The relationship between multiple intelligence profiles and reading strategy use of successful English as a Foreign Language (EFL) readers

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This study relied on Sheorey and Mokhtari's (2001) metacognitive knowledge about reading strategies, which was influenced by a number of factors, including previous experiences, beliefs, culture-specific instructional practices and proficiency in a second language (L2). This study is thereby built on the premise that EFL readers' metacognitive awareness of reading strategies was also influenced by their multiple intelligence profiles. The purpose of this study is to explore the integrated impact of multiple intelligences and reading strategies on EFL learners' reading performance. This was an explanatory sequential study, combining quantitative and qualitative research design. A convenience sample of 60 high school EFL learners from one of the Anatolian high schools in Istanbul, Turkey participated in this study. Two quantitative surveys and an achievement test, followed by a qualitative observation checklist, were used in this study to collect the data. The results of the study indicated that females were found to be more successful than males in EFL reading in addition to employing more support and problem solving reading strategies. In addition, this study also found that successful readers in EFL seemed to use more global strategies and tended to support reading strategies if they were dominant in musical, intrapersonal intelligences. Moreover, successful musically or verbally intelligent readers were found to use more problem-solving strategies. As a result, this study provides EFL teachers and curriculum designers with valuable information that will foster awareness of the role of these intelligence-strategy relations may play in triggering success in EFL reading, and thus, in their overall proficiency in the language.

Keywords: EFL reading; multiple intelligences; reading strategies

Introduction
Gardner (2011) has attempted to carry the differences between the learners into the hearth of educational processes and procedures. Gardner respected each person's capacity to learn, know and explore new things. In this way, as a criticism to the traditional view of intelligence, Gardner took the first step towards a revolution in cognitive psychology, education and philosophy, by embracing the impacts of both culture and society on this concept of multiple intelligences. In this context, it did not seem possible for the researchers interested in foreign language teaching to isolate themselves from the impact of this revolution. In a world where the bridge between the self and others is built with an international language, it seems to be necessary for people to integrate themselves into the globalised world. Therefore, one must be communicatively literate in English, which has come to be accepted as that international language that bridges the different parts of modern world to one another. Consequently, the application of Multiple Intelligence-based (MI-based) instruction of EFL has become a hot topic for researchers. Hence, the sub-skills, or the processes that determine success in learning this important language, English, have undergone extensive research.

Using this perspective, researchers focus on the role of reading as a skill "facilitating the development in other sub-skills of the language learning" (Anderson, 2003:2). The related literature analyses this crucial skill and locates successful reading as being rooted in strategic reading (Anderson, 2003; Block, 1986; Brantmeier, 2002). More specifically, reading, and the processes involved in it, have been commonly explored research areas in both first language (L1) and second language (L2) contexts (Baker & Boonkit, 2004; Block, 1986, 1992; Brown, 2002; Hayashi, 1999; Hosenfeld, 1977, as cited in Brantmeier, 2002; Phakiti, 2003b; Singhal, 2001). However, the success in what has become such a globally important process as mastering reading in EFL is also influenced by some other factors, including the learning and motivational backgrounds of the learners. These all require the application of multiple intelligences, the use of which is believed to increase success in reading in English (Eggen & Kauchak, 1994).

Consequently, by seeing the key of successful teaching as a holistic approach that explores the various intelligence types and learning styles of the students and then teaches them accordingly, this study aims to bring two recent themes together. When we accept the act of reading as a cognitive process in the brain and each of the multiple intelligences as a "unique cognitive profile" (Hajhashemi, Akef & Anderson, 2012:1475), it can be understood that both MI and reading strategies touch on the concept of a problem, as well as providing its solution. This has attracted the attention of educational researchers to the fact that comprehension requires the acquisition of some teachable strategic skills in order for students to become efficient readers in EFL. However, these mentioned skills may differ in respect to dominant intelligence types of the learners (Abdulkader, Gundogdu & Eissa, 2009; Hajhashemi et al., 2012; Heidari & Khorasaniha, 2013; Razmjoo, 2008). Therefore, researchers have suggested teachers train students to master strategies based on their dominant intelligences. This seems to be the first point, where multiple intelligences can be linked to the concept of

reading strategies. More specifically, Hajhashemi et al. (2012) argue that there are some reasons and conditions that make it necessary to study the relationship between reading as a skill and multiple intelligences in an Iranian setting. This leads to the second point of this article: the necessity to look at the connection between multiples intelligences and reading skills in a Turkish setting. Contextual concerns in this regard include a lack of native teachers of English at state schools; the necessity for students who wish to study a language-related field at university to learn English at the pre-university level for the sole reason of passing University Entrance Exams For Foreign Language Students (based mainly on assessing the test takers' reading skills) (LYS); and the necessity of learning the language at university or post-university levels so as to attain and comprehend the academic information in the studied area.

Within this perspective, by embracing the integrated impact of multiple intelligences and implementation of certain reading strategies on EFL learners' reading performance, this study will differ from the existing literature. Many previous research studies have been conducted in order to find the relationship between language proficiency, or more specifically reading achievement, and the dominant intelligence types of the subject (Abdallah, 2008; Abdulkader et al., 2009; Akbari & Hosseini, 2008; Hajhashemi et al., 2012; Mokhtari & Sheorey, 2002; Razmjoo, 2008; Tahriri & Yamini, 2010; Visser, Ashton & Vernon, 2006), or to investigate the relationship between reading proficiency and reading strategies (Baker & Boonkit, 2004; Block, 1986, 1992; Brown, 2002; Hayashi, 1999; Hosenfeld, 1977, as cited in Brantmeier, 2002; Javier, 1997; Phakiti, 2003b; Singhal, 2001). Other studies have focused on the relationship between learning strategies and multiple intelligences (Hajhashemi, Ghombavani & Amirkhiz, 2011; Rahimi, Mirzaei & Heidari, 2012). However, there is still a limited amount of research that connects these areas. Therefore, this study reflects the attempt to shed light on the relationship between dominant multiple intelligence types and self-reported L2 reading strategy use among successful and unsuccessful male and female high school readers of English in EFL. The main purpose of this study is embodied in the following primary research question:

Which combinations of intelligences and reading strategies can predict success in EFL reading?

Review of Literature
There is no one, widely accepted definition of reading to be found in the relevant literature. Therefore, various definitions of reading must be considered. The simplest definition of reading is proposed by Grabe and Stroller (2002). They define reading as "the ability to draw meaning from the printed page and [to] interpret the information appropriately" (Grabe & Stroller, 2002:9). However, the influence of many studies on EFL reading in the field has given cause for this definition to change. So, new definitions stressing the cognitive nature of the act of reading, which takes place between the reader and the text, have been adopted (Brantmeier, 2002). As a result, through the literature, it can be seen that this new notion of reading changes the roles of the reader. Readers are now regarded as active participants in the reading process, who make and confirm predictions based on their background knowledge and their command of various linguistic levels of metacognitive and cognitive knowledge (Block, 1986; Brown, 2002; Phakiti, 2003b).

Additionally, the deep analysis of the active process involved in EFL reading in EFL, discussion about the strategies, and the classifications of these strategies have all been focal points in the related literature. Consequently, strategies used in the active reading process, described as techniques and methods readers use to make their reading successful, were accepted as a subset of learning strategies (Baker & Boonkit, 2004). Researchers classified these reading strategies in EFL into six different categories. The *first classification* divides strategies into the three categories as cognitive, meta-cognitive and social/affective, depending on the observations of learners' strategy applications. The second classification further adds compensation strategies (Anderson, 1999; O'Malley & Chamot, 1990). The following classification embraces the first two and then divides reading strategies into direct strategies that include memory, cognitive and compensation strategies, and indirect strategies covering meta-cognitive, affective and social strategies (Oxford, 1990, as cited in Hismanoglu, 2000). The fourth classification divides reading strategies into the text-level (top-down) and word-level (bottom-up) strategies (Brantmeier, 2002). A further classification splits reading strategies into global (general) and local processing strategies. Finally, the last classification labels strategies as pre-reading, while-reading, and after-reading strategies, respectively (Block, 1986).

This study is based on Sheorey and Mokhtari's (2001:433) assertion that "the reader's meta-cognitive knowledge about reading includes an awareness of a variety of reading strategies and that the cognitive enterprise of reading is influenced by this metacognitive awareness of reading strategies". Moreover, they claim that this awareness includes both awareness of the strategic reading processes and the implementation of reading strategies, which distinguishes the skilled from unskilled readers. Therefore, these researchers developed a survey to measure English as Second Language (ESL) or EFL students' use of reading strategies. This survey model was based on another survey, measuring the strategies of native English speaking students. They

suggested three different categories of reading strategies (Mokhtari & Sheorey, 2002):

a) *Global Reading Strategies (GLOB)*: which include intentional and carefully planned generalised reading strategies that help the reader adapt to reading at their own speed and with a purpose, previewing and predicting the topic of the text, etc.

b) *Problem Solving Strategies (PROB)*: more bottom-up specific problem-solving or repair strategies that readers employ when they come across problems in understanding textual information.

c) *Support Reading Strategies (SUP)*: which involve simple strategies such as taking notes, underlining or highlighting the textual information, and using reference materials like dictionaries that help the readers understand the text.

In this respect, the theoretical framework of the study relied on Sheorey and Mokhtari's (2001) view that the reader's metacognitive knowledge about reading strategies may be influenced by their beliefs, culture-specific instructional practices and proficiency in the L2. Thus, this study is built on the premise that EFL readers' metacognitive awareness of reading strategies is also influenced by their multiple intelligence profiles. This notion of multiple intelligences is derived from Gardner's Multiple Intelligences Theory (Gardner, 1983). This theory is based on the following redefinition of intelligence, stated as: "a bio-psychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture" (Gardner, 1983:34). This definition emerged in opposition to the traditional definition of intelligence as a general capacity for conceptualisation and problem solving, which can be measured by IQ tests (Visser et al., 2006). Gardner viewed intelligence as "the composite of different abilities and aptitudes" (Akbari & Hosseini, 2008:143) and proposed seven different intelligences: Linguistic, Spatial (Visual), Logical/Mathematical, Interpersonal, Intrapersonal, Bodily-Kinesthetic, and Musical (Gardner, 1983). This multiple intelligences theory posited that people have these seven intelligences in varying degrees and in unique cognitive profiles, thus enabling them to understand, perceive and express the world and themselves. Furthermore, Gardner later added "naturalistic intelligence in 1999 and suggested that an existential intelligence might exist in 2001, but that a hypothesized [sic] spiritual intelligence does not" (Visser et al., 2006:487). Gardner concluded that this 'spiritual' intelligence did not meet his criteria for intelligence, and was in need of more empirical evidence. He thought this was closer to morality, and that morals did not belong in this classification. Therefore, in this study, the researchers did not consider existential intelligence, which stands for the terms included in spiritual intelligence, as one of the intelligences.

To sum up, the theoretical framework of this study was based on Sheorey and Mokhtari's (2001) view of EFL reading strategies that distinguish skilled readers from the unskilled ones, and Gardner's (1983) theory of multiple intelligences, which introduced a concept of man with multiple abilities, which defines it as "the ability to solve problems, or to create products, that are valued within one or more cultural settings" (Gardner, 1983:x). Hence, to create the basis for future comparison, a discussion and review of the research studies conducted on L2 reading strategies follows, along with a discussion of multiple intelligences in EFL in two parts.

Reading strategy and MI research in EFL

With the impact of the shift in the tendency to regard the process of reading and readers themselves as active, a great deal of research has been conducted to identify the possible differences between how both successful and less successful readers comprehend a text, and what strategies they use while reading in English as a second and foreign language (Anderson, 2003; Baker & Boonkit, 2004; Block, 1992; Brown, 2002; Carrel & Eisterhold, 1983; Hayashi, 1999; Hosenfeld, 1977; Javier, 1997; Phakiti, 2003b). Some more recent studies in the literature have focused on the role of gender in EFL reading performance and strategy use (Hajhashemi et al., 2012; Keshavarz & Ashtarian, 2008; Lee, 2012).

The common thread in these studies, despite inconsistent views about the role of gender, is that successful readers are field independent, use top-down strategies rather than bottom-up ones, as well as general rather than local strategies. The researchers also concluded that successful readers use metacognitive and cognitive strategies, frequently approaching the text as a problem (Bharuthram, 2012).

Due to growing interest in learner-centered perspectives in education, a number of efforts were made by researchers to investigate the role of MI theory in language learning, as well as proficiency in its sub-skills such as reading, listening and writing. However, there is a dearth of studies on the link between MI and EFL in Turkey. Most similar studies on MI and EFL, especially reading, were conducted in Iran (Hajhashemi et al., 2012; Hajhashemi et al., 2011; Rahimi et al., 2012; Razmjoo, 2008).

In general, there are very few studies that have been conducted concerning MI and EFL emanating from a Middle East setting. One conducted by Green (1999) indicated that the application of the MI theory improved students' academic achievement and motivation in diverse L2 classrooms. In his qualitative study, he also explored teachers' positive attitudes towards the application of MI reporting, where it helped students achieve higher test scores.

During the second half of the last decade, research of this nature in the Middle Eastern con-

text, especially in Iran, held the goal of understanding the relationship between MI and learning styles, learning/reading strategies or overall performance in EFL or its sub-skills. In this respect, some researchers have attempted to explore MI in EFL in Iran, with its relation to language learning performance and strategies (Abdulkader et al., 2009; Akbari & Hosseini, 2008; Razmjoo, 2008; Tahriri & Yamini, 2010). However, these studies, in which researchers primarily collected data from university students through the use of MI questionnaires and reading strategy scales using a quantitative design, produced inconsistent results. Akbari and Hosseini (2008) indicated that linguistic, interpersonal, and logical-mathematical intelligences had a positive relationship with metacognitive, cognitive and memory learning strategies. Moreover, they posited that proficient L2 learners of English had higher verbal/linguistic intelligence. However, Razmjoo (2008), surprisingly, did not find any significant results to support this. On the other hand, Abdulkader et al. (2009) and Tahriri and Yamini's (2010) findings seemed to support Akbari and Hosseini's (2008) results. These researchers found a statistically significant impact of MI-based instruction on the participants' achievement in EFL and, more specifically, on reading comprehension and word recognition skills. Some experimental studies in Turkey also supported the positive role of MI-based instruction played in the levels of students' motivation and success (Baş, 2010; Demirel, 1998). Some more recent attempts were made by Hajhashemi et al. (2012); Hajhashemi and Eng (2012); Hashemi (2007); Heidari and Khorasaniha (2013) in Iran, to relate MI to reading proficiency. In these studies, the researchers collected data through the use of questionnaires and reading proficiency tests from the Test of English as a Foreign Language (TOEFL). They indicated that successful EFL readers, who were found to be internally oriented, wanted to learn for the sake of learning. Moreover, successful readers were also found to be more visually, but less musically intelligent. Studies conducted by Hajhashemi, Shakarami, Anderson, Yazdi-Amirkhiz and Zou (2013) and Rahimi et al. (2012) are similar to the present study. However, they investigated the issue in terms of language learning strategies and overall language proficiency, not just reading. Although they aimed to investigate the impact of successful EFL readers' MI profiles on their use of reading strategies, Rahimi et al. (2012) used a learning strategy inventory to explore participants' use of reading strategies. Moreover, they used Oxford's terminology and considered language learning strategies (cognitive, metacognitive, compensation, memory, affective and social) as reading strategies. They indicated that all intelligences except for naturalistic ones, are related to all strategies in varying degrees.

The researchers hypothesise that successful EFL readers use certain reading strategies, and are dominant in certain intelligences. Therefore, this study promises valuable information that will foster awareness of the role of these intelligence-strategy relations in triggering success in EFL reading and, thus, the total proficiency in the language.

Methodology
Design
This *explanatory sequential* study is grounded in a *mixed method design,* in order to scrutinise the relationships among EFL high school students' performances in a reading achievement test, and their reading strategy repertoires and their dominant intelligence types. This type of study is defined by Creswell (2012:542) as "a two-phase model consisting of first collecting quantitative data and then collecting qualitative data to help explain or elaborate on quantitative results". The underlying reason behind the choice of this design was that MI profiles and reading strategies, seem conceptually difficult to explore solely by collecting quantitative data through the administration of an inventory in which the participants give close-ended answers. Therefore, researchers collected qualitative data, and used an observation checklist for teachers. In this way, this study is grounded in a mixed method design so as to better understand the issue.

Research Questions
The following research questions are intended to guide the study in order to determine the relationships among the Multiple Intelligences, reading strategy use, and reading achievement in EFL:
1. Do male and female high school EFL learners differ significantly in terms of their
    a. performance in EFL reading,
    b. dominant multiple intelligence types and,
    c. reading strategy types?
2. Is there a significant relationship between
    a. reading strategies employed by the participant high school EFL learners and their performance on an EFL reading comprehension test?
    b. reading strategies employed by the participant high school EFL learners and their dominant multiple intelligence types?
    c. dominant intelligence types of the participant high school EFL learners and their performance on an EFL reading comprehension test?
3. Which combinations of intelligences and reading strategies can predict the success in EFL reading?

Participants
The study employed *convenience sampling* on the site of data collection, and included 60 high school EFL learners from an Anatolian high school in Istanbul, Turkey. Using *stratified sampling*, the researcher included the participants based on their grades, so as to produce more reliable data. Therefore, three classes were chosen: one 10th Grade,

one 11th Grade and one 12th Grade. Ninth graders were consciously excluded since their level of EFL was limited. The participants were 16 tenth-graders (four males, 12 females), 29 eleventh-graders (22 males, seven females) and 15 twelfth-graders (four males, 11 females). The mean age of the participants was 15,9 years old.

As noted by Creswell (2012:146), such a sample "can provide useful information for answering questions and hypotheses". Due to the constraints of time and funding, this sampling was chosen because the students at the school in question were available and volunteered to participate in the study, and the researchers had the permission of the headmaster.

Instruments

Three types of data that show the reading proficiency of the participants in EFL, their dominant intelligence, and reading strategy types, were collected. Two quantitative surveys and an achievement test, followed by a qualitative observation checklist, were used in this study to collect the data for each group stated above. *The Reading Comprehension Test* was administered to measure the EFL reading ability of the participants ($\alpha = 0{,}85$). It consisted of 20 items adopted from 2005 (18 items) and 2006 Foreign Language Exam (YDS) (two of the paragraph completion items). YDS is a central common examination conducted to determine the students to be enrolled at foreign language departments at universities in Turkey.

The Survey of Reading Strategies (SORS) (Mokhtari & Sheorey, 2002) was administered to 60 EFL Turkish students to explore their reading strategy types. The SORS was developed by Mokhtari and Sheorey (2002) based on Meta-cognitive Awareness Reading Strategies Inventory (MARSI) ($\alpha = 0.89$). It measures three broad categories of reading strategy across 30 items, namely: global reading strategies (13 items), problem-solving strategies (eight items), and support strategies (nine items). The researchers employed a five-point Likert scale ranging from 1 ('I never or almost never do this') to 5 ('I always or almost always do this'). The original English version was translated by the researcher into Turkish, so as to ensure that the students could easily circle the number in the scale that they thought best reflected their experiences, without hinderances based on ESL/EFL proficiency. Thereafter, this translated questionnaire was sent to a professional translator of ESL/EFL. By comparing the back translation and Turkish version, necessary changes were made in the Turkish version that would ultimately be administered in the study. Finally, it was revised by two experts in the field of English Language Teaching ($\alpha = 0.88$; Global = 0.72; Problem Solving = 0.85; Support = 0.73).

In order to identify the intelligence profile of the participants, McKenzie's (1999) *MI inventory* was used in the current study. The original inventory consists of 90 statements related to each of the nine intelligences proposed by Gardner (1983). However, in the current study, the section related to existential intelligence was omitted, since this was not accepted by Gardner as an intelligence (Visser et al., 2006). Translation, back translation, revision and a pilot test of the inventory were all employed, and the inventory was found to be within acceptable reliability values ($\alpha = 0.83$; Intrapersonal = 0.66; Naturalistic = 0.64; Visual = 0.82; Musical = 0.65; Verbal = 0.70; Interpersonal = 0.74; Kinesthetic = 0.63; Logical = 0.62).

The concept of MI has a cognitive nature and therefore is difficult to understand based on survey results alone, especially ones that include closed-ended items. To have a better and more valuable understanding of a participant's intelligence profiles emerging as a result of the administration of the MI inventory, the researchers attempted to mix the methods by using the *observation checklist* developed by Armstrong (2003). This checklist is considered to be valid, since it includes 10 items for each of eight intelligences compatible with those in the reliable MI survey itself. Two volunteer colleagues of the researcher were informed about the translated version of the checklist and it was ensured that they all understood the items in the checklist. In addition, to ensure reliability and validity, five experts within the college of education read and revised the survey items and observation checklist. Following the stratified sampling, six students were selected to be observed, one male and one female from each of the three grades (tenth, eleventh and twelfth). Three participant observer teachers from different majors, one of whom was the researcher, observed the students for three days. They completed the checklist based on their observations and general knowledge about those six students.

The data collection procedures were rooted in the findings of the pilot of this study conducted with 10 students in 2011. Based on permission from the Institutional Review of Board (IBR) with a notice of 01-704 issued on 28 November 2013, the data for this research study was collected in the first and second weeks of December in the 2013-2014 academic year. All students were ensured that all individual performance was confidential, and that they were free not to participate in the study or use pseudonyms, after which volunteer students were asked to complete the aforementioned instruments.

Data Analysis

The data collected as a result of the administration of these four instruments was analysed both

quantitatively using the SPSS, Version 21 and qualitatively, by evaluating the results of the observation checklist and comparing them to the results of the survey. T-tests were run to explore the possible differences between male and female readers' use of reading strategies, their EFL reading performance, and their MI types. Kruskal Wallis-H tests and Mann Whitney as post-hocs were computed to ascertain the impact of each of the individual strategies and MIs on participants' reading performances. Correlation analyses were also computed in order to determine the relation between reading strategies and intelligences of the participants in general, as well as those of successful readers, separately.

Limitations of the Study

Creswell (2012) suggests researchers need about 30 participants for a study exploring the relations among more than two variables. Although the size of the study is adequate, it is limited to learners from the high school, where the researcher works

as a teacher. It is noted to be possible that the results might differ if different groups of learners from different schools are tested. Triggered by many factors, such as lack of time and funding, this limitation prevented the researchers from being able to generalise the findings. In addition to the instruments used in the study, students were limited in the time that they were given to provide answers to the survey questions. In addition to the constraint of time, the study was also limited to the assumption that the EFL students truthfully participated in the study by marking the best options in the tests and surveys to reflect themselves.

Results

The results of the statistics are presented for each of the research questions respectively, in the tables developed by the researchers. Thus, the first table below explores whether male and female participants differed in terms of their reading strategy types, dominant intelligence types, and performance on the EFL reading comprehension test.

Table 1 Independent Samples T-Tests for Gender & Reading Performance, Reading Strategies and MI

Factor	Gender	N	$\overline{x}$	ss	$Sh_{\overline{x}}$	t	Df	p
Reading Performance	Male	30	44.5	25.2	4.6	-3.30	58	0.002
	Female	30	64.5	21.9	4.01			
Global Strategy	Male	30	3.21	.687	.125	-1.74	58	0.085
	Female	30	3.50	.637	.116			
Support Strategy	Male	30	2.85	.751	.137	-4.02	58	0.000
	Female	30	3.56	.623	.113			
Problem Strategy	Male	30	3.53	.542	.099	4.19	58	0.000
	Female	30	4.09	.493	.090			

As shown in Table 1, separate Independent Samples T-tests were run to determine the impact of gender on reading strategies, multiple intelligences and reading performance. The results indicated that female students were significantly more successful than their male counterparts on the EFL reading achievement test (*t = 3.30*; p < .01). Moreover, three subsequent tests showed that female EFL students used significantly more problem solving and support reading strategies than did males, when reading a text in English (*t = - 4.02; - 4.19*; p < .01). Additionally, eight Independent

Samples T-tests were run to explore the impact of gender on the participants' MIs. As a result, it appears that male and female participants did not differ significantly according to their dominant intelligences (p > .05). Therefore, these insignificant results were excluded in Table 1, above.

Kruskal Wallis H-tests and Mann-Whitney U-tests were run as post hocs to answer the second research question. A non-parametric version of ANOVA was used, since the number of the participants in two of the subgroups was less than 30.

Table 2 Kruskal Wallis H Test for Reading Performance & Reading Strategy Types

Factor	Strategy	N	Mean Rank	Chi^2	Df	p
Reading Performance	Global	6	12.08	7.75	2	0.021
	Support	6	28.92			
	Problem	48	33.00			

As seen in Table 2, the Kruskal Wallis H-test revealed significant difference among reading performance of the subjects, who tended to use global, problem-solving and support reading strategies

(chi^2= 7.75; p < .05). To find out which of these three strategy types have an impact on the reading test scores, three Mann-Whitney U tests were computed as a post hoc of Kruskal Wallis on each

of the strategy types, respectively. The results suggest that students who reported to use problem solving strategies most, were better readers of EFL than those who reported using global strategies (u =

45; p < .01). No other significant differences were found among the other strategies in terms of EFL reading performance.

Table 3 Kruskal Wallis H Test for Reading Performance & MI

Factor	Intelligence	N	Mean Rank	*t* Test Chi^2	*Df*	*p*
Reading Performance	Musical	2	22.25			
	Logical	4	37.13			
	Intrapersonal	23	29.78			
	Kinastehatic	10	20.90	18.735	6	0.004
	Verbal	14	45.04			
	Interpersonal	5	15.10			
	Visual	2	18.50			
	Naturalistic	0	-			

The results of the MI Inventory were also supported with the observations of six students. The results of the observation produced compatible results with those of the inventory. Based on such a method of exploring participants' intelligences, the Kruskal Wallis test was computed so as to understand whether the intelligences were effective in EFL performance. As seen in Table 3, participants' performances on the EFL reading test were found to differ significantly according to their dominant intelligence types (chi^2 = 18.73; p < .01). Since there is not any specific post-hoc, 21 Mann-

Whitney U-tests were run to detail the impact of MIs on the EFL reading performance. As a result, verbally dominant participants were found to be better readers of EFL than those self reported to be interpersonally, intrapersonally and bodily dominant in their intelligences (u = 5; 65.5; 17.5; p < .01). Moreover, students who reported dominance in intrapersonal intelligence were significantly more successful in EFL reading than interpersonally intelligent students (u = 24; p < .05).

Table 4 Pearson Product Moment Correlations for Reading Strategies & MI

		Natur.	Music.	Logic.	Intra.	Kinast.	Verbal	Inter.	Visual
Global	*Pearson Cor.*	.358**	.420**	.131	.529**	.084	.190	.112	.360**
	P	.005	.001	.320	.000	.523	.145	.393	.005
	N	60	60	60	60	60	60	60	60
Support	*Pearson Cor.*	.090	.217	-.022	.375**	.032	.216	-.152	.122
	P	.492	.096	.868	.003	.808	.098	.246	.354
	N	60	60	60	60	60	60	60	60
Problem	*Pearson Cor.*	.216	.245	.240	.256*	.083	.333**	-.009	.233
	P	.097	.059	.065	.049	.527	.009	.947	.074
	N	60	60	60	60	60	60	60	60

Pearson product moment correlations were computed to explore the relation between each of the reading strategy scores and multiple intelligence scores. Table 4 reveals a significant relationship between strategies and intelligences. Participants' use of the global reading strategy was found to have a positive correlation with naturalistic, musical, intrapersonal and visual intelligences (r = .34; .42; .51; .41; p < .01; .001). On the other hand, a relationship was found between the support reading strategy use and intrapersonal intelligence (r = .36; p <.01). Another positive relationship was also discovered between the use of the problem solving reading strategy, and intrapersonal and verbal intelligences (r = .256; .33; p < .05; .01).

To answer the last and most important research question of the study, 60 participants were divided into three groups: unsuccessful, average achievers, and high achievers. The rating scale originally used to assess high school students' academic success in Turkey was followed. In this respect, 23 students who scored 70 or above, were accepted as successful readers in EFL, and their reading strategy use and types of MIs were analysed in detail following correlation analyses. The Spearman Rho Correlation, non-parametric version of Pearson, was selected, since the number of successful readers was less than 30.

The results of Table 5 indicate that there is a positive significant relationship between successful

readers' use of each of global, support reading strategies and each of their scores of musical, intrapersonal intelligences (r = 0.557; 0.740; 0.602; 0.600; p < .01). Moreover, a positive relationship was also observed between successful readers' use of problem solving strategies and their scores of musical and verbal intelligences (r = 0.436; p < .05). If it is possible to evaluate the results of significance at p < 0.1, a small positive relationship can be seen between successful EFL readers' problem solving strategy use and their intrapersonal intelligences (r = 0.372; p < 0.1).

Table 5 Spearman Correlation for Successful EFL Readers' Reading Strategies & MI

		Natur.	Music.	Log.	Intra.	Kinast.	Verbal	Inter.	Visual
Global	Spearman Cor.	.387	.557	-.073	.740	-.034	-.099	.107	.209
	P	.068	.006	.740	.000	.877	.654	.627	.340
	N	23	23	23	23	23	23	23	23
Support	Spearman Cor.	.125	.602	-.248	.600	.090	-.189	.146	.240
	P	.570	.002	.254	.002	.682	.388	.505	.270
	N	23	23	23	23	23	23	23	23
Problem	Spearman Cor.	.159	.436	-.061	.372	.058	.125	.286	.223
	P	.468	.038	.783	.080	.793	.050[*]	.185	.307
	N	23	23	23	23	23	23	23	23

Discussion

This section is devoted to the discussion of each of the research questions in light of the results obtained. This study reveals that females were more successful in EFL reading and used more support and problem solving reading strategies than males. The results of the study, in terms of the impact of gender on reading strategy use, were not consistent with some previous studies that found male and female college students did not differ significantly on any of the three SORS subscales (Poole, 2005; Sheorey & Mokhtari, 2001). However, other earlier studies support the findings of the current study (Javier, 1997; Lee, 2012; Phakiti, 2003a; Sheorey, 1999). Those studies indicate the impact of gender on strategy use by showing a greater use of metacognitive strategies by females. However, the contrary nature of the results with other studies in the literature can be explained by the fact that females in the current research were found to be better readers of English than the males in this study. Although females' superiority to males in EFL reading was rejected by very few studies (Hajhashemi et al., 2012; Razmjoo, 2008), most of the studies in the literature support it (Hung, 2001; Keshavarz & Ashtarian, 2008; Mendi, 2009). Therefore, it was suggested by Mendi (2009) and supported by Heidari and Khorasaniha (2013) that females are more motivated to learn English and be successful. In terms of MIs, the male and female participants were not found to differ. This seems to be consistent with Ghadam and Moafian (2008) and Razmjoo (2008) while it contrasts with the results of some other studies, indicating that females and males were superior to each other in various intelligences (Hajhashemi et al., 2012; Hajhashemi & Eng, 2012; Sarıcaoğlu & Arıkan, 2009).

The impact of reading strategies and MI are more certain (Chamot, 2004). Consistent with many research studies, high scores in EFL reading were found to be related to frequent use of problem solving strategies over global reading strategies (Block, 1986, 1992; Chamot, 2004; Hayashi, 1999; Phakiti, 2003b; Sheorey & Mokhtari, 2001). These types of readers are explained to be dominant in meta-cognition, and are aware of the self-generated mechanisms that they use to monitor and enhance comprehension (Sheorey & Mokhtari, 2001). Moreover, verbally and intrapersonally, dominant participant students were found to be better readers of English than their interpersonal, intrapersonal and bodily intelligent counterparts. Contrary to Razmjoo (2008) who found that none of the intelligences predicted success in language learning as a whole, the current results are consistent with the findings of Akbari and Hosseini (2008), Hajhashemi and Eng (2012), Hashemi (2007) who indicate that verbal intelligence is the predictor of reading ability. This result is supported with the fact that "language learning and use are obviously closely linked to what MI theorists label Linguistic Intelligence" (Akbari & Hosseini, 2008:153). In addition, the current study also reveals the relationship between global reading strategy use and naturalistic, musical, intrapersonal and visual intelligences; support reading strategy use and intrapersonal intelligence; and problem solving reading strategy use and intrapersonal and verbal intelligences. These results are in line with many other studies that follow both similar and different classifications of reading strategies (Akbari & Hosseini, 2008; Hajhashemi et al., 2013; Rahimi et al., 2012). Hajhashemi et al. (2013) suggested that intelligence and strategies are of the same nature dealing with the problems at different levels. Moreover, Akbari and Hosseini (2008:150) state that "many aspects of MI correspond to certain aspects of language use, such as communication skills (linguist, interpersonal), meta-cognition (intrapersonal) and general cognitive abilities (mathematical)". Therefore, a significant relationship between multiple intelligences and reading strategies was expected.

As the most distinctive feature of the study, successful readers' use of reading strategies and their MIs, were considered in detail. It was determined that successful readers in EFL seemed to use more global strategies and support reading strategies if they were dominant in musical, intra-personal intelligences. On the other hand, musically or verbally intelligent successful readers were found to use more problem solving strategies. To the researcher's knowledge, there has not been any previous research study focusing on this aspect of successful readers following the same classification of reading strategies. Rahimi et al. (2012) conducted the only comparative study. Consistently, they found "a positive significant relationship between linguistic, logical-mathematical, spatial, interpersonal and intrapersonal intelligences and reading strategy use, in general and meta-cognitive and cognitive reading strategy use, in particular" (Rahimi et al., 2012:1134). These results suggest that musically or verbally intelligent successful readers in English are more conscious in planning and storing information, and harbour more skillful plans to go through a text when they consider it as a problem to be solved. On the other hand, Li (2010) suggested that musically intelligent or intrapersonally intelligent students tended to apply more reference materials, or underline or circle certain parts of the text in order to support themselves and to develop more overall strategies to deal with the text, such as paying attention to the characteristics of the text or guessing about its topic.

Conclusion

This study was conducted to shed light on the relationships among successful EFL readers' MI types, reading strategies, and performance. The impact of gender was also investigated in each of the variables. The results of the study indicated that female EFL high school students seem to be more successful in EFL reading and employed more support and problem solving reading strategies. Moreover, frequent use of problem solving strategies was found to bring about success in EFL reading.

Klapwijk (2012:192) has stated that "for teachers to make sustainable changes to their instructional methods, new implementations must adhere to specific principles, and importantly, must provide evidence that they produce results". Therefore, EFL teachers are strongly advised to enrich their reading materials and topics to appeal to male interests, and to trigger enjoyment in reading in EFL, since this could positively affect their reading skills and performance. Furthermore, necessary steps should be taken by policy makers and curriculum designers to develop a type of strategy instruction that covers an analysis of successful readers' strategies and incorporates the empirically validated reading strategies into the reading curriculum of language courses.

This study also produced results showing the impact of certain intelligences on student's reading performance. Since it is difficult for teachers to redesign their syllabus completely, teachers should employ a balanced approach, where different windows of insight are opened out onto the same issue by organising the instruction around the learning preferences of their students, with their respective strengths and weaknesses in mind. Teachers should also measure learners' performances by employing authentic assessment procedures in a number of different ways, so as to appeal to as many students as possible (Gardner, 2011).

This study also found that reading strategy use of successful EFL high school readers appears to be related to dominance in some certain types of MIs. In this respect, the current study provides EFL teachers and curriculum designers with an awareness that will help them create an atmosphere in reading classes where they might teach reading through "music, art, nature experiences, logical analyses, dramatic performances, oral recitations, emotional expression, social interaction and a wide range of other creative nutrients" (Armstrong, 2003:136). Such a personalisation of the atmosphere, together with the strategy instruction depending on the intelligence profiles of the students "can bring different benefits such as increased learning performance, greater enjoyment, enhanced motivation and reduced learning time" (Kelly & Tangney, 2006:407).

To the researchers' knowledge, no similar research has been conducted on EFL high school students in Turkey. Therefore, this fact, together with the small sample size, makes it obligatory to treat the results of the study with caution. To fill in the gap in the literature with more consistent results, more studies following similar designs with a larger sample are recommended. To better understand the issue in detail, further research with EFL learners from different levels of education and English, following different designs, concerned with different issues that may affect language learning, may enrich our perception of the phenomenon.

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