

The Comparative Effect of Input Flooding and Input Enhancement on EFL Learners' Writing Complexity and Accuracy

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Abstract

The purpose of the present study was to investigate the comparative effect of input flooding and input enhancement on EFL learners' writing complexity and accuracy. The participants were 60 intermediate EFL learners selected from among 90 via administering a Preliminary English Test. The selected participants were randomly assigned into two experimental groups each containing 30 students. In order to make sure that the participants were not significantly different in terms of writing complexity and accuracy, the participants' performance of the free writing section of PET were analyzed based on the writing complexity and accuracy measurements and used as their pretest. In the first experimental group, the participants received input flooding, whereas the participants in the second experimental group received input enhancement of the materials. At the end of the treatment, the free writing section of another PET was administered to both groups and the writing complexity and accuracy were compared through two separate Independent Samples t-tests. The results revealed that input enhancement had a more significant effect on both EFL learners' writing complexity and accuracy than input flooding. Based on the findings of the current study, EFL teachers may employ input enhancement to enhance EFL learners' writing complexity and accuracy.

Keywords: Writing, writing complexity, writing accuracy, input flooding, input enhancement

Introduction

Evidently, writing is considered as a main language skill since nowadays this skill is employed in various educational and professional environments (Hapsari, 2011). For native writers, writing is a tough process, let alone EFL learners (Al-Gharabally, 2015). There is little doubt that writing is the most difficult skill for L2 students to master (Charles, 2007). It is believed that "learning to write is not just a question on developing a set of mechanical orthographic skills but it also involves learning a new set of cognitive and social relations" (Tribble, 1996, p. 12). Moreover, Tribble (1996) argued that "learning to write is a difficult and lengthy process, one that induces anxiety and frustration in many learners" (p. 12). In contexts such as Iran, although learners are provided with teachers' instructions on how to write, they do not produce organized, accurate and complex pieces of writing (Hasani & Moghadam, 2012). Moreover, as pointed out by Mirzaii (2012), the writing performance of Iranian EFL students is not satisfactory.

With the difficulties that students have in conforming to the writing in mind, this research was designed to investigate more into writing complexity and accuracy. Complexity is considered as "the stage and elaboration of the underlying inter language system" (Skehan, 1996, p. 46). Writing complexity is defined as "learners' capacity to use more elaborate and complex target like language" (Skehan & Foster, 1997, p. 230). According to Wolfe-Quintero, Inagaki,

and Kim (1998), writing complexity is defined as “the percentage of dependent clauses to all clauses, which is measured by the degree of embedding clauses in a text” (p. 10). Accuracy is defined as “a learner’s capacity to handle whatever level of inter-language complexity s/he has currently attained” (Skehan, 1996, p. 46). Based on Skehan and Foster (1996, p. 232), writing accuracy is “the extent to which the language produced conforms to the target language norms”. Yuan and Ellis (2003, p.13) define writing accuracy as “the percentage of clauses without any errors. All errors relating to syntax, morphology, and lexical choice”.

Previous research studies (e.g., Hasani & Moghadam, 2012; Ketabi & Torabi, 2015; Koosha & Yakhabi, 2012; Mirzaii, 2012) have indicated that Iranian EFL learners find writing a challenging task. A big question that may come to mind is where does the problem lie in? Why do students lack the required mastery over the above mentioned components of language in spite of the fact that they are presented with teachers’ explanations on different elements of language? One possible factor which can be considered is the potential role of input. Since input is considered to play a significant role in language learning, several teaching techniques have emerged in which the way input is presented to learners is different (Larsen-Freeman, 2003). Two of these techniques include input flooding and input enhancement. Input flooding deals with “increasing the number of times that learners encounter a word or a structure in a particular text” (Schmitt, 2002, p. 123), while input enhancement deals with making the input salient through various techniques such as highlighting, bold facing, italicization etc., so that learners’ attention is focused on the target forms (Sharwood Smith, 1993).

Input enhancement has been defined as different types of pedagogical techniques used by teachers to increase student’s noticing of a particular input through input salience; since input salience has several advantageous such as facilitating learning (Sharwood Smith, 1993). Input enhancement has been learning and teaching technique particularly crafted to draw the attention of language learners to certain linguistic elements of input (Schmidt, 1991). Schmidt (1993) has mentioned that input enhancement may be employed to facilitate learning of lexical and grammatical morphemes and structures. This method has not been without opponent as Sharwood Smith (1993) claimed that input enhancement is not in line with the natural path of learning a language particularly learning of structures and lexical aspects.

In the process of input flooding, learners’ exposure to saturated input filled with substantial examples in oral and written forms facilitates their acquisition (Wong, 2005). Thus, according to Wong (2005), an input flood can be either written or oral. In the oral mode the target linguistic form is used frequently in natural speech, or a text including the target is written down and then read out loud to students (Wong, 2005). The target form is not emphasized in any way, but it is assumed that the form is more salient to learners because of its frequency (Wong, 2005). Input flooding can give learners the chance to be more in exposure of English language features; as a result of which EFL learners would gain more knowledge of English features (Spada, 1997). Frequent input can also convert into intake and would stay in long-term memory; so that learners would use the language in different situations based on their needs (Spada, 1997).

Concerning the effectiveness of input enhancement and input flooding several investigations have been carried out so far. For instance, Rashtchi and Yousefi, (2017) and Rikhtegar and Gholami (2015) found that input flooding could significantly improve the reading

comprehension among students. Likewise, Asadi Amirabadi, et al., (2014) identified that input flooding had a significantly positive effect on the improvement of EFL students' retention of conditional structures. Similarly, several research studies (e.g., Doughty, 1988, Fahim & Vaezi, 2011, Karbalaei, Pourzargham & Kazemi, 2013, Lee & Lee, 2012, Shook, 1994; Williams, 1999) found that input enhancement had a significant positive effect on different skills of language learning. However, to the best of the researcher knowledge, no study has been done to investigate the comparative effect of input flooding and input enhancement on EFL learners' writing complexity and accuracy. Therefore, this study was an attempt to fill this gap and examine the comparative effect of input flooding and input enhancement on EFL learners' writing complexity and accuracy in the context of Iran. Thus, the following research questions were formulated:

RQ1: Is there any significance difference between the effect of input flooding and input enhancement on EFL learners' writing complexity?

RQ2: Is there any significance difference between the effect of input flooding and input enhancement on EFL learners' writing accuracy?

In line with the research questions, the following null hypotheses were raised:

H01: There is no significant difference between the effect of input flooding and input enhancement on EFL learners' writing complexity.

H02: There is no significant difference between the effect of input flooding and input enhancement on EFL learners' writing accuracy.

Method

Participants

This study was conducted with 60 EFL learners within the age range of 17-23 years old. They were female EFL learners at the intermediate level whose mother tongue was Persian. These participants were selected non-randomly, on availability basis, from among a total number of 90 students who were studying at Dr. Amokhte Language Institute in Tehran. That is, the original participants of this study were 90 EFL learners selected through convenient sampling and accessibility in Dr. Amokhte Language Institute. After administering a piloted sample PET, 60 homogeneous EFL students whose scores fell within one standard deviation above and below the mean were selected and randomly assigned into two experimental groups, i.e., input flooding and input enhancement, each included 30 participants. It is noteworthy that the participants were in four classes and had the same educator, i.e., the researcher, throughout the study. Before administrating the PET, a group of 30 non-participating students with almost similar characteristics to the target sample were used for the piloting of this test. Additionally, another teacher helped in rating the speaking and writing sections of PET and writing complexity and accuracy. The raters were both educated in English Language Teaching with experience of teaching English for 5 years.

Instrumentation

In order to meet the objectives of the study the following instruments were utilized:

Preliminary English Test (PET)

A sample of Preliminary English Test (PET) adopted from PET Practice Test (Quintana, 2008) was employed for the purpose of choosing students at intermediate level and ensuring their homogeneity. As pointed out by the official website of Cambridge, Preliminary English Test is an exam which is accepted worldwide and its reliability and validity have been approved frequently (www.Cambridgeenglish.org). The exam is made up of three exam papers, which incorporate all four language skills (i.e., reading, writing, listening, and speaking).

Writing Complexity and Accuracy Pretest

In order to make sure that the participants in the two groups belonged to the same population in terms of writing complexity and accuracy at the outset, the participants' performance of the free writing section of the PET were analyzed based on the writing complexity and accuracy measurement described below by the two raters of the study and used as the writing complexity and accuracy pre-treatment scores. It is noteworthy that their consistency of scoring or inter-rater reliability was checked.

Writing Complexity and Accuracy Posttest

At the end of the treatment the participants of both groups participated in the posttest that was the free writing section of another PET (Quintana, 2008). Its administration took approximately 30 minutes. Like the pretest, the participants' performance of the free writing section of the PET in posttest were also analyzed based on the writing complexity and accuracy measurement described in section 3.2.4 by the two raters and used as the writing complexity and accuracy posttest. Inter-rater reliability of the two raters' scores was calculated to ensure consistency between their scoring.

Measurement of Writing Complexity and Accuracy

The writing complexity and accuracy of the participants were measured based on the following criteria:

Writing Complexity: The proportion of clauses to T-units (C/T), which means the ratio of the total number of clauses to the total number of T-units in the text (Polio, 1997).

Writing Accuracy: The ratio of error-free Terminable units (T-units) to total T-units [EFT/T] (Wigglesworth & Storch, 2009). It is noteworthy that a T-unit is "one main clause plus the subordinate clauses attached to or embedded within it" (Hunt, 1965, p 49).

The Course Book

The course book used in both experimental groups during the instruction was "American English File, book 3, second edition" by Latham-Koenig, Oxenden, and Seligson (1997), published by Oxford University Press. This book has 10 units and also it has a work book and a Compact Disk (CD). This book covers all language skills of listening, speaking, reading, and writing with a focus on pronunciation, grammar and vocabulary. It is noteworthy that each unit of this book is composed of four sections plus two-page practical English and writing, and a two-page review and check section. In this study, the students during an eight-week term dealt with three units (units four to six) which were about "failure and success & modern manners?", "sports superstitions & love at exit 19", and "shot on location and judging by appearances", respectively. In the aforementioned units the following grammatical points are elaborated: "Can, could, be able to & modals of obligation must, have to, should", "past tenses, simple, continuous, perfect & usually and used to", and "passives (all tenses) & modals of deduction might, can't, must".

Procedure

The main purpose of this study was to investigate the comparative effect of input flooding and input enhancement on EFL learners' writing complexity and accuracy. To accomplish this, certain steps were taken which are explicated below in chronological order.

Pre-Treatment Stage

Prior to the treatment, the researchers piloted the PET on 30 non-participating candidates who had almost the same characteristics of the sample to analyze the items and estimate the reliability of the test. The results revealed that no malfunctioning item was found upon item analysis. The Cronbach's alpha formula was employed for calculating the reliability of the reading and listening sections of PET scores gained by the participants. Moreover, the writing and speaking sections of PET were rated by the two raters based on the aforementioned rating scales. Besides, the inter-rater reliability was calculated on the writing and speaking scores given by the two raters.

Afterwards, the piloted PET was administered to 90 female EFL learners who were selected non-randomly. Based on the results of the piloted PET, 60 EFL students were chosen whose scores fell between one standard deviation above and below the mean. Then, they were randomly assigned into two experimental groups, namely, input flooding and input enhancement, each containing 30 EFL learners. Each experimental group consisted of two classes with 15 students in each.

Since writing complexity and accuracy were the dependent variables of this study, the researcher had to make sure that the two groups were homogeneous regarding writing complexity and accuracy prior to the treatment. Therefore, their writing complexity and accuracy scores on the writing section of PET were rated by the two raters based on the aforesaid measurement criteria and the inter-rater reliability was calculated. Then, the participants' writing complexity and accuracy scores on the free writing section of PET were analyzed in isolation, through running two separate Independent-Samples t-Tests.

Upon ensuring the homogeneity of participants both in terms of language proficiency and writing complexity and accuracy, the researcher commenced the treatment. The two experimental groups were instructed by the same teacher (i.e., the researcher), using the same material (units four to six of American English File, level 3), over a course of 16 sessions spanning within a period of eight weeks each of which lasting 90 minutes.

Treatment Stage

The next step was the intervention during which the researcher taught the grammatical structures using two different instructional techniques called input flooding and input enhancement, which lasted for 16 sessions. The following sections clarify the step by step procedure being performed in both experimental groups.

Experimental Group 1 (Input Flooding)

It is noteworthy that the input flooded content in the current study was prepared in line with Nemati and Motallebzadeh (2013) who argued that via "increasing the frequency of appearance

of a given feature in the input makes such feature more prominent in L2 input series, and this is known to be input flooding” (p. 409). In a similar vein, the learners in this group were exposed to the grammatical features used in the lessons several times in different ways.

The input flooding group in the present study were exposed to numerous examples of the target structures through some texts. More specifically, the class went on as following: First of all, the researcher retyped all the sections related to grammar and reading passages in the course book and provided some copies of the retyped materials. Then, the students in the input flooding group were exposed to examples of target structures through reading texts and the researcher provided input through occurrences of the target forms; that is to say the researcher retyped the reading passages of the course book and increased the frequency of grammatical features by adding more sentences to the text in which the grammatical feature in focus were used several times, so that the learners be flooded with the grammar forms. Afterwards, the participants were asked to do the exercises. Likewise, in order to make learners be flooded with the grammatical points, some questions elicited from American Files series were also asked in the class for learners to answer. Then the teacher (researcher) who had prepared some flashcards on “Can, could, be able to”, distributed them among learners; at this time the learners were asked to read and repeat them loudly without any help. Afterwards, as a final activity of that session, the participants were asked to write a 100-word text using the newly learned grammatical points, i.e., “Can, could, be able to”. Then the writings were collected and were corrected by the researcher. Then the next session the corrected writings were given back to the participants. The same procedure was used for other grammatical features in the subsequent sessions.

Experimental Group 2 (Input Enhancement)

To provide the learners with input enhanced material, the syllabus of the institute was used. In order to enhance the material, the researcher retyped all the sections related to grammar and reading passages in the course book and enhanced the grammatical features under instruction by underlining, boldfacing, italicization, CAPITALIZATION, and other strategies such as color coding or using different font sizes. That is to say that the input enhancement group received the same texts as the first experimental group but the target grammatical features under instruction were enhanced via the aforementioned techniques and strategies. In input enhancement group, the researcher tried to make certain selected features of language more salient; that is to say the researcher tried to absorb learners’ attention to the examples of target structure. In each session, students were asked to read silently the texts and sentences which their grammatical points, i.e., “Can, could, be able to”, were enhanced using underlining, boldfacing, italicization, CAPITALIZATION, and other strategies such as color coding or using different font sizes. Next, they were asked to do the exercises. That is, students just focused on reading the texts and sentences and doing the related exercises. It is worth noting that no explicit information about why some grammatical points were for example underlined or italicized were given while students were doing the activities to avoid any interference with the input enhancement effect. Later, as a final activity of that session, the participants were asked to write a 100-word text using the newly learned grammatical points, i.e., “Can, could, be able to”. Afterwards, the writings were collected and were corrected by the researcher. Then the next session the corrected writings were given back to the participants. The same procedure was used for other grammatical features in the subsequent sessions.

Post Treatment Stage

Following the termination of the treatment, the participants of both groups took the writing section of another PET as posttest. It is noteworthy that the participants' writing complexity and accuracy scores on the writing section of PET were rated by the two raters based on the aforesaid measurements and the inter-rater reliability was calculated. Finally, the performances of participants of the two experimental groups were analyzed through statistical analyses.

Design

This study was quasi-experimental method enjoying a two comparison groups posttest -only design. Type of input was the independent variable with two modalities of input flooding and input enhancement, and EFL learners' writing complexity and accuracy were considered as dependent variables. Also, the participants' gender, age, and language proficiency were assumed as control variables of the study.

Results

To select the participants required in this study, the researcher used a sample PET. Prior to the actual administration, the test was piloted to make sure that it could be used confidently for this screening. The section below describes the details of these two consecutive processes of piloting and actual administration to ensure homogeneity of the input flooding and input enhancement experimental groups in terms of their proficiency level. A sample PET was piloted through administration to a group of participants similar in characteristics to the target participants of the study. Following the piloting of the test, the mean and standard deviation of the raw scores were calculated to be 57.49 and 11.16, respectively (Table 1).

Table: 1

Descriptive Statistics of PET Piloting

	N	Mean	Std. Deviation	Skewness		Ratio
	Statistic	Statistic	Statistic	Statistic	Std. Error	
PET Piloting	30	57.4917	11.16268	-.601	.427	-1.407
Valid N (listwise)	30					

Item analysis was also conducted and no item was found malfunctioning. Using Cronbach's Alpha, the reliability of the reading and listening sections of the test were 0.78 and 0.80, respectively. As two raters were involved in the scoring of the free writing sections of PET, their consistency of scoring or inter-rater reliability had to be checked. Table 2 below shows the

descriptive statistics of the scores given by the two raters to the writing papers of 30 students in the piloting of PET.

Table: 2
Descriptive Statistics of the PET Free Writing Scores by the Two Raters

	N	Mean	Std. Deviation	Skewness		Ratios
	Statistic	Statistic	Statistic	Statistic	Std. Error	
Writing Rater 1	30	15.6667	2.01859	-.786	.427	-1.840
Writing Rater 2	30	15.7333	2.06253	-.787	.427	-1.843
Valid N (listwise)	30					

As Table 2 reveals, the skewness ratio of both sets of scores ($-0.786 / 0.427 = -1.840$ and $-0.787 / 0.427 = -1.843$) fell within the acceptable range of ± 1.96 which means that both sets were skewed, and, thus, running a parametric test to check the go-togetherness of the scores was legitimized. Consequently, the Pearson Correlation was run. Table 3 below displays the significant correlation of the two sets of scores given by both raters to the writing papers ($r = 0.951$, $p = 0.000 < 0.01$).

Table: 3
Correlation of the PET Free Writing Scores by the Two Raters

		Writing Rater 2
Writing Rater 1	Pearson Correlation	.951**
	Sig. (2-tailed)	.000
	N	30

** . Correlation is significant at the 0.01 level (2-tailed).

Furthermore, as two raters were involved in the scoring of the speaking section of PET, their consistency of scoring had to be checked. Table 4 below displays the descriptive statistics of the scores given by the two raters to the speaking test of 30 students in the piloting of PET.

Table: 4

Descriptive Statistics of the PET Speaking Scores by the Two Raters

	N	Mean	Std. Deviation	Skewness		Ratios
	Statistic	Statistic	Statistic	Statistic	Std. Error	
Speaking Rater 1	30	13.3500	3.09100	-.798	.427	-1.868
Speaking Rater 2	30	13.3667	3.22953	-.799	.427	-1.871
Valid N (listwise)	30					

As Table 4 shows, the skewness ratio of both sets of scores ($-0.798 / 0.427 = -1.868$ and $-0.799 / 0.427 = -1.871$) fell within the acceptable range of ± 1.96 which means that both sets were skewed and thus, running a parametric test to check the go-togetherness of the scores was legitimized. Therefore, the Pearson Correlation was run. Table 5 below displays the significant correlation of the two sets of scores given by both raters to the speaking test ($r = 0.988$, $p = 0.000 < 0.01$).

Table: 5

Correlation of the PET Speaking Scores by the Two Raters

		Speaking Rater 2
Speaking Rater 1	Pearson Correlation	.988**
	Sig. (2-tailed)	.000
	N	30

** . Correlation is significant at the 0.01 level (2-tailed).

Descriptive Statistics of PET Administration

Next, the piloted PET was administered for participant selection. Table 6 shows the descriptive statistics of this administration with the mean being 56.76 and the standard deviation 13.82, respectively.

Table: 6

Descriptive Statistics of PET Scores, Main Administration

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Ratio
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	
PET Administration	90	35.00	85.00	56.7667	13.82966	.310	.254	1.220
Valid N (listwise)	90							

From among 90 students who took the test, the researcher selected 60 intermediate students whose scores fell between one standard deviation above and below the mean and were assigned into two experimental groups, namely, input flooding and input enhancement, each containing 30 students.

Pre-treatments Tests

Since writing complexity and accuracy were the dependent variables of this study, the researcher had to make sure that the two groups were homogeneous regarding writing complexity and accuracy prior to the treatment. Therefore, their writing complexity and accuracy scores on the writing section of PET were compared.

Writing Complexity Pre-treatment Test

Prior to providing the statistics of both groups' writing complexity, the descriptive statistics regarding the inter-rater reliability of the two raters for the writing complexity test of the selected participants are presented (Table 7).

Table: 7

Descriptive Statistics of the Scores Given by the Two Raters to the Writing Complexity of PET in the Homogenizing Phase

	N	Mean	Std. Deviation	Skewness		Ratios
	Statistic	Statistic	Statistic	Statistic	Std. Error	
Writing Complexity (Rater 1)	60	1.6578	.27223	-.246	.309	-.796
Writing Complexity (Rater 2)	60	1.6503	.27322	-.206	.309	-.666
Valid N (listwise)	60					

As Table 7 shows, the skewness ratio of both sets of scores ($-0.246 / 0.309 = -0.796$ and $-0.206 / 0.309 = -0.666$) fell within the acceptable range of ± 1.96 which means that both sets were not skewed and thus, running a parametric test to check the go-togetherness of the scores was legitimized. Therefore, the Pearson Correlation was run. Table 8 below displays the significant correlation of the two sets of scores given by both raters to the writing complexity test ($r = 0.995$, $p = 0.000 < 0.01$).

Table: 8

Correlation of the PET Writing Complexity Scores by the Two Raters

		Writing Complexity (Rater 2)
Writing Complexity (Rater 1)	Pearson Correlation	.995**
	Sig. (2-tailed)	.000
	N	60

** . Correlation is significant at the 0.01 level (2-tailed).

Since writing complexity was the dependent variable of this study, the researcher had to make sure that the two groups were homogeneous regarding writing complexity prior to the treatment. Therefore, their writing complexity scores on the PET were compared. To use a t-test, the normality condition was checked first.

Table 9 below shows the descriptive statistics of the two groups concerning their writing complexity prior to the treatment.

Table: 9

Descriptive Statistics of the Groups on the Writing Complexity Test Prior to the Treatment

	N	Mean	Std. Deviation	Skewness		Ratios
	Statistic	Statistic	Statistic	Statistic	Std. Error	
Input Flooding	30	1.7043	.19211	.173	.427	.405
Input Enhancement	30	1.6038	.32985	.015	.427	.035
Valid N (listwise)	30					

As Table 9 shows, the mean and the standard deviation of the input flooding group’s writing complexity scores were 1.70 and 0.19, respectively, while those of the input enhancement group were 1.60 and 0.32, respectively. Additionally, the scores presented normality ($0.173 / 0.427 = 0.405$ and $0.015 / 0.427 = 0.035$). Moreover, an independent samples t-test was used to compare the writing complexity means of the two groups prior to the treatment.

Table: 10

Independent Samples t-Test on the Writing Complexity Test of the Groups Prior to the Treatment

	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

Writing Complexity Pretest	Equal variances assumed	14.683	.000	1.442	58	.155	.10050	.06969	-.0390	.24000
	Equal variances not assumed			1.442	46.64	.156	.10050	.06969	-.0397	.24073

As shown in Table 10, the homogeneity between the variances was not assumed ($F=14.68$, $p=.000<.05$), and as such the second row should be referred to for the result of the t test. It is shown there that the difference between the two mean scores turned out to be non-significant ($t(46.64) = 1.442$, $p=0.156>0.05$), which implies that there was no significant difference between the two groups' writing complexity prior to the treatment. Thus, it can be stated that any difference between the two groups at the end of the study would be the results of the treatment.

Writing Accuracy Pretest

Prior to provide the statistics of groups' writing accuracy, the descriptive statistics regarding the inter-rater reliability of the two raters for the writing accuracy test of the selected participants are presented (Table 11).

Table: 11

Descriptive Statistics of the Scores Given by the Two Raters to the Writing Accuracy of PET in the Homogenizing Phase

	N	Mean	Std. Deviation	Skewness		Ratios
	Statistic	Statistic	Statistic	Statistic	Std. Error	
Writing Accuracy (Rater 1)	60	.3300	.09998	-.155	.309	-.501
Writing Accuracy (Rater 2)	60	.3285	.09844	-.247	.309	-.799
Valid N (listwise)	60					

As Table 11 shows, the skewness ratio of both sets of scores ($-0.155 / 0.309 = -0.501$ and $-0.247 / 0.309 = -0.799$) fell within the acceptable range of ± 1.96 which means that both sets were not skewed and thus, running a parametric test to check the go-togetherness of the scores

was legitimized. Therefore, the Pearson Correlation was run. Table 12 below displays the significant correlation of the two sets of scores given by both raters to the writing accuracy test ($r = 0.991, p = 0.000 < 0.01$).

Table: 12

Correlation of the PET Writing Accuracy Scores by the Two Raters

		Writing Accuracy (Rater 2)
Writing Accuracy (Rater 1)	Pearson Correlation	.991**
	Sig. (2-tailed)	.000
	N	60

** . Correlation is significant at the 0.01 level (2-tailed).

Since writing accuracy was the dependent variable of this study, the researcher had to make sure that the two groups were homogeneous regarding writing accuracy prior to the treatment. Therefore, their writing accuracy scores on the PET were compared. To use a t-test, the normality condition was checked first.

Table 13 below shows the descriptive statistics of the two groups concerning their writing accuracy prior to the treatment.

Table: 13

Descriptive Statistics of the Groups on the Writing Accuracy Test Prior to the Treatment

	N	Mean	Std. Deviation	Skewness		Ratios
	Statistic	Statistic	Statistic	Statistic	Std. Error	
Input Flooding	30	.3347	.08918	.043	.427	.100
Input Enhancement	30	.3238	.10917	-.285	.427	-.667
Valid N (listwise)	30					

As Table 13 shows, the mean and the standard deviation of the input flooding group’s writing accuracy scores were 0.33 and 0.08, respectively, while those of the input enhancement group were 0.32 and 0.10, respectively. Additionally, the scores presented normality ($0.043 / 0.427 = 0.100$ and $-0.285 / 0.427 = -0.667$). Moreover, an independent samples t-test was used to compare the writing accuracy means of the two groups prior to the treatment.

Table: 14
Independent Samples t-Test on the Writing Accuracy Test of the Groups Prior to the Treatment

		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
Writing Accuracy Pretest	Equal variances assumed	1.207	.276	.421	58	.675	.01083	.02574	-.0406	.06235
	Equal variances not assumed			.421	55.779	.675	.01083	.02574	-.0407	.06240

As shown in Table 14, with then equality of the variances assumed ($F=1.2, p=.42>.05$), the difference between the two mean scores turned out to be non-significant ($t(58) =0.421, p=0.675>0.05$), which implies that there was no significant difference between the two groups’ writing accuracy prior to the treatment. Therefore, it can be stated that any difference between the two groups at the end of the study would be the results of the treatment.

Posttest Administration

Following the termination of the treatment, the participants of both groups took the writing section of another PET as posttest.

Writing Complexity Posttest

Prior to providing the statistics of the two groups' writing complexity scores after the treatment, the descriptive statistics regarding the inter-rater reliability of the two raters for the writing complexity test of the participants are presented (Table 15).

Table: 15

Descriptive Statistics of the Scores Given by the Two Raters to the Participants on the Writing Complexity Test after the Treatment

	N	Mean	Std. Deviation	Skewness		Ratios
	Statistic	Statistic	Statistic	Statistic	Std. Error	
Writing Complexity (Rater 1)	60	1.7537	.26403	-1.026	.309	-3.320
Writing Complexity (Rater 2)	60	1.7537	.27915	-1.017	.309	-3.291
Valid N (listwise)	60					

As Table 15 shows, the skewness ratio of both sets of scores ($-1.026 / 0.309 = -3.320$ and $-1.017 / 0.309 = -3.291$) fell outside the acceptable range of ± 1.96 , thus running a parametric test to check the go-togetherness of the scores was not legitimized. Consequently, the Kendall's tau-b was run. Table 16 below displays the significant correlation of the two sets of scores given by both raters to the writing complexity test ($r = 0.876$, $p = 0.000 < 0.01$).

Table: 16

Correlation of the PET Writing Complexity Scores by the Two Raters

		Writing Complexity (Rater 2)	
Kendall's tau_b	Writing Complexity (Rater 1)	Correlation Coefficient	.876**
		Sig. (2-tailed)	.000
		N	60

** . Correlation is significant at the 0.01 level (2-tailed).

Moreover, Table 17 below indicates the results of the writing complexity posttest administration for both groups.

Table: 17
Descriptive Statistics of the Complexity Posttest Scores

	N	Mean	Std. Deviation	Skewness		Ratios
	Statistic	Statistic	Statistic	Statistic	Std. Error	
Input Flooding	30	1.6398	.31247	-.404	.427	-.946
Input Enhancement	30	1.8675	.15012	-.365	.427	-.854
Valid N (listwise)	30					

As Table 17 shows, the mean and the standard deviation of the input flooding group's writing complexity scores were 1.63 and 0.31, respectively, while those of the input enhancement group were 1.86 and 0.15, respectively. Additionally, the scores presented normality ($-0.404 / 0.427 = -0.946$ and $-0.365 / 0.427 = -0.854$).

Writing Accuracy Posttest

Prior to providing the statistics of groups' writing accuracy scores after the treatment, the descriptive statistics regarding the inter-rater reliability of the two raters for the writing complexity test of the participants are presented (Table 18).

Table: 18

Descriptive Statistics of the Scores Given by the Two Raters to the Participants on the Writing Accuracy Test after the Treatment

	N	Mean	Std. Deviation	Skewness		Ratios
	Statistic	Statistic	Statistic	Statistic	Std. Error	
Writing Accuracy (Rater 1)	60	.7798	.13664	-.073	.309	-.236
Writing Accuracy (Rater 2)	60	.7808	.13109	.021	.309	.067
Valid N (listwise)	60					

As Table 18 shows, the skewness ratio of both sets of scores ($-.073 / 0.309 = -0.236$ and $0.021 / 0.309 = 0.067$) fell within the acceptable range of ± 1.96 which means that both sets were normally distributed and thus, running a parametric test to check the go-togetherness of the scores was legitimized. Therefore, the Pearson Correlation was run. Table 19 below displays the significant correlation of the two sets of scores given by both raters to the writing accuracy test ($r = 0.974, p = 0.000 < 0.01$).

Table: 19
Correlation of the PET Writing Accuracy Scores by the Two Raters

		Writing Accuracy (Rater 2)
Writing Accuracy (Rater 1)	Pearson Correlation	.974**
	Sig. (2-tailed)	.000
	N	60

** . Correlation is significant at the 0.01 level (2-tailed).

Moreover, Table 20 below indicates the results of the writing accuracy posttest administration for both groups.

Table: 20
Descriptive Statistics of the Groups on the Writing Accuracy Test after the Treatment

	N	Mean	Std. Deviation	Skewness		Ratios
	Statistic	Statistic	Statistic	Statistic	Std. Error	
Input Flooding	30	.7243	.12795	.461	.427	1.079
Input Enhancement	30	.8363	.11458	-.326	.427	-.763
Valid N (listwise)	30					

As Table 20 shows, the mean and the standard deviation of the input flooding group's writing accuracy scores were 0.72 and 0.12, respectively, while those of the input enhancement group were 0.83 and 0.11, respectively. Additionally, the scores presented normality ($0.461 / 0.427 = 1.079$ and $-0.326 / 0.427 = -0.763$).

Testing the First Hypothesis

To test the first null hypothesis (H_{01} : *There is no significant difference between the effect of input flooding and input enhancement on EFL learners' writing complexity*), the writing complexity posttest scores of the two groups were compared through an Independent Samples t-test after the normality condition was verified (Table 17). The following table shows the result thereof:

Table: 21

Independent Samples Test on the Writing Complexity Posttest Means

		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
Writing Complexity Posttest	Equal variances assumed	24.309	.000	-3.597	58	.001	-.227	.06329	-.3543	-.1009
	Equal variances not assumed			-3.597	41.710	.001	-.227	.06329	-.3554	-.0999

As Table 21 demonstrates, the variances were not homogeneous ($F=24.309$, $p=0.000<0.05$), and the difference between the mean scores turned out to be significant ($t(41.71) = -3.597$, $p=0.001<0.05$). Thus, the first null hypothesis was rejected implying that the participants in the input enhancement group ($M=1.86$; $SD=0.15$) significantly outperformed their counterparts in the input flooding group ($M=1.63$; $SD=0.31$) concerning their writing complexity (see Table 17). In other words, given that the two groups' were homogeneous regarding their writing complexity prior to the treatment, it is rationally concluded that input enhancement had a more significant positive effect on the EFL learners' writing complexity compared to input flooding. Therefore, the null hypothesis is rejected.

Moreover, to estimate the effect size, the following formula was used as proposed by Pallant (2007):

$$\frac{t^2}{t^2 + (N1 + N2 - 2)}$$

With the t value turning out to be -3.597 , the outcome of the above formula was $.182$; that is, 18.2 percent of the difference between the two mean scores was due to the intervention, which is not a large effect size according to Cohen (1988).

Testing the Second Hypothesis

To test the second null hypothesis (H_{02} : *There is no significant difference between the effect of input flooding and input enhancement on EFL learners' writing accuracy*), the writing accuracy posttest scores of the two groups were compared through an Independent Samples t-test after the normality condition was verified (Table 20). The following table shows the result thereof;

Table: 22

Independent Samples Test on the Writing Accuracy Posttest Means

		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
Writing Accuracy Posttest	Equal variances assumed	.354	.554	-3.572	58	.001	-.1120	.03136	-.1747	-.0492
	Equal variances not assumed			-3.572	57.308	.001	-.1120	.03136	-.1747	-.0492

According to Table 22, the variances were homogeneous ($F=0.354$, $p=0.554>0.05$), and the difference between the mean scores turned out to be significant ($t(58) = -3.572$, $p=0.001<0.05$). Thus, the second null hypothesis was rejected indicating that the participants in the input enhancement group ($M=0.83$; $SD=0.11$) significantly outperformed their counterparts in the input flooding group ($M=0.72$; $SD=0.12$) concerning their writing accuracy (see Table 20). In other words, by virtue of the two groups' homogeneity regarding writing accuracy at the outset, it is concluded that input enhancement had a more significant positive effect on the EFL learners' writing accuracy compared to input flooding. Thus the null hypothesis is rejected.

Moreover, to estimate the effect size, the following formula was used as proposed by Pallant (2007):

$$\frac{t^2}{t^2 + (N1 + N2 - 2)}$$

With the t value turning out to be -3.572, the outcome of the above formula was .180; that is, 18 percent of the difference between the two mean was due to the intervention, which is not a large effect size according to Cohen (1988).

Discussion and Conclusion

The main purpose of the present study was to compare the effect of input flooding and input enhancement on EFL learners' writing complexity and accuracy. Based on the requirements, two research questions were posed. In this section, a discussion of obtained findings for each research question is provided. As stated earlier, the first driving force behind conducting this study was to compare the effects of input flooding and input enhancement on EFL learners' writing complexity. The results of Independent Samples t-test showed that input enhancement had a more significant positive effect on EFL learners' writing complexity than input flooding. The findings in this regard are in proportion to those of Javadi and Bagheri (2017), who concluded that textual enhancement techniques had a significant and positive effect on the learners' grammatical awareness of complex structures. The findings of the second research question are also consistent with the result of Jourdenais, Ota, Stauffer, Boyson, and Doughty (1995), who concluded that input enhancement had a significant positive effect on the writing performance of students.

The most essential underlying reason for the effectiveness of input enhancement might be due to the advantage of directing the students' consideration to form of the target language while processing meaningful input (Alsadhan, 2011). Moreover, Sharwood Smith (1994), the originator of input enhancement, argued that "the most obvious way to try to affect the subconscious processes beneficially is by making relevant evidence in the input especially salient" (p.178). Similarly, Berent, Kelly, Schmitz and Kenney (2008) believed that textual input enhancement techniques (e.g., bolding or CAPITALIZING) amplifies the "noticing" of the novel target forms and has a significant positive influence on the language students' subsequent output, such as their writing complexity. It is worth noting that complexity is characterized as "the extent to which the language produced in performing a task is varied" (Ellis, 2003, p. 34). Moreover, Lee and Benati (2007) asserted that a review of the literature indicated that input enhancement is beneficial for the development of language.

The second driving force behind conducting this study was to investigate the effect of input flooding and input enhancement on EFL learners' writing accuracy. The results of Independent Samples t-test revealed that input enhancement had a more significant positive effect on EFL learners' writing accuracy than input flooding. The findings of the present study are in agreement with those of Jourdenais et al. (1995), Izumi (2002) and Leow (2001), which concluded that that textual input enhancement techniques were effective in terms of drawing students' consideration to target forms and as a result leading to accurate oral and written performance. The findings in this regard was based on the assumption that using input enhancement techniques to improve the targeted items would intensify EFL learners' perceptual

salience, which sequentially would push the EFL students to notice the enhanced structures and consequently select them as intake, bringing about better writing performance on the writing accuracy test after the treatment (Bakhshandeh & Jafari, 2018; Sahebkhair & Davatgari Asl, 2014). It is noteworthy that writing accuracy is regarded as making sure that a piece of writing is well-organized in view of paragraph development spelling, punctuation, and grammar or sentence structure during stages (Hedge, 2000).

The possible reason for the ineffectiveness of input flooding on learners' writing accuracy might be due to the fact that input flood is too implicit in nature and consequently the learners are not adequately able to notice the novel target form(s) (Wong, 2005). According to Kirschner, Sweller and Clark, (2006), input flooding, which is considered as a kind of discovery-based instruction, does not result in considerable development in students' performance. To sum up, the results of this study provide practical support for the assumption that EFL learners' writing complexity and accuracy can be positively improved by input enhancement techniques in class. However, the results did not enjoy a strong effect size, thus the interpretation and generalization of the findings must be done with caution. Based on the results of the present study, a number of possible future implications are suggested for EFL teachers, and syllabus designers and materials developers.

First and foremost, due to the importance of input enhancement techniques and also their usefulness in improving EFL students' writing complexity and accuracy, EFL teachers are recommended to implement these techniques in the classroom context. It is believed that "most teachers use input enhancement, sometimes unintentionally, when they underline the target forms or write them in a different color whether implicitly or while explaining the target forms through rule presentation" (AsadiAmirabadi, Biria & Sedaghat, 2014, p.573). However, as the study showed a low effect size, relying merely on the input enhancement may not be very effective in boosting the "noticing" and improving language students' writing complexity and accuracy. Consequently, EFL teachers should be cautious when they want to use input enhancement techniques. Based on the findings, a statistically-supported justification is provided for paying a higher level of consideration to EFL students' writing complexity and accuracy in general and different input enhancement techniques in particular. Thus, syllabus designers and materials developers are the beneficiaries of this study. They can provide different writing-related materials by incorporating different input enhancement techniques through tasks and activates in their syllabus materials to be applied by EFL educators. Moreover, materials could focus on approaches to foster the intermediate EFL learners' writing complexity and accuracy by improving their interaction as well as engagement, which can be achieved by the application of different input enhancement techniques in the classes.

Based on the findings of the current study, several suggestions for future research can be recommended. Further studies can be conducted in order to identify the possible effect of input flooding and input enhancement on EFL learners' writing fluency and/or their speaking complexity, accuracy and fluency. Moreover, since in this study merely female learners were taken into account, it is recommended to replicate this study with male and female participants to determine the potential impact of gender on the findings. This research was carried out with EFL learners within the age range of 17-23 years old. The same study could be done with other age groups to determine the probable effect of the age range. This study was carried out with

intermediate EFL learners. Elementary level learners can be investigated to explore the possible effect of input flooding and input enhancement on EFL learners' writing complexity and accuracy.

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