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# Students' Seat Choice and Intelligence Type: In Pursuit of a Relationship

**Somaye Hajizadeh-Farkoush[1], Shahabaddin Behtary[2], Alireza Asltaleb Maghferat[3]✉**

1. MA in ELT and Freelance Researcher, Tehran, Iran

2. Lecturer in ELT, Department of English, Ard. C., Islamic Azad University, Ardabil, Iran

3. Ph.D. Candidate in Applied Linguistics/TESOL, Department of English, Faculty of Persian Literature and Foreign Languages, University of Tabriz, Tabriz, Iran, asltalebmaghferat@tabrizu.ac.ir

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## ABSTRACT

**Objective:** This study aimed to investigate the possible correlation between the students' ideal seat choices and their multiple intelligence types in the classroom. Also, the study sought to identify the dominant intelligences in each row.

**Methods**: To this end, 107 male high school students, aged 15 to 18, from grades one, two, and three were randomly selected for participation. A two-part questionnaire, developed by Armstrong (2018), was administered to each student: the first part was concerned with the seven intelligences, and the second part asked students to indicate their preferred seat and row. Data were analyzed using Pearson correlation and the Friedman test.

**Results**: The results revealed significant correlations only between students' verbal/linguistic and interpersonal intelligences and their seat choices. These correlations were found to be strongly negative, indicating that students' verbal/linguistic and interpersonal intelligences tended to decrease as they moved toward the back seats of the classroom. No significant correlations were found between seat choice and the other five intelligences (logical/mathematical, spatial/visual, body/kinesthetic, musical/rhythmical, and intrapersonal). The study also found that, except for the fourth row, a dominant intelligence was identified in each row. Overall, logical/mathematical and spatial/visual intelligences were the most prominent and consistent across all rows.

**Conclusions**: The findings underscore the need to develop student-centered teaching strategies, curricula, and materials that take into account the dominant intelligences in the classroom.

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## Introduction

Each class has its own order system, with the most common seating arrangements being in rows and columns. Within this structure, students show different preferences for seating—some prefer to sit in the front rows, while others choose the middle or back rows (Lu et al., 2023; Nehyba et al., 2023; Wasendorf et al., 2023). Benedict and Hoag (2004) discovered that when students enter a classroom, they do not choose their seats randomly; as a matter of fact, there are some factors that influence this selection. Their findings showed that the students' personality types are one of the most effective factors in the seat choice. Supporting this finding, Hemyari et al. (2013) and Sarwar et al. (2024) mentioned that students' seating preferences are correlated with their personality traits. In line with this, Jorgenson (2000) pointed out that teachers should know their pupils, and they should be aware that all of them have "unique learning patterns" (p. 1). He also asserted that this awareness helps teachers choose the appropriate methods and techniques for each classroom and student. Similarly, Bayona-Oré (2023) asserted that given that each student has a distinct approach to gaining motivation and absorbing information, optimizing outcomes in the teaching/learning process necessitates an acknowledgment of the individual learning styles of each student. This acknowledgment can contribute to an inclusive and effective learning environment (Madhu & Bhattachryya, 2023).

Building on these perspectives, in identifying the psychology of students' seating choices, Gardner's theory of multiple intelligences (MI) offers a valuable framework. Richards and Rodgers (2014) believe that this theory is part of a set of teaching approaches that emphasize the importance of acknowledging and addressing the differences among students in the instructional process. They further state that the theory is concerned with "a learner-based philosophy that characterizes human intelligence as having multiple dimensions that must be acknowledged and developed in education" (Richards & Rodgers, 2014, p. 230). According to Zobisch et al. (2015) and Wu and Ye (2021), this theory promotes whole-brain learning by engaging multiple brain areas in meaningful tasks, rather than encouraging artificial memorization of rules and data.

Historically, intelligence was largely measured through the IQ test developed by Alfred Binet, which assumed intelligence to be a fixed trait determined by language and mathematical ability (Darling-Hammond et al., 2002; Lane, 2000; Gardner, 2006). However, in response to this narrow view, Gardner began extensive research on intelligence, examining individuals such as savants,

prodigies, and those with brain damage (Cherry, 2025; Dillon, 2006). Gardner (1999) concluded that intelligence is not unitary but multiple, identifying seven distinct intelligences:

Verbal/Linguistic intelligence: it is the ability to learn languages and understand the meanings of the words. Furthermore, it is the ability to write effectively. As a matter of fact, "lawyers, speakers, writers, [and] poets" have high linguistic ability (p. 41).

Logical/Mathematical intelligence: it is the ability to use and work with numbers effectively, to solve problems and issues logically and scientifically. "Mathematicians, logicians, and scientists are in this group" (p. 42).

Musical/Rhythmical intelligence: it is the ability to perform and compose songs and music as well as understand melodies, rhythms, and beats.

Body/Kinesthetic intelligence: it is the ability to use the body to create objects, manipulate things, solve special problems, and perform some skills with the body. This type of intelligence is an essential factor for "dancers, actors, athletes, craftspeople, surgeons, bench-top scientists and mechanics" (p. 42).

Spatial/Visual intelligence: it is the ability to know the shapes, colors, spaces, and patterns of the objects. "Sculptors, surgeons, chess players, graphic artists, or architects" will have higher spatial intelligence (p. 42).

Interpersonal intelligence: it is the ability to communicate with people and understand individuals' motivations and emotional feelings while making a social relationship. "Salespeople, teachers, clinicians, religious leaders, political leaders, and actors" require this intelligence (p. 42).

Intrapersonal intelligence: it is the ability to know oneself. That is, to understand one's own emotions, motivations, fears, skills, and capacities in order to express oneself in life.

Each of these intelligences is connected to unique abilities, and individuals may possess different combinations and strengths across them.

Importantly, Gardner's view shifted the perspective on intelligence from being fixed to dynamic, capable of development across a lifetime (Dillon, 2006; Smith, 2001). Armstrong (2018) emphasized three major factors influencing intelligence development: biological endowment, personal life history, and cultural-historical background. As a result, education must provide opportunities to nurture different intelligences. Consequently, MI theory has become an influential framework for promoting inclusivity, avoiding rote learning, and designing student-centered

classrooms that engage varied learning strengths (Gottfredson, 2004; Richards & Rodgers, 2014; Mariappan, 2024). Teachers are encouraged to diversify techniques and encourage students to recognize and develop their talents (Armstrong, 2018). MI also benefits educators by fostering creativity and reflective teaching (Abenti, 2020).

Given this background, the theory is especially relevant to classroom seating arrangements. One of the most common seating patterns is rows and columns (Norazman et al., 2019). Researchers argue that teachers should attend carefully to where students choose to sit, since seating position significantly affects classroom participation, attention, and learning outcomes (Seet et al., 2022; Tobia et al., 2022; Yang et al., 2022). Benedict and Hoag (2004) found that seat choice is not random but strategic, reflecting students' intentions to maximize learning (Kehan et al., 2024). In line with this, other studies have linked seat choice to personality types, showing that extroverted or confident students often sit in front, while quieter or more introverted students gravitate to the back (Hemyari et al., 2013; Kehan et al., 2024; Sarwar et al., 2024).

Furthermore, empirical findings across contexts demonstrate the impact of seating. For example, Zomorodian et al. (2012) in Iran reported that students seated in front participated more actively and achieved higher performance. Similarly, Shernoff et al. (2017) in the United States showed that back-row students reported lower engagement and grades, while Annisa (2021) in Indonesia found that front-row students performed significantly better in English-speaking tasks. Kehan et al. (2024) also noted that front-row students tend to exhibit stronger motivation and confidence, while back-row students often prefer to avoid attention. Therefore, as Stires (1980) suggested, paying attention to these patterns can help teachers tailor instructional strategies to students' needs.

Despite these valuable insights, while previous studies have explored the impact of seating on behavior and performance (Shernoff et al., 2017; Annisa, 2021), none have specifically examined the relationship between seat choices and intelligence types as outlined in Gardner's MI theory. Although some research links seating preferences to personality traits (Hemyari et al., 2013; Kehan et al., 2024; Sarwar et al., 2024), the connection between intelligence types and seat selection remains an unexplored area of inquiry.

To address this gap, the present study aims to examine the role of MI theory in students' seating behavior. The primary objective is to investigate the relationship between students' MI types and their preferred classroom seating positions, in order to provide teachers with insights for adapting

teaching strategies that align with learners' strengths. This study seeks to demonstrate each student's dominant intelligence types based on seating behavior in the classroom and determine the kinds of intelligences students have in different rows. By understanding this relationship, teachers can enhance their teaching strategies and adapt their approaches to better meet the needs of their students.

Accordingly, the following two research questions were posed:

1. What specific associations exist between MI types and preferred seating rows?
2. Which MI types are most dominant among students seated in different rows?

## Material and Methods

### Design

This study utilized a quantitative correlational design to explore the relationship between students' multiple intelligences (predictor variable) and their preferred seat choice (outcome variable) in the classroom. This design allows for the examination of potential associations between these variables, providing insights into how different intelligence types may influence students' seating preferences.

### Participants

The participants in this study consisted of male high school students from Andarzgu High School in Ardabil, Iran. A total of 107 students were included in the sample, representing students from grades one, two, and three. The participants, aged between 15 and 18 years, were selected through a random cluster sampling method to ensure a diverse and representative sample of the student population. Each cluster consisted of one intact classroom from each of the above-mentioned grades.

### Instrumentation

In this study, data were collected through a two-part questionnaire (see Appendix) developed by Armstrong (2018). The first section of the questionnaire focused on the seven intelligences, which were translated into Persian for the study. This section consisted of 70 items, with ten items dedicated to each of the following intelligences: verbal/linguistic, logical/mathematical, spatial/visual, musical/rhythmical, body/kinesthetic, interpersonal, and intrapersonal.

The second section of the questionnaire was concerned with seating patterns, and the students were asked to mark their ideal row and seat in class. The class pattern in this questionnaire was similar to students' own class patterns. The aim of the first section was to gather information related to the strengths and weaknesses of the students considering their various intelligences, and the second section aimed to discover the effect of these intelligences on students' seat choices. The reliability of the questionnaire (after being piloted with a homogeneous group of 32 students) was calculated using Cronbach's Alpha, which yielded a value of .745. Additionally, its validity was confirmed by competent English professors and teachers.

**Data Collection and Analysis Procedures**

Before data collection, the researchers obtained informed consent from the participants and provided a briefing on ethical considerations, including confidentiality and anonymity. To minimize the effect of the research condition on students' seat choices, the participants were instructed to select their preferred seat as they normally would during regular classes, without any suggestion of what the correct or expected choices might be. The seating pattern in the questionnaire was closely similar to their actual classroom layout to facilitate natural seat choices. Additionally, the researchers highlighted the importance of anonymity and confidentiality in the study to encourage honest responses, while also creating a relaxed atmosphere free from pressure or scrutiny to minimize potential biases. Following this, both questionnaires were administered directly to the participants. It is worthy to note that, to reduce reactivity effects on seat choice preferences, the second part of the questionnaire was administered before the first part to prevent potential guessing of the study’s focus and faking of seat choices accordingly. In cases where participants had questions or required clarification, the researchers provided immediate assistance. Sufficient time was allocated to ensure that all participants could thoroughly respond to the questions in both questionnaires. Additionally, the questionnaires were designed using clear and accessible language to minimize the potential for misunderstandings. In the MI questionnaire, responses were evaluated by grading the statements on a 5-point Likert scale ranging from always (5) to often (4), sometimes (3), rarely (2), and never (1). Furthermore, in the questionnaire related to seating pattern, responses were evaluated by grading the rows on a 5-point Likert scale ranging from the first row (1) to the second row (2), the third row (3), the fourth row (4), and the fifth row (5).

As for the analyses of the obtained data, SPSS software (version 28) was used. Pearson correlation was employed for the possible relationships, and the Friedman test was used to determine the dominant intelligence(s) in each row. It is worthy to note that before any statistical analysis, care was taken about its assumptions to be met.

**Limitations of the Methodology**

The methodology of this study, despite its strength, is open to some limitations. The 5-point Likert scale for seating choices considers the preference as one line from front to back. This, however, simplifies the characterization of students' choice, as a student's perfect seat could be in the middle rows rather than a progressively more distant location, thus indicating that preference might not be a continuous variable but non-linear or even categorical. Students' decision-making processes can be more accurately depicted if future studies use qualitative methods such as interviews or a categorical variable for each row.

Moreover, the research did not consider multiple external circumstances that might be at work like the relations between peers, teacher-assigned seating policies and even the general size and layout of the classroom. These hidden factors may affect seat selection aside from the student's profile of intelligence. It would be advisable that prospective studies manage or quantify these factors in order to shed more light on the connection between seating preference and intelligence.

## Results

In this study, two hypotheses were formulated. In order to test these hypotheses, the data were obtained through two questionnaires with 107 participants. The purpose of the first questionnaire was to gather information about the strengths and weaknesses of the students considering their various intelligences, and the purpose of the second questionnaire was to discover the effect of these intelligences on the students' seat choices. Then the gathered data were analyzed using the SPSS software (version 28). In all, the purpose of this section is to answer the following questions in terms of data analyses.

***What specific associations exist between MI types and preferred seating rows?***

The results of the first analysis presented in Table 1 show that the correlation coefficient between the verbal/linguistic intelligence and the seat choice is -.125. This correlation is significant at the

0.05 probability level. This relationship is strongly negative: an increase in one is a decrease in the other. In other words, it means that students' verbal/linguistic intelligence decreases as they go toward back seats.

The correlation coefficient between interpersonal intelligence and students' seat choices is -.239. This correlation is significant at the 0.01 probability level. This relationship is also strongly negative. Considering seat selection and the other five types of intelligence, we did not observe any significantly strong correlations, as the correlation coefficients for the other intelligences were greater than .05 ($\rho > .05$).

**Table 1.** Pearson correlation for the students' MI types and their ideal seat choices

| Intelligence Type | Seat Choice |
|---|---|
| Verbal/Linguistic | -.125* |
| Logical/Mathematical | -.088 |
| Spatial/Visual | -.153 |
| Body/Kinesthetic | -.042 |
| Musical/Rhythmical | .163 |
| Interpersonal | -.239** |
| Intrapersonal | -.160 |

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

**Which MI types are most dominant among students seated in different rows?**

To analyze the second hypothesis and identify the dominant intelligences in each row, the Friedman test was employed. As it is clear in Table 2, there is a statistically significant difference among the students' intelligence types who chose the first row and those who chose the other rows ($x^2 = 42.769$, N = 36, $\rho = .000$ and df = 6). Comparing the mean rank of their intelligences in the first row, Figure 1 below shows that the logical/mathematical intelligence is the strongest, followed by interpersonal intelligence, spatial/visual intelligence, verbal/linguistic intelligence, intrapersonal intelligence, body/kinesthetic intelligence, and finally musical/rhythmical intelligence.

**Table 2.** Friedman test for the dominant intelligences in the first row

| N | 36 |
|---|---|
| Chi-Square | 42.679 |
| *df* | 6 |
| Asymptotic Sig. | .000 |

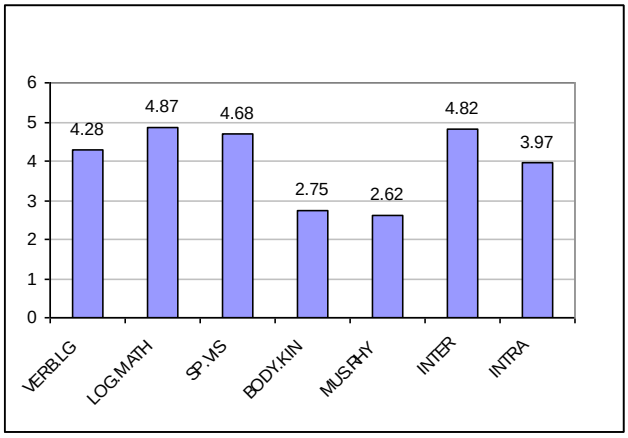


**Fig. 1.** Mean rank of MI types in the first row

As shown in Table 3, there is a statistically significant difference among the intelligence types of the students who chose the second row and those who chose the other rows ($x^2$ = 26.626, $N$ = 21, $\rho$ = .000 and $df$ = 6). As it is clear in Figure 2 below, the obtained result of ranking shows that in the second row, students' spatial/visual intelligence is the strongest, followed by logical/mathematical intelligence, interpersonal intelligence, intrapersonal intelligence, verbal/linguistic intelligence, musical/rhythmical intelligence, and finally body/kinesthetic intelligence.

**Table 3.** Friedman test for the dominant intelligences in the second row

| N | 21 |
|---|---|
| Chi-Square | 26.626 |
| *df* | 6 |
| Asymptotic Sig. | .000 |

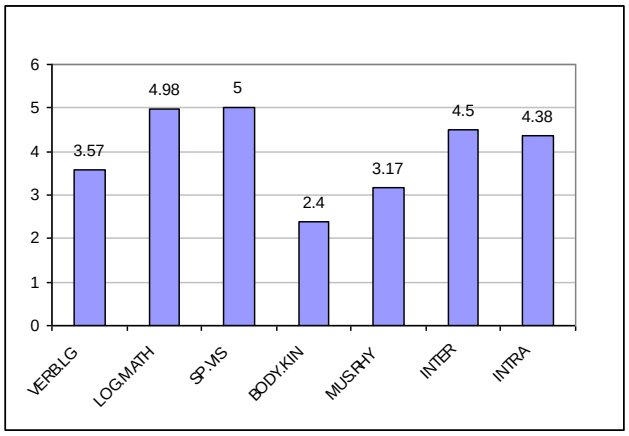


**Fig. 2.** Mean rank of MI types in the second row

According to Table 4, there is a statistically significant difference among the intelligence types of the students who chose the third row and those who chose the other rows ($x^2$= 31.069, $N$ = 20, $\rho$ = .000 and $df$ = 6). Based on the ranking, Figure 3 below shows that in this row, logical/mathematical intelligence is the strongest, followed by spatial/visual intelligence, interpersonal intelligence, verbal/linguistic intelligence, intrapersonal intelligence, body/kinesthetic intelligence, and finally musical/rhythmical intelligence.

**Table 4.** Friedman test for the dominant intelligences in the third row

| N | 20 |
|---|---|
| Chi-Square | 31.069 |
| *df* | 6 |
| Asymptotic Sig. | .000 |

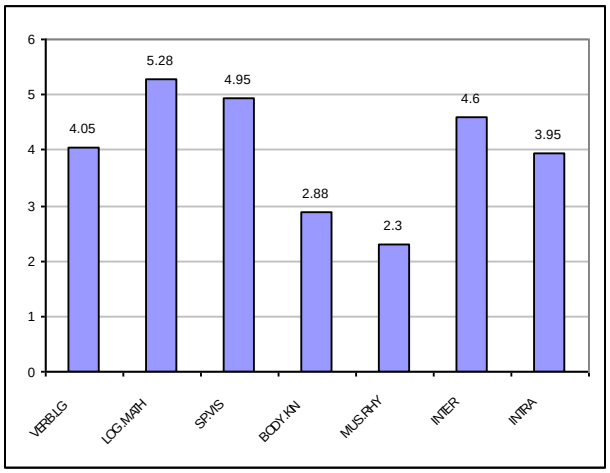


**Fig. 3.** Mean rank of MI types in the third row

Table 5 illustrates that there are not any statistically significant differences among intelligence types of the students who sat in the fourth row and those who sat in the other rows ($x^2$ = 7.363, $N$ = 9, $\rho$ = .289, $df$ = 6), as $\rho$ > .05.

**Table 5.** Friedman test for the dominant intelligences in the fourth row

| N | 9 |
|---|---|
| Chi-Square | 7.363 |
| *df* | 6 |
| Asymptotic Sig. | .289 |

Table 6 demonstrates that there is a statistically significant difference among intelligence types of students who chose the fifth row and those who chose the other rows ($x^2$ = 19.159, $N$ = 21, $\rho$ = .004, $df$ = 6). In the ranking, the highest intelligence in the fifth row is the logical/mathematical intelligence, and the lowest one is the body/kinesthetic intelligence, as illustrated in Figure 4 below.

**Table 6.** Friedman test for the dominant intelligences in the fifth row

| N | 21 |
|---|---|
| Chi-Square | 19.159 |
| *df* | 6 |
| Asymptotic Sig. | .004 |

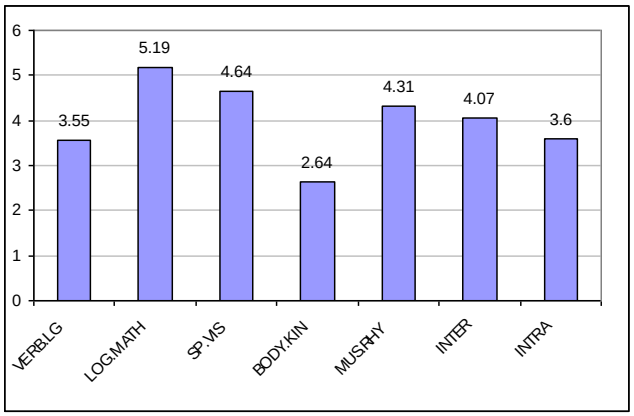


**Fig. 4.** Mean rank of MI types in the fifth row

## Discussion

In this study, two hypotheses were under consideration, and two variables were at work. The variables under investigation included the seven types of MI and seat choices within the classroom. Throughout the study, efforts were made to address the following research questions:

***What specific associations exist between MI types and preferred seating rows?***

The first hypothesis was partially supported. It showed that, indeed, there was a strong correlation between the students' verbal/linguistic and interpersonal intelligences and their seat choices. Considering the two sets of data, these relationships were strongly negative: an increase in one was a decrease in the other. In other words, students' verbal/linguistic intelligence and their interpersonal intelligence decreased as they went toward back seats. It can be interpreted that students seated at the back may have lower levels of social engagement and communication skills, which could influence their overall classroom participation. These findings highlight that physical proximity to the teacher and peers may play a role in facilitating the expression and development of interpersonal and linguistic abilities. However, considering the factor of seat selection and the other five intelligences (logical/mathematical, spatial/visual, body/kinesthetic, musical/rhythmical, and intrapersonal), there were not remarkably similar significant correlations. This indicates that the spatial environment may have a more pronounced impact on interpersonal and linguistic skills than on other cognitive domains, possibly due to the nature of these intelligences, which are more closely tied to social interaction and verbal communication.

As it was defined before, interpersonal intelligence is the ability to communicate with people and understand individuals' motivation and emotional feelings, while also making a social relationship and participation. Kaya and Burgess (2007) found that the majority of participations and performances occur in the front and center seats. They remarked that as students' distance increases from their teachers, their participation and performance decrease. Similarly, Kehan et al. (2024) found that students who sit in the front row often display confident personalities and a strong desire to engage with the teacher, while those in the back rows tend to be quieter, more introverted, and prefer to avoid attention.

The present study's findings give further support to Shernoff et al.'s (2017) study, in which it was found that students seated at the back reported lower engagement and had poorer academic outcomes, receiving lower grades compared to those seated in the middle or front of the classroom.

Verbal/Linguistic intelligence was also defined as the ability to learn languages and understand the meanings of the words. Furthermore, it is the ability to write effectively.

The current study found that students' verbal/linguistic intelligence decreased as they went toward back seats. This finding is consistent with previous research that emphasizes the relationship between motivation, seating position, and language proficiency. For instance, Siahpoosh (2006) showed that successful students are motivated, and motivation is related to proficiency. Annisa (2021) similarly found that language learners seated in the front rows outperformed those in the back rows. Specifically, Annisa observed that seating position could influence interaction abilities, with front-row seating potentially leading to better linguistic performance in interaction. In sum, the present study's findings give further support to Annisa's and Siahpoosh's claims. Based on Annisa's outcomes, learners with higher levels of linguistic performance choose front rows, and according to Siahpoosh's findings, motivational factors have an overriding role in the language learning process, and learners who are interested in learning a second language have a higher motivation and undoubtedly a stronger verbal/linguistic intelligence. Therefore, the findings of this study suggest that students with stronger verbal/linguistic intelligence choose to sit in the front row seats. In short, front-row seats are associated with higher motivation, which in turn is linked to more successful language learning. Consequently, there is a strong relationship between sitting in the front rows and higher verbal/linguistic intelligence. That is, as students move toward the back seats, their verbal/linguistic intelligence tends to decrease.

***Which MI types are most dominant among students seated in different rows?***

The obtained results showed that the highest intelligences in the first row were logical/mathematical, interpersonal, spatial/visual, and verbal/linguistic, whereas the lowest intelligences in this row were intrapersonal, body/kinesthetic, and musical. The highest intelligences in the second row were spatial/visual, logical/mathematical, interpersonal, and intrapersonal, while the lowest intelligences in this row were verbal/linguistic, body/kinesthetic, and musical/rhythmical. Additionally, it was found that the highest intelligences of the students who chose the third row were logical/mathematical, spatial/visual, interpersonal, and verbal/linguistic, while the lowest intelligences in this row were intrapersonal, body/kinesthetic, and musical/rhythmical. Moreover, the highest intelligences in the fifth row were logical/mathematical, spatial/visual, musical/rhythmical, and interpersonal, whereas the lowest

intelligences in the last row were intrapersonal, verbal/linguistic, and body/kinesthetic. The dominant intelligence in each row was identified; however, in general, the logical/mathematical and spatial/visual intelligences were consistently the strongest across all rows. Additionally, the weakest intelligences observed in each row were notably the musical/rhythmical and body/kinesthetic intelligences. This finding suggests that mathematical and spatial abilities may be particularly emphasized or valued within the context of the classroom and could be reflective of broader cultural or societal preferences.

In the review of literature, it was stated that people's childhood intelligence types may change in their adulthood, and these changes depend on numerous factors such as culture, situation and environment, encouragement and stimulation and so on. In general, intelligence is not a fixed or static trait; rather, it is dynamic and capable of change. All intelligences can advance to the highest levels (Gardner, 1993; Smith, 2001). Accordingly, in Iranian culture, parents often prioritize enrolling their children in English, mathematics, and painting classes, believing that participation in these subjects will contribute to their children's success. In contrast, music, dance, and theater classes are less commonly valued among some Iranians, limiting the opportunity for the development of these abilities. The majority of the people in Iran are not aware of the existence of multiple intelligences, and they think an intelligent person is someone who can answer items on IQ tests; that is to say, individuals who obtain higher scores on language learning and mathematics on IQ tests are assumed to be more intelligent. Indeed, a plausible explanation, as far as we are concerned, is that within Iranian schools, educational policies prioritize subjects such as foreign language learning (especially English), painting, and mathematics at all educational levels, including primary, secondary, and high school. On the other hand, dancing, music, and drama do not receive nationwide attention in the national curriculum. This unevenness indicates the priorities established by policymakers in the Iranian Ministry of Education. Consequently, these de facto policies might unintentionally pave the way for students to emphasize areas such as language learning, visual arts, and mathematics, which could lead to a greater development of logical-mathematical and spatial intelligences, which can in turn neglect other types of intelligences among students in Iranian educational contexts. Thus, this helps explain the prominence of logical/mathematical and spatial/visual intelligences across rows in the current study.

Moreover, the consistent presence of logical/mathematical and spatial/visual intelligences as

dominant traits across all rows can also be viewed through the lens of gender differences (Hasan, 2023; Hasanuddin, 2024). Given that the participants in this study were exclusively male, the dominance of these intelligences could be partially reflective of gendered patterns of intelligence. Research by Furnham (2000) supports this interpretation, as it found that "consistent sex differences in self-estimates of multiple intelligences were found in only two types, mathematical and spatial" (p. 512). Furnham also found that "males think they are more intelligent than females. This believed superiority lies primarily in spatial and mathematical areas" (p. 514). Therefore, it can be concluded that the current study lends support to Furnham's claims that the dominant intelligences of male students in each row of the classroom are predominantly mathematical and spatial/visual, which can be related to gender or sex differences.

**Interpretation of Non-Significant Correlations**

The absence of significant correlations between the seat choice and the other five intelligences of logical/mathematical, spatial/visual, body/kinesthetic, musical/rhythmical, and intrapersonal, is an issue that raises the need for the discussion about the possible reasons for this phenomenon. As a hypothesis, these intelligences can be considered less influenced by a student's physical location or his closeness to the teacher as verbal/linguistic and interpersonal intelligences are. The former group is often characterized as communication-based, and direct interaction is considered as the main modus operandi of the latter. The five types, however, are mostly more solitary or internally focused ones. For example, a pupil with logical/mathematical intelligence is capable of solving a problem or thinking abstractly even if he happens to be at the front or at the back of the room. In the same way, a student with high intrapersonal intelligence, which encompasses self-knowledge and self-reflection, may prefer to work alone and thus, may not feel the need to pick a seat based on social dynamics. The absence of the correlation in these intelligences implies that the physical position of a student in a row-and-column classroom might have a greater effect on his social and verbal skills than on the rest of the cognitive domains.

**Implication of the Study**

The primary aim of this study was to explore the correlation between MI types and students' seat choices in the classroom. The findings indicate that, in general, logical/mathematical and spatial/visual intelligences were the most consistent and dominant across all seating rows, while verbal/linguistic and interpersonal intelligences showed a tendency to decrease toward the back

rows. These results underscore the importance of recognizing the varying intelligence profiles of students in different classroom locations. To enhance the effectiveness of teaching, local educators should consider integrating MI theory into their instructional strategies, emphasizing student-centered approaches that acknowledge the diverse intelligence types and learning styles present in the classroom. Furthermore, understanding the relationship between seating arrangements and dominant intelligences can inform curriculum design, enabling educators and syllabus developers to tailor their materials and teaching methods to better meet the needs of all students. Last but not least, in the context of English for academic purposes (EAP) or English for specific purposes (ESP), the findings also imply that seating arrangements may influence students' engagement with language-based tasks, especially those who require verbal/linguistic and interpersonal skills, such as discussions, presentations, and collaborative learning. This being said, ESP/EAP instructors in English-medium classrooms should consider strategic placing of learners with higher language-related intelligences in seating positions that encourage interaction and participation. Additionally, seating plans can be adjusted from time to time to foster equitable opportunities for all learners to develop academic communication skills, thereby supporting more inclusive and effective language learning opportunities.

By and large, the practical contribution of this study is that it offers teachers a simple yet powerful tool for classroom management and instructional planning. By using insights from students' MI profiles and seat preferences, teachers can organize seating to increase participation, design group activities that make the most of students' strengths, and differentiate tasks more effectively. These adjustments require minimal resources but can significantly enhance classroom dynamics, learner motivation, and academic outcomes.

**Limitations and Suggestions for Further Research**

The research is limited to a number of factors that impact, to a large extent, the degree to which the findings can be generalized. One of such limitations is that the studied sample only included male students from a single high school in Iran. As it was mentioned in the discussion, the results, which among other things, reflect the prevalence of logical/mathematical and spatial/visual intelligences, might have been influenced largely by the gender- and culture-specific context. In that case, the findings cannot be extended to female students, groups comprising both sexes, or students from different cultures and educational backgrounds. Moreover, the research sample

should be more diversified to cover students of both genders, which would help in determining gender-based differences in the light of contradictory results in the literature. Besides, by doing a similar study in various cultural settings, the effect of different cultural values on MI profiles and seating preferences can be gauged.

In addition, the research was done in classrooms where only the row-and-column seating arrangement was practiced. Knowing that the outcomes are influenced by the way the classrooms were organized, one can tell to what extent a study in a U-shaped or group-based seating arrangement might have resulted in different relationships between the location and various intelligence types.

As such, there are some suggestions for further research. Prospective researchers can expand the scope of their study to investigate both genders and contextualize their study within other cultural and educational contexts. Moreover, researchers can investigate different kinds of classroom layouts and analyze whether the correlations revealed in this study still hold true. Additionally, future research can focus on other intelligences as well. Finally, it is suggested that the same research be conducted with adult learners to shed more light on students from diverse age ranges, such as in academia or private educational centers.

**Data availability statement**

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

**Ethics statement**

The studies involving human participants were reviewed and approved by the ethics committee of University of Tabriz. The patients/participants provided their written informed consent to participate in this study.

**Author contributions**

All authors contributed to the study conception and design, material preparation, data collection, and analysis. All authors contributed to the article and approved the submitted version.

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**Conflict of interest**

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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## Appendix

Questionnaire for Gardner's seven intelligence types and seat and row preferences in the classroom (Armstrong, 2018)

**Part 1. Intelligence Types**

Check those statements that apply in each intelligence category.

Verbal/Linguistic intelligence

……Books are very important to me.
……I can hear words in my head before I read, speak, or write them down.
……I get more out of listening to the radio or a spoken-word cassette than I do from television or films.
……I enjoy word games like Scrabble, Anagrams, or password.
……I enjoy entertaining myself or others with tongue twisters, nonsense rhymes, or puns.
……other people sometimes have to stop and ask me to explain the meaning of the words I use in my writing and speaking.
……English, social studies, and history were easier for me in school than math and science.
……learning to speak or read another language (e.g., French, Spanish, German) has been relatively easy for me.
……my conversation includes frequent references to things that I've read or heard.
……I've written something recently that I was particularly proud of or that earned me recognition from others.

Logical/Mathematical intelligence

……I can easily compute numbers in my head.
……math and/or science were among my favorite subjects in school.
……I enjoy playing games or solving brainteasers that require logical thinking.
……I like to set up little "what if" experiments (for example, "what if I double the amount of water I give to my rosebush each week?")
……I'm interested in new developments in science.
……My mind searches for patterns, regularities, or logical sequences in things.
……I believe that almost everything has a rational explanation.
……I sometimes think in clear, abstract, wordless, imageless concepts.
……I like finding logical flaws in things that people say and do at home and work.
……I feel more comfortable when something has been measured, categorized, analyzed.

Spatial/Visual intelligence

…….. I often see clear visual images when I close my eyes.
……I 'm sensitive to color.
……I frequently use a camera or camcorder to record what I see around me.
……I enjoy doing jigsaw puzzles, mazes, and other visual puzzles.
……I have vivid dreams at nights.
……I can generally find my way around unfamiliar territory.
……I like to draw or doodle.
……Geometry was easier for me than algebra in school.
……I can comfortably imagine how something might appear if it were looked down on from directly above in a bird's-eye view.
……I prefer looking at reading materials that is heavily illustrated.

Bodily/Kinesthetic intelligence

……I engage in at least one sport or physical activity on a regular basis.
……I find it difficult to sit still for long periods of time.
……I like working with my hands at concrete activities such as sewing, weaving, carving, carpentry, or model building.
……My best ideas often come to me when I'm out for a long walk or a jog, or when I'm engaging in some other kind of physical activity.
……I often like to spend my free time outdoors.
……I frequently use hand gestures or other forms of body language when conversing with someone.
……I need to touch things in order to learn more about them.
……I enjoy daredevil amusement rides or similar thrilling physical experiences.
……..I would describe myself as well coordinated.
……..I need to practice a new skill rather than simply reading about it or seeing a video that describes it.

Musical/Rhythmical intelligence

……...I have a pleasant singing voice.
……...I can tell when a musical note is off-key.
……...I frequently listen to music on radio, records, cassettes, or compact discs.
……...I play a musical instrument.
……...My life would be poorer if there were no music in it.
……...I sometimes catch myself walking down the street with a television jingle or other tune running through my mind.
……...I can easily keep time to a piece of music with a simple percussion instrument.
……...I know the tunes to many different songs or musical pieces.
……...If I hear a musical selection once or twice, I am usually able to sing it back fairly accurately.
……...I often make tapping sounds or sing little melodies while working, studying, or learning something new.
Interpersonal intelligence
……...I'm the sort of person that people come to for advice and counsel at work or in my neighborhood.
……...I prefer group sports like badminton, volleyball, or softball to solo sports such as swimming and jogging.
……..when I have a problem, I'm more likely to seek out another person for help than attempt to work it out on my own.
……I have at least three close friends.
……I favor social pastimes such as Monopoly or bridge over individual recreations such as video games and solitaire.
……...I enjoy the challenge of teaching another person, or groups of people, what I know how to do.
……I consider myself a leader (or others have called me that).
……I feel comfortable in the midst of a crowd.
……I like to get involved in social activities connected with my work, church, or community.
……I would rather spend my evening at a lively party than stay at home alone.
Intrapersonal intelligence
……I regularly spend time alone meditating, reflecting, or thinking about important life questions.
……I have attended counseling sessions or personal growth seminars to learn more about myself.
……I am able to respond to setbacks with resilience.
……I have a special hobby or interest that I keep pretty much to myself.
……I have some important goals for my life that I think about on a regular basis.
……I have a realistic view of my strengths and weaknesses.
……I would prefer to spend a weekend alone in a cabin in the woods rather than at a fancy resort with lots of people around.
……I consider myself to be strong willed or independent minded.
……I keep a personal diary or journal to record the events of my inner life.
……I am self-employed or have at least thought seriously about starting my own business.

**Part 2. Seat and Row Preference**

Check your preferred seat in whatever row you would like to sit.