

Using the Multiple Intelligences Theory to Promote Saudi EFL Students' Reading Skills

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Abstract

The multiple intelligences theory (MIT) represents a type of pedagogy that seeks complete learner development. This study exploits the potential of the MIT to enhance Saudi EFL university students' reading comprehension. It is based on the premise that effective reading instruction should involve students' multiple intelligences (MIs) that are potentially existent in every learner. The researcher utilized the pretest-posttest control group design in the study. The experimental group included (35) students from two classrooms, and they were taught reading through the MIT. The control group included two other classrooms (38 students), and they got conventional reading instruction. The researcher followed a MI-teaching strategy that enabled the students with different intelligences to interact with the reading activities and materials, maximize on their strengths, and strengthen their weaker intelligences. The study results demonstrated that MI-based reading instruction improved the students' performance in overall reading and each reading skill. It is concluded that understanding the sorts of MIs assists instructors better comprehend and instruct their students. When assessing students' language proficiency, EFL teachers should respect the varied differences between them. In addition, they should concentrate on student strengths while also considering a larger spectrum of ability levels.

Keywords: multiple intelligences, reading comprehension, reading skills

Introduction

The acquisition of a language is, at its core, a verbal-linguistic endeavor that also involves certain elements of mathematical and logical ability. People who are interested in articulating themselves verbally or in writing are more likely to make faster and more accurate advancement in learning a new language. It is also vital to create possibilities for other students to exhibit their abilities and intellects in order to achieve success in the target language (Arnold & Fonseca, 2004). In addition, exploiting varied intelligences enriches communication. Therefore, a multimodal perspective on language is required. Because the MIT presents a framework that aims to assist all language students (Zabitgil, 2013), it constructs a sufficient paradigm for language design and an efficient theory for teaching and learning.

Gardner (1983, 1994, 2000, 2006) argues that intelligence is a combination of discrete but equal mental capacities. Aptness of the MIT to language teaching and learning has been acknowledged by language researchers and practitioners since its development by Gardner in 1983. The MIT simply endorses the principle that there exists a multitude of ways to teach learners. It helps educators to analyze their preconceptions about aptitude and accomplishment, investigate other teaching styles, and test out various assessment methods (Gardner, 1994). It also proposes that a number of intelligences exist, where intelligences are understood as capabilities and potentials that a person possesses (Aguayo et al., 2021). As Ferrero, Vadillo, and León (2021) put it, instructors have embraced the versatile and flexible features of the MIT in their daily classroom teaching practices following Gardner's premise that learners possess a rich array of intelligences.

Recent advances in psychology and cognitive sciences have revealed individual diversity in L2 instruction. Attending to individual differences raises awareness of MIs and their impact on language learning and other skills, including reading comprehension (Sabet & Kiaee, 2016). Most learners have more than one type of intelligence, as pointed out by Singh et al. (2017). Therefore, it is important to find ways to capitalize on learners' strengths in order to boost their learning.

Subsequently, language educators now recognize that learning a language is not a one-size-fits-all process. Rather, it encompasses a multitude of intervening factors in language learning. Some factors are more salient than others under certain circumstances. Therefore, it is the language

instructor's task to pave the appropriate path for learners with varied abilities to grasp and practice the prescribed language material (Mirzazadeh, 2012). Similarly, students need guidance in using their combination of intelligences to be successful language learners.

Meanwhile, reading enables EFL learners to receive significant comprehensible input, which can be used later on in writing or in speaking. Moreover, learners can internalize vocabulary and language rules and forms through reading (Honig, 2001). Thus, it is true that reading is an effective means of extending students' command of EFL (Nuttal, 1996). In addition, reading is a problem-solving process that is closely related to thinking. This involves not only the absorption of ideas but also the creation of ideas. Hence, effective reading sharpens thinking and creates understanding (Manning, 2007). In addition, reading is a complex cognitive activity that is indispensable for adequate learning in the language classroom. Students are required to understand the meaning of the text, critically evaluate the message, remember the content, and apply the newfound knowledge flexibly. As students advance in their studies, they need to be able to rely on their ability to independently understand and use information gleaned from the text which gets increasingly more challenging (Alfassi, 2004). Text becomes the major, if not the primary, source of knowledge; reading is a mediating process that involves the composition of meaning.

Being a key language skill in achieving comprehension and forming the human mind, reading is referred to as the skill empowering learners to construct meaning from the printed materials. It is an active skill that involves effective processes such as word identification and meaning interpretation. Harmer (2001) postulates the following five principles that language teachers need to adopt to ensure learners' active participation in the reading process: (a) reading is basically an active process; (b) it is paramount to involve learners in the reading material; (c) learners should be encouraged to interact with the reading content; (d) they should continuously be involved in the process of making inferences and predictions in the reading activities; and (e) there should be a match between the reading activity and the reading topic. Accordingly, these five principles need to be properly translated in designing the stages of reading instruction.

This study is catered to developing the following reading skills that are included in the students' prescribed textbook *Select Readings Intermediate* (Lee & Gundersen, 2001):

- Finding the main idea;

- Identifying a specific detail;
- Recognizing a stated series of events in their correct sequence;
- Organizing and classifying facts;
- Identifying cause-effect relationships;
- Noting significant inferred details; and
- Drawing conclusions.

An endeavor to aid learners in the process of reading comprehension is designing reading lessons that suit different learning needs (Setyowati & Sugirin, 2020). In this regard, the MIT recognizes learners as individuals with various intelligences and learning inclinations (Gardner, 1983, 1994). It is widely held that when confronted with a problem-solving task, such as reading a text written in a foreign language, students with varied intelligences use distinct types of strategies in order to complete the task. In reality, these strategies may result in either successful or poor results. (Gardner, 2006). A reading class aligned with MI-based activities produces a positive and encouraging atmosphere with diverse learning opportunities to engage language learners in class. In terms of reading skills, Helwa (2021) states that MI-based teaching enables learners to enhance their varied reading skills. They are able to comprehend the main idea of the reading passages, determine the author's intent, and articulate their viewpoint. In the course of this process, learners are empowered to develop their reading skills and their varied intelligences as well (Hu & Yang, 2022).

Research Problem and Questions

As an EFL instructor of reading comprehension to students at the university level, the researcher made a number of significant observations concerning reading instruction to Saudi EFL students. The prevailing methods of reading instruction do not sufficiently motivate students to practice effective reading comprehension. Reading is taught in a traditional teacher-fronted setting. Most EFL instructors ask their students to read the text once or at most twice without offering them any activities that build and activate whatever prior knowledge necessary for the successful interpretation of the text. In addition, students do not have a true opportunity to discuss the reading text together to understand its meaning and solve problems by themselves. Reading aloud is mostly carried out by the instructor, and, if there is enough time, some students may be asked to read some parts of the text aloud. Instructors mainly adopt an approach to reading

instruction that is more like testing reading. Efforts to improve comprehension focus more on the product than on the process. Students are simply asked to answer reading comprehension exercises based on the reading material without considering how to achieve such understanding. Reading instruction emphasizes practicing vocabulary, pronunciation, and grammar at the expense of comprehension. All of the aforementioned factors have a detrimental effect on students' reading comprehension. This study aims to improve these students' reading comprehension skills using a MI-based instructional strategy. To meet this goal, the researcher addresses the following questions:

- 1- What is the impact of employing the MIT in developing Saudi EFL university students' performance in overall reading comprehension?
- 2- What is the impact of employing the MIT in developing Saudi EFL university students' performance in each reading skill?

Aim of the Study

The study employs the MIT to enhance Saudi EFL students' reading skills at Imam Mohammad Ibn Saud Islamic University (IMSIU). Specifically, Saudi EFL university students after receiving reading instruction – through the MIT – would be able to: 1- find the main idea; 2- identify a specific detail; 3- recognize a stated series of events in their correct sequence; 4- organize and classify facts; 5- identify cause-effect relationships; 6- note significant inferred details; and 7- draw conclusions.

Literature Review

Gardner first used the term *multiple intelligences* in 1983, which marked the beginning of a paradigm change in the field of education. When Howard Gardner first published his theory of multiple intelligences in a book under the title *Frames of Mind*, it was welcomed largely and enthusiastically by educators, who saw in the theory the range of abilities they routinely witnessed and acknowledged in their students. In sharp contrast to the conventional belief that humans have just one general intelligence, it was a provocative new concept that claimed the existence of at least seven (now eight) distinct intelligences: linguistic, logical-mathematical, musical, spatial, bodily-kinesthetic, interpersonal, intrapersonal, and naturalist. Learners may thus tackle a topic in more than one or two ways.

MI is a learner-inspired theory that describes intelligence as including numerous aspects that need to be recognized and nurtured in schooling. Gardner provided an alternative interpretation to the traditional

image of intelligence as a whole entity, proposing that this unitary view ignores learners' tacit talents (Akbari & Hosseini, 2008). According to this view (e.g., Gardner, 1994, 2006), the cornerstones of the MIT are that: (1) every learner is intelligent in their own unique way; (2) there are varied ways to be intelligent; (3) intelligences combine and work together; and finally (4) intelligences can develop and grow.

Meanwhile, reading is a crucial skill and the main channel to gain knowledge in the learning process at every educational level. Reading instruction is a process that enables learners to grasp the meaning of the text. Grabe and Stoller (2013) concur that reading is the skill of inferring meaning from text and comprehending this information properly. As reading serves as the skill that empowers language learners to extract meaning from the printed material, it stands out as a fundamental language skill in forming the learner's mind (Setyowati & Sugirin, 2020). Therefore, reading teachers are expected to train their learners in the proper reading skills in conjunction with the aim of the reading text. One of the theories to realize this aim is the MIT which conveniently fits and matches learners' needs to exploit their skills and potential by empowering them in the process of reading comprehension.

At the turn of the 21st century, there was a huge activity in the practical implementation of the MIT in classroom settings as indicated by Armstrong (2003) who provided effective solutions to reach learners' full potential in the L2 classroom. Alongside, many scholars and practitioners examined the relation between the theory implementation and promoting learners' reading comprehension. For example, a number of schools integrated the MIT into their language programs, which resulted in intangible improvement in students' achievement on different language arts tests.

Burman and Evans (2003) also implemented an action research project to develop first-grade students' reading skills. These students had problems in memorizing and using vocabulary words in reading lessons. MI-based tasks and activities were employed in activities of reading comprehension and vocabulary enhancement. Results showed an incremental and remarkable increase in both the students' reading skills and the size of their active vocabulary.

Reidel, Tomaszewski, and Weaver (2003) did a study in which they tailored learning activities and situations to support, motivate, and promote fifth-grade students' reading comprehension. The researchers collected data on the students' perceptions towards reading via student and parent surveys.

Furthermore, pre-post reading test was administered to the students. The researchers used an observation checklist every other week to monitor MI-based teaching patterns and classroom practices. A reading and MI bulletin board was developed to furnish students with choice in MI-based tasks and activities. A portfolio procedure was also employed in the study to collect data from the students. The researchers employed MI-based strategies to emphasize the strengths of all types of students. The study yielded learning benefits for the students in significant areas. First, the students' reading comprehension skills were developed, and they grew into more motivated and confident readers. The MI-based activities and reading skills reinforcement interwove content with student learning style and choice. As a result, the students exhibited tangible progress in reading comprehension skills, learning motivation, and involvement.

Jing (2013) implemented MI-based reading instruction in an English reading classroom for elementary-school students. Precisely, the researcher explored the role of MI-based reading instruction in boosting students' reading interest and proficiency. One class was specified as the experimental group students, and they learned reading through the MI. Another class served as the control group students, and they had regular teacher-centered reading instruction. Eventually, both the experimental and control groups attended reading tests and interviews. Results showed that the MI-based reading was effective and significantly inspired the experimental group students' interest in reading comprehension and enhanced their reading proficiency. These students also showed positive attitudes towards MI-based reading instruction.

Mirzaei, Rahimi Domakani, and Heidari (2014) examined the relation between the MIs of successful L2 readers and how they effectively employed their reading strategies. It was found that the most significant intelligences for successful L2 readers were the linguistic, logical-mathematical, and intrapersonal intelligences, whereas the least dominant was the bodily intelligence. Additionally, they utilized cognitive and metacognitive strategies most of the time, yet they seldom employed affective or compensation strategies in their reading. Most importantly, a strong correlation was discovered between successful L2 readers' MIs and the effective use of cognitive and metacognitive reading strategies. There was a correlation between interpersonal intelligence and compensation as well as social strategy. The researchers also found that linguistic and intrapersonal

intelligences, as well as the deployment of cognitive and metacognitive strategies, were the best indicators of reading comprehension.

Sabet and Kiaee (2016) examined how a group of EFL students' MIs affected their reading comprehension. Multiple Intelligences Developmental Assessment Scales (MIDAS) and a reading comprehension test were used in the study. The results showed that the students' verbal-linguistic intelligence was the strongest of the various intelligences. Furthermore, Pearson correlation data showed a positive but weak correlation between the students' MIs and their reading comprehension skills. Results also showed that, with the exception of naturalistic intelligence, male and female students were equal in their intelligences.

Similarly, Zahedi and Moghaddam (2016) studied the performance of a group of EFL students on several types of reading comprehension exams in relation to their MI scores. The students were required to complete the MIDAS multiple intelligences questionnaire and a reading comprehension test. The results revealed a statistically significant relationship between the overall MI score and performance on the reading comprehension tests.

Moradi, Ghahari, and Abbas (2020) studied the relationship between L2 reading comprehension and MIs. They also examined how learner-constructed outlines (i.e., systematic note-taking) and expert-constructed outlines (i.e., ready-made presentations) affected comprehension. Finally, the predictive power of MIs was investigated across several input modalities. The findings revealed that systematic note-taking resulted in greater material memory than text displays, and both expert-created and learner-created outlines were equally effective. More crucially, MIs accurately predicted the students' reading comprehension. In this sense, interpersonal and intrapersonal intelligences were significantly associated to the performance of text-only groups. Furthermore, visual, verbal, and intrapersonal intelligences were shown to be substantially related to the reading scores of learner-constructed groups.

Sabzevari and Ebadi (2020) explored the MIT in EFL course materials for children and young adults. First, the students' intelligence profiles were determined by modifying and administering Lazear's (1994) children's questionnaire and Christison's (1996, 1998) MI survey to young adults. Second, the MI checklist was used to assess the degree to which the MIT was represented in the nine children's coursebooks as well as the seven young

adults' coursebooks. The activities of the course books were analyzed, and it was discovered that both sets of coursebooks primarily catered to verbal/linguistic and visual/spatial intelligences. The least prominent intelligences were intrapersonal and naturalist, and no examples of naturalist intelligence were found in the activities of the young adult coursebooks. The study's findings also revealed differences between the students' and course materials' MI profiles. In contrast to the MI profile in the course materials, both children and young adult students had a balanced distribution of intelligence types; that is, they liked all forms of intelligence to varied degrees.

Setyowati and Sugirin (2020) stated that existing reading materials did not enhance students' multiple intelligence types. Therefore, they capitalized on the students' uniqueness and distinguished characteristics by implementing reading activities and materials on the basis of junior high-school students' MIs. Specifically, the researchers started by conducting a needs analysis to build reading materials and activities well-suited for the students' reading abilities and needs. Results confirmed the appropriateness and effectiveness of the reading materials and activities that were developed in conformity with the students' MIs. Findings affirmed that the students' differences and unique characteristics were reflected thoroughly in the developed reading materials and activities.

Berrios, Arazola, and Pantoja (2021) studied the relationship between the intelligences that learners have in the elementary school and the development of certain cognitive and academic skills. They proved that a teaching procedure based on Gardner's theory was effective in fostering creativity, maturity, and school performance. The experimental group students were taught via the MIT, whereas the control group students were instructed using conventional pedagogy. Statistically significant differences were found between the experimental group and the control group, and there was a positive correlation between the experimental group students' intelligences and their academic, creative, and maturational levels.

Hu and Yang (2022) examined the role of reading instruction via the MIT in a junior middle school. The experimental group students were involved in MI-based reading activities, while the control group students attended traditional reading sessions. Both groups received a reading test when the treatment ended, and the experimental group students attended interviews with the researchers to obtain qualitative data on their experience. The experimental group students' reading skills improved significantly,

particularly in answering the questions related to the logical and spatial intelligences, besides promoting their passion for learning reading and classroom participation.

Method and Procedure

Research Design

The researcher utilized the pretest-posttest control group design in the study. It is a quasi-experimental design similar to the one-group pretest-posttest design but includes the addition of a control group for comparison purposes. Accordingly, four level-2 classes were chosen at random to represent the experimental and control groups. Two classes formed the experimental group, and they were taught reading comprehension using the MIT. Two other classes got conventional reading instruction and formed the control group. Both the experimental and control groups were given the same pre-posttest to assess their reading comprehension performance before and after the intervention.

Participants

The study included a group of seventy-three male EFL students from level 2 at College of Languages and Translation, IMSIU. The students were randomly selected during the first semester of the academic year 2019-2020. Then, they were randomly assigned into two groups. The experimental group included 35 students from two classrooms, who were taught by the researcher using MI-based reading instruction. The control group included two other classrooms (38 students), and they got conventional reading instruction from their regular classroom instructor. The students' age in both groups ranged from 18 to 21 years old. It was assumed that the participants formed a homogenous group as they were chosen randomly. So, they were expected to have a lot in common, and would not differ much regarding the quality of experience common to their age. The baseline of the two groups was that they took exactly the same reading course with the same number of credit hours. The classes met for three one-hour sessions per week, for a total of 39 hours over 13 weeks.

Instrument

The reading comprehension pre-posttest. In consideration of the reading skills covered in *Select Readings Intermediate* (Lee & Gundersen, 2001), a reading comprehension pre-posttest (identical test administered twice before and after the study implementation) was developed and administered to the students during the first semester of the academic year 2019-2020.

Before the intervention, both the experimental and control groups were given the pre-test at the beginning of the study. Then, it was given as a post-test to both groups after the intervention to determine whether or not there were statistically significant variations in the reading comprehension skills of the two groups.

Test description. These are the points followed in writing the test questions:

- The language and phrases utilized in the exam questions were straightforward, understandable, and familiar to the students.
- The questions were pertinent to the test's goals.
- Using different types of questions instead of sticking only to one type.
- Distributing the distractors of the multiple-choice questions in an unsystematic way in order not to be easily recognized by the students through guessing.

Test validity. The initial version of the test was administered to five EFL professors to examine the suitability of each question in measuring each of the target reading skills. In addition, they were asked to assess the exam as a whole in terms of (a) accuracy, (b) the number of questions, and (c) the test appropriateness for students' level. The jury approved the exam questions as a whole. Meanwhile, they suggested using easier-to-understand wording in five questions and modifying or deleting four other questions to avoid repetition. All the needed modifications were made, and the final version of the test was finally reached.

Test reliability. As for the pilot testing procedure, the final version of the test was administered to 23 students (other than the experimental and control group students) chosen at random before starting the intervention. Two weeks later, the same 23 students took the test again. The Pearson correlation was determined between test/re-test results. The reliability coefficient was 0.81. The test proved reliable for the study.

Teaching Strategy

Lazear's design (1991) for MI-based lessons was adopted in this study for teaching reading comprehension. In this design, there is a developmental sequence comprising four steps: (1- Intelligence awakening, 2- Intelligence amplifying, 3- Teaching with/for the intelligence, and 4- Intelligence transferring). This teaching procedure was followed in each unit of the prescribed reading textbook (the explanation here focuses on unit one, i.e., *A Long Walk Home* as an example of all the ten units covered in the study).

Content of the teaching materials. The study covered 10 units from *Select Readings Intermediate* (Lee & Gundersen, 2001). These are the units included in the writing syllabus prescribed for level 2 EFL students at College of Languages and Translation, IMSIU.

Teaching Procedure

Logical-Mathematical. Characters in a Venn Diagram: The students used a Venn diagram to analyze two or three different characters from the narrative. They were also given the opportunity to contrast themselves with a fictional character. A Venn diagram consisting of two or three circles was used by the students. The objective was to move the students from the concrete (their physical characteristics) to the more conceptual level (personality traits). They supported their claims by referring to other works of literature.

Interpersonal. Character Webbing: The students worked in small groups to produce a list of characters from the narrative so that they could better comprehend how the characters of the tale were linked to one another. On a piece of paper, the names were written in order to create a circle. The students linked the characters by drawing a straight line from one to another and adding phrases and words indicating the connection between the two characters along each line as they went from one character to the next. They were tasked with reaching a decision on the phrases or terms that were used on the internet.

Spatial. Setting: The students used information from the narrative to develop a pictorial depiction of the primary setting, including the location, time of day, persons included, and the atmosphere of the scene. This was done in order to better understand the narrative. They defended the choices they made about the location by referring to pertinent details from the narrative.

Visualization: The students were instructed to choose a section from one of the lessons that they were studying to express it visually. The reading was accompanied by several works of art.

Naturalist. Symbolic Character Mapping: The fundamental beliefs that each character upheld were uncovered. Fundamental beliefs were those values that were among the most significant or characterized the fundamental aspects of a character, such as loyalty, inventiveness, boldness, or independence. The students came up with several spatial symbols to symbolize these characteristics.

Symbolism: The students each received a symbol that had been created by the instructor to represent a character. Every student came to his own conclusion on which of the possible characters would be symbolized by the icon, and he provided particular textual evidence to back up his choice. The students debated one another about their points of view.

Linguistic. Perspective: The students reconstructed a story paragraph using a viewpoint that was distinct from the one that was employed by the author of the original text.

Bodily-Kinesthetic. *Characters on Stage:* After learning a story section that comprised discussion amongst characters, the students performed the scenario to show their comprehension of the reading text by putting themselves in the roles of the characters. The students were given the choice either to keep to the script or to add lines to assist the stream of their skits, as long as the narrative's essential qualities were not compromised in any way. The purpose of this activity was to show an awareness of the connections between the different personalities.

Intrapersonal. Character Interviews: The students contrasted the author's viewpoint and the manner the characters behaved within the setting of the narrative with their own opinions about how they would respond or behave in scenarios that were comparable to those described in the narrative. They answered a question provided by the researcher that was associated with a conflict that occurred in the narrative while acting out the part of a certain character from the story. Then, they broke character to discuss how they would have behaved in that circumstance or how they felt about the matter at hand.

Musical. Playing Cards for Each Character: The narrative's main character inspired the writing of a play on him. The selections that were made on the list were backed up by references found in the narrative.

Results

Before beginning the instructional procedure for each group, a number of independent samples t-tests were carried out in order to compare the results of the students in the experimental group with those of the students in the control group regarding their performance on the reading comprehension pre-test.

Table 1

T-test results of the reading comprehension pre-test of the experimental and control groups in overall reading performance

Group	Number	Mean	Standard deviation	Degrees of freedom	t-value	Significance level
Experimental	35	25.34	1.39	71	2.68	.059 Not Significant at 0.05 level
Control	38	23.88	1.65			

Table 1 demonstrates that the estimated t-value is not statistically significant ($p\text{-value} > 0.05$) by making a comparison between the estimated t-value (2.68), which was calculated for the two groups on the pre-test, and the statistical t-value. This indicates that the students in both the experimental group and the control group began the study with comparable levels of reading comprehension. In the same manner, independent samples t-tests were run on the pre-test for both the experimental and control groups with respect to the performance of the students in each reading skill. The results of these tests are shown in table 2.

Table 2

T-test results of the reading comprehension pre-test of the experimental and control groups in each reading skill

Item	Pre-test	Number	Mean	Standard deviation	t-value	Significance level
Finding the main idea.	Exp.	35	3.01	.53	.73	Not Significant at 0.05 level
	Cont.	38	2.98	.48		
Identifying a specific detail.	Exp.	35	3.45	.53	.80	Not Significant at 0.05 level
	Cont.	38	3.30	.45		
Recognizing a stated series of events in their correct sequence.	Exp.	35	3.72	.68	.64	Not Significant at 0.05 level
	Cont.	38	3.59	.74		
Organizing and classifying facts.	Exp.	35	3.81	.85	1.03	Not Significant at 0.05 level
	Cont.	38	3.25	.90		

Item	Pre-test	Number	Mean	Standard deviation	t-value	Significance level
Identifying cause-effect relationships.	Exp.	35	3.77	.49	.92	Not Significant at 0.05 level
	Cont.	38	3.56	.41		
Noting significant inferred details.	Exp.	35	4.01	.74	.84	Not Significant at 0.05 level
	Cont.	38	3.94	.56		
Drawing conclusions.	Exp.	35	3.57	.70	.68	Not Significant at 0.05 level
	Cont.	38	3.26	.42		

As p -values > 0.05 in table 2, there are no statistically significant differences between the reading skills exhibited by the students in the experimental group and those of the students in the control group. These findings provide further evidence that both of the study groups started out with comparable low levels of performance across all reading skills prior to the intervention.

Research Question One: What is the impact of employing the MIT in developing Saudi EFL university students' performance in overall reading comprehension?

A t-test for independent samples was used to compare the performance of experimental and control group students on the post-test in total reading comprehension, as shown in table 3.

Table 3

t-test results of the post-test comparing the experimental and control groups in overall performance in reading

Group	Number	Mean	Standard deviation	Degrees of freedom	t-value	Significance level	Effect size
Experimental	35	36.72	1.39	71	13.97	Significant	4.06
Control	38	25.80	1.65				Large

Table 3 reveals that the calculated t-value is (13.97), indicating a statistically significant difference in total reading post-test performance between the two groups in favor of the experimental group students. In addition, the estimated effect size was (4.06). Moreover, in order to make sure that the results obtained from the t-test were reliable and to measure the

effectiveness of MI-based teaching of reading on the students' overall performance in reading, its effect size on the students' performance in reading was calculated according to the following formula suggested by Dunlap (1994): $D = \frac{t}{\sqrt{D.F.}}$, where D = the calculated effect size, t = the estimated t value, and D.F. = the square root of degrees of freedom.

Table 4

The referential framework for identifying effect size of t-values $\frac{2T}{\sqrt{D.F.}}$

Effect size (d value)	Interpretation
From 0.2 till less than 0.5	Small
From 0.5 till less than 0.8	Medium
0.8 or more	Large

As shown in table 4, the calculated effect size value of MI-based teaching of reading on the experimental group students' overall performance in reading was (4.06). Therefore, it can be said that MI-based teaching of reading had a large effect on the experimental group students' overall performance on the post-test as compared to that of the control group students receiving regular instruction.

Research Question Two: What is the impact of employing the MIT in developing Saudi EFL university students' performance in each reading skill?

Table 5

t-test results of the post-test comparing the experimental and control groups in each reading skill

Item	Post-test	Number	Mean	Standard deviation	t-value	Significance level	Effect size
Finding the main idea	Exp.	35	4.57	1.41	4.86	Significant	1.98
	Cont.	38	3.22	1.73			Large
Identifying a specific detail	Exp.	35	5.98	1.21	6.21	Significant	2.03
	Cont.	38	3.56	1.90			Large
Recognizing a stated series of events in their correct sequence	Exp.	35	5.12	1.15	5.43	Significant	0.94
	Cont.	38	3.83	1.84			Large

Item	Post-test	Number	Mean	Standard deviation	t-value	Significance level	Effect size
Organizing and classifying facts	Exp.	35	5.50	1.07	5.62	Significant	1.88
	Cont.	38	3.39	1.84			Large
Identifying cause-effect relationships	Exp.	35	5.42	1.83	4.61	Significant	2.05
	Cont.	38	3.99	1.97			Large
Noting significant inferred details	Exp.	35	5.27	.93	5.21	Significant	1.20
	Cont.	38	4.18	1.62			Large
Drawing conclusions	Exp.	35	4.86	1.25	4.44	Significant	1.01
	Cont.	38	3.63	1.40			Large

On the post-test measuring both groups' reading skills, t-tests on independent samples were carried out to compare the two groups. According to the data presented in table 5, there are statistically significant differences between the mean scores obtained by students in the experimental group and those obtained by students in the control group on the post-test in each reading skill in support of the students in the experimental group. In terms of the magnitude of the effect, the findings shown in table 5 indicate that MI-based reading instruction had a large effect on the post-test reading skills of the students in the experimental group when compared to those of the students in the control group.

As indicated in tables 6 and 7, a series of paired samples t-tests were conducted to evaluate the performance of experimental group students on the pre-test with the post-test in overall reading comprehension and in each reading skill.

Table 6

t- test results comparing the pre-test versus the post-test in the overall mean scores of the experimental group in reading

Test	Number	Mean	Standard deviation	Degrees of freedom	t-value	Significance level	Effect size
Post-test	35	36.72	1.33	33	29.80	Significant	12.53
Pre-test		25.34	7.512				Large

Table 6 shows that the calculated t-value is (29.80). Thus, there is a statistically significant difference between the total reading performance of the students in the experimental group on the pre-test and the post-test in support of the post-test score. The pre-test score was significantly lower than the post-test score. In addition, the calculated effect size value (12.53) that was displayed in table 6 demonstrated that MI-based instruction of reading had a large effect on the overall performance in reading that the students in the experimental group demonstrated on the post-test when compared to their overall performance on the pre-test.

Table 7

t- test results comparing the experimental group students' performance on the pre-test versus the post-test in each reading skill

Item	Pre-test versus Post-test Scores	Mean	Standard deviation	t-value	Significance level	Effect size
Finding the main idea	Pre- test	3.01	1.07	3.86	Significant	1.44
	Post- test	4.57	1.84			Large
Identifying a specific detail	Pre- test	3.45	1.38	5.12	Significant	2.02
	Post- test	5.98	1.79			Large
Recognizing a stated series of events in their correct sequence	Pre- test	3.72	1.04	4.34	Significant	1.60
	Post- test	5.12	1.26			Large
Organizing and classifying facts	Pre- test	3.81	1.52	5.16	Significant	1.51
	Post- test	5.50	1.04			Large
Identifying cause-effect relationships	Pre- test	3.77	1.14	4.89	Significant	1.47
	Post- test	5.42	1.37			Large
Noting significant inferred details	Pre- test	4.01	1.21	3.76	Significant	1.25
	Post- test	5.27	1.80			Large
Drawing conclusions	Pre- test	3.57	1.51	2.77	Significant	0.98
	Post- test	4.86	1.48			Large

Table 7 demonstrates that there are statistically significant variations in the reading scores of the students in the experimental group on the pre-posttest, with the post-test scores significantly higher than the pre-test scores. In addition, the effect size value for each reading skill demonstrates that MI-based instruction of reading had a large effect on the reading skills of the students in the experimental group on the post-test in comparison to the reading skills they had on the pre-test.

The findings of the study provided support for both of the study questions. The statistical analyses of the data suggest that the students in the experimental group who were instructed in MI-based reading tasks and activities performed significantly better on the post-test in terms of overall reading comprehension as well as in each reading skill when compared to the students in the control group who were given conventional reading instruction. In the same vein, the students in the experimental group did much better in their reading after receiving MI-based instruction in comparison to their performance before receiving the intervention. The results of the tests given to the students following MI-based instruction revealed that they became motivated, were successful in their participation in class, and successfully employed language for the reading assignments they were given. Because of this, the favorable results demonstrated that the MIT had an important role in significantly improving Saudi university EFL students' reading comprehension skills.

Discussion

The researcher addressed the issue of providing MI-based reading instruction at the university level that bridges traditional instruction to a model of teaching that seeks to assist all students when they are learning a language in a classroom setting. The registered progress in the students' reading performance can be ascribed to a number of significant factors. The MI-teaching strategy adopted throughout the implementation of the study is one of the prominent factors. This teaching strategy gave students the opportunity to think before, during, and after reading, co-operate with each other, read purposefully and attentively, and share responsibility in their learning. Moreover, it entailed a necessary change in the teacher's role from an authority figure to a facilitator, a guide, and an anxiety alleviator who does not inflict help on those who do not need it but who offers help only when needed. This enabled the students to be active participants in their learning and become more independent.

To start, focusing the MI-teaching strategy on developing seven reading comprehension skills made the study objectives achievable, manageable, and realistic. By so doing, the students were better able to focus their attention on mastering these skills to actively make meaning of the reading texts. Moreover, the specified reading comprehension skills were practiced in context throughout the study lessons (with each lesson focusing mainly on four or sometimes five reading comprehension skills) in a way that increased the students' motivation and fostered their reading comprehension capabilities.

The reading materials and activities practiced throughout the study lessons were carefully chosen, varied, and motivating to develop the specified reading comprehension skills. In addition, each lesson included different MI-based activities that required the students to practice different reading comprehension skills. Similarly, the formative evaluation exercises practiced at the end of each unit offered effective supportive feedback on the students' gradual progress in the specified reading comprehension skills. They helped both the students and the instructor identify the students' strengths and weaknesses regarding each reading comprehension skill. In addition, they were varied to include both multiple-choice and open-ended questions in a way that increased the students' motivation to practice and master the different reading comprehension skills.

There were also specific factors related to the MI-teaching strategy that helped the experimental group students achieve progress in their reading comprehension skills. MI-based activities were employed to: (a) build and activate the students' prior knowledge necessary for the active reconstruction of the original intentions of speakers, (b) emphasize the interactivity between the 'top-down' and the 'bottom-up' models of processing reading texts, and (c) encourage the students' prediction of the content of reading texts using the texts titles and accompanying illustrations.

On the pretest, most students failed to distinguish between the main idea and the specific details included in the reading texts. Most of them selected answers that reflected specific ideas included in the reading texts. However, on the post-test, the students' main idea identification improved substantially. An important factor was raising students' awareness of this reading skill, whether in the introductory classroom period or throughout the study implementation; the students were taught that the main idea is the central thought of a reading text. This instruction became part of students'

prior knowledge that was activated whenever they encountered a given reading text.

Moreover, this skill was developed throughout the study implementation when the students completed and extended different Venn diagrams, thus exploiting their logical-mathematical intelligence. Moreover, the students' linguistic intelligence came into play when the instructor required them to conceptualize the main idea of the reading text and then reconstruct a story paragraph using a viewpoint that was distinct from the one employed by the author of the original text.

In the same way, the results revealed that the experimental group students outperformed the control group students in identifying specific stated information or details. In the same way, the amount of experimental group students' growth in that skill between the pre-test and the post-test was significant. Initially, the MI-based teaching strategy raised the students' awareness of this skill in the introductory classroom period. Through visualization and employment of the students' spatial intelligence, they were instructed to choose a section from reading texts that they were studying to express it visually. The reading was also accompanied by several works of art to exploit the students' spatial and artistic intelligences with the aim of aiding them in identifying specific stated information.

The students were also taught that identifying specific stated information entails answering questions beginning with when, who, what, how high, where, how tall, how many, how much, and so on as long as the answer is explicitly stated in the reading text. In addition, the students' naturalist intelligence was used by employing symbolic character mapping to uncover their characters. The students were also required to relate their beliefs to judge the values of the characters included in the reading texts such as loyalty, inventiveness, boldness, or independence. The students came up with several spatial symbols to symbolize these characteristics.

As for the skill of recognizing a stated series of events in their correct sequence, most students' scores were low with respect to that skill on the pre-test. However, after administering the post-test, observable improvement was achieved by the experimental group students. This suggests that the students' progress in identifying organizational patterns within reading texts might be due to the MI-based teaching strategy they were exposed to. Throughout the study, the students were taught that recognizing a stated series of events in their correct sequence helped them to

discover the relationship among events and conditions by determining the causes of certain events or actions and identifying their results.

In addition, the MI-based reading activities used to develop the skill of recognizing a stated series of events were highly effective. These required the students to read the text and (a) complete texts (or fill gaps), (b) extract evidence from the reading texts confirming sound predictions, (c) complete the Story Incidents Prediction/Confirmation charts, (d) answer true/false questions, then correct false statements, (e) label pictures based on a given reading text, and (f) complete a questionnaire based on an interviewee's answers to questions on their life events. These activities simultaneously capitalized on a number of the students' intelligences (e.g., Prediction/Confirmation charts focused on linguistic intelligence, interviewing targeted intrapersonal skills, and labeling pictures centered on spatial intelligence). They not only enhanced the students' ability to identify specific stated information in reading texts but they also increased their motivation to read texts attentively and purposefully.

The students also made tangible progress on the skill of organizing and classifying facts from the pre-test to the post-test. An important factor was teaching them ways of organizing and classifying facts, and this practice became part of the students' prior knowledge that was activated whenever they encountered a reading text. In addition, the students' logical-mathematical and interpersonal intelligences were prominent as the students were required to fill in character webbing diagrams based on the reading texts by relating their prior knowledge to the information included in the reading texts. After learning a narrative section that comprised discussion amongst characters, the students' bodily-kinesthetic intelligence was employed by performing a scenario that put them in the roles of the characters of the reading text.

Likewise, the experimental group students' growth in the skill of identifying cause-effect relationships from the pre-test to the post-test was significant. One of the important reasons was highlighting the distinctive features and relations in the reading texts. Hence, each lesson contained practice on a given feature of the reading texts including specific language clues of cause-effect relationships. Furthermore, MI-based reading activities were used to develop this skill and required the students to work in groups or in pairs to answer open-ended questions, thus enhancing their active interpretation of identifying cause-effect relationships.

The following reading skill is noting significant inferred details. On the pre-test, most students failed to infer details that were not explicitly stated in the reading texts. This fact implied that they could not establish a strong relationship between their background knowledge and the information included in the text to make successful inferences. However, on the post-test, the experimental group students outperformed the control group students in making inferences. One significant factor was the pre-teaching of difficult words that occasionally occurred in titles, brainstorming, and prediction activities practiced in the before-reading stage. These helped the students build and activate the background knowledge necessary for making inferences.

Moreover, the during-reading activities employed to develop the skill of making inferences were engaging. Character interviews provided a perfect context for exploiting the students' intrapersonal and logical/mathematical intelligences. Specifically, the students contrasted the author's viewpoint and the manner the characters behaved within the setting of the reading narrative with their own opinions about how they would respond or behave in scenarios that were comparable to those described in the reading text. These interventions required the students to work in groups or in pairs to (a) answer open-ended and multiple-choice questions, and to (b) judge the correctness of certain inferences based on the reading texts. Thus, the students also manifested their interpersonal intelligence by benefiting from the support of each other and practicing assimilation of the new information included in the reading texts in their existing schemata to make successful inferences.

Finally, the students made significant progress in the skill of drawing conclusions. On the pre-test, most students lacked the potential to formulate adequate conclusions. They could not differentiate between forming personal opinions and drawing conclusions. However, on the post-test, the experimental group students outperformed the control group students in drawing conclusions. One important factor was raising the students' awareness of this reading skill whether in the introductory classroom period or throughout the MI-based teaching strategy. Hence, the students were taught that drawing conclusions entails readers' careful examination of whatever explicit or implicit information they had about the characters, the events, or the situations to make some judgments from them.

In addition, in the post-reading phase, the instructor used to ask students to draw conclusions based on the reading texts at hand. Then, the

instructor discussed these conclusions with the students showing them how they needed to reflect on the information included in the reading texts and on their background information to draw sound conclusions. Moreover, the students discussed each conclusion and provided evidence from the reading text supporting each conclusion. Another effective post-reading activity used to develop this skill was examining the validity of a set of given conclusions based on the reading texts and providing evidence from these reading texts confirming sound conclusions.

Overall, the students' performance in reading was enhanced by targeting their different intelligence types. Initially, the teaching procedure enhanced the possibility of making use of the students' different intelligences with the ultimate aim of developing their performance in reading skills. Specifically, many components of the reading lessons lent themselves to MIs. The students utilized their interpersonal intelligence to strengthen their reading skills, for instance when they used active reading to provide feedback to other group members and considered how to disagree with others in a manner that would be comprehensible. In addition, the students used their spatial intelligence when asked to give their representation of a reading text. Further, they used their intrapersonal intelligence by comparing themselves to characters in the texts they read. Naturally, two or more intelligences were interwoven in the same reading activity, e.g., intrapersonal and logical/mathematical intelligences came together when the students were asked to do comparing and contrasting, for example by creating a Venn diagram.

Clearly, MIs capacitate learners to capitalize on their brain processes and powers. In agreement with Zabitgil (2013), these different types of intelligences enrich the tapestry of language. Bordei (2017) affirms the same idea that a full and meaningful learning procedure naturally involves two or more intelligences at a time. These results receive support from Aguayo et al. (2021) that capitalizing on students' intelligences boosts their learning process, and it is critical to create chances for all learners to demonstrate their aptitudes for language accomplishment. Hu and Yang (2022) favor that instructors adopt a learner-centered MI curriculum for reading instruction by attending to their students' distinguished abilities and considering their personal differences.

Simultaneously, there were varied activities and tasks in the MI-based strategy of teaching reading comprehension based on Lazear's design

(1991) for MI lessons. This wide array of reading activities gave the students choice and played a crucial role in their learning. This freedom in the manner and pace that best suited the students' needs and abilities furnished a learning context for them to enter their own comfort zone. Because channels of learning were varied and extensive, the students were given the opportunity to reach more personal and relevant outcomes. Richards and Rogers (2014) support this result that MI learners are more goal-directed and are candidates for being better language learners and users. MI is a functional educational theory that largely facilitates learners' growth by emphasizing areas that are orchestrated with their talents (Al Hosni & Al-Manthari, 2021).

In addition, supporting the social and collaborative atmosphere was also one of the priorities in this MI-based reading instruction. In particular, encouraging student talk was extremely beneficial during the reading process. Reading was viewed as an interactive process that flourished in social contexts where much talk surrounded the process of reading comprehension. When allowed to think out loud while reading, the students helped one another clarify meaning by asking challenging questions and offering suggestions or explanations about the ideas being presented. Positive outcomes from using the MIT also included increased student collaboration, interpersonal relationships, self-reflection, and problem-solving skills. These results are in accordance with Hoerr, Boggeman, and Wallach (2010) who argue that students should be given opportunities to cooperate in small groups or pairs on a regular basis. They add that group work allows interpersonally-oriented students to express their views and learn from their peers. Concurrently, these students are encouraged to provide feedback on the problem-solving process; this intrapersonal reflection allows them to get knowledge of their own learning process.

Conclusions

It is concluded that most students in the reading classroom have some intelligences that are highly strong; other intelligences that are moderately strong; and a third group of intelligences that are rather weak. Meanwhile, the majority of students have the capacity to develop all the eight intelligences if given appropriate instruction and enrichment. Armstrong (2018) backs up this conclusion by stating that most individuals can develop each intellect adequately. Consequently, the majority of students have the ability to develop all eight intelligences to a relatively high level of

performance if they are provided with the necessary reinforcement, enrichment, and training.

Another significant conclusion is that EFL learners need a learning context in which their potential strengths come to the fore and their weaknesses are worked on and diminished. This conclusion is in harmony with Campbell's (1997) assertion that the MIT is not prescriptive. Rather, it provides language instructors with a detailed conceptual model for creating usable syllabi and improving their teaching skills. According to Armstrong (2018), there are no universal attributes required to be intelligent in a certain field. A person who cannot read, for example, might have a high degree of linguistic intelligence because he or she can tell a great narrative.

As time restraints may limit the amount of purposeful MI-based reading lessons created and successfully implemented, an important conclusion for language instructors is to select a fewer number of intelligences to work with each week. This would allow them to devote more time to creating more meaningful and challenging reading activities. Alongside, language instructors are urged to respect the many-sided differences between their students, and this exactly the purpose of learning about MIs (McKenzie, 2002). Thus, instructors should find ways to involve their students' different intelligences to help them acquire reading skills (Armstrong, 2003).

It is also concluded that when assessing students' reading skills, instructors using the MIT should capitalize on student strengths and consider a wider spectrum of student abilities and skills. Spirovska (2013) confirms this idea that the preeminence of the MIT is attributed to paving the way to learners to employ their outstanding strengths to foster their language learning. As such, assessment should be multifocal, tapping as many contexts as possible. To measure language ability, for example, instructors might utilize a range of real-life performances, such as a narrative, report, or play, instead of a brief test. Similarly, domain-based tasks such as reading and generating maps, constructing bridges, performing a photographic project, or painting a mural may be used to test spatial ability. This conclusion is consistent with Baum, Veins, and Slatin (2005), who suggest that thinking about integrating MIs into evaluation across disciplines helps to maintain the assessment legitimate; in other words, it evaluates what it purports to measure. Armstrong (2018) asserts that it would be hypocritical to urge learners to engage in a broad variety of multi-

spectrum experiences in all eight intelligences and then want them to demonstrate their learning on standardized examinations that concentrate primarily on linguistic or logical-mathematical intellect. Wilson (2018) adds that learners' varied intelligences should be manifested in their learning processes, outcomes, and thinking, rather than merely tests and examinations. According to Hailong (2022), there is a need to integrate the MIT to establish a multi-assessment system for college English teaching and learning with the aim of offering an effective and workable solution to several issues in the language classroom.

Consequently, language instructors should be ready and well-prepared to put in the effort required to execute a MI-based classroom action plan. Commitment entails having the essential resources, developing MI activities that correspond with the reading curriculum, and allocating time for students to successfully complete such activities. Meanwhile, instructors and education professionals should provide learning resources that appeal to students' varied intelligences in order to cater to their diversity.

استخدام نظرية الذكاءات المتعددة لتعزيز مهارات القراءة لدى الطلاب السعوديين
الدارسين للغة الإنجليزية كلغة أجنبية
رفيق أحمد عبد المعطي محمد
المستخلص

تمثل نظرية الذكاءات المتعددة نوعاً من نظريات التدريس التي تسعى إلى التطوير المتكامل للمتعلم. استخدمت هذه الدراسة نظرية الذكاءات المتعددة لتعزيز الفهم القرائي لدى طلاب جامعة الإمام محمد بن سعود الإسلامية. تعتمد الدراسة على فرضية مفادها أن تعليم القراءة الفعال يجب أن يشمل الذكاءات المتعددة للطلاب، والتي تتوفر لدى كل متعلم بدرجات متفاوتة. استخدم الباحث تصميم الاختبار القبلي والبُعدي مع وجود مجموعة ضابطة. وضمت المجموعة التجريبية (35) طالباً من فصلين دراسيين، وتم تدريسهم القراءة من خلال نظرية الذكاءات المتعددة. ضمت المجموعة الضابطة فصلين دراسيين آخرين (38 طالباً)، وتعلموا القراءة وفقاً للطريقة المعتادة. واتبع الباحث استراتيجية تدريس قائمة على نظرية الذكاءات والتي مكنت الطلاب ذوي الذكاءات المختلفة من التفاعل مع أنشطة ومواد القراءة، وتعظيم نقاط القوة لديهم بالإضافة إلى تعزيز الذكاءات الضعيفة لديهم. وأظهرت نتائج الدراسة أن تعلم القراءة المعتمد على الذكاءات المتعددة أدى إلى تحسين الأداء الكلي للطلاب في القراءة وكذلك في كل مهارة قراءة. وخلصت الدراسة إلى أن فهم أنواع الذكاءات المتعددة يساعد المعلمين على فهم طلابهم وتوجيههم بشكل أفضل. وعند تقييم الكفاءة اللغوية للطلاب، يجب على معلمي اللغة الإنجليزية كلغة أجنبية مراعاة الاختلافات بينهم. بالإضافة إلى ذلك، يجب عليهم التركيز على نقاط قوة الطلاب.

الكلمات المفتاحية: الذكاءات المتعددة، الفهم القرائي، مهارات القراءة

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