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# The Correlation of IQ and Emotional Intelligence with Reading Comprehension

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## ABSTRACT

*The aim of this study was to determine the impact of both IQ and emotional intelligence on reading comprehension in Iran. Forty-five EFL college students from Payame Noor University of Gonbad and Azad University of Gorgan participated in this study. Three independent tests were administrated, including Bar-On's emotional intelligence inventory (EQ-i), Raven's Advanced Progressive Matrices, and the reading comprehension portion of the TOEFL (2005). The results indicate that the relationship between IQ and reading comprehension is stronger than the relationship between total emotional intelligence and reading comprehension. A small but significant correlation was found between reading-comprehension scores and some emotional-intelligence subscales such as interpersonal abilities, intrapersonal abilities, and stress management. It follows that IQ is a more determinative factor in reading-comprehension proficiency than emotional intelligence.*

## INTRODUCTION

In the past fifteen years, many have argued that reading is the most important academic skill for second language students. Given the portability of books and other reading materials, reading is gradually being recognized as a valuable source of language input, particularly for students in learning environments (as in some EFL contexts like Iranian universities) in which fluent speakers of English are generally not available to provide language input (Celce-Murcia, 1991). Of the factors which may influence learners' proficiency, two intelligence types are studied in this research. The first one is intelligence quotient (IQ), which is defined as "the global capacity to act purposefully, to think rationally, and to deal effectively with one's environment" (Wechsler, 1958, p. 34). For many years, the results of IQ tests were used as the predictor of students' success in an academic setting, but recently another type of intelligence was presented known as *emotional intelligence* (EQ), the second type of intelligence. Emotional intelligence is defined as "the ability to perceive emotions, integrate emotions to facilitate thought, understand emotions, and to regulate emotions to promote personal growth" (Salovey & Mayer, 1990, p. 67). Goleman (1995, 2001) claims that, at best, IQ only accounts for twenty percent of the factors determining

success in life, whereas the emotional intelligence quotient (EQ) accounts for the other eighty percent (Goleman, 1995).

The goal of the current research is to study the relationship among IQ, EQ, and reading comprehension to determine which of these two intelligence types is a more effective factor in reading-comprehension proficiency.

## BACKGROUND

### Intelligence

The definition of intelligence itself has been a major source of debate, and, as Sternberg (1985) argues, there seems to be almost as many definitions of intelligence as there are experts asked to define it (see also Gregory, 1998). Nevertheless, Carroll (1993) defines intelligence as a type of mental ability that concerns the handling of (and reasoning about) information of various sorts. Often, these abilities are described as falling along a hierarchy from simple perceptual processes and information processing to higher and more general forms of problem solving.

Theories of intelligence are often based on psychometric data collected from individuals performing tasks perceived to measure intellectual functioning (Weinberg, 1989, p. 98). Generally speaking, these theories can be assigned to one of two camps, "lumpers" or "splitters" (Mayr, 1982, p. 240). Lumpers define intelligence as a general, unified capacity for acquiring knowledge, reasoning, and solving problems. The developers of the first useful intelligence test were Binet and Simon (1911), lumpers, who saw intelligence as a "fundamental faculty": judgment, practical sense, initiative, and adapting to circumstances (Weinberg, 1989, p. 98). Spearman (1904), a lumper, coined the term *g factor* for general intelligence. Kakkar (2005) noted that intelligence, according to Spearman's *g*, though varying freely from individual to individual, remains the same for any one individual in respect of all abilities (Kakkar, 2005, p. 86). For many years, scientists argued that general intelligence—the *g factor*—could suffice empirically to represent an individual's many cognitive abilities in predicting occupational, educational, and life success (Jensen, 1998). Although *g* is a plainly powerful and efficient index of mental ability, the idea that just one construct might have such universal importance has been hotly debated by splitters.

Psychologists of the splitter persuasion hold that intelligence is composed of many separate mental abilities that operate more or less independently. Researchers such as Thurstone (1938) and Guilford (1967) have opted for distinct mental capabilities. Another splitter, Gardner (1983), believed that intelligence is much more than IQ, and developed the theory of multiple intelligences by proposing eight different types of intelligences: linguistic, logical-mathematical, bodily-kinesthetic, musical, visual-spatial, intrapersonal, interpersonal, and naturalistic.

Furthermore, Sternberg (1985) proposed a triarchic theory of intelligence which is built on three cornerstones: (a) Intelligence cannot be understood outside of a sociocultural context; thus, the ability to adapt to one's environment is no small part of intelligence; (b) Intelligence is purposeful, goal-oriented, relevant behavior consisting of two general skills: the ability to deal with novel tasks and the ability to develop expertise, that is, the ability to learn from experience to perform mental tasks effortlessly or automatically; and, finally, (c) Intelligence depends on acquiring information-processing skills and strategies (Weinberg, 1989, p. 99). Of course, further developments in all areas occurred in the middle and final decades of the twentieth century. However, many developments were extensions or refinements of basic principles that were already available.

**Emotional Intelligence**

Salovey and Mayer (1990) introduced the term *emotional intelligence* in their influential article, and defined it as "the subset of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (p. 189). Salovey and Mayer's model contains four different factors of emotional intelligence: reflectively regulating emotions, understanding emotions, assimilating emotions in thought, and perceiving and expressing emotions (Mayer & Salovey, 1997). According to Mayer and Salovey, the four branches of their model are arranged from more basic psychological processes to higher, more psychologically integrated processes. For example, the lowest level concerns the (relatively) simple abilities of perceiving and expressing emotion. In contrast, the highest level concerns the conscious, reflective regulation of emotion. The first level consists of learning how to discern and demonstrate emotions in oneself and understanding others' emotions. The second level is where one learns to employ emotions to assist decision making. In the third level, one learns, interprets, and examines emotions. The fourth and final level includes learning how to direct and govern one's own and control others' emotions by showing appropriate reaction (Mayer, Salovey, & Caruso, 2000).

However, the term *emotional intelligence* entered the mainstream with Goleman (1995), who believes that it consists of five components: knowing our emotions (self-awareness), managing them, motivating ourselves, recognizing emotions in others (empathy), and, finally, handling relationships. But in his most recent model (Goleman, 2001), he classified the twenty competencies into four clusters: self-awareness, self-management, social awareness, and relationship management. Self-awareness includes being conscious of and appreciating one's own feelings. Self-management includes effectively and productively managing one's emotions. Social awareness includes associating with, and feeling part of, one's social group. Finally, relationship management includes appreciating and affecting other's emotions.

Bar-On (1997, 2002) was the first person to coin the term *emotional quotient* (EQ) to describe how understanding yourself, relating well to others, successfully coping with stressful situations, and solving problems were all associated with psychological well-being. After seventeen years of research, he developed the Bar-On Emotional Quotient inventory (EQ-i), which is the first scientifically developed and validated measure of emotional intelligence with fifteen different aspects of emotional intelligence that blends abilities, traits, and skills. It reflects one's ability to deal with daily environmental challenges and helps predict one's success in life, both personal and professional (Abraham, 1999). Bar-On (2002) defined EQ as "an array of personal, emotional, and social abilities and skills that influence one's ability to success in coping with environmental demands and pressures" (p. 14).

Bar-On (1997) also designed a framework classifying the fifteen components into five discrete domains: intrapersonal, interpersonal, stress management, adaptability, and general mood. The intrapersonal dimension involves emotional self-awareness (the ability to recognize and to understand one's feelings); assertiveness (the ability to express feelings, beliefs, and thoughts, and to defend one's rights in a non-destructive manner); self-regard (the ability to respect and accept oneself); self-actualization (the ability to realize one's potential capacities), and independence (the ability to be self-directed and self-controlled in one's thinking and actions and to be free of emotional dependency). Interpersonal skills involve empathy (the ability to be aware of, to understand, and to appreciate the feelings of others), social responsibility (the ability to demonstrate oneself as a cooperative, contributing, and constructive member of one's social group), and interpersonal relationship (the ability to establish and maintain mutually satisfying relationships that are characterized by emotional

closeness, intimacy, and by giving and receiving affection). Stress management involves stress tolerance (the ability to withstand adverse events and stressful situations and conditions); impulse control (the ability to resist or delay an impulse, or temptation to act); adaptability (comprising reality-testing, flexibility, and problem-solving); and general mood (comprising optimism and happiness).

**IQ, EQ, and Foreign Language Learning**

There has been a controversy between researchers over the influence of IQ and EQ on academic achievement, especially on language learning proficiency in an EFL context. Sifarian (1992) examined the nature of the connection between intelligence and inductive reasoning and language learning in general. Results revealed the presence of a median correlation between IQ and foreign language proficiency. In addition, Salahi (1998) investigated the effects of intelligence on the performance of EST (English for Science and Technology) students on reading comprehension. Ninety-three male and female ESP (English for specific purpose) students of Islamic Azad University participated in this research. The main finding of this study was that there existed a weak relationship between intelligence and reading-comprehension achievement. Szilvia (2007) examined the components of foreign language learning and their connection with learning motivation and other characteristics of students, such as intelligence, learning orientations, self-concept, locus of control, and school achievement. According to those results, intelligence is not connected closely to learning or language learning motivation.

Chao (2003) studied the relationship between foreign language anxiety and emotional intelligence in a sample of 306 EFL students in Taiwan. The researcher concluded that emotional intelligence skills can serve as global indicators of academic achievement and language learning. In another correlational design study, Aghasafari (2006) investigated the relationship between EQ and language learning strategies among 100 EFL sophomore participants at Ghazvin Islamic Azad University. The results indicated that there was a positive relationship between overall emotional intelligence and language learning strategies. Furthermore, Fahim and Pishghadam (2007) explored the relationship between EQ, IQ, and verbal intelligence with students majoring in English language. They found that academic achievement was strongly associated with several dimensions of emotional intelligence (intrapersonal, stress management, and general mood competencies). Moreover, it was found that academic achievement did not correlate greatly with IQ, but was strongly associated with verbal intelligence, which is a subsection of the IQ test.

In yet another study, Pishghadam (2009) explored the impact of emotional and verbal intelligence on English language success in Iran. To fully understand the nature of learning, he calculated and analyzed both the product and process data. The result of the product-based phase demonstrated that emotional intelligence is instrumental in learning different skills, specifically, productive ones. In the process-based phase, the analysis of oral and written modes of language exhibited the effects of emotional and verbal intelligences on turn-taking, amount of communication, the number of errors, and writing ability. Skourdi and Rahimi (2010) equally investigated the relationship between emotional intelligence and linguistic intelligence in acquiring vocabulary among sixty-six EFL junior students from Shiraz Azad and Shiraz Universities. Findings revealed that there was a positive relationship between emotional intelligence and linguistic intelligence, between emotional intelligence and vocabulary knowledge, and between linguistic intelligence and vocabulary knowledge. Emotional intelligence was found to be a potential predictor for linguistic intelligence, and vice versa. Furthermore, multiple regressions showed that linguistic intelligence was a better predictor of receptive vocabulary knowledge than emotional intelligence.

## THE STUDY

Despite the many findings cited above, there is still pressing need to conduct research on emotional intelligence (EQ) and IQ in EFL contexts. Couched within this context, the present study reported here was conducted to explore the relationship between EQ, IQ, and reading-comprehension proficiency. The study aims to answer the following three research questions:

1. Is there a significant relationship between EQ and the reading-comprehension proficiency of EFL university students?
2. Is there a significant relationship between IQ and the reading-comprehension proficiency of EFL university students?
3. Do the students with higher EQs outperform the students with higher IQs in reading-proficiency tests?

The following are the corresponding null hypotheses: $H_0$1: There is no statistically significant relationship between EQ scores and the reading-comprehension proficiency of the students. $H_0$2: There is no statistically significant relationship between IQ scores and the reading-comprehension proficiency of the students. $H_0$3: Students with higher EQs outperform students with higher IQs in the reading-proficiency test**.**

### Method

*Participants*

The participants were 55 subjects (30 females and 25 males) from Payame Noor University of Gonbad and Azad University of Gorgan. All of them were junior and senior undergraduate students majoring in English Literature and English Translation. These third- and last-year students were selected because they had completed the basic courses in reading comprehension.

*Instruments*

Three instruments were employed in this study: the Bar-On Emotional Quotient Inventory (EQ-i) for measuring subjects' EQs, Raven's Advanced Progressive Matrices for calculating their IQs, and the reading part of the TOEFL for measuring subjects' reading-comprehension proficiency.

*Data Collection*

The test administration procedure took place in three sessions: the Bar-On's EQ-I was followed by the IQ test (Raven's Matrices), which, in turn, was followed by the reading-comprehension test. The average time to complete the EQ test was 20-30 minutes, 40-50 minutes for the IQ test, and 20-30 minutes for the reading-comprehension test. The subjects were assured that their personal information, as well as their test responses, would be kept confidential. They received no rewards for participating in the study, but were advised they would be given their results at a later date. All the collected information from the completed questionnaires was entered into the SPSS (version 13) statistical program.

*Data Analysis*

EQ questionnaires were initially scored based on the guidelines provided by Bar-On (1997), and then the total EQ scores and the scores of the EQ's five major subscales (intrapersonal, interpersonal, stress management, adaptability, and general mood) were computed. The next step was transforming the raw scores into the standard ones using the direction provided in the instrument's manual. Then, the same procedure was followed to calculate the amount of correlation between the IQ scores and the reading-comprehension scores. The IQ questionnaires were scored based on the guidelines provided by Raven, Raven, and Court (1998), and the amount of correlation between IQ and reading-comprehension proficiency was calculated by applying the Pearson product-moment correlation (i.e., a measure of association between two continuous variables; Richard & Schmidt, 2002). For both the EQ and IQ procedures, SPSS was used to analyze the data set. Finally, the results were analyzed to determine which factor, EQ or IQ, had more correlation and was more effective toward reading comprehension.

## THE RESULTS

The first step was the correlational analysis of the scores with the use of the Pearson product-moment coefficient. Table 1 presents the correlation among Bar-On's EQ-i variables (intrapersonal, interpersonal, stress management, adaptability, and general mood), total EQ, IQ, and reading-comprehension scores for the total sample.

**Table 1.** The Pearson Correlation between IQ, Reading Comprehension, and EQ with Subscales

| | | **IQ** | **Total IQ** | **Intra.** | **Inter.** | **SM** | **Adapt.** | **Mood** |
|---|---|---|---|---|---|---|---|---|
| Reading | *Pearson Correlation* | .362 | .190 | .160 | .176 | .167 | .008 | .010 |
| | *Sig. (two-tailed)* | .304 | .599 | .658 | .627 | .646 | .982 | .978 |

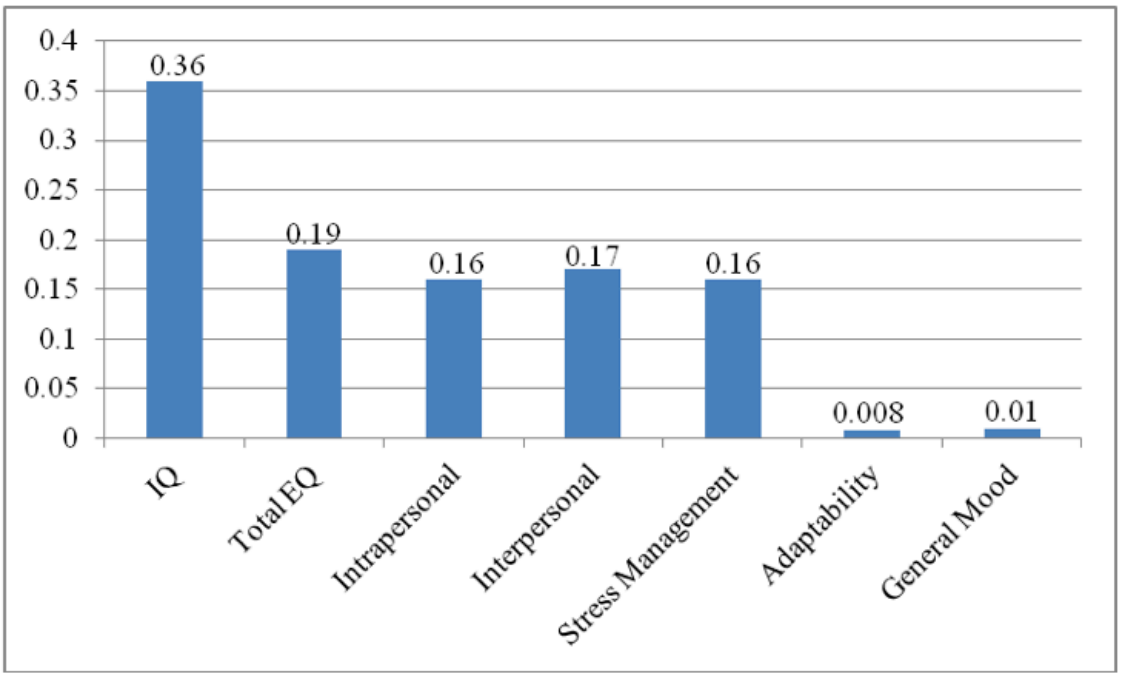
*Note:* Intra. = Intrapersonal, Inter. = Interpersonal, SM = Stress Management, Adapt. = Adaptability

By totaling all fifteen categories of all five subscales, the overall average for the EQ total scores ($r$ = .19) was rated low when correlated to reading comprehension. That is, this result shows a small relationship between the two variables. However, the greatest correlation between reading comprehension and an EQ subscale is in interpersonal relationships ($r$ = .17), and a slightly lower correlation was found between intrapersonal abilities ($r$ = .16). The same result was found between stress management and reading-comprehension scores ($r$ = .16). Adaptability skills were found to be weakly correlated with reading comprehension ($r$ = .08), and general mood abilities showed the lowest correlation ($r$ = .01). In general, it seems that EQ and its subscales do not play a significant role in improving reading comprehension.

Table 1 reveals that a significant correlation was found between total IQ and reading comprehension. In essence, the findings of this study suggest that IQ has a strong correlation with reading comprehension ($r$ = .36). Comparing the results of the correlation between EQ and reading comprehension, and IQ and reading comprehension, the researchers found that learners with higher IQs outperformed learners with higher EQs in reading comprehension. In order to better understand the results of the above, the table was converted to a bar graph

(Figure 1). The bar graph shows the comparative numeral on the correlation of reading comprehension and IQ, EQ, and EQs subscales.

**Figure 1.** The Correlation between Reading Comprehension, IQ, EQ, and its Subscales




## DISCUSSION AND CONCLUSION

Although reading-comprehension proficiency was relatively associated with several dimensions of EQ (intrapersonal, interpersonal, and stress management), the total EQ and its subscales were found to be poor predictors of reading comprehension ($r$ = .19). It is no wonder, though, that these subscales have a correlation with comprehension proficiency because learning a language is a communicative task in nature, and the ability to communicate and learn a language, knowing emotions, and being able to control them plays a significant role. In essence, the main outcome of this research was that the relationship between IQ and reading-comprehension proficiency is stronger than the relationship between total EQ and reading-comprehension proficiency. Although the amount of correlation is significant here, nonetheless, it cannot be used for generalizing to other college EFL learners because gender differences were not considered in this research.

It seems that these findings are consistent with the theoretical position of Jensen (1998), that intelligence bears a causal relationship to achievement, not the other way around. That is, from a theoretical perspective, the construct of intelligence is expected to precede and influence the development of academic achievement because "school learning itself is g-demanding" (Jensen, 1998, p. 279). The study's findings suggest that educators should be aware of the impact intelligence has on foreign language learning. Student intelligence needs to be developed in order to facilitate reading comprehension. Teachers can improve students' intelligence by using the ideas of Buschkuehl and Jaeggi (2010), who believe that "intelligence can be improved by training on working memory and using some executive functions" (p. 267).

Furthermore, curriculum developers, intervention specialists, and educators need to be cognizant of the impact one's intelligence has on reading comprehension and foreign

language learning. It is hoped this research will provide useful insights into foreign language learning by showing that foreign language learning is an extremely complex phenomenon that can be affected by many factors such as the intelligence studied in this research. To know students better by understanding their intelligence quotient will be helpful in providing appropriate assistance to students learning a foreign language. Findings of this study would be useful in educational setting as reading comprehension proficiency strongly associates with the IQ of EFL learners. Thus, there is need to apply the principles of intelligence in the field of education, and especially in foreign language learning. No doubt, a foreign language instructor cannot be expected to act in the capacity of a psychologist, yet language teaching is a matter of dealing with individual differences. Paying attention to intelligence differences is increasingly necessary in designing teaching materials. To improve emotional intelligence skills, Carr (2011) in his book mentioned that "Empirical findings from the field of cognitive-behaviour therapy suggest that training in the skills for self-monitoring, self-regulation, communication, and problem solving might usefully be included in programs to enhance emotional intelligence" (p. 173). Because three of the EQ subscales have a significant correlation with reading comprehension, it is recommended that more attention be paid to this type of intelligence.

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