

The effect of emotional intelligence on male and female high school students' performance in production and recognition test item formats of reading comprehension

¹Hamideh Azimi Tabar, ²Bahman Gorjian*, ³Abdolreza Pazhakh

¹Department of TEFL, Science and Research Branch, Islamic Azad University, Khuzestan, Iran

²Department of TEFL, Abadan Branch, Islamic Azad University, Abadan, Iran

³Department of TEFL, Dezful Branch, Islamic Azad University, Dezful, Iran

*bahgorji@yahoo.com

Abstract-The purpose of this study was to measure up the impact of Emotional Intelligence (EI) on male and female high school students' performance in production and recognition test item formats. 180 students were randomly assigned into six groups of males and females including 30 participants. They were divided in pair groups of production (C-test items), recognition (MC items) and recognition/production (MC/C items). At the end of each reading passage, the students received exercises on C, MC, and MC/C tests. In both schools, the MC/C groups received multiple-choice (MC) and C-test items, the MC groups were taught taking the tests of MC items and the C groups received instructions on C-test items. The results of two-way ANOVA indicated that there was a significant difference between males and females in taking C, MC, and MC/C test formats. In other words, males outperformed their female counterparts. Two-way ANOVA also revealed that there was a significant interaction between gender and EI. Both males and females performed better in taking tests of reading comprehension with MC test items rather than C and MC/C test items. Results of Two-way ANOVA indicated that there was a significant difference between males and females in utilizing their EI faculties on test taking processes.

Keywords: Emotional Intelligence; test item format; gender; reading comprehension

1. INTRODUCTION

Research in language testing has indicated that test-takers with different characteristics perform differently on various test formats. Some prefer multiple-choice or recognition test items, while others believe in production (i.e., C-test) and sometimes the combination of both (i.e., MC/C) (Bachman, 2000). There are many factors like linguistic and psychological issues that affect individuals' performance (Bachman, 1990; Kunnan, 1998). It has been shown that the format of test item is an important facet that could influence different test takers' test performance (Bachman & Palmer, 1982; Shohamy, 1984). The issue of test format differences has been the subject of debate because it is generally assumed that different test formats elicit different levels of skills or abilities; therefore, such tests are subject to having different effects on test-takers from various linguistic and cultural backgrounds (Kunnan, 2004, p. 27). According to Bachman (2000), among psychological factors that affect individuals' performance on different test formats, is Emotional Intelligence (EI).

Since 1990, when EI was introduced for the first time, it has become a buzzword in psychology and has been used

in so many fields including education, management studies, and artificial intelligence (Zhang, Wu, Wei & Wang, 2011). The concept of EI formally developed out of growing emphasis on research on the interaction of emotion and thought in the field of psychology in 1990s (Salovey & Grewal, 2006). Emotional Intelligence EI is about the intelligent use of emotions and utilizing the power or information contained in emotion to make effective decisions (Ciarrochi & Mayer, 2007).

Daniel Goleman (1995), the prominent spokesperson for emotional intelligence, held that roughly 80 percent of the variance among people in various forms of success that is unaccounted for EI. He has defined EI as including "abilities such as being able to motivate one and persist in the face of frustration, to control impulses and delay gratification; to regulate one's moods and keep distress from swapping the ability to think; to emphasize and to hope" (p. 34).

Mikolajcozoe and Luminet (2008) said that EI refers to the individual's differences in understanding, processing, organizing, and manipulating data. Later, Goleman (1998) reformulated his first definition of EI and broke down EI into twenty-five different emotional competencies, among

them political awareness, service orientation, self-confidence, consciousness, and achievement drive (Gorjian, Pazhakh & Naghizadeh, 2012). The purpose of this study is to investigate the role of EI in test-takers' performance on two types of test item formats, including production and recognition test item forms. To be more exact, the role of EI is examined in male and female high school students' performance on production group (C), recognition group (MC), and recognition/production group (MC/C) test item formats. In this study, we focus on reading comprehension skill among pre-intermediate male and female high school students (Gorjian, Alipour & Saffarian, 2012).

2. REVIEW OF LITERATURE

The early emotional intelligence (EI) theory, sometimes referred to as emotional quotient, was originally developed during the 1970's and 80's by the work and writings of psychologists Howard Gardner, Peter Salovey, and John Mayer (Lall, 2009). Later this notion formally became the center of interest with growing emphasis on research over the interaction of emotion and thought in the field of psychology in 1990's (Grewal & Salovey, 2006). The history of EI originated from the concept of social intelligence. Thorndike in 1920's viewed EI through the lens of social intelligence and mentioned that social intelligence is the ability to empathize with others and act wisely in human relationships (Golman, 1998), but his views were not taken seriously until years later.

A test, of course, consists of certain items, and the form of a test is determined by the form of the items comprising it. Celce Murcia (2001, p. 517) says an item is a specific task to perform, and can assess one or more points or objectives. For example, an item may test one point, such as the meaning of a given vocabulary word, or several points, such as an item which tests the ability to obtain facts from a passage and then make inferences based on those facts. Likewise, a given objective may be tested by a series of items. For example, there could be five items all testing one grammatical point, say, tag questions. Items of a similar kind may also be grouped together to form subtests within a given test. There has been some confusion about the test format and its classifications. One source of this confusion originates from using different terminologies to refer to similar or identical concepts. For example, words such as supply, fill in the blank, and completion have been used to refer to a single form of item. Another source of confusion originates from different views taken by scholars in interpreting the concepts. For example, Bachman (1990) classifies test item format according to one of two perspectives: the first perspective looks at the test item task, or the stem, and classifies the range of test formats according to the particular style in which it is formed. The second is to look at test item according to way in which it should be answered.

Hence, he states the terms like 'essay questions', 'completion questions', 'matching', 'multiple-choice', 'true/false', etc. From the other hand, Osterlind (1998)

groups these into two main categories, which more often called open and closed choice items. He says test item formats fall into two broad types: selected-response or constructed-response. In selected-response test item the examinee is given the correct solution to the problem as well as the alternative solutions. The examinee is instructed to select the perceived correct answer. Multiple-choice and true-false test items, the most commonly used item formats, are selected response test items. By contrast to selected-response test items, in constructed-response test items, alternative solutions are not presented to the examinee at all; rather, the examinee must finish or construct the perceived correct response. The completion or short answer test item is example of the constructed-response test item, but they may include more extended response (Osterlind, 1998, p. 30).

According to Farhady, Jaafarpour and Birjandi (2006, p. 39), the classification of item formats provides for 12 boxes, each of which would identify one aspect of the item. For example, a true-false item can be presented in the following form to meet the objectives for which it is designed: a) psychological process: recognition or comprehension b) stem: oral, written or pictorial c) response: oral, written or pictorial. So, such an item will be placed in one of the cells of column 1 if it is designed to tap the test takers' recognition ability, and in one of the cells of column 2 if it is intended to measure students' comprehension ability. Furthermore, it will be placed in cells 1 or 2 if it is presented in oral form, in cells 5 or 6 if it is presented in written form, and in cells 9 or 10 if it is presented in pictorial form. All the characteristics of the item can be identified when it is placed in one of the cells of the table (Farhady, Jafarpur & Birjandi, 2006).

3. METHOD

3.1. Participants

The study was conducted at two public senior high schools in Dezful, Khuzestan i.e., Ghadir (boy's school) and Kosar (girl's school). A sample of 250 third grade high school students from two public schools took part in this study. They were selected non-randomly. Then they took a proficiency test as a homogeneity test. Through their performance on the test, 180 male and female learners whose scores were one standard deviation above and one standard deviation below the mean score were selected as a homogeneous sample. Then they were randomly divided into two main groups of males and females. Thus three groups of males were divided into C, MC, and MC/C and three groups of females were divided into the same groups. Their ages ranged from 15 to 17. The first group was C group, the second was MC group and the third one was MC/C group among males and females.

3.2. Instrumentation

Several different testing instruments were utilized in the process of the development of the present research. Three instruments were used to collect the data: a proficiency test which included 50 items (Appendix A), the Bar-On Emotional Intelligence (EI) comprising of 90 items (Appendix B) and its Farsi translation (Appendix C) and a post-test of reading comprehension which included 50 items (Appendix D and E). EI inventory had five scales: a) intrapersonal b) adaptability c) general mood d) interpersonal e) stress management. This questionnaire was scored according to a Likert-type scale of five points ranging from "Very seldom or Not true of me" to "Very often or True of me".

The third instrument included three post-tests of C, MC and the combination of MC/C tests. The first one was a C-test which included 50 items. It was designed based on the reading texts covered by the learners during the whole semester. It was prepared from the reading passages of their English text book and half of every word was deleted (Raatz & Klein-Braley, 2002). The second one was a multiple-choice recognition test included 50 items. Each item included four choices focusing on the variety of formats. Both tests were piloted to meet their reliability coefficients through Cronbach's Alpha formula.

3.2. Procedure

The participants were selected from two senior high schools (i.e., boys and girls). The study employed three types of test, a proficiency test, an EI inventory and a post-test with sub-categories of C, MC, and MC/C of reading comprehension. The research began with a proficiency test to determine the subjects' homogeneity in English language learning. So, the students took part in a proficiency test. It was a paper-based reading comprehension test. The intended time for a 50 item test was 40 minutes. Through their performance on the proficiency test, in each high school, 90 male and 90 female learners whose scores were one standard deviation above and one standard deviation below the mean score were selected as a homogeneous group. Their level of proficiency was indicated as pre-intermediate level and they were studying English as a foreign language.

This procedure was conducted to all samples in the two intended high schools. In each school, the participants were randomly divided into three groups including C, MC and MC/C participants. The C group received instructions on how to deal with production items, the MC group learnt how to answer recognition items or multiple-choice items (MC) and the MC/C group was taught both techniques during reading comprehension courses which lasted 8 sessions. We had the same reading passages for male and

female groups but test item constructions for three groups among males and females were different. At the end of each reading passage, each group received their own type of test. C group received production test items, MC group received recognition test items and MC/C group received the combination of both production and recognition test items including tests designed from their text book during the eight sessions they had. First, the teacher introduced C-test production item construction and MC recognition item construction and then gave instructions on how to complete C-test and MC, then asked the students to complete their own test. So, half of the time was devoted to teaching the text and some instructions about MC and C-test item constructions and the rest of the time was given to the subjects to do their test.

After the subjects were given the post-tests on each test items, they sat for Bar-On's (1997) EI inventory to indicate their level of Emotional Intelligence. In each school and each class, the researcher gave the participants a short introduction on EI inventory and the way it should be answered. The Persian version of Bar-On's EI inventory was used after meeting the inter-rater reliability value to get the answers easily in their native language.

Then the questionnaire was distributed among the participants to be filled out. They answered on a 5-point Likert type scale continuum from "Very seldom or Not true of me" to "Very often or True of me". The EI is a self-report inventory. It was a 90- item inventory and took about 60 minutes to answer it. They did the test during a class session. These procedures were administered on the same day and after they took their proficiency test. The time of every session treatment was equal for all the subjects with the same materials. Participants were divided into three male and female groups in each school.

4. RESULTS

Descriptive statistics including means and standard deviations among male and female groups who participated in C, MC, and MC/C test in the classrooms. Regarding descriptive statistics, it was found out that the MC group mean was higher than the C-test and C/MC groups, suggesting that the MC group performed better than the other two groups in the sessions of the research. However, descriptive statistics could not offer the researchers sufficient information on the group comparison to reject or accept the null hypothesis of the research. The results of two-way ANOVA for the male and female groups' performance on test item formats of C, MC and C/MC tests depicted a significant effect on the their test performance as it was shown in Table 1.

Table 1. Two-way ANOVA for the groups' performance on test item formats of C, MC and C/MC tests

(I)Groups	(J)Groups	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Cx	MC	-8.6500*	1.63449	.000	-12.7207	-4.5793

	MC/C	1.8167	1.63449	.542	-2.2540	5.8874
MC×	C	8.6500*	1.63449	.000	4.5793	12.7207
	MC/C	10.4667*	1.63449	.000	6.3960	14.5374
MC/C×	C	-1.8167	1.63449	.542	-5.8874	2.2540
	MC	-10.4667*	1.63449	.000	-14.5374	-6.3960

*Significant at (p<0.05)

According to Table 1, results showed that the mean of the scores of the three female groups, it was found out that the MC group mean was higher than the C-test and C/MC groups, suggesting that the MC group performed better than the other two groups in the sessions of the research. Accordingly, the effect of MC test item format or recognition test item format on female groups' performance was significant. The MC group mean is higher than the C and C/MC groups, suggesting that the MC group performed better than the other two groups. So, according to the significant differences, female MC group performed significantly than the other two groups of C and MC/C.

To compare the interaction effect of EI and gender, two-way ANOVA was run. The results showed that EI significantly affected both males and females regarding the learners performances on the tests designed through C, MC and C/MC formats (p<0.001).

5. DISCUSSION AND CONCLUSION

The results of two-way ANOVA showed that the performance of male and female participants on production and recognition test item formats was significantly affected by EI. The results of the two-way ANOVA yielded a significant interaction between the independent variables, gender and EI, as they affect the dependent variable, i.e. production and recognition test performance (MC and C-test). In other words, the results of the two-way ANOVA procedures accounted for the significant interaction effect of EI and gender on the performance of sample EFL students (90 males and 90 females) in these test administrations (p<.05). According to these results, male and female performance on multiple-choice and C-test is related to EI. Multiple-choice and C-test are two types of test item formats that had significant interaction with EI.

The findings showed that EI and its subscales are related to most test item formats. The results of this study are in line with the study conducted by Pishghadam (2011) who investigated the relationship between EI and four test formats in the light of test fairness considerations. The effect of EI and male/female performance on production and recognition tests showed EI interacted with C-test and MC. Thus a person who is good at EI test will be more successful in doing reading tests with recognition formats, so it is recommended that multiple-choice format items be included in all reading tests for male and female genders (Gorjian, Pazhakh & Parang, 2012). The results of Two-way ANOVA procedures confirmed male and female performance on MC or recognition test item formats was

better than the other test item formats. In fact, MC groups achieved the highest performance among the other groups that might be due to the easiness of recall process (Zhang & Wu, 2008, 2011a, 2011b). The results of Two-way ANOVA yielded a significant interaction effect of gender on EI.

EFL teachers must try to develop fairer tests which include all test item formats. If these differences are paid attention to, the designed tests will be more valid as the consequential validity of the tests, which is an important measure of validity. So, both language testers and researchers must search for the effects of tests and the factors that affect test taking performance (Zhang, Wang, Wu & Huo, 2011). The same study with more participants and more reliable tests can be done. Since this study conducted on only two types of test item formats (C-test and MC), a further study is necessary to be done on other types of test item forms i.e. cloze test and summary writing.

REFERENCES

- [1] Bachman, L. F. *Fundamental considerations in language testing*. Oxford: Oxford University Press. (1990).
- [2] Bachman, L. F. Modern language testing at the turn of the century: Assuring that what we count counts. *Language Testing*, 17, (2000). 1-42.
- [3] Bachman, L. & Palmer, A. *Language Testing in practice*. Oxford: Oxford University Press. (1996).
- [4] Bar-On, R. *The development of a concept of psychological well-being*. Unpublished doctoral dissertation. Rhodes University, South Africa. (1988).
- [5] Bar-On, R. *Bar-On Emotional Quotient Inventory: User's manual*. Toronto: Multi-Health Systems. (1997).
- [6] Ciarrochi, J. & Mayer, J. *Applying emotional intelligence. A practitioner's guide*. New York. (2007).
- [7] Farhady, H. & Jafarpur, A. J. & Birjandi, P. *Testing language skills from theory to practice* (pp. 37-39). Tehran: SAMT Publication. (2006).
- [8] Goleman, D. *Emotional intelligence*. New York: Bantam. (1995).
- [9] Goleman, D. *Working with emotional intelligence*. New York: Bantam. (1998).
- [10] Gorjian, B., Pazhakh, A. R., & Parang, K. An investigation on the effect of critical thinking (CT) instructions on Iranian EFL learners' descriptive writing: A case of gender study. *Advances in Asian Social Science*, 1(1), (2012), 114-118.
- [11] Gorjian, B., Pazhakh, A. R., & Naghizadeh, M. Comparative study of conjunctive adverbials (CAs) in native researchers' (NRs) and nonnative researchers'

(NNRs) experimental articles. *Advances in Asian Social Science*, 1(2), (2012), 224-247.

[12] Gorjian, B., Alipour, M., & Saffarian, R. The effect of multisensory techniques on reading comprehension among pre-intermediate EFL learners: The case of gender. *Advances in Asian Social Science*, 1(2), (2012), 192-196.

[13] Grewal, D. & Salovey, P. Feeling smart. The science of emotional intelligence. *American Scientists*, 93, (2006). 330-339.

[14] Kunnan, A. J. Recent developments in language testing. *Annual Review of Applied Linguistics*. 19, (1998). 235-253.

[15] Kunnan, A. J. Test fairness. In M. Milanovic & C. Weir (Eds.), *European language testing in a global context: Proceeding of the ALTE Barcelona conference, July 2001* (pp. 27-50). Cambridge, UK: Cambridge University Press. (2004).

[16] Lall, M. Psychological understanding of human emotions for effective management. *Global Business and Management Research: An International Journal*. Retrieved January 5, 2012, from [http:// www.Thefreelibrary.com/_/_/ print/ Print Article.Asp?id=219656777](http://www.Thefreelibrary.com/_/_/print/Print/Article.Asp?id=219656777). (2009).

[17] Mikolajcozoe, M & Luminet, O. Trait emotional intelligence and cognitive appraisal of stress full events: An exploratory study. *Personality and Individual Differences*, 44(7), (2008), 1445-1453.

[18] Osterlind, S. (1998). *Constructing test items: Multiple-choice, constructed-responses, performance, and other formats*. Boston/Dordrecht/London: Kulwer Academic Publishers.

[19] Pishghadam, R. Emotional Intelligence: Can it be a predictor of performance on different test formats? *International journal of linguistics*, 3, (2011). 1-20.

[20] Raatz, U. & Klein-Braley, Ch. Introduction to language testing and to c-tests. In J. A. Coleman, Grotjahn, Rudiger & U. Raatz (Eds.), *University language testing and*

the c-test. (pp. 28-49). Cambridge: Cambridge University Press. (2002).

[21] Richards, J. C. *Interchange placement test*. Cambridge: Cambridge University Press. (2007).



[22] Shohamy, E. Dose the testing method make a difference? The case of reading comprehension. *Language Testing*, 1(2), (1984). 147-170.

[23] Zhang, Y, & Wu, L. Weights optimization of neural network via improved BCO approach. *Prog., Electromagn. Res.*, 83, (2008), 185-198.

[24] Zhang, Y, & Wu, L. A novel algorithm for APSP problem via a simplified delay pulse coupled neural network. *Journal of Computational Information Systems*, 7 (3), (2011a), 737-744.

[25] Zhang, Y, & Wu, L. A hybrid TS-PSO optimization algorithm. *Journal of Convergence Information Technology*, 6 (5), (2011b), 169-174.

[26] Zhang, Y, Wang, S, Wu, L, & Huo, Y. Multi-channel diffusion tensor image registration via adaptive chaotic PSO. *Journal of Computers*, 6 (4), (2011), 825-829.

[27] Zhang, Y, Wu, L, Wei, L., & Wang, S. A novel algorithm for all pairs shortest path problem based on matrix multiplication and pulse coupled neural network. *Digital Signal Processing*, 21 (4), (2011), 517-521.

Vitae

Bahman Gorjian obtained his PhD in TEFL from Research and Science Center of Khorasgan University in Isfahan Province. In 2006, he was appointed Assistant Professor at TEFL Department, Abadan Branch, Islamic Azad University, Abadan, Khouzestan Province, Iran. He is currently working within several research areas covering TEFL, applied linguistics, psycholinguistics, individual differences and testing EFL. He can be reached at:

bahgorji@yahoo.com