Improving Complexity, Accuracy and Fluency in EFL Learners’ Oral Production through Computer-Mediated Emotional Intelligence Activities

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Abstract

This study aims to gain more in-depth understanding of the possibility of enhancing EI through computer-mediated emotional activities and to see whether it is possible to improve EFL learners’ oral production measured in terms of complexity, accuracy and fluency through exposing them to computer-mediated emotional intelligence activities. The participants of the study consisted of 33 students studying Interchange 2 course in a language center in Iran. Participants in the experimental group received EI training, in the form of some movies with highly emotional content with the express purpose of inducing them to talk about their emotions and raising their emotional intelligence. However, in the control group, participants were taught under institute’s normal procedures that did not place any emphasis on activities with emotional content. Results showed a significant increase in EI scores of the experimental group and no significant change was observed in the control group’s EI scores. Moreover, learners of the experimental group were able to produce more accurate and fluent language than the control group. The difference between these two groups in terms of complexity measures, however, did not reach significance.

Keywords: Accuracy, Complexity, Emotional intelligence, Technology, Oral fluency

1. Introduction

For decades, schools have tried to predict which students would do well both in higher education and in the workplace. The tools they used to make their best guess were standardized achievement tests and IQ scores. Recent studies, however, indicate that there may be a better predictor—the measurement of a child’s emotional intelligence (Bar-on & Parker, 2000). Experts now believe that success is influenced 20 percent by IQ and 80 percent by various factors that constitute a person’s character and personality, or their emotional intelligence (henceforth, EI). Therefore, if teachers are

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concerned with helping students develop their L2 abilities, they might want not only to improve their EI skills but also reduce foreign language anxiety, if possible.

The term 'Emotional intelligence' was first used in the pioneering work of Salovey and Mayer (1990). They have defined emotional intelligence by the specific competencies it encompasses, “the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth” (Mayor, Salovey, & Caruso, 2004, p. 197). The two faculties related to socio-emotional competence – i.e. interpersonal and intrapersonal intelligences – as proposed by Gardner (1993) – resemble Salovey and Mayer’s distinction made between processes regarding one’s own emotions and the emotions of others. Later, Daniel Goleman brought it into the academic performance mainstream with the publication of his 1995 book entitled “Emotional intelligence: Why it can matter more than IQ”. According to him, EI is a combination of five domains: a) knowing one’s emotion, b) managing one’s emotion (i.e. handling fear, anxiety), c) motivating oneself (emotional control, the ability to delay gratification), d) recognizing emotions in others, and e) handling relationships. Following Goleman (1995), a number of studies showed that social and emotional skills play a central role in one’s academic, social and personal life above and beyond his general intelligence (Parker et al., 2004; Song et al., 2010).

According to Lynn (2002), emotional intelligence explains why, despite equal intellectual capacity, training or experience, some people excel while others of the same caliber lag behind. Among those studies which pay attention to the effect of emotional intelligence on academic success in education is the one carried out by Stottlemayer (2002). In a study of EQ and its relation to student achievement among 200 eleventh and twelfth grade American students in Texas, Stottlemayer found that EI skills were statically significant predictors of academic achievement. Rossiter (2003) reports differential success in second or foreign language learning as being attributed to individual differences such as intelligence, aptitude, personality, motivation, attitude and anxiety. More recently, Downey, MountStephen, Lloyd, Hansen and Stough (2008) found that high EI contributes to increased motivation, planning, and decision making, which positively influence academic performance.

Having been concerned about the relation between EI and one’s success, the possibility of enhancing one’s EI has been discussed in a number of studies (e.g. Hunt & Evans, 2004; Richardson, 2002; Schutte et al., 2001). Schutte and her colleagues (2001) discussed that though researchers have conceptualized EI as relatively stable, it might be possible to increase it through some kinds of intervention. In the same line, Richardson (2002) claimed that emotional intelligence can be nurtured in young adolescents by teaching them components of EI such as coping skills,
how to acquire and use information, how to work with others and how to manage personal growth. According to Hunt and Evans (2004), EQ can be increased with tuition; thus, it is not a fixed ability.

In L2 teaching literature, one of the first studies addressing the relationship between emotional intelligence and second/foreign language learning was Aki (2006). He considered EI, i.e. having the ability to recognize, employ, comprehend and manage emotions, more important in language learning than possessing high intelligence values and his findings lend support to the positive effects of enhancing emotional intelligence on language acquisition, where the enhancement of emotional intelligence was operationalized as stimulating the imagination, humor, and creativity in young language learners. In another attempt, Dewaele Petrides and Furnham (2008) found a negative relationship between trait EI and foreign language anxiety (FLA) which was defined as “the feeling of tension and apprehension specifically associated with second language (L2) contexts, including speaking, listening, and learning” (MacIntyre & Gardner, 1994, p. 284). More recently, Abdolrezapour and Tavakoli (2012) found a high positive correlation between one’s achievement in reading comprehension and her/his emotional intelligence. In addition, greater achievement in reading comprehension was found for those who had been through literature response activities which were used to foster their emotional intelligence.

The "study of applications of the computer in language teaching and learning” is called computer assisted language learning (CALL) (Levy, 1997, p. 1) and it can be traced back to as early as 1960s. In this approach computer can be used as a facilitative tool in all phases of language learning and teaching – from the very first stages of presentation and practice to the final stages of assessment and evaluation. Studies on the language-acquisition value of computer-mediated tasks have proliferated since the early 1990s (Beauvois, 1992; Kern, 1995; Smith, 2005). A glance at the topic archive of the journal of language learning and technology shows that previous studies have addressed distance learning (Liang, 2010), collaborative learning and social context provided (Elolah & Oskoz, 2010) with a focus on different language skills (reading, writing, listening, speaking, vocabulary and grammar). However, the role of emotions and motivation, and more specifically, the role of emotional intelligence in computer-mediated foreign language learning has been a slightly neglected area of enquiry.

Nevertheless, some attempts tried to find the possibility of applying technology to enhance EI in other contexts. The possibility of developing interpersonal skills was investigated in Holsbrink-Engels’s (1997) study through what he called computer-based role-playing. And Goldsworthy’s (2003) study provides a comprehensive overview of the literature of EI-development via technology. He argues that technology can be used to foster learners’ social skills and social problem solving as they are engaged in tasks at the computer and he further provides a framework for design and
development of technology-based instruction for emotional intelligence. His STAR (standing for stop, think, act, reflect) project is a project-solving model addressing several key areas of EI framework. Therefore, there seems to be good reason to believe that computer-mediated emotional activities may be appropriate tools for raising learners’ emotional intelligence.

This study aims to gain more in-depth understanding of the possibility of enhancing EI through computer-mediated emotional activities and to see whether it is possible to flourish EFL learners’ oral production measured in terms of complexity, accuracy and fluency through exposing them to computer-mediated emotional intelligence activities.

2. Method

2.1. Participants

The population under study included the EFL learners who enrolled in a language center in Iran. A total of thirty three students studying Interchange 2 participated in this study. Learners were native speakers of Farsi and they had taken English courses for three to four years. None of these participants had additional exposure to the English language, apart from the normal TV programs and the Internet, which are almost impossible to control for. Our participants were in two intact classes taught under same instructor. Their level of English proficiency is intermediate; that is, all participants are currently taking the intermediate EFL course offered by the institution and their language proficiency was tested by the grammar part of the ‘Oxford Placement Test 2’ (Allan, 1992). One class was taken as the experimental group with 18 students and the other as the control group with 15 students. All participants were female and they varied in age from 15 to 18.

2.2. Instruments

2.2.1. Measures of oral performance

Most SLA researchers agree that facets of L2 oral performance are themselves multifaceted and entail several sub-constructs; therefore there is a need for using multiple measures for assessing each construct (Housen & Kuiken, 2009). Nevertheless to avoid what Norris and Ortega (2009) call redundancy in measurement, researchers are recommended to use complementary but distinct measures for assessing each principal construct. In the present research, drawing on the host of studies into the CAF triad (Ellis & Yuan, 2004; Yuan & Ellis, 2003) the following measures were used to assess three major dimensions of second language oral performance:
Complexity measures:

- Syntactic complexity (amount of subordination): the ratio of clauses to AS-units (the Analysis of Speech Unit) in the participants’ production. Following Foster, Tonkyn and Wigglesworth (2000), the AS unit, defined as “… a single speaker’s utterance consisting of an independent clause or sub-clausal unit, together with any subordinate clause(s) associated with it” (Foster, et al., 2000), was used as a unit for measuring syntactic complexity.

- Syntactic variety: the total number of different grammatical verb forms used in participants performances. I used tense and modality as grammatical verb forms for the analysis.

Accuracy measures:

- Error-free clauses: the percentage of the clauses which were not erroneous. Error-free clauses were defined as clauses in which no error was seen with regard to syntax, morphology, native-like lexical choice or word order.

- Correct verb forms: the percentage of all verbs which were used correctly in terms of tense, aspect, modality, and subject-verb agreement.

Fluency measures:

- Rate A (number of syllables produced per minute of speech): the number of syllables within each narrative, divided by the number of seconds used to complete the task and multiplied by 60.

- Rate B (number of meaningful syllables per minute of speech): Rate A’s procedure was followed again, but all syllables, words, phrases that were repeated, reformulated, or replaced excluded.

2.2.2. Trait Emotional Intelligence Questionnaire-Adolescent Short Form (TEIQue-ASF)

In this study, the short form of the TEIQue (Petrides, Sangareau, Furnham, & Frederickson, 2006) comprised of 30 items was used to measure the students’ emotional intelligence prior to the experiment to make sure of their initial comparability. TEIQue-ASF is a simplified version, in terms of wording and syntactic complexity, of the adult short form of the TEIQue developed for use with adolescents aged 12-18 years. All items are sampled from the 15 subscales of the adult trait EI sampling domain (two items per subscale). The test yields scores on four factors, namely well-being...
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(coversing self-esteem, happiness, and optimism), self-control (covering low impulsiveness, stress management, and emotion regulation), emotionality (covering emotion expression, relationships, empathy, and emotion perception), and sociability (covering assertiveness, emotion management, and social awareness) in addition to global trait EI. Example items include 'I can control my anger when I want to', 'I'm happy with my life', and 'I'm good at getting along with my classmates'. Higher scores on the TEIQue-ASF indicated higher levels of trait EI. We opted for the short version with 10-minute completion time, because we had time limitation and there was a concern that the participants might not be able to complete the longer version (e.g. due to reading difficulties). Subjects responded on a 7-point Likert scale continuum from 'Completely Disagree (number 1)' to 'Completely Agree (number 7)'.

2.3. Procedures

To ensure subjects' homogeneity prior to conducting the study, they were asked to answer TEIQue-ASF (Petrides et al. 2006) and an oral narrative task was employed to elicit oral language performance. In this task a sequenced set of picture prompts were shown to the participants while they were asked to narrate the story. Then, learners went through the eight-week treatment. Participants in the experimental group received EI training, based on Goleman’s EI framework, in the form of some movies with highly emotional content followed by some texts and images in which they were asked to work individually (when they had to provide the answer for the computer by typing or clicking on an item) or collaboratively (when they had to find the answer by discussing it in a group or when they were asked to work on interpersonal tasks such as finding emotions in others) to find answers which mainly involved emotional background.

Goleman’s EI framework:

1. **Knowing one’s emotions:** to make learners aware of their emotions, the program re-showed them some parts of the movie in which the character was feeling an emotion and asked the learner to find what caused that particular emotion.

2. **Recognizing emotions in others:** to improve learners' level of empathy, the program encouraged them to pay attention to the body language of characters of the movie. In the final stage, parts of the movie which could help them gain a better understanding of others’ emotions were displayed again.

3. **Managing one’s emotions:** to help learners learn how to manage their emotions, there was a pause on a part of movie where the character felt an emotion (e.g. sadness or anger) and then learners were asked to find the cause of that emotion (i.e. what triggered it).

4. **Handling relationships:** to make students aware of the forth characteristics of Goleman's theory, learners were invited to watch the parts of the movie which showed interactions
between characters again. Then, they were asked to think about themselves in characters’ positions.

5. **Motivating oneself**: to raise learners’ level of self-motivation, some parts of the movie that characters experienced a positive feeling were shown again and they were asked to talk about the ways characters could change their negative feelings to positive ones.

It was assumed that performing such activities would enable learners to become increasingly aware of their emotional states. As said above, movies shown to the subjects in the control group were void of emotional words and content and learners were taught under the ordinary procedures in which no explicit emphasis was placed on emotions during oral communication activities.

The data obtained were ultimately analyzed using the statistical package for social sciences (SPSS) to provide plausible answers to the research questions posed above. First, descriptive statistics were used and the obtained scores were checked in terms of the normality of distribution using such indices as Kurtosis and Skewness. Then, independent sample t-tests and Pearson Product correlation procedures were performed.

### 3. Results

Table 1 shows the descriptive statistics and the results of t-tests for the scores obtained from subjects’ TEIQue-ASF and their performances on the oral narrative task on pre-tests. As is shown in the table, the experimental and control groups were fairly similar in terms of all measures prior to the treatment and results of the independent-sample t-tests confirm that there were no statistically significant differences between the two groups in terms of TEIQue-ASF or task performance measures (p > 0.05).
Table 1.
Descriptive and inferential statistics on pre-tests

<table>
<thead>
<tr>
<th>Variables</th>
<th>Experimental Group (N=18)</th>
<th>Control Group (N=15)</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>TEIQUE-ASF</td>
<td>116.78</td>
<td>7.67</td>
<td>119.05</td>
</tr>
<tr>
<td>Syntactic Complexity</td>
<td>.651</td>
<td>.11</td>
<td>.627</td>
</tr>
<tr>
<td>Syntactic Variety</td>
<td>3.98</td>
<td>.27</td>
<td>4.21</td>
</tr>
<tr>
<td>Percentage of correct verb form</td>
<td>43.12</td>
<td>4.2</td>
<td>44.19</td>
</tr>
<tr>
<td>Percentage of error free clauses</td>
<td>35.68</td>
<td>2.11</td>
<td>37.88</td>
</tr>
<tr>
<td>Number of syllables produced per</td>
<td>33.42</td>
<td>3.2</td>
<td>31.21</td>
</tr>
<tr>
<td>speech</td>
<td>Number of meaningful syllables per minute of speech</td>
<td>21.25</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Level of significance is 0.05

In order to see whether the positive effects of exposing learners to emotional activities transferred to their ELI and oral performance measures, the mean scores were compared across the two groups after the two months period. Results of the inferential statistics displayed in Table 2 point to the statistically significant differences between the experimental and control groups in terms of ELI and task performance measures (p < 0.05).
Table 2.
Descriptive and inferential statistics on post-tests

<table>
<thead>
<tr>
<th>Variables</th>
<th>Experimental Group (N=18)</th>
<th>Control Group (N=15)</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
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<tr>
<td>TEIQUE-ASF</td>
<td>142.38</td>
<td>9.93</td>
<td>121.75</td>
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<tr>
<td>Syntactic Complexity</td>
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<td>.10</td>
<td>.698</td>
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<tr>
<td>Syntactic Variety</td>
<td>4.25</td>
<td>.18</td>
<td>4.31</td>
</tr>
<tr>
<td>Percentage of correct verb form</td>
<td>49.12</td>
<td>3.94</td>
<td>46.29</td>
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<tr>
<td>Percentage of error free clauses</td>
<td>40.78</td>
<td>1.09</td>
<td>38.18</td>
</tr>
<tr>
<td>Number of syllables produced per minute of speech</td>
<td>37.52</td>
<td>2.8</td>
<td>33.11</td>
</tr>
<tr>
<td>Number of meaningful syllables per minute of speech</td>
<td>28.37</td>
<td>2.4</td>
<td>29.11</td>
</tr>
</tbody>
</table>

*Level of significance is 0.05

Results showed a significant increase in EI scores of the experimental group and no significant change was observed in the control group's EI scores. Moreover, learners of the experimental group were able to produce more accurate and fluent language than the control group. The difference between these two groups in terms of complexity measures, however, did not reach significance.

4. Discussion

The aims of this study were: (a) to investigate the possibility of enhancing learners' emotional intelligence through computer-mediated emotional activities; and (b) to find out whether there is a significant difference between the oral performance (measured in terms of complexity, accuracy and fluency) of those exposed to emotional activities and those instructed under the institute's normal procedures. The observed significant differences between the EI scores of the experimental and control groups could be attributed to the influence of the technology-mediated activities with its
numerous opportunities for direct exposure to emotional activities. This finding, which is consistent with our prediction, is also in accord with the arguments put forth in the literature vis-à-vis the possibility of raising one's EI (Hunt & Evans, 2004; Richardson, 2002; Schutte et al., 2001) and those who discussed the possibility of raising EI via technology (e.g. Goldsworthy, 2003; Holsbrink-Engels, 1997).

A number of studies have documented empirical evidence in support of the positive relationships between EI and academic success (Parker et al., 2004; Song et al., 2010) and there is some evidence indicating that EI and second language performance are positively related (Abdolrezapour & Tavakoli, 2012; Aki, 2006; Dewaele et al., 2008). In this way, it can be said that the observed increase in learners’ EI is beneficial for their language performance and as the results from the task performance measures showed that there is a significant difference between the control group and those who underwent emotional activities in terms of accuracy and fluency. A plausible interpretation for this difference is that participants in the experimental group, through their extensive exposure to emotional activities, became more motivated (based on Goleman’s (1995) model motivation is one of the five characteristics that constitute emotional intelligence) and this motivation, in turn, positively influenced their academic performance. This finding is consistent with our prediction and provides further empirical support for Abdolrezapour and Tavakoli’s (2012) findings.

The intervention proposed here involves far more than promoting one’s speaking ability; in effect, it has the potential to help learners become more socially competent and offers them access to a range of knowledge and abilities which might enable them to have better performance in academic context and in their social life. This, however, cannot be supported with the data obtained for the present study and thus needs to be tested in further research.

Interestingly enough, the experiment was appealing to the students. When the instructor explained to these students what the purpose of the study was -namely, to discover what might be the effect of dealing with emotions on their language performance- they were all enthusiastic about and interested in taking part in it. In addition to understanding that their participation would provide valuable information for teachers of second language, they were excited by such notions as emotional intelligence and affective factors. They had never thought about their emotions, at this level of awareness, and the possibility of its effect on their language learning. As one student put it, “I can’t believe we’re going to talk about our emotions in the class. Nobody ever did that before in our classes”.
All in all, this study aimed at improving our understanding of the relationship between emotional intelligence and academic performance in general as recommended by Parker et al. (2004) and Song et al. (2010) and the acquisition of one specific aspect of language – as recommended by Abdolrezapour and Tavakoli (2012). Moreover, the role of technologies as a tremendously valuable tool to enhance one's EI was scrutinized. The findings point to substantial differences among the two participatory groups (experimental and control groups) both in EI scores and in speaking proficiency, suggesting that it is possible to enhance one's EI in an EFL setting. Moreover, it is presumed that existing differences in their oral performance reflect the efficiency of emotional program in improving learners' oral ability and the possible correlation between emotional intelligence and task performance in an EFL context.

As for the pedagogical implications, this study provides evidence that emotions can be successfully implemented in EFL classrooms for young beginners and are at least as effective as learners' speaking ability is concerned. Hence, one implication of this study is that tasks designed for EFL classrooms might address the needs and preferences of certain students, taking into account learners' individual differences and more importantly their emotions resulting in more motivating tasks.

This study, however, is not without limitations which could impede the generalization of the results to other situations. First and foremost, if a larger sample size were considered, the obtained results could have been more significant and reasonable than they are now. Second, although the implementation of EI approach in an EFL classroom may prove to be incentive and useful for students, teachers may lag behind so as to terminate the formal syllabus in due time. Finally, the practical problem is that, to appropriately use such a procedure in the classroom requires more competent and experienced instructors that are almost always unavailable.

References


**Bio Data**

Parisa Abdolrezapour is a Ph.D. candidate in applied linguistics at the University of Isfahan, Iran, where she also teaches undergraduate courses. She has a number of articles in academic journals like *Discourse Studies, Australian journal of linguistics, International journal of applied linguistics, Innovation in language learning and teaching, and Sociolinguistic studies*. Her research interests lie primarily in cognitive aspects of language teaching and learning as well as cross-cultural studies.