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Research Article

THE RELATIONSHIP BETWEEN LEARNER CHARACTERISTICS AND LINGUISTIC PROPERTIES OF IRANIAN EFL LEARNERS' WRITTEN PRODUCTS

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ABSTRACT
The present study aimed at exploring the role of individual differences in terms of cognitive, affective and biological variables on writing ability of EFL learners. Learners' characteristics were measured via Extroversion/ introversion (affective), reflectivity/ impulsivity (cognitive), and gender (biological) which the learners could be categorized into different groups. The linguistic properties of the learners' written performance were measured through complexity (lexical and syntactic). The participants were selected from a homogeneous group of university language learners who were asked to write a composition on a given Topic. Syntactic complexity (ratio of subordination and average sentence length of the written texts) and Lexical complexity (lexical diversity and lexical density) were calculated by the mentioned formulas. Extroverts indicated to write in a more lexically complex way than introverts. The results showed that impulsive learners showed better results with respect to the linguistic properties of their writings than reflective ones. Female and male learners indicated no such difference with regard to the linguistic characteristics of their written performance.

Keywords: *Extroversion/Introversion, Reflectivity/Impulsivity, Linguistic Characteristics, Syntactic Complexity, Lexical Complexity*

INTRODUCTION
Ever since the early days of its existence, the field of psychology has been concerned with two different objectives: to understand the "general principles" of the human mind and to explore the "uniqueness" of the human mind (Dornyei, 2005). The latter direction has formed an independent sub discipline within the field that has traditionally been called *differential psychology* but recently referred to as *individual difference research.* Dornyei (2005) suggested that *individual difference*s (IDs) are characteristics or traits which differentiate individuals from each other, and which concern anything that marks a person as a distinct and unique human being. Without any doubt, personality is the most individual characteristic of a human being. According to Hall and Lindzey (1970) personality consists of "a set of scores or descriptive terms" used to describe a specific person according to some particular variables" within the particular theory utilized". As Pervin and John (as cited in Dornyei, 2005) put it "personality is the part of the field of psychology that most considers people in their entirety as individuals and as complex beings". They have also defined personality as those characteristics of the person that represent consistent patterns of feeling, thinking, and behaving (as cited in Ameri, 2014). The differences of personality, perception, ability and intelligence affect students' motivation and attitude towards the lessons; therefore, affect effectiveness of the lesson. Besides, other factors like the student's gender, intelligence and personal characteristics influence the learning as well (Erden & Altun, 2006). In other words, people differ from one another depending on the way they perceive the world. In fact, our personality affects the way we learn. So, in recent decades, the affective factors and individual differences have received a considerable attention in language learning and educational psychology. Therefore, cognitive skills have been shifted to the whole person including the individuality of learners, their needs, feelings and personality. The need to create an effective learning environment has led educators to explore different dimensions of teaching, learning and assessment styles. There are many studies that investigate the variation among learners with different types of personality and also with different genders with respect to their performance in spoken

or written modes of language (e.g. Mall-Amiri and Nakhaie, 2013; Morimoto, 2006; Souzandehfar & Farsi, 2014; Ali & Bano, 2012; Nikoopour & Amini Farsani, 2010). Although, the written mode, especially composition writing form, has been less well researched, due to the challenging issues that exists in evaluation of this mode of performance. As writing seems the most difficult skill to be learned and to be produced and maybe that is why in the order of four skills it is referred to as the last one. In Iranian EFL learning context, although different learners experience the same writing classrooms and teaching methods, some write better than others and teachers admire students who use more interactional strategies in the classroom, without having knowledge of personality types.

Consequently, teachers may have a positive view toward some personality traits and this positive view affects their judgments about the students' ability in EFL. There are papers that investigate texts from a text analysis point of view but there are few that search the relationship between their text analysis findings and the characteristics of their writers. Therefore, this study aims to find out whether extraversion vs. introversion and impulsive vs. reflective influences writing ability of EFL learners in respect of gender differences. The findings can be influential for educators to change their views over the role of personality factors in writing and other language skills in EFL classes also itaffects teachers' pre-judgments and evaluating factors of students' writing.

Theoretical Background

Learner Variables

While we all exhibit inherently human traits of learning, every individual approaches a problem or learns a set of facts or organizes a combination of feelings from a unique perspective. So, to study a second language, personality within learners is theorized as significant to influence their proficiency in acquiring all skills. This indicates individual difference may become the factor that determines students' performance in the classrooms. An individual's personality can have an effect on to what extent he is able to achieve information (Murray & Mount, 1996).

Ellis (2004) states that in general psychology personality has been studied in terms of a number of personal traits, which are said to constitute the personality of an individual. Researchers have specified three general sets of factors which contribute to individual differences in L2 learning: affective, cognitive, and social (Skehan, 1989).

Affective factors: are those that deal with the emotional reactions and motivation of the learners which have a direct effect on learning itself. In fact, a broad understanding of affect in language learning is very important because attention to affective aspects can lead to more effective language learning.

Among the affective factors, 'personality traits comprise a particular dimension called Extraversion/Introversion which has received the greatest attention in L2 learning. Hilgard (1963, as cited in Brown, 2005) believed that "purely cognitive theories of learning will be rejected unless a role is assigned to affectivity". Celce-Murcia (2001) quoted from Oxford that extroverts gain their greatest energy from the external world. They want interaction with people and have many friendships, some deep and some not. She also notes that introverts derive their energy from the internal world, seeking solitude and tending to have just a few friendships, which are often very deep.

Cognitive factors: A crucial concern of educational researchers is the investigation of the relationship and effect of different external and internal factors on learning process and outcome. Among the internal factors, cognitive styles take an important part of psychological variables in learning; because, they effect cognitive processing to a large extend, and also reveal the learners' performance (Kagan, 1966). As cited in Aliyari (2015) impulsivity (I) and reflectivity (R) are two characteristics of human beings in cognitive domain. The Oxford Advanced Learner's Dictionary (2006) defines impulsive people or their behavior as" marked by sudden action that is undertaken without careful thought" and gives the synonym of "thoughtful" for reflective. According to Gilpin and Larsen (1981), as well as, Kagan (1965), impulsive people in psychological literature are described as those easily carried away by new and exciting ideas, and by the prospects of immediate gratification. They tend to act quickly without thinking through the consequences of planning ahead. Reflective people, on the other hand, like to stand back to ponder experiences and observe them from many different perspectives. They tend to postpone reaching definite

conclusions for as long as possible. They are thoughtful people who like to consider all possible angles and implications before making a move. Moreover, they tend to adopt a low profile and have a slightly distant, tolerant unruffled air about them (as cited in Taghipour Bazargani, 2013).

Biological factors: "In addition to the learners, emotions, cognitive abilities, and social relationships, their sex and age also influence the development of second-language skills" (Chastain, 1988). One of the main factors that can affect learners' performance is their gender. Gender as a biological factor can also affect learners' performance. The relationship between gender and the academic achievement of students has been discussed for decades (Eitle, 2005). Siebert (2003, as cited in Alibakhshi, 2011) reported that male students were more likely than female students to rate their abilities highly. For example, male students were twice as likely to agree that people from their country were good at learning foreign languages. Adeyemi's (2008) study revealed the significant differences between boys and girls in composition writing. Jones and Myhill (2007) investigated the effect of gender on linguistic competence in writing. They compared gender differences in linguistic characteristics of writing at text and sentence level. There were some significant differences according to gender at both text and sentence level. As you see, different genders with their different affective and cognitive styles and characteristics perform differently in their writings in terms of linguistic characteristics.

Linguistic Characteristics of Writing

Writing is a group of letters or symbols written or marked on a surface as a means of communication (Collins, 2003). There are some factors in assessing written performance of students. Linguistic features of writing can be considered as factors for assessing the quality of writing. Writing needs practicing and internalizing a set of structures that can promote a balanced development of learners' fluency, accuracy, and complexity in the target language; so, Skehan (1998) distinguishes three aspects of linguistic performance: (a) fluency, (b) accuracy, (c) complexity. As Housen & Kuiken (2009) put it, the importance of three aspects of linguistic performance (accuracy, fluency, and complexity) is that: (a) these constructs have been used not only to describe the goals of language acquisition, but also (b) to measure progress in language learning.

Complexity

Complexity is an important feature of writing ability and consists of lexical and syntactic complexity. For Bonzo (2008), lexical complexity refers to sum of all complex words that occur within a written text, while syntactic complexity is characterized by lexical complexity and a clause with any type of non-canonical word order.

Complexity has been described as "elaborated language" (Ellis & Barkhuizen, 2005). The complexity of produced language has been the most difficult to define and this component of language performance is most easily conflated with language development or progress. Complexity can be described relative to proficiency, as "language that is at the upper limit" of the student's inter language system, which is not fully internalized or automatized by the learner (Ellis & Barkhuizen, 2005).

In terms of measuring lexical features, Polio (2001) observed that lexical features often mean lexical richness and that they closely deal with the size and variation of lexicon. However, the lexical features may not be measured simply by counting the total number of words or by using a type-and-token ratio. For instance, the topic, as well as the task, will determine the range of vocabulary used in an essay (Polio, 2001).

Also, Engber (1995) noted that the length of an essay will affect the lexical variation: "the longer the essay, the more likely that lexical items will be repeated". In addition to the fact that the length of the essay will influence the lexical variation, and thus, the overall quality of L2 writing, the development of writing might create more errors. Therefore, advanced learners may use sophisticated words incorrectly, which might eventually affect the quality of writing (Laufer & Nation, 1995).

With regard to syntactic complexity, Polio (2001) identified average length of a structure, frequency of a structure and complexity ratios as the most common ways of measuring complexity. A T-unit has one independent clause and its dependent clauses, and has been most frequently used in second language research (Bardovi-Harlig, 1992). The average length of a structure is measured by words per T-unit, and

complexity ratios such as coordination index are used to measure the ratio of independent clauses per clauses combined. Frequency of a structure is observed by counting specific structures, such as passive sentences or dependent clauses within a certain period of time. Although most researchers calculate words or clauses per T-unit to measure complexity, Polio (2001) indicated that "complexity might demonstrate the development of L2 writing, and might not necessarily indicate quality of writing".

Similarly, Wolfe-Quintero *et al.*, (1998) found that grammatical complexity is related to a wide variety of both basic and sophisticated structures, not the number of production units, such as clauses, T-units, or sentences.

Therefore, this study will investigate the frequency of some selected structures such as be-copular and adverbial markers to measure syntactic complexity among different language proficiency groups, instead of counting merely words per T-unit or clauses per T-unit. Usually, SLA researchers focus on measuring syntactic or grammatical complexity (Ellis &Barkhuizen, 2005).

MATERIALS AND METHODS

Methods

To achieve the purpose of this study, finding out whether there is any relationship between learners' characteristic (affective, cognitive and biological) and properties of written performances (syntactic and lexical complexity) in intermediate TEFL learners, the following questions and hypothesis were posed:

Q1: Is there any significant difference between reflective vs. impulsive learners in terms of syntactic and lexical complexity?

Q2: Is there any significant difference between extroverts vs. introverts in terms of syntactic and lexical complexity?

Q3: Is there any significant difference between male vs. female learners in terms of syntactic and lexical complexity?

H01: There is not any significant difference between reflective vs. impulsive learners in terms of syntactic and lexical complexity.

H02: There is not any significant difference between extroverts vs. introverts in terms of syntactic and lexical complexity.

H03: There is not any significant difference between male vs. female learners in terms of syntactic and lexical complexity

Participants

120 adult university students from Uremia University, who were studying in English Literature and English Translation field, participated in this study. In order to have a homogeneous group and eliminate the proficiency factor, a placement test of writing was administered and 100 intermediate students whose scores were between one standard deviation above and below the mean of the test namely were selected.

Instruments

To accomplish the purpose of the research, three instruments including proficiency test, Eysenck Personality Questionnaires and defined scales for assessing writing were used in the study that are going to be discussed in the following paragraphs. Proficiency test used in this study included the Nelson Test (intermediate 200B). The aim of thistest was to ensure the homogeneity of the students regarding their English language proficiency.

Eysenck personality questionnaires

In order to estimate learners' personality type and assign them to different groups (extrovert, introvert, impulsive and reflective groups), two personality questionnaires were administered. The first one was a questionnaire prepared by Eysenck and Eysenck (1975) to assess the subjects' degree of impulsivity /reflectivity. It included 30 items and in front of each item three options including Yes, No were presented. The subjects were instructed to answer each item by putting a circle around the Yes or No as quickly as possible. The second one was Eysenck's personality questionnaire for extroversion/ introversion personality type that comprised 24 Yes/No questions.

Scales for assessing writing

Syntactic complexity (number of CLAUSES per T-units):
Syntactic complexity was measured through proportion of clauses to T-units, which according to Foster and Skahan (1996) is a reliable measure, correlating well with other measures of Complexity.
Lexical complexity:
Lexical complexity was measured through two different procedures in this research, including lexical density and lexical diversity.
Lexical diversity is calculated by having the number of different words including both content and function words divided by the total number of words in a piece of writing. Lexical density is calculated by having the number of lexical items excluding function words divided by the total number of words in a piece of writing (Vaezi, 2012).
Lexical Density = number of lexical words/ total number of words in the text*100
Lexical Diversity = number of content and function words/ total number of words in the text*100
Procedure
In order to achieve the purpose of the research, the following procedures were followed: First, the researcher attended eight randomly selected TEFL classes and asked the students to take part in her study and then distributed the placement test among students. Students were informed that their performance on the test will not affect their final test results and their scores will be used for the purpose of research. The participants for this study were chosen based on non-random judgment sampling. The students whose scores were around the mean were selected as the study participants. Second, in another session, the Eysenck impulsive/ reflective questionnaire was administered among all intermediate students to fill it out.
The items of the inventory were explained by administer to make sure that the participants answer the whole items on the questionnaire as clearly and honestly as possible. Moreover, the researcher presents while participants responding to the questionnaire to provide further explanations when required. Third, some sessions later the researcher asked the participants to write on an expository topic in the class: Think about your favorite year of school. Explain why it was your favorite year. (Please use 250 or more words).
Finally, in order to answer research questions, the data were analyzed by a statistician through SPSS 18 software.
In this study, the data was analyzed by using SPSS 18.0. The scores obtained from tests compared with each other in order to answer the research questions. The Pearson product-moment correlation coefficient was employed to determine whether there was any relationship among independent variables (affective, cognitive, and biological) and dependent variables (syntactic and lexical complexity).

RESULTS AND DISCUSSION

Results

To answer the research questions and examine the significance of the difference among the mean scores of these three dichotomous groups, students' written production was analyzed through three independent samples T-test.
The information provided by this analysis is presented in Tables 1 to 9. To examine the first research question the linguistic scores of these two groups of learners were analyzed by an independent sample T-test and the result of this analysis is shown in Table 1, 2 and 3.
The mean scores are 0.45 for reflectives and 0.812 for impulsives. There is a significant difference between reflective vs. impulsive learners' writings in terms of syntactic complexity as shown in Table 1 is lower than 0.05. So, reflectives' writings have more syntactic complexity than impulsive learners. Also, there is significant difference between reflective vs. impulsive learners' writings in terms of lexical as shown in Table 2 is lower than 0.05.
So, reflectives' writings have more lexical density than impulsive learners. There is a significant difference between reflective vs. impulsive learners' writings in terms of lexical diversity because as shown in Table 3 is lower than 0.05. So, reflectives' writings have more diversity than impulsive learners.

Table 1: Independent Sample Test of Syntactic Complexity for Reflective vs. Impulsive

	Levene's Test for Equality of Variances		T-test for Equality of Means						
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal Variances Assumed	.229	.633	-13.505	98	.000	-.362431	.026837	-.415688	-.309175
Equal Variances not Assumed			-13.113	78.242	.000	-.362431	.027639	-.417454	-.307408

Table 2: Independent Sample Test of Lexical Density for Reflective vs. Impulsive

	Levene's Test for Equality of Variances		T-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal Variances Assumed	.032	.858	-11.787	98	.000	-.143555	.012179	-.167724	-.119386
Equal Variances not Assumed			-12.051	94.613	.000	-.143555	.011912	-.167205	-.119905

Table 3: Independent Sample Test of Lexical Diversity for Reflectives vs. Impulsives

	Levene's Test for Equality of Variances		T-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal Variances Assumed	2.490	.118	-8.035	98	.000	-.111925	.013929	-.139567	-.084284
Equal Variances not Assumed			-7.877	81.671	.000	-.111925	.014210	-.140194	-.083656

Table 4: Independent Sample Test of Syntactic Complexity for Extroverts vs. Introverts

	Levene's Test for Equality of Variances		T-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal Variances Assumed	.096	.757	-22.349	98	.000	-.410871	.018384	-.447354	-.374388
Equal Variances not Assumed			-22.618	92.069	.000	-.410871	.018166	-.446950	-.374793

Table 5: Independent Sample Test of Lexical Density for Extroverts vs. Introverts

	Levene's Test for Equality of Variances		T-test for Equality of Means						
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.614	.435	-10.713	98	.000	-.137685	.012852	-.163190	-.112180
Equal variances not assumed			-11.268	97.999	.000	-.137685	.012219	-.161932	-.113437

Table 6: Independent Sample Test of Diversity for Extroverts vs. Introverts

	Levene's Test for Equality of Variances		T-test for Equality of Means						
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal Variances Assumed	.803	.372	-10.099	98	.000	-.126827	.012558	-.151748	-.101905
Equal Variances not Assumed			-10.024	86.035	.000	-.126827	.012652	-.151979	-.101675

Table 7: Independent Sample Test of Syntactic Complexity for Male vs. Female

	Levene's Test for Equality of Variances		T-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal Variances Assumed	2.393	.125	.267	98	.790	.012192	.045716	-.078531	.102914
Equal Variances not Assumed			.273	90.386	.785	.012192	.044604	-.076417	.100800

Table 8: Independent Sample Test of Lexical Density for Male vs. Female

	Levene's Test for Equality of Variances		T-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal Variances Assumed	1.109	.295	.312	98	.755	.005958	.019069	-.031884	.043801
Equal Variances not Assumed			.308	79.107	.759	.005958	.019375	-.032605	.044522

Table 9: Independent Sample Test of Lexical Diversity for Male vs. Female

	Levene's Test for Equality of Variances		T-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal Variances Assumed	2.975	.088	-.325	98	.746	-.005875	.018064	-.041723	.029973
Equal Variances not Assumed			-.318	76.802	.752	-.005875	.018499	-.042712	.030962

To examine the second research question the linguistic indices of these two groups of learners were analyzed by another independent sample T-test and the result of this analysis is shown in Table 4, 5 and 6. The mean scores are 0.42 for introverts and 0 .83 for extroverts. Also, there is a significant difference between extrovert vs. introvert learners' writings in terms of syntactic complexity as shown in Table 4 is lower than 0.05. So, the extroverts' writings have more syntactic complexity than introvert learners. The mean scores are 0.574 for introverts and 0.712 for extroverts. Also, there is a significant difference between extrovert vs. introvert learners' writings in terms of lexical density. Table 5 shows that, the extroverts' writings have more lexical density than introvert learners'. The mean scores are 0.28319 for introverts and 0.41 for extroverts. Also, there is significant difference between extroverts vs. introverts learners' writings in terms of diversity. Because the significance level as shown in the following tables is lower than 0.05. So, the extrovert writings have more diversity than introvert learners.

To examine the third research question the linguistic scores of these two groups of learners were analyzed by another independent sample T-test and the result of this analysis is shown in Table 7, 8 and 9. The mean score of density in syntactic complexity for males and females is 0.6558 and 0.66803 respectively. There is no significant difference between male vs. female learners in terms of syntactic complexity, because the significance level (0.790) as shown in the following table is higher than 0.05.The mean score of density in lexical complexity for males and females is 0.65212 and 0.65808, respectively and there is no significant difference between male vs. female learners in terms of diversity in lexical complexity. Because the significance level (0.755) as shown in the following table is higher than 0.05. The mean score of diversity in lexical complexity for males and females is0.3591 and 0.3532, respectively. There is no significant difference between male vs. female learners in terms of diversity in lexical complexity, because the significance level (0.746) as shown in the following table is higher than 0.05.

Discussion

This study aimed to investigate the possible difference among different groups of learners in terms of linguistic characteristics of their writings. The linguistic characteristics specified for this study were syntactic and lexical complexity.

The first research question asked whether there is any significant relationship between reflectives vs. impulsives in terms of syntactic and lexical complexity. As indicated in Tables 1 to 3, impulsive learners wrote longer sentences than reflective learners. Also, significantly, the amount of syntactic and lexical complexity mean scores in impulsive learners' writings are larger than those of reflective learners. In all cases the impulsive subjects had larger measures of various linguistic features in their writings; and all of these differences were significant. So, we can reject the first hypothesis and claim that there is relationship between reflectivity/ impulsivity personality type of learners and linguistic characteristics of their written production. There are different studies in contrast and in line with the researcher's findings in this field.

The second research question asked whether there is any significant relationship between extroverts vs. introverts in terms of syntactic and lexical complexity. As it is indicated in Tables 4 to 6, extroverts tended to use more words in their sentences and so they wrote in longer sentences and this difference show the favorable level of significance, findings of this study corroborated the results of the earlier studies in this field (i.e. Gill and Oberlander, 2002).

As cited in Gill and Oberlander (2002), Carment *et al.*, (1965), proposed that extroverts can be described as individuals who think out loud, do most of the talking, are less self-focused, and tend to skip from topic to topic. This willingness to do most of the talking or in our case writing (expressing oneself in general) may have led our extroverts to write longer sentences. With regard to the other measure of syntactic complexity significantly, extroverts' written performance showed larger ratio of subordination. It means that Extroverts used more subordinate structure in their writings. The other linguistic property is lexical complexity and it is measured via lexical diversity and lexical density.

Significantly, extroverts used a larger variety of words to express themselves than introverts. So, the extroverts used more different types of words in their writings. Considering extroverts as "expressive" (Eysenck, 1999), it seems somehow natural for these learners to use more different types of words to

express themselves. With regard to lexical density, there was significant difference between extroverts and introverts. The results showed more number of lexical densities for introverts and extroverts. However, Gill (2003) concluded from previous research that extrovert language contains more adverbs, pronouns, and verbs (i.e., more „implicit), and has a lower lexical density (Type-Token Ratio); it contains fewer nouns, modifiers and prepositions (less „explicit), and is less formal.

As it is obvious, all measures are larger in extroverts. Since all of these differences are significant, the first hypothesis can be rejected in case of linguistic properties of writings. So, there is significant relationship between extroversion/ introversion personality type of learners and written performance in their compositions.

A considerable amount of literature has been published on extraversion-introversion. These studies report that this personality style is significantly correlated with second language learning skills. Some researchers found significant positive correlations, while others found significant negative correlations between extraversion-introversion and second language learning components. Lightbown and Spada (2006) stated that many classroom teachers believe that in second or foreign language learning, extraverts are more successful than introverts, particularly in their communicative ability. Hassan (2001) also found that extraversion and introversion are noticeably correlated with pronunciation accuracy, with extraverted students being more accurate in their English language performance than introverted students. Busch (1982) conducted a study on introversion-extraversion in relation to EFL proficiency. The study found a higher performance by introverted participants in reading and grammar components, extroverted participants were still found to have higher oral proficiency scores.

Morimoto (2006) also clarified no significant differences between extraverts and introverts EFL learners and their vocabulary, grammatical and vocabulary knowledge. The authors recommended further research in this field.

Some studies' results are in contrast with our findings. HemmatNezhad *et al.*, (2014) showed that being extravert vs. introvert has no significant impact on writing ability. Moreover, there was no significant effect of gender differences' extraverts/introverts on their writing proficiency. The results revealed that both extraverts and introverts have the capability to be proficient in writing skill. Nejad *et al*., (2012), attempted to examine to what extent extraversion and introversion could foretell academic writing ability among 30 junior university students; male and female, studying English literature in junior at Ilam University, Iran. The result of study revealed that there is no significant relationship between extraversion /introversion and writing ability.

The third research question asked whether there is any significant relationship between males vs. females in terms of syntactic and lexical complexity. With regard to the third research question, none of differences between males and females was significant (Tables 7 to 9). So According to the mentioned numerical data, it can be concluded that there is not any relationship between males vs. females in terms of syntactic and lexical complexity.

According to Jones and Myhill (2007), only limited evidence supported the argument that, in terms of the linguistic characteristics of the written outcomes, boys and girls are differently literate. This study, along with many other studies in this field, supported the notion of instability of statistically significant data in terms of gender and writing; those differences that have arisen in one study may not be replicable, and a further study in a different year with different writing tasks might furnish different results. As Vaezi (2012) showed females' written productions indicated larger measures of linguistic properties in all of its variables than males; however, none of the differences were significant.

Conclusion

We have searched for the effects of learner variables on linguistic characteristics of the written performance of learners. Among all of these variables, the affective factor extroversion/ introversion seems to play an important role in the most detailed aspects of person's performance. Lexical complexity of learners' writings was the most sensitive feature of the produced text to the personality of the producer of the text. Extroverts and introverts do write differently in terms of lexical complexity of their written work. These findings are in line with the central notion of language psychology that the words people use

reflect who they are. Other learner variables such as cognitive factors and biological factors did not reveal any significant difference in learners' writings in terms of linguistic properties.

In a nutshell, this study found learner variables to be influential factors in learning second language and consequently in learning outcomes. The findings showed that extroversion/ introversion type of personality of the learner is an important factor in determining how they use words in their compositions. The extroverts tended to use more various types of words in their writings and accordingly they had more lexical complexity in their productions. The research was carried out as a correlational research among intermediate TEFL students in Iran. The importance of personality types in education cannot be ignored.

Many studies were conducted to determine the effect and relationship of personality types with different areas of language.

For example HemmatNezhad *et al.,* (2014) investigated the role of individual differences in terms of extraversion vs. introversion on writing ability of EFL. The main finding was extraversion vs. introversion has no significant impact on writing ability. Moreover, there was no significant effect of gender differences' extraverts/introverts on their writing proficiency. The results revealed that both extraverts and introverts have the capability to be proficient in writing skill.

Rahimpour (2011) in a study scrutinized the impact of planning and proficiency on 172 EFL learners' written task performance regarding concept load, fluency, complexity and accuracy. In this study, we attempted to identify the relationship between the learners' characteristics with the linguistic properties of their writings. To answer the research questions, product-moment correlation coefficient was run and the findings revealed that Extrovert and Impulsive learners have complex, accurate and fluent writings but gender factor doesn't show any significance differences. These findings support the previous studies by HemmatNezhad *et al.,* (2014) and Rahimpour (2011).

In this study we selected lexical complexity and syntactic complexity as two measures of linguistic characteristics of learners' writings. Fluency and accuracy are other linguistic properties that can be investigated through written performance of learners with different types of personalities. Our study searched for the various linguistic properties at sentence level. Further, more technically sophisticated analyses can be carried out. In order to have a more comprehensive understanding of the characteristics of second language writing, future investigation should also take into account discourse-level written features such as coherence, development of main ideas and organization.

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