An Experimental Study on the Impact(s) of Emotional Intelligence Enhancement on Answering Cloze Test among Iranian University Students

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Abstract—The current study was after investigating the tentative link(s) between enhancing Emotional Intelligence (EI) and progress in performance in cloze test among Iranian university students. For this purpose, 39 students in treatment and control group completed the "Emotional Intelligence Questionnaire" and answered a cloze test as pre-test; afterwards, they received instructions on EQ and strategies to enhance it. At the end of the course, the same cloze test was administered as post-test. The data were analyzed using descriptive statistics and independent samples t-test. The analysis of the data revealed that there is a significant difference in the progress of students' score in cloze test in two groups. The results help understand how students' emotional intelligence enhancement influences cloze test scores and also possibly in a broader scale, testing.

Index Terms—cloze test, emotional intelligence enhancement, University students

I. INTRODUCTION

In taking tests (specially written ones) there is one main factor at work, the "Brain". Educators (along with many other specialists) have studied the brain and its structure to discover how it works and how much instructions it can store and recall. Thus, whatever surrounds and seemingly blocks access to competence must be known in order to be controlled or neutralized. EI (which involves various other psychological constructs) could be thought of as a surrounding factor of language ability that can both block learning and recalling. It is not common for psychological constructs to receive as widespread attention as EI has received; it has been so much controversial that the most widely read social science book was devoted to it (Goleman, 1995). Beside this best seller book, many other popular books and magazine, and newspaper articles focused on EI. "Google Scholar shows 57,000 references to emotional intelligence in scientific work during the years 1995 to 2000, 121,000 references during the years 2001 to 2006, and 162,000 references in the years 2007 to 2012"(Nicola, et al. 2013, p. 57). Results of behavioral decision research indicated that the emotions individuals expect to experience or experienced ones in the past as the upshot of their actions are important in determining their behavior (Mellers, Schwartz, & Ritov, 1999). Emotional reactions can include adjustment in thinking, behavior, and language. The end products of these shifts probably clouts aptness to think and act in certain ways. The improvement of an emotion over time banks on how the situation is appraised and handled. Goleman (1995) claimed that EQ can predict success at home, at work, and at school, as well as or better than IQ; he further suggested that successful life outcomes are more a function of emotional rather than cognitive intelligence. Cherniss (2000, p. 547) claimed that "a considerable body of research suggests that EI provides the basis for competencies important in almost any job". Rosete and Ciarrochi (2005) in a study examining the relationship between EI and IQ found that an executive needs a high IQ to get to the management or executive levels, but once people reach that position, IQ does not discriminate between better or worse performing managers, instead EI becomes the main predictor to differentiate the star managers from the average performers.

There is a considerable body of evidence which suggests that EI has a positive impact on student's academic success (Abdullah et al. 2004; Parker et al. 2004a, 2004b); Mayer and Salovey (1997) suggested that general intelligence accounts for almost 10 to 20 percent of success. Regarding its say in academic settings and more particularly in the realm of language education, there is considerable interest in figuring out whether individual difference measures (other than intelligence) predict academic success. A sizable literature on this issue indicated links between personality and other traits and academic success. As an example, Parker et al. (2004) in a research examining the transition from high school to university, also found that various EI dimensions predicted academic success. More recently, a small body of empirical research has emerged to indicate that EI is not unrelated to academic achievement. Petrides, Frederickson, and
Furnham (2004) investigated the relationships among EI, cognitive ability, and academic performance with 650 participants. They figured out that EI moderated the relationship between cognitive ability and academic performance.

EI as a probable influential factor in language testing in the world of language education is the focus of the current study since although there is substantial EI research done in the workplace or on individuals, it needs more attention in education (Hargreaves, 2000; Pekrun and Frese, 1992). "Despite burgeoning research interest in the role of affect in psychological development, emotions experienced in the academic domain has until recently remained a largely unexplored field of psychological research" (Goetz T. et al., 2007, p. 3). Emotions also influence motivation, activation of learning resources, choice of learning strategies (cognitive and metacognitive), and thus on ultimate achievement. (Goetz, 2004). Goetz, et. al. (2007, p. 4) stated that "Due to their impact on achievement outcomes, emotions experienced in testing situations are a particularly critical topic of investigation in modern, achievement-oriented societies". Being able to control or develop emotional practices should end in feelings of self-control (Lok & Bishop, 1999). Goetz and colleagues further add that little is known about students' state emotions experienced in academic settings (including their emotions during taking tests and exams). The present study aims to contribute to reducing this research gap by investigating students' emotional experiences during the performance phase of tests – especially cloze test which seems to be more stressful at least for Iranian students who rarely experience it. This ability to control oneself must be of value in the critical moment of being tested in an academic life.

II. REVIEW OF LITERATURE

A. Emotional Intelligence

At a theoretical level EI reflects the extent that one attends to, processes, and acts upon information of an emotional nature intra-personally and inter-personally. Mayer and Salovey (1997) have conceptualized it as a collection of intellectual abilities dealing with emotions and the processing emotional information. Mayer et al. (2004) believed that EI is best defined of as an ability, comparable to cognitive intelligence. EQ has been defined also as a trait (Petrides & Furnham, 2001; Neubauer & Freundenthaler, 2005), like personality characteristics such as extraversion or conscientiousness. This distinction has been controversial (Austin, 2004; Mayer et al., 2000; Saklofske, Austin, & Minski, 2003)

Each theoretical paradigm explains EQ from among one of the following three perspectives: ability, trait and mixed model. Ability models consider EQ as a form of mental ability purely, therefore, it is thought of as a pure intelligence; the single ability model of EQ is that proposed by Salovey and Mayer (1990). Petrides and Furnham (2001) categorized EI measures as trait and state measures (emotional self-efficacy), that is a collection of behavioral moods and self-perceptions pertaining to the ability to recognize, process, and use emotion-laden information. On the contrary, the mixed models combine personality characteristics such as optimism and well-being with mental ability (Mayer, 1999). EI is conceptualized as a mixture of cognitive, motivational, and affective constructs in Mixed models. As a result of combining intellectual and non-ability traits, mixed models do not declare EI to be categorized as intelligence (e.g., spatial ability) (Goleman, 2005). The Bar-On EQ-i instrument (1997) containing 133 items, was used by some researchers (Austin et al., 2004; Bar-On, 1996, 1997, 2002, 2006). However, Bar-On’s definition of EI slightly differs from that of Mayer and Salovey, and the scale includes some dimensions that might not associate with EI directly (e.g., problem solving, social responsibility, etc.). The current study used the Bar-On’s mixed model by representing some types of emotional competencies because firstly, the construct underlying ‘emotional competence’ is found to be a multidimensional construct (Zeidner, Roberts, & Matthews, 2002). Because the mixed model is a hierarchical multidimensional model of general emotional competence as a general factor and other compound factors as specific emotional competencies, it is possible to study the associations of these competencies with selected outcome variables. Secondly, the model represents various emotional competencies (Austin, Saklofske, Huang, & McKenney, 2004). Finally, Bar-On model has substantially common characteristics with the Mayer et al. (2000a, 2000b) model (Parker et al. 2005).

B. The Possibility of EI Enhancement and How to Do It

The literature on emotional intelligence shows that EI can be improved by systematic instructions. There is evidence that EI can be enhanced and learnt through appropriate learning interventions and trainings (Goleman, 1995; Mayer et al. 1999; Jaeger, 2003; Bar-On, 1997). Gardner (1983) argued that social intelligence (which embraces EQ) is dynamic. Some years later, Goleman (1995) argued that EI is apt to change and those who have lower EI could improve their abilities to identify, express, and regulate emotions. Bar-On (1997), also suggested that EI continues to develop with age and maturity and therefore can be developed. There are studies which prove such a notion. A study by Sala (2000) showed an improvement of the EI level of individuals who had participated in the training programs. Slaski and Cartwright (2002) also proved a significant change in the EI of experimental group after 4 weeks of receiving instructions. Some longitudinal studies also support these findings (eg: Kagan, 1998; Vaillant, 2000). Finally, school-based programs of emotional learning demonstrated similar results (Kusche and Greenberg, 2001). Based on these findings, it could be concluded that EI enhancement is not impossible. Educational strategies directed toward students’ emotions improves academic performance (Pool, 1997). This finding resulted in many educational settings to execute school-based programs for improving emotional learning (SEL). The SEL program refers to the knowledge and
skills that students acquire through emotional education, instruction or activities (Matthews et al. 2002). Topping et al. (2000) categorized the School-based EI programs into seven typology interventions, namely "behavior analysis and modification interventions; counseling and therapeutic interventions; social skills training; peer-mediated interventions; cognitive and self-managed interventions; multiple interventions; and miscellaneous". Rimm-Kaufman (2006) found that students who followed the Responsive Classroom under the emotional intelligence program showed more positive attitude towards school, teachers and peers than students from control schools. And ultimately a meta-analysis of over 300 studies by Durlak, J. A., & Weissberg, R. P. (2005) proved that designed programs for enhancing social and emotional learning significantly improve students' social and emotional competencies. Feedback from EI training programs with students (Brackett & Kautuk, 2006) suggested favorable influences for school-related performance besides interpersonal affairs. A number of school-based programs focused on social and emotional learning have shown constructive influences for children's social and emotional abilities and well-being as well as for academic success. Thus, it is safe to conclude that in teaching and learning, the effort to promote students’ EI would be better done by integrating emotional intelligence in the instructions.

Schutte and Malouff (2002) taught EI to beginning university students; afterwards, progress in EQ was achieved and also was more likely to complete their first year of university. Slaski and Carwright (2003) compared managers that received EQ training one day per week with a group of managers who did not receive instructions. The treatment group then scored significantly higher on EQ and they had significantly better scores for self-rated mental health and work morale. Also, a 11 week EQ training program of Groves, McNenray, and Shen (2008) showed that those in the training group had significantly higher EQ, emotional self-efficacy and workplace civility after training. In a study with MBA students, Reuben, Sapienza, and Zingales (2009) found that those randomly assigned to a course designed to teach the abilities described by Mayer and Salovey’s model, progressed on a test of EQ. In another study with medical students, Fletcher et al. (2009) found that a class on EQ enhancement resulted in significantly higher scoring on EQ. Kirk, Schutte and Hine (2011) provided emotional self-efficacy training to employees randomly assigned to the intervention condition, and demonstrated that the treatment group scored higher on EQ and emotional self-efficacy.

C. Cloze Test

The word cloze test (containing frequent, every n-th word deletions to measure comprehension of macro-propositions) is derived from closure in Gestalt theory. The exercise was first described by W.L. Taylor in 1953. In the 1960s, "studies focused on cloze tests as a measurement of reading comprehension in L1 and L2. During the 1970s, cloze tests began to be used as a measurement of overall L2 proficiency" (Ahluwalia, 1992, P. 82). Nowadays, they are broadly used and as part of some large-scale language tests (such as TOEFL, IELTS).

Salovey, Bedell, Detweiller, & Mayer (2000) argued that more emotionally intelligent persons should be more successful at managing stressful situations since they can perceive, appraise and consequently regulate their emotions better than others. Salovey et al. (2000) stated that EI could be perceived of several coping processes: rumination, social support networks and the disclosure of trauma, suggesting that learners with higher EI could have better coping and effective coping strategies. High trait EI individuals are thought to be more able to manage stress and peer relations (Petrides, Sangarieau, Furnham, & Frederickson, 2006) and are considered more sensitive to the environment emotional cues, such as the effects of mood induction (Petrides and Furnham, 2003). Emotional intelligence also involves emotional problem solving as well (Mayer & Geher, 1996). In order to solve emotional problems, individuals must become aware of their own emotions in the first place and then use that information to recognize emotions in others. Being able to recognise emotions is imperative to people's emotional well-being, since it is related to additional aspects of EI, including openness and empathy (Mayer & Salovey, 1993, 1997). "Those who recognize their emotions and can gain control of them, can also harness them while performing on a test, not to be disenfranchised by inhibiting factors which can lead to a poor performance of a really intelligent student" (Ebrahimi & Khoshchina, 2014, p. 153). All in all, it could be argued that emotions are an indispensable part of problem solving which is stressful. Exams are one of the most stressful problems that a student has to solve in his academic life, hence the necessity of studying the associations between EI and test taking, particularly cloze tests which seem to cause more stress due to lack of use in Iran.

Considering the significant relationship between EI and performance specially in tests and reviewing the theoretical findings (with regard to the existence of a probable relationship between the two constructs of EI and cloze test ability) and the dearth of experimental research in this area led the researchers to experimentally investigate the impact of EI in Iranian university students (as an independent variable) on cloze test score (as dependent variable). Based on what went before it is quite reasonable to study the impact of EI on cloze tests which are more sustainable to deal with emotions due to relatively lack of familiarity in an Iranian educational context. To fulfill the aims of the study, the following research question was posed and investigated:

Does teaching EQ significantly change the acquired scores on cloze test?

III. Method

A. Participants
39 freshman students mostly from Sistan and Balouchestan province (IRAN) studying English in Chabahar Maritime University participated in the study. In treatment group, 9 participants were male and 12 were female, their ages ranged from 18 to 22 years old and all majored in Economics. In control group also 18 students participated 14 of which were female; their age ranged from 18 to 25.

B. Instruments

For the purpose of the study, the "Bar-On EI" test and a standard cloze test were given to the students to be answered. For measuring EQ, Bar-On developed a 133-item self-report Emotional Intelligence scale. This test (the emotional quotient inventory EQ-I) offers an estimate of EQ including 5 major scales and 15 subscales (using a five-point Likert Scale ranging from ‘Never’ to ‘Always’). In the current study, the Persian version of the test was applied. Dehshiri (2003) contended that the test is reliable and valid in Iranian culture. The total reliability of the questionnaire, estimated via Cronbach’s alpha ,was 0.82. A standard cloze test was used as pretest and also as post test to measure the progress of the students after instructions on EQ enhancement; furthermore, a demographic form asking questions about the participants’ age, gender, and major was given to each student.

C. Data Collection

The study was done at Chabahar Maritime university in the province of Sistan and Baluchestan, in Iran, over a period of one semester (4 months) in the autumn of 2014. Students were informed of the process, and then a proficiency test, "Interchange Placement Test", was administered. Next 39 students were chosen among students of different levels of proficiency who were intermediate. Afterwards, the "Bar-On EQ tests" and the "cloze tests" were distributed. About ethical procedures, the questionnaires were distributed after informing the participants of the importance of the research and the plausible influences of the results on the progress in their future exams. Therefore, they were willing to participate in the study and affirmed their consent verbally. After gathering the questionnaires, some of the participants were selected randomly and were interviewed to check the reliability of their responses. After one semester in which students received instructions on EQ, what it is and how it could be enhanced and controlled to increase learning and recalling, again a cloze test was given to the students to see how much students’ proficiency has been changed. Beside this experimental group, a control group with no significant change in their EQ answered the same cloze test as pretest and posttest in the same period of time. The number and proficiency of the control group and also the gender and age were almost the same as those of the experimental group.

D. Data Analysis

Descriptive statistics were utilized. To determine the impact of EI enhancement on cloze test, the progress in answering cloze test items and EI, independent samples t-test was conducted.

IV. RESULTS

In order to analyze the relevant data in this experiment, the Statistical Package for Social Sciences (SPSS), version 22 was employed. The level of significance was set at 0.05. Table 4.1 reveals descriptive statistics obtained from the control and experimental groups in cloze test in pre-test.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest (cloze)</td>
<td>1.00</td>
<td>18</td>
<td>2.3333</td>
<td>1.02899</td>
</tr>
<tr>
<td></td>
<td>2.00</td>
<td>21</td>
<td>2.3810</td>
<td>1.39557</td>
</tr>
</tbody>
</table>

The independent sample t-test for the performance of the experimental and control groups on the pre-test of cloze test is shown in table 4.2. As the table demonstrates, there is no significant difference between the two groups in the scores of cloze test at the beginning (t= -.119, p> .05) (see Table 4.2.).

Descriptive statistics obtained from the control and experimental groups for EQ questionnaire at the beginning of the experiment is shown in Table 4.3.
The independent sample t-test for the performance of the experimental and control groups on the emotional intelligence in pre-test is shown in table 4.4. The same as cloze test, no significant difference was observed between these groups on the EQ scores (t = .487, p > .05).

Table 4.4.

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>Pretest (EQ) Equal variances assumed</td>
<td>.758</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>4.90</td>
</tr>
</tbody>
</table>

Table 4.5 shows descriptive statistics obtained from the control and experimental groups in cloze test in post-test.

Table 4.5.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post test (cloze) 1.00</td>
<td>18</td>
<td>1.9444</td>
<td>1.25895</td>
<td>.29674</td>
</tr>
<tr>
<td>2.00</td>
<td>21</td>
<td>3.2857</td>
<td>1.27055</td>
<td>.27726</td>
</tr>
</tbody>
</table>

The independent sample t-test for the difference of scores at pre-test and post-test on cloze test for the experimental and control groups is shown in table 4.7. A significant difference was observed between these groups on cloze test scores at post-test (t = -3.300, p < .05).

Table 4.7.

<table>
<thead>
<tr>
<th>Levene's Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>posttest (cloze) Equal variances assumed</td>
<td>.036</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>-3.303</td>
</tr>
</tbody>
</table>

To examine the influence of the treatment (EQ training) on the improvement of the students’ performance on cloze test more precisely, the difference of scores at pre-test and post-test was calculated for the two groups and the related statistical analyses were conducted to them. Table 4.7 shows descriptive statistics obtained from the difference of scores at pre-test and post-test in the cloze test.
explore how EQ enhancement influences other areas of education. Repetition of the research in a broader context with a larger population is suggested. A related avenue of research might progress in answering cloze test provided by the current research makes it out of the ordinary, and a meticulous investigation shall be replicated to establish and guarantee an acceptable generalizability and test the results against lack of generalizability and extrapolating the results to other populations. Tentative link between EQ enhancement and subject matters in which stress is more at work like EFL learners, medical students or even student pilots. The limitations of the study are as follows: the participants majored in Economics who relatively may not need to cope with much stress at the moment of attending the university; the study can be conducted for students studying other subjects in which stress is more at work like EFL learners, medical students or even student pilots. The investigation shall be replicated to establish and guarantee an acceptable generalizability and test the results against lack of generalizability and extrapolating the results to other populations. Tentative link between EQ enhancement and progress in answering cloze test provided by the current research makes it out of the ordinary, and a meticulous repetition of the research in a broader context with a larger population is suggested. A related avenue of research might explore how EQ enhancement influences other areas of education.

Table 4.8. Levene’s Test for the Difference between Pre and Post Test Scores

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>t</td>
</tr>
<tr>
<td>Sig.</td>
<td>df</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td></td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>.279</td>
</tr>
<tr>
<td>Difference (cloze)</td>
<td></td>
</tr>
</tbody>
</table>

V. DISCUSSION

The current study was after finding the probable impact of EQ enhancement on the progress in cloze test. In this section, a summary of the responses is provided to address the research question. The research question delved into the link between progress in cloze test and EQ development. The results proved a significant difference in the students’ progress in cloze test after teaching EQ. The results of this study are in line with those conducted by Taylor (2004) and Akinsola and Olowojaiye (2008). Also, the findings are in line with Schutte and Malouff (2002). The yielded results confirmed the findings obtained by Slaski and Carwright (2003). Likely, Groves, McEnrue, and Shen (2008) showed the same results. The findings of the current study corroborate the results of a study with MBA students, Reuben, Sapienza, and Zingales (2009). Fletcher et al. (2009) found that a workshop of seven month on EQ resulted in significantly higher scoring on EQ. The results of the current study confirmed the findings of Kirk, Schutte and Hine (2011).

Based on the findings of the present study which confirm the findings of other parallel studies, it could be stated that teaching EQ influences the progress in cloze test, since emotions proved to be at work in exams as Ebrahimi and Khoshshima argued that “one who can handle his emotions can show his capabilities and achievements in tests (and test-like situations) as they really are, not influenced by stress or other inhibiting factors” (2014, p. 154). Also it could be stated that EQ is related to performance in cloze test. Ultimately, it could be argued that EQ is a significant predictor of progress in tests particularly those which are more stressful.

VI. CONCLUSION

Education has been proved to be crucial in success, academic life and particularly academic achievement, to name only a few. Being tested creates a stressful situation and it deteriorates while testing rubric is less familiar or unfamiliar, like administering cloze test in Iran. As an educated guess, researchers of the current study presumed EQ as an affective factor to be influential in a cloze test that seems to be more stressful in an Iranian context in which it is not used widely. Thus, the aim of the study was to find the possible relationship between EQ and progress in cloze test. The results of the data analysis undertaken showed a significant relationship between the progress in cloze test and EQ enhancement. The implications of the study are as follows. Consciousness and Knowledge of EQ seems to be one of the missing rings in educational contexts which may solve many educational problems specially affective ones. Based on the findings of the current study it can solve at least emotional problems emerged in an exam (or even before it), that in turn can change the destiny of learners in a wider scope and also in a broader scale the destiny of a society. A course (or a workshop) on EQ for students which proved to be helpful in the current study, could be programmed in syllabus designs. Nonetheless, the limitations of the study are as follows: the participants majored in Economics who relatively may not need to cope with much stress at the moment of attending the university; the study can be conducted for students studying other subject matters in which stress is more at work like EFL learners, medical students or even student pilots. The investigation shall be replicated to establish and guarantee an acceptable generalizability and test the results against lack of generalizability and extrapolating the results to other populations. Tentative link between EQ enhancement and progress in answering cloze test provided by the current research makes it out of the ordinary, and a meticulous repetition of the research in a broader context with a larger population is suggested. A related avenue of research might explore how EQ enhancement influences other areas of education.

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