in English before and were learning English for one year in the preparatory school. The ranking of linguistic intelligence in the students who studied English for 2-5 years yielded

considerably low numbers; the total for these students was 11 (4%). Finally, the number of students who reported to have studied English for 11-13 years was 10 (10%). These results show that schools that give English a major part of their curricula and offer preparatory class English education, such as Anatolian high schools, Anatolian religious high schools, and university preparatory schools do make a positive contribution to the linguistic intelligence of the students even though it may not be at a high level as expected.

The results showed that there was also a relationship between linguistic intelligence and the departments students would be attending after preparatory school. The prospective students of the Psychology and International Relations departments reported having higher rankings in linguistic intelligence than students in other majors. This suggests that majors that require strong communication and linguistic skills may function as the driving force for students to develop their linguistic abilities. The results show similarities with some of the previous studies such as Visser, Ashton, and Vernon (2006) who suggest that students that show lower rankings in linguistic intelligence often gravitate toward fields like mathematics, engineering, and the physical sciences. These fields tend to attract students with strengths in logical-mathematical intelligence, which is evident from the findings of this study, where Mathematics, Computer Engineering, and Electrical and Electronic Engineering students show a lower dominance of linguistic intelligence. Sadeghi and Farzizadeh (2012) also explored the connection between intelligence profiles and the selection of university majors among Iranian students. Their findings indicated a significant relationship between linguistic intelligence and preferences for arts and social sciences, as well as a lower representation of linguistic dominance among students in engineering and technical fields.

5. CONCLUSION

This study examined the development of linguistic intelligence among preparatory school students at a state university through the lens of TMI by highlighting the effect of intensive English language education on the development of linguistic intelligence. It sought answers to a set of research questions aimed at understanding the relationship between intensive English language education and linguistic intelligence, analyzing factors that affect its development, such as gender, age, educational background, and length of the language learning period, to determine whether they would have an impact on the students' linguistic intelligence. The findings revealed that linguistic intelligence was not dominant among students.

The results shed light on the modest progress made, offering practical recommendations for enhancing language education. In a nutshell, the results imply that a year of intensive English language instruction based on a current mainstream textbook claimed to be suitable for everybody can produce significant improvements in linguistic intelligence only for a small percentage of students. The educational process needs more comprehensive strategies to include more students actively participating in the teaching/learning process by taking into account their dominant intelligences to develop linguistic intelligence to maximize the benefit of intensive foreign language education.

The results showed that linguistic intelligence was the most dominant intelligence of a small percentage of students (4.4%), and it appeared among the top three types of intelligence among a relatively larger percentage of the students (27.8%). This disparity reflects that intensive education, despite its importance, still needs to be adapted to meet the diverse needs of students. The results also showed that factors such as gender, age, and duration of learning played an important role in enhancing linguistic intelligence, with females outperforming males, younger students showing better results, and longer duration of English learning being associated with a significant improvement in linguistic intelligence. The analysis indicates that linguistic intelligence was not only affected by intensive education programs but was also related to external factors such as students' educational backgrounds and future majors. Students planning to study majors such as international relations and psychology showed higher levels of linguistic

intelligence, indicating that this type of intelligence can be decisive in choosing academic and career paths.

A few recommendations based on this study's findings are in order. Firstly, it is evident that in any traditional teaching situation, regardless of how up-to-date it may be, the teaching content is mainly composed of one textbook and the activities included in it. Unless the context is diversified to recognize intelligences of individual students and prepare curricula to cater to them, increasing the number of learners who benefit from instruction at a desired high level would not happen. Therefore, curricula for teaching English as a foreign language should consider designing programs that suit individual differences to develop students' linguistic intelligence. This study serves as a step in understanding the impact of commonplace intensive English language education on linguistic intelligence. The results emphasize the importance of adopting educational curricula that take into account individual differences of students to develop curricula and educational strategies that support more effective language learning, enhancing students' chances of achieving academic performance.

Secondly, customizing instruction to cater to learners with different learning preferences by enhancing the use of available educational technology and introducing new technological tools such as artificial intelligence-based applications in addition to digital and internet-based tools that have been in use to support individual learning would make learning more effective and permanent.

Assessment frameworks should also integrate alternative formats to assess students' abilities better. An example is the study of Tiansoodeenon and Sithitikul (2024), who explored the application of TMI in teaching English. They suggested using various methods to assess students' capabilities, as traditional evaluations may not effectively measure all types of intelligence.

As is the case in most research studies, this study also has limitations. The first one is the limitation regarding data collection. The data were collected at the end of the academic year to make a summative assessment of the linguistic intelligence development of the students. Studies should be conducted to collect data from volunteer students at the beginning of an academic year and assess their development at the end to determine the extent of development to compare the initial and final states of instruction. Expanding this research to include longitudinal

studies could provide deeper insights into the sustained impact of TMI-based education.

Another limitation has to do with the sample. The data were collected from one university preparatory school students. This may limit the generalization of the results. More universities should be included in a study of this kind to obtain more reliable results and to enable comparisons.

As the final word, the educational landscape continues to evolve; TMI not only empowers students but also enhances the overall learning experience, making it more responsive to individual growth and development. Future research should continue exploring the long-term effects of TMI in foreign language education, and institutions should invest in teacher training programs to effectively implement it. Ultimately, this study affirms that recognizing the multiplicity of human intelligence can revolutionize language education, offering more meaningful and effective learning opportunities for all students.

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