

## The Relationship between Emotional Intelligence, Lexical Diversity and the Syntactic Complexity of EFL Learners' Written Productions

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### Abstract

The purpose of this study was threefold: (1) to see the effect of literature-based activities on the emotional intelligence, lexical diversity and the syntactic complexity of EFL students' written productions, based on Goleman's framework (n=133), (2) to examine the relationship between emotional intelligence, lexical diversity and the syntactic complexity of EFL students' written productions and (3) to investigate whether students in majors more exposed to literary texts depict more improvement in the lexical diversity and syntactic complexity of their written productions. (n=84). In the first phase of the study, the experimental group was given some literary works with highly emotional content. The results indicated that the experimental group scored higher on Emotional Intelligence (EI) test, lexical diversity but not on the syntactic complexity of their written productions compared with the control group. In the second phase of the study, the statistical analysis of the syntactic complexity and lexical diversity of the Literature and Translation students' written productions revealed no significant difference of complexity but significant difference of lexical diversity of Literature majors' productions; despite the fact that the mean indices of complexity of their written productions were higher than Translation majors. The results have some implications for teachers and practitioners in EFL context.

**Keywords:** Emotional Intelligence, Goleman's Framework, Lexical Diversity, Literature-based Activities, Syntactic Complexity

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## 1. Introduction

With the emergence of humanism in the last quarter of the 20th century, the learner-centered mode of instruction took the place of the teacher-centered instruction and the educators began paying attention to the learners' affective factors such as feelings, emotions, interests, motivation, confidence, etc. Since then more studies have explored this concept in different interdisciplinary areas such as psychosomatic and physical health (Anderson, 2002), work place (Goleman, 2014; Momeni, 2009) as well as academic and foreign language learning setting (Abdolrezapour & Tavakoli, 2012; Fahim & Pishghadam, 2007; Pishghadam, 2009; Shao, 2013). Meng and Wang asserted that positive emotions can facilitate the process of language learning and improve learners' language performance (Meng & Wang, 2006). Nakamura also supported the fact that there is a positive relationship between emotion and L2 performance (Nakamura, 2018).

Meanwhile, by accepting the fact that emotional intelligence can be educated and enhanced (Elias, M. J., 1997) and by supposing the fact that it may be possible to instruct those who have low levels of emotional competency to fix up their abilities and control them (Mayer, J., 1996), curriculum designers have tried to pay attention to programs that can educate and increase emotional abilities of learners. But despite the bulk of related research in this field, there is a general feeling that in some areas, learners' emotion has not been studied well, yet (Prieto, 2010). Thus, more rigorous empirical research studies aimed at shedding more light on how to improve EFL students' emotional intelligence through specially designed language courses in order to see its effect on second language performance. As Ellis mentioned, the components of L2 Performance are complexity, accuracy and fluency (Ellis, 2012). This study not only aimed to provide more empirical support for the possibility of using literature-based activities to improve EFL students' EI and lexical diversity of their written productions, but it also sought to find out the effects of EI on EFL students' writing performance, especially the complexity of their written productions. Additionally, it attempted to examine whether Literature major students who are exposed to more government-stipulated university literary curriculum in Iran depict more syntactic complexity and lexical diversity in their written productions, compared with Translation major students who are exposed to less literary texts. It was hypothesized that through responding to more literature activities, EFL students would be able to raise their mental, emotional, and social potentials for a better second-language learning experience.

## 2. Literature Review

### 2.1. Literature-based activities, Emotional Intelligence and EFL Students

For a long time, emotion was considered as inferior to cognition. Aristotle argued that ‘intellect is reliable; while emotion is of no use to rational thought’ (Baron and Parker, 2000). Recently, however, this epistemology has been changed since a new discovery happened in neuroscience. As controversial issues in this area, the interaction between emotion and cognition and the effect of emotional intelligence on different fields of study have been highlighted (Piniel & Albert, 2018; Whalen & Kagan, 2004). Additionally, two kinds of emotional intelligence as ability EI that focuses on what people can do, and trait EI that focuses on what people usually do (Neli, 2009) have been formed throughout these years and made researchers explore the predictive power of EI on academic success (Parker, 2004; Stottlemayer, 2002). They found that high EI contributes to increased motivation, planning, and decision making, which positively influence academic performance (Hansen, K., & Stough, 2008). In second-language learning context, researchers indicated that there is a positive relationship between overall EI and language-learning strategies (Aghasafari, 2006); between EI and foreign-language achievement (Bozorgmehr, 2008); between students’ EI and second-language success (Pishghadam, 2009) and between EI and cognitive learning results (Pratama & Corebima, 2016). Beside the growing body of literature that supports the predictive validity of emotional intelligence in EFL/ESL contexts, some studies explored how to raise students’ EI in classroom contexts. One of the possible ways suggested was through the use of literature. Ghosn maintained that literature has the potential to nurture EI by providing emotional experiences that may help form the brain circuits for empathy (Ghosn, 2002). Miall also stated that the feeling acquired from literary extracts enables a reader to frame a particular meaning, to register it for the time being as a possible component of the story, and draw, if necessary, on prior knowledge when a feeling matches an occurrence from the reader’s memory (Miall, 2002). These proposals suggest that emotional knowledge, grown from works of literature, has the potential power of cultivating readers’ empathy which is an essential competence of EI. Additionally, Zundel argued that literary texts have the magic power of stimulating students’ motivation which is another key characteristic of EI (Zundel, 2003). In fact literature reading can provide a motivating and low-anxiety context for second-language writing, and students have much to gain when literature is the reading content and subject matter for their composition (Ghosn, 2002; Shao, 2013). In this study, Goleman’ definition of EI, as a combination of five characteristics, was mixed with literary response activities to promote the EFL students’ written performance. They are (a) knowing one’s emotion, (b) managing emotion, (c) motivating oneself, (d)

recognizing emotions in others, and (e) handling relationships (Goleman, 1995).

But despite the benefits of literature-based activities for students, some objections are always raised against the use of literature at universities. They believe that it overloads the syllabus and that the limited time of the English course does not cover this syllabus. To solve part of this problem, short story among different genres of literature chosen in this study since the deviated and figurative language of poetry requires very long time to grasp, the length of novel will make it difficult for such classes to finish and that it will be hard to act out a play in crowded classes within limited course hours. Considering these objections, it is obvious that among literary forms, short-story as a narrative that can be read at one sitting from one-half hour to two hours with a single effect would be suitable as a genre to be used in this study.

Meanwhile, as the brain learns better through the context of story (Cozolino, 2006) and as a short story is “short and story,” there seems to be a good reason to use it as an instrument that raises students’ writing achievements. This idea is also supported by Collie and Slater when they listed four advantages of using short stories for language teachers. First, short stories are practical as their length is long enough to be covered entirely in one or two class sessions. Second, short stories are not complicated for students to work with on their own. Third, short stories have a variety of choice for different interests and tastes. Finally, short stories can be used with all levels (beginner to advance), ages (young learners to adults) and classes (Collie, J., 1991). Pardede’s study at Christian University of Indonesia is in line with the mentioned studies, too. She revealed that the majority of English teachers basically found short stories interesting to use both as materials for self-enjoyment and as components of language skill classes (Pardede, 2011).

But how does short story work? One suggested answer is through nurturing EI. Very recently, few studies touched the point of using literature-based activities to raise students’ EI and consequently their achievements in different language skills such as reading, writing and speaking (Abdolrezapour & Tavakoli, 2012; Ghosn, 2002; Khooei, 2014; Korpi, 2016; Piniel, & Albert, 2018; Shao, 2013; Zundel, 2003). This study was going to investigate whether such activities have any effect on components of L2 performance, for instance the complexity of written production or not. It also surveyed the influence of literature-based activities on the diversity of written productions.

## 2.2. Syntactic Complexity and Lexical Diversity of EFL Students

Complexity, as SLA researchers believe, is one of the multi-componential constructs of L2 performance (Ellis, R. & Yuan, 2004; Ellis, 2009; Larsen-Freeman, 2009; Norris, J. & Ortega, 2000; Pallotti, 2009; Skehan, 2009). It is defined as “the utilization of interlanguage structures that are ‘cutting edge, elaborate, and structured’ (Ellis, 2003).” The most cited theoretical definition of complexity was originally proposed by Skehan and developed by Foster and Skehan (Skehan, 2009). Skehan defined complexity as a language aspect which concerns the elaboration or ambition of the language. It is the capacity to use more advanced language and to encode more complex ideas (Ellis & Yuan, 2004). What enables learners to progress and produce more complex language is their willingness and preparedness to take risks to restructure their inter-language by experimenting with language. So, learners’ development in complexity can be observed in progressively elaborated language and an increasing variety of patterns (Foster & Skehan, 1996).

In this study, the complexity of written production measured syntactically. From a syntactic point of view, the complexity was mainly measured by the total number of separate clauses that are divided by the total number of sentential units, e.g. T or C-units (Ellis, 2012). As the complexity of the text measured with the help of software in this study, some other indices of complexity measured by software such as mean length of t-of t-unit, clause per t-unit, and mean length of clause were also considered to further examine the researchers’ results.

Lexical diversity is defined as a measure of the number of different words used in a text. The more varied the vocabulary manifested by a text, the higher its lexical diversity and the less repetition of the words already used. There are a number of lexical diversity measures. The traditional measure of lexical diversity was the ratio of different words (types) to the total number of words (tokens), which was referred to as the type-token ratio or TTR. One big problem with the TTR measure was that text samples which contained large numbers of tokens give lower values for TTR, and vice versa. Thus, a need for a measure like D measure has been aroused to compare texts of different lengths.

The D measure is based on the predicted decline of the TTR as the sample size increases. This is then compared with the empirical data from a text sample and information from the whole text sample to calculate D. The minimum length of the text should be 50 words in the D measure. The higher the value of D, the higher vocabulary diversity and thus the richer vocabulary is. The D measure is implemented in the most recent versions of CLAN (MacWhinney, 2000), under the name of VocD. McCarthy and Jarvis

compared D with 13 alternative methods of measuring lexical diversity, concluding that D (or VocD) performs best within the text-length range of 100-400 word tokens (McCarthy, 2007). This study used an analysis of lexical diversity using VocD. It was going to answer the following research questions and the corresponding hypotheses in two phases:

### *2.2.1. Phase 1*

RQ1. Does exposing Iranian EFL learners to literature-based activities have any significant effect on the emotional intelligence, the lexical diversity and the syntactic complexity of their written productions?

In accordance with Abdolrezapour & Tavakoli (2012); Ghosn (2001); Khooei (2014); Miall, (2005); Rouhani (2008) and Zundel (2003), it was hypothesized that literature-based activities would improve students' EI, and their written performance. Thus, it was expected that it could improve the lexical diversity and syntactic complexity of L2 written performance, as well.

RQ2. Is there any relationship between emotional intelligence nurtured by literature-based activities, the lexical diversity and the syntactic complexity of the Iranian students' written productions?

Based on the theoretical and empirical evidences that supported the link between literature potentiality of fostering emotional intelligence and writing achievements (Korpi, 2016; Shao, 2013), it was postulated that there was a positive relationship between students' EI and the writing performance.

### *2.2.2. Phase 2*

RQ3. Is there a significant difference between the lexical diversity and the syntactic complexity of written productions of the Iranian Literature major students who are exposed to more literature-based activities and the Iranian Translation major students who are exposed to less literature-based activities based on their university curriculum?

Regarding Cruz' and Shao's statements, it was hypothesized that the texts developed by Literature-major graduates could show more lexical diversity and more syntactic complexity (Cruz, 2010; Shao, 2013).

## **3. Method**

### **3.1. Participants**

In the first phase of the study, the participants were 133 MSc learners, randomly selected from among 270 MSc university students of Engineering Faculty in Isfahan, Iran. They were all between 22–25 years old. They were native speakers of Persian and they had passed 11-credit English courses in their Bachelor program, and had little extra exposure to English language

except in the cases of ordinary TV programs and the internet, which are almost impossible to control. None of the students had ever been to an English-speaking country or had opportunity to use English language for communicative purposes outside the classroom context and nearly all of them had passed the English courses with no significantly different mean scores. They were randomly divided into control and experimental groups, shown in

Table 1

*Design of the Study*

Test Group	Pretest	Treatment	Post-test
Control group N=66	Measuring the lexical diversity, syntactic complexity of written productions+ TEIQue	Giving subjects reading comprehension activities with high emotional content or vocabulary	Measuring the lexical diversity, syntactic complexity of written productions+ TEIQue
Experimental group N=67	Measuring the complexity of written productions + TEIQue	Giving subjects reading passages with no emotional content or words	Measuring the complexity of written productions + TEIQue

Throughout the study, participants were informed that they were tested for the purposes of research. However, they were not told what the purpose of the study was and all participants signed written informed consent forms.

In the second phase of study, the participants were composed of 84 MA Iranian English major university freshmen (40 males; 44 females) in Isfahan, Iran. They had studied English Translation or English Literature at BA and now their major was English Teaching. They all had Persian language background. To be sure of the participants' additional exposure to English literature and language, they were required to answer some demographic-information. They were told that the results of their written productions would be used for the purpose of the research and that the results of the study would not affect their grades. It was supposed that students would provide the researcher with reliable information regarding their educational background. The data obtained from the demographic information showed that there were no significant differences between participants in terms of the number of courses they had passed at university, and their total average scores in Concour (a standardized test used as one of the means to gain admission to higher education in Iran). The age range of participants was between 23 and 26.

### 3.2. Materials and Instruments

For the purpose of the present study, the following instruments were used. To be sure of the subjects' homogeneity, in terms of proficiency level, Tavakoli and Skehan's procedure was followed, such that the participants' language proficiency was tested by the grammar part of the 'Oxford Placement Test 2' (Tavakoli & Skehan, 2005). The participants who obtained scores of 49 to 62 out of 100 were chosen as intermediate students. Then, they were randomly divided into control and experimental groups.

To assess students' complexity of their written productions syntactically throughout the study, the software analysis of 'L2 Syntactic Complexity Analyzer' applied. This analyzer takes as input a plain text file and computes the following 14 syntactic complexity indices of the text: mean length of sentence (MLS), mean length of t-unit (MLT), mean length of clause (MLC), clauses per sentence (C/S), verb phrases per t-unit (VP/T), clauses per t-unit (C/T), dependent clauses per clause (DC/C), dependent clauses per t-unit (DC/T), t-units per sentence (T/S), complex t-unit ratio (CT/T), coordinate phrases per t-unit (CP/T), coordinate phrases per clause (CP/C), complex nominal per t-unit (CN/T), and complex nominal per clause (CN/C).

To compare lexical diversity between texts of different lengths in this study, VocD seemed to be an accurate instrument to use (all texts were longer than 50 words and the length range of texts were 100-400 words). Lexical diversity was calculated, using the D measure as implemented in the CLAN programs.

To be sure of the participants' additional exposure to English literature and language in the second phase of study, they were required to answer some questions regarding the demographic information about the scores of the specialized English tests of their entrance exam both in BA and MA, the number of literary courses they had passed at university, the score of their writing courses, the total average of scores in BA, the extra study of literature throughout their BA, their interest and comment on the number of literary courses they have passed, and their extra exposure to literary courses (e.g., being abroad, watching English movies or plays, reading novels and short stories). Finally 84 writing productions of students' final writing tests for each major (i.e. Translation and Literature) were selected out of 120 writing exams.

To measure the students' emotional intelligence before and after the experiment, the Trait Emotional Intelligence Questionnaire (TEIQue) was employed. The TEIQue is a scientific measurement instrument, based on trait EI theory. All TEIQue measures integrate the various nontraditional intelligences into mainstream models of personality and differential



psychology (Petrides & Furnham, 2001). In this study, four factors of well-being, self-control, emotionality and sociability as well as global trait EI were highly overlapped with Goleman's five EI characteristic example items include "I feel that I have a number of good qualities, I normally find it difficult to keep myself motivated and I generally believe that things will work out fine in my life." The items were scored on a Likert scale from 1 (completely disagree) to 7 (completely agree). Higher scores on the TEIQue indicated higher levels of trait EI. To avoid any possible misunderstanding of items, the Persian-translated version of the test was employed in this study. The reliability of the test was high (Cronbach's  $\alpha$  .87) and factor analyses provided some support for the construct validity of the questionnaire as confirmed by several research throughout the years (Abdolrezapour & Tavakoli, 2012; Freudenthaler, 2008; Mikolajezak, 2007; Petrides, 2007; Shao, 2013). To plan the treatment, some pieces of literary work including short stories with highly emotional content were given to the students in the experimental group to raise their emotional intelligence. The short stories were originally selected from Literature, Structure, Sound and Sense (Johnson & Arp, 2016) and they were suited to the individuals' level. For the control group every attempt was made so as to select reading passages that included no emotional words or content. These readings were chosen from books such as Select Reading (Lee & Gundersen, 2000), Concepts and Comments (Ackert & Lee, 2005), English for the Students of Engineering (Bidari, 2008) and Insight (Wildman, 2013). All of the reading texts assigned to both groups were no more than a few pages and their readability index, assessed by Rix formula (Anderson, 1983), adjusted to the same level of students.

### **3.3. Procedure**

#### *3.3.1. Phase 1*

In the first phase of study, the complexity and lexical diversity results of students' written productions and that obtained from the TEIQue questionnaire were used to compare these variables in the writings of experimental group and control group prior to the treatment. Throughout the 8-week treatment, some short stories with highly emotional content were administered to the subjects in the experimental group to activate their emotional brain circuits, to improve the skills of their neocortex and to motivate them to write about both the emotions of their own and the characters. After that, they were asked to answer some topic-related questions, following Goleman's construct of EI, and to write a narrative essay based on events mentioned in the literary pieces. They were asked to be as honest, sincere and candid as possible about the statements, events and their effects on life.

In the following sections, different types of activities regarding how to raise students' awareness of EI capacities, how to get along with other people, how to be motivated, how to persist, how to resist temptation and stay fixed on a goal, how to work together toward a common goal are mentioned.

### *3.3.1.1. Experimental Group Activities*

Students in the experimental group were given some short literary readings with the ends left open before each class to stimulate their interest, to build their expectations and to promote their motivation for the lesson. The ends of the stories were read at the beginning of next session as a practice and review of previous lesson and as a warm up activity to start the class with. Throughout the reading process, the students were provided with some difficult vocabulary, for the subtlety of language and for some culturally specific details which may limit their ability to comprehend the text. Then, they were asked to talk about their own similar experiences and to tell the class how they felt, and why they felt that way. Here is an excerpt from one of the literary works the experimental group went through:

What a lovely mother to have. "Well, Frederick, 'she said', as he came into earshot, coming?" Wind sent a puff of red May flowers through the air. She stood and waited for Fredrick to come up. She could not think what to do now: they had an hour to put in before they were due at Aunt Mary's. But this only made her manner calmer and more decisive. Fredrick gave a great skip, opened his mouth wide, shouted."Oo, I say, mother, I nearly caught a duck!"

"Fredrick, dear, how silly you are: you couldn't."

"Oo, yes, I could, I could. If I'd had salt for its tail!" Years later, Fredrick could still remember, with ease, pleasure and with a sense of lonely shame being gone, that calm white duck swimming off round the bank. But George's friend with the bangles, and George trouble, fell through a cleft in his memory and were forgotten soon. (From Elizabeth Brown, cited in: Literature, Structure, Sound and Sense).

To test the first and second characteristics of students' EI (i.e., emotional awareness and self-regulation), as defined by Goleman (1995), the following questions proposed.

- (1) Am I aware of my feelings?
- (2) Am I able to express my emotions in case of....?
- (3) Am I successful in my life if I ....?
- (4) Am I able to show my reactions when my feelings were hurt by others?

(5) Am I able to make my life more pleasurable if I . . . ?

It was hypothesized that participating into such activities make students

- recognize their own emotions, strengths, weaknesses, goals, motivations, and values.
- learn about how to impact on others, and how to use a certain level of intuition to guide other's decisions and how to alter the emotions of others.
- find out how to recognize their own negative or disruptive emotions, how to control or redirect them to a productive or positive purpose and in fact how to be adapted to different changing circumstances.
- turn their attention to the inner world of thoughts and feelings to manage themselves well.
- understand and handle their inner world, even when rocked by disturbing feelings.
- know their strengths and weaknesses, and work on these areas so to perform better and to be more confident.
- control emotions and impulses, not to become too angry or jealous or make impulsive, careless decisions and think before they act.

To implement the third characteristics of EI proposed by Goleman, i.e. motivating oneself, the students were asked to find out the answer to the next questions by following the hints and traces of success in the story or by implications gotten through reading the story.

(1) What am I interested and most satisfied in doing?

(2) What is successful feeling like?

(3) What can I do to make me feel a bit successful every day?

(4) What is my response when I face some difficulties in learning a second language?

(5) What are the differences between the responses of successful and unsuccessful language learners when facing similar challenge?

(Corrie, 2009)

This construct was anticipated to

- motivate students to achieve their goals and to seek long-term success.
- make students productive and effective

- let students love challenges, be responsible, more self-control, less impulsive and focus on the task at hand to improve scores on achievement.

Goleman's fourth component of EI is empathy. To raise students' level of empathy, they were asked to identify words, expressions and body language used to express the characters' emotions, and explain how to be like hearted and to be able to sensitize to the dilemma of characters in the story.

As students were asked to practice empathy, they were supposed to be

- better able to take another person's perspective
- sensitive to others' feelings, wants and viewpoints and consider them when making decisions.
- excellent at managing relationships, listening, and relating to others.
- good at avoiding judging too quickly to lead their lives in a very open, honest way.

To make students find out how the characters in the stories handled their relationships or overcame their problems and what the results would be if they had dealt with these kinds of relationships, issues or problems or similar ones in a different way pertains to the fifth characteristics of Goleman's characteristics of EI, i.e. handling relationship. In this section, the researchers asked the students to think of themselves as one of the other characters or loyal friends who help to console the disheartened character on his or her feet by addressing the following guides:

(a) How did the hurtful events turn to positive outcomes and how did personal benefits come out of this consequence?

(b) How does your life get better today, despite the fact that the harmful thing occurred to you?

(c) How can you get the most possible benefits out of these negative events in future?

(McCullough, M., 2006)

The consequences of handling relationships were hypothesized to be as follows

- to analyze, understand and appreciate relationships with the increase of ability
- to resolve conflicts, clashes better and to negotiate disagreements more successfully
- to handle problems in relationships better

- to be more team workers and more excellent communicators
- to be more assertive, confident, self-assured and skilled at communicating
- to be more popular and outgoing; friendly, responsive and involved with peers
- to be sought out and wanted by peers
- to be more concerned, attentive and considerate
- to be more pleasant, pro-social and harmonious in groups
- to depict more sharing, involvement, cooperation, and helpfulness
- to be more democratic and self-governing and allow outstanding performance

After working through the mentioned questions and activities related to Goleman's components of EI, the students were encouraged to write a narrative essay about the following subjects.

- The explanation of experiences received throughout the story by putting themselves into the shoes of different characters and expressing their emotions from multiple points of views
- The possible endeavors taken to help characters back on their feet in order to manage their emotion better and move on pleasantly and enthusiastically with their own life
- Different alternatives that change the negative views towards life into positive ones
- Successful hints or clues and their subsequent results in real life
- The consequences of empathizing with others by monitoring the behaviors and reactions of different characters in the story

The topics were supposed to lead the students' perception towards the fact that their writing was not as a text of what they had learned but as a mode of discovering what they knew and understood about the story. They were asked to imitate the sentences and experiences in the original texts in their writing. Indeed, the students were encouraged to write about the traces of caring, empathy, tolerance, cooperation, etc., and to record how the author rewarded these emotions and to figure out their outcomes in real life according to the syntactic and semantic model gotten from literary text. Thus, they had to return to the text, find evidences for their interpretation and rewrite the relevant parts. Then, the students were asked to share their writing with their peers and compare their writing with the literary text they had read

and with that of professionals in class under the teacher's surveillance. The teacher encouraged students when they were on the right track and setting them straight when they were not. As a result of the mentioned interactions, the students were hypothesized to

- approach learning in a calm and relaxed manner which in turn opening the door to cognitive processing and memory (Vail, 1981).
- internalize the ideas, terms and structures and meet them as they were asked to write.
- take pride and confident doing the same academic work that the native English-speaking peers engaged in.
- grow a lot in vocabulary and structures as literary model is the topic of writing.
- to develop a healthy respect for their own texts and a better understanding of how language can be used to comprehend and create a piece of literature.

Throughout the study, teachers implemented the following strategies in the classroom,

- Encourage students to set the similar goals in their writing as the ones in story so that they can feel a sense of accomplishment.
- Allow students to put their ideas into practice, initiate activities and to be flexible when responding to their ideas. Doing so, they build a sense of competency in the students and increases their desire to learn; thus, they begin to follow the right and correct model given to them to express themselves better.
- Empower students through useful and timely feedback.
- Validate learner feelings to ease tension within active engagement

These strategies made students practice what had been learned until these exercises became automatic and integral components of their mind. This would thus concurrently raise the level of emotional intelligence and enhance the academic achievement of learners (Panju, 2008).

### *3.3.1.2. Control Group Activities*

Students in the control group were given short passages devoid of emotional words, content and taught under the ordinary procedure of English writing class in Iran, for instance, exercising vocabulary and terminology equivalents, learning grammar, manipulating fixed patterns, summarizing,

etc. They were also asked to write a composition based on the content of their readings.

Students in the experimental group and their counterparts in the control group had equally 24- hour English-writing lessons with the same instructor. At the end of eight weeks' treatment, the same TEIQue test and the same narrative topic were administered to both groups of students. To provide reasonable answers to the research questions mentioned above, first, descriptive analysis was run to check whether the mean scores of the experimental group and the control group were in normal distribution by using indices such as Kurtosis and skewness. Then, independent sample t-tests and Pearson's Product Correlation procedures were conducted.

### 3.3.2. Phase 2

In the second phase of study, the researchers investigated whether government-stipulated curriculum design that exposes the Iranian Literature major students to more literary texts increases the syntactic and vocabulary enrichment of their written productions compared with Translation major students' curriculum design that exposes students to less literary texts. At the deeper level, they were going to examine whether there is a relationship between the majors of students and the syntactic complexity and lexical diversity of their written productions since Literature major students exposed to a potpourri of language types and diversities from slang to formal and various subject matters through different language forms.

To fulfill this aim, the final writing exams of the chosen MA English Teaching freshmen whose majors in BA had been either English Literature or English Translation were gathered to be analyzed syntactically and semantically in order to investigate in what aspects the complexity and diversity of the texts developed by these students were different from each other.

## 4. Results and Discussion

### 4.1. Results

In the first phase of study, to be sure of the homogeneity of intermediate students' writing syntactic complexity and lexical diversity as well as their TEIQue, the results of pretests and post-tests were compared in Table 2. The Table shows the descriptive statistics of the mean scores on TEIQue and the syntactic complexity of writing as well as lexical diversity for both the experimental group and the control group prior to the treatment in the pretest. As shown in Table 2, the mean scores for both tests were very similar across the two groups.

Table 2

*Descriptive for the Syntactic Complexity and Lexical Diversity of Writing As Well As TEIQue on Pre-test*

Group	Variables	N	Mean	SD
CG	TEIQue	66	62.10	5.31
	Syntactic complexity of writing	66	1.40	0.41
	Lexical diversity	66	0.73	3.2
EG	TEIQue	67	61.18	4.42
	Syntactic complexity of writing	67	1.10	0.31
	Lexical diversity	67	0.71	3.7

Then, an independent sample t-test was administered to examine whether there was a significant difference between the mean scores of the two groups in the pre-tests.

Table 3

*Independent T-tests for EG and CG on Pre-test*

Test	Df	Significance (two-tailed)	Mean difference
TEIQue	131	0.35	0.92
Syntactic complexity	131	0.25	0.30
Lexical Diversity	131	0.12	0.02

The results in Table 3 indicated that the differences between the pre-test mean scores for the experimental group and the control group were not significant in either TEIQue ( $p_{0.35}$ ), the syntactic complexity ( $p_{0.25}$ ) or lexical diversity ( $p_{0.12}$ ). And the two groups were relatively equal in terms of syntactic complexity, lexical diversity used in their writing and TEIQue results on pretest.

Regarding the first research question concerned whether exposing learners to literature-based activities has any significant effect on the complexity of the writing, the results of post-tests (see Table 4) for the TEIQue, the syntactic complexity and lexical diversity of writing across the two groups were examined.

Table 4

*Descriptive for Post-test Syntactic Complexity and Lexical Diversity As Well As Post-TEIQue*

Group	Variables	N	Mean	SD
CG	TEIQue	66	62.17	4.32
	Syntactic complexity of writing	66	1.51	0.39
	Lexical diversity of writing	66	0.75	2.91
EG	TEIQue	67	81.90	1.61
	Syntactic complexity of writing	67	2.80	0.17
	Lexical diversity of writing	67	0.84	1.01



Descriptive statistics in Table 4 reveal that subjects in the experimental group have outperformed those in the control group in terms of syntactic complexity, lexical diversity scores and TEIQue result on the post-test and this indicates that subjects' engagement in the literature-based activity, the treatment given to the experimental group, has positively impacted their scores. But, this impact is shown not to be statistically significant in Table 5 for complexity; whereas, the results of the independent-sample t-tests point to statistically significant difference of TEIQue and lexical diversity mean scores of the experimental and control groups ( $p=0.000$ ,  $p=0.010$ ).

Table 5

*Independent T-tests for EG and CG on Post-tests*

Test	Df	Significance (two-tailed)	Mean Difference
TEIQue	131	0.000*	19.73
Syntactic Complexity	131	0.100	1.29
Lexical Diversity	131	0.011*	0.39

\*Indicates that the means of the two groups differ significantly ( $p<0.05$ ) for TEIQue and lexical diversity.

It is noteworthy here that the mean difference of the two groups gives researchers the idea of much difference between the averages of the experimental group and control groups. Thus, as it was predicted, exposing learners to literature response activities could positively affect EFL learners' writing productions.

In order to answer the second research question, which dealt with the relationship between emotional intelligence and complexity of writing, Pearson Product correlation was performed.

Table 6

*Correlations between EI, Lexical Diversity and Syntactic Complexity of the Written Productions*

Indices	Pearson correlation	Significance (one-tailed)
Syntactic complexity	0.000	0.107
Lexical diversity	0.100	0.007*

\* $p=0.007$  shows the existence of the significant relationship.

Table 6 presents no correlation between the scores on TEIQue and writing complexity but the existence of correlation between EI and lexical diversity. As the results suggest, high EI was related to more lexical diversity in the writing productions ( $r=0.100$ ,  $p=0.007$ ) but subjects' EI was not positively correlated with the complexity of their writing.

In the second phase of study, the third research question posed to reveal whether there was a significant difference between the syntactic complexity and lexical diversity of written productions of Literature major students who are exposed to more literature-based activities and Translation-major students who are exposed to less literature-based activities throughout their university education. From semantic and syntactic perspectives, as shown in Figure 1 and Figure 2, the complexity and lexical diversity in the writing of Literature major students are higher than Translation major students.

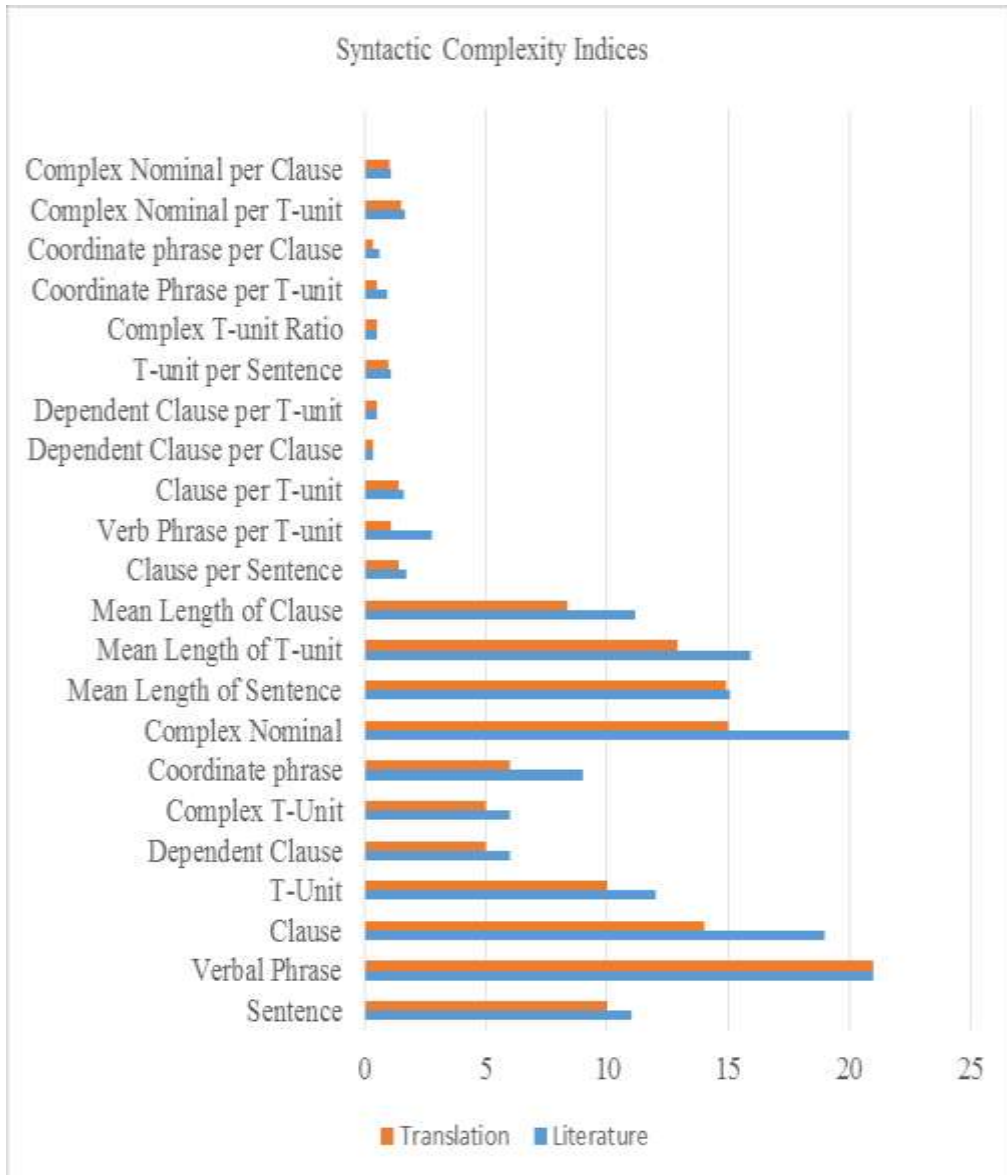


Figure 1. Syntactic Complexity Indices in the Translation and Literature Majors

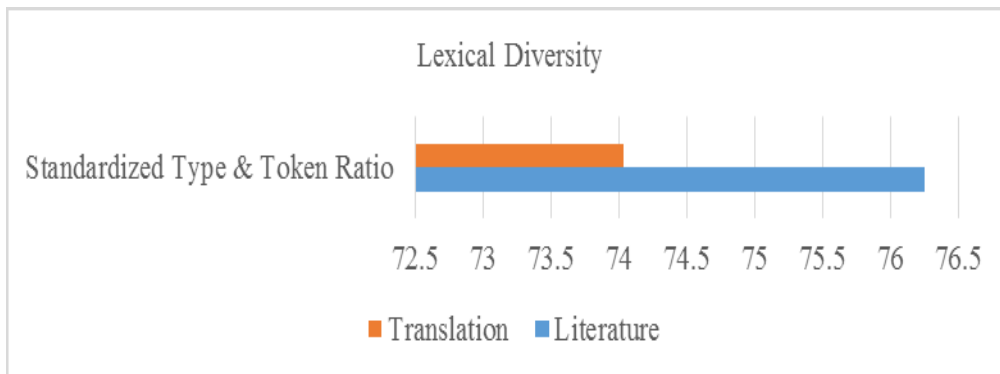


Figure 2. D Measure of Lexical Diversity in the Translation and Literature Majors

To indicate how likely these results could have been gotten by chance, the statistics t-test was applied and the result (Table 7) indicated that Literature major subjects’ engagement in literary texts has not positively impacted the syntactic complexity of the written productions but has positively impacted the lexical diversity of written productions.

Table 7

*Independent t-tests of the written productions in the Literature and Translation major subjects*

Test	Variables	Df	Significance (two-tailed)	Mean Difference
Syntactic complexity	Mean Length of T-of T-Unit	82	0.000*	3.00
	Clause per T-Unit	82	0.15	0.17
	Mean Length of Clause	82	0.46	2.80
	T-Unit per Sentence	82	0.100	0.08
	Type/Token	82	0.008*	2.73
Lexical diversity				

\*Indicates that the means of the two groups differ significantly ( $p < 0.05$ ) for lexical diversity.

In fact, the results of the independent-sample t-tests pointed to the statistically significant difference of lexical diversity ( $p < 0.05$ ) but non-statistically significant difference of syntactic complexity in the written productions of Literature major students and Translation major students ( $p > 0.05$ ).

#### 4.2. Discussion

This study depicted that exposing EFL students to literature-based activities has positive but not significant effect on the syntactic complexity of their written productions. The higher mean difference of the complexity result shows the amount by which the experimental intervention, literature-

based activities, changes the outcome on average compared with the control. The lower standard deviation after treatment is indicative of less variation within experimental group and the fact that the treatment has positive effect on them and that the data points are not so much spread out over a wide range of values compared with the control, despite the fact that the difference is not statistically significant.

Meanwhile, this study depicted that exposing EFL students to literature-based activities has both positive and significant effect on the TEIQue and the lexical diversity of their writing. At this section, we will first summarize the findings of the study in details and then we will discuss each in turn.

In the first phase of the study, regarding the first and second research questions posed pertaining to the effect of Literature-based activities on emotional intelligence, lexical diversity and the syntactic complexity of Engineering students' written productions, it was found that intermediate participants in the control and experimental groups were equal in the pre-tests (see Tables 2 and Table 3) in terms of complexity and TEIQue scores as well as lexical diversity, but in post-test, the results of the research demonstrated that students' engagement in literature-response-activities let them have a significantly higher increase on their writing scores of TEIQue and lexical diversity but not complexity compared with those who did not undergo such treatment (see Tables 4 and Table 5). The study showed that there was a significant relationship between literature-based activities, emotional intelligence and lexical diversity but no significant relationship is found between the complexity of writing, emotional intelligence and literature-based activities despite the fact that the results of standard deviation and mean difference are indicative of the fact that the treatment has positive effect on written productions of EFL students. These findings can be explained by the following theories.

From psycholinguistic point of view, since Literature has the potential of fostering and nurturing emotional intelligence that help shape the brain circuits for empathy (Ghosn, 1998) and since emotional intelligence itself is born largely in the neurotransmitters of the brain's limbic system, and that the limbic system learns best through motivation, extended practice, and feedback; the improvement of EI is plausible.

A reasonable explanation for the contribution of students' increase of writing complexity mean difference and the decrease of standard deviation in post-test can partly be attributed to the affective and cognitive accounts of the writing process. Writing is a personal and interactional activity that requires a great amount of motivation and cognitive efforts\_ both of them created through Goleman's framework of emotional intelligence and literature-based

activities, respectively. As writers' goals, predispositions, beliefs and attitudes may influence greatly the way he goes about and the effort that will be put into the task of writing (Weigle, 2002) and as knowledge transforming involves not only putting one's thoughts to a paper as they occur, but also problem analysis, goal setting, and using writing to create new knowledge which demands heavily on the writer's cognitive skills, literary texts as bedrocks of these requirements can be good patterns to reject reasonably the null hypotheses.

Additionally, an individual's motivation that stimulated through reading literature may affect greatly how he deals with the writing task (Weigle, 2002). It has also been confirmed that both the acquisition and production processes of the second language are greatly determined by the learners' motivation, and writing is no exception (Shao, 2013). Since motivation, empathy, and sociability are the bedrocks of Goleman's EI framework (Goleman, 1995) and EI is closely interrelated with cognitive functioning and since literary texts that provide these bedrocks provide the writer with extensive and connotative vocabulary and varieties of syntax that can expand all language skills (Povey, 1967), it may be sensible that students with higher level of EI schooled through literary text would be able to write more effectively, efficiently and even with more lexical diversity. This is partly in line with Downey, who contributed the high level of EI to increased motivation, planning, and decision making, which positively influence academic performance (Downey, 2008).

The only question that comes to mind here is how TEIQue results through literature-based activities improved in a relatively short time. The plausible reason may be the fact that although the treatment period seemed to be relatively short, the students had received an intensive exposure to the instructional materials. Further, despite the common belief that personalities and traits such as EI are relatively stable, there is growing evidence to prove that motivation as an important factor can be the cause of learners' EI change during a short period of time (Haslam, N., 2007; Helson, R., 2002; Nelis, D., 2009). Thus, the gotten results would be plausible.

This finding is consistent with the previous theoretical and empirical argumentation and studies (Abdolrezapour & Tavakoli, 2012; Aghasafari, 2006; Aki, 2006; Bozorgmehr, 2008; Eastabrook, 2005; Fahim & Pishghadam, 2007; Ghosn, 2002; Miall, 2005; Parker, 2004; Pishghadam, 2009; Rouhani, 2008; Shao., 2013; Stottlemayer, 2002; Zundel, 2003) on the possibility of using literature-based activities to raise learners' EI and their L2 achievements and performance. Nonetheless, the present study is different from previous ones in terms of studying the effect of literature- response activities on complexity of writing as one of the components of L2

performance and their effect on the lexical diversity of EFL students' written productions.

To support the fact that Literature with its variety of language types, subject matters, syntactic and vocabulary enrichment can accelerate the performance of the written productions of EFL learners, the researchers investigated in the third question and in fact in the second phase of study, whether there was a relationship between the majors of students, English Literature and English Translation, the syntactic complexity and lexical diversity of their written productions. The results, as indicated in Figure 1 and Figure 2, showed higher mean complexity and diversity in the texts written by Literature major students compared with Translation major students. Since the former had immersed more in literature-rich environment of government-stipulated university curriculum in Iran throughout their study and that they were exposed much more to teachers of writing to take on characteristics of all those authors. As BA students of Literature major are deeply involved in a bulk of literature courses throughout their study in comparison with Translation major students; thus, it could be justified that literature provides them with a valuable and reliable source to develop their writing skills in foreign language classes. In other words, literature provides the learners with a model that provokes them to write like the original work in content with the variety of topics, themes, organizations. It also gives enough ideas to the learners to start their writing with (Babae R., 2014).

The core 40-credit courses and topics of Literature in the English Literature major at BA level in Iran are 'the Study of different Periods of American Literature and English Literature', 'Introduction to Modern Critical Theory', 'Oral Production of Short Story', 'Studies in Poetry, Novel and Drama', 'Studies of English and American Authors', 'Greek and Roman Mythology', 'World Literature,' 'Comparative Literature,' 'Literary Criticism' and 'Literary Schools.' On the counterpart, the Translation major students do pass only 15 credits of English Literature in Iran. The core courses and topics of Literature in English Translation at BA level in Iran are 'An Introduction to the Short Story and Poetry,' 'Studying Simple Poetry,' 'Studying Simple Short Stories,' 'Oral Production of Short Story' and 'Translation of Literary Texts.' Since literary texts as vehicles for the development of linguistic competence are real examples and tangible models to be observed and learned from and since the Translation major students of are exposed to the superficial study of Literature, the less enrichment of their writing complexity mean seems to be due to the mentioned fact. Regarding the mentioned issues, Cruz recapitulation of Ghosn' idea (2002) may be noteworthy here (Cruz, 2010). He stated that literature can inspire more authority in the use and enrichment of language skills.

Meanwhile; as higher level processing of mind deals with learners' ability in assembling sentences into a text model of their own understanding and their interpretation of the text that is consistent with their goals, attitudes, and background knowledge (Grabe, 2002) and since learners' EI and cognitive functioning are closely interrelated, it can be concluded that Literature major students carry out higher level processing of writing more effectively, efficiently as compared with Translation major students. Therefore, though Literature is sometimes criticized for its complex and far-fetched syntactic structures, for its Linguistic difficulty of the text, for learners' need of a lot of background knowledge about English language and culture to interpret its texts (Tasneen, 2010), using literary texts for the tasks of developing language skills can be more stimulating than ordinary textbooks (Adam & Babiker, 2015) and the curriculum designers are required to pay more attention to literary materials and techniques.

Overall, the present study complements and contributes to the existing body of research by further confirming the magic power of literature-based activities on learners' EI and investigating its effect on their second language writing complexity as well as lexical diversity. At the time of writing this article, no research has investigated this relationship and this study sought to fill this gap.

## **5. Conclusion and Implications**

The finding of the present study has shed light on revealing the fact that emotional intelligence nurtured through literature-based activities can influence the writing performance of EFL learners, i.e., syntactic complexity and lexical diversity. In fact, from affective, cognitive, and psycholinguistic points of view, exposing learners to the rich and natural language of literary texts, with a variety of different registers, increases the outcome of their written productions as short stories. The reasonable conclusion gained from these findings may be that the synthesis of affective and cognitive aspects of the learning plays a great role in the EFL students' written productions.

This study leaves some room for future study, for instance, whether literature-based activities through raising students' EI can accelerate the accuracy or fluency of the written productions too, or whether its influence can be viewed in the CAF of oral productions as well; or whether the effects of other materials, e.g. movie clips, TV shows, drama would be the same on the CAF of the written productions. Moreover, it might also be interesting to explore how EI affects other aspects of second-language learning, particularly, listening or speaking. Further, the research on other affective variables such as motivation, self-efficacy and anxiety can be of equal interest, too.

On the other hand, the finding of the present study has several important pedagogical implications for teachers, material developers and curriculum designers. They need to be informed from magic power of literary texts and their effect on promoting L2 skills, and in turn the important role they play in real life. Additionally, they are required to be aware of their addresses' EI in order to remove some affective variables that interrupt L2 learning process. To do so, they can provide an EI questionnaire at the beginning of the course to know more about learners' EI in order to design such activities as response to literature that promotes the L2 performance.

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