RESEARCH ARTICLE

IMPACT OF TEACHING COHESIVE DEVICES ON L2 STUDENTS' LANGUAGE ACCURACY IN WRITTEN PRODUCTION

Mohammad Nasim Tahsildar[a], Zailin Shah Yusoff[b,]*

ABSTRACT

A well-written text is not only grammatical, but also cohesive and coherent. Cohesive devices play the most basic role in cohesion of a text and should be taken into consideration in teaching writing. This paper reports on a study investigating the impact of teaching academic text cohesive devices on L2 students' language accuracy in written production. The main objective of the study is to find out if teaching cohesive devices would enhance students' prior knowledge and subsequently result in increased written language accuracy. Based on a pre-post-test research design, 40 students enrolled in English for Academic Purposes course at a university in Malaysia were engaged as participants. A note-taking test was conducted prior to and post-intervention. The intervention consisted of lessons on academic text cohesive devices. The data was then analysed and reported using descriptive statistics and paired sample t-test. From the findings, it is clear that there is an increase in the minimum and maximum scores as well as in the mean scores between the pre- and post-test. More importantly, there is evidently a significant improvement in the participants' post-test language accuracy as evaluated through number of error-free t-units. In sum, the teaching of academic text cohesive devices does have a significant impact on language accuracy in written production. Hence, this study recommends L2 learners' prior knowledge activation to enhance written language accuracy.

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ARAŞTIRMA MAKALESİ

BAĞLAŞIKLIK ARAÇLARININ ÖĞRETİMİNİN İKİNCİ DİL ÖĞRENCİLERİNİN YAZILI DİL ÜRETİMLERİNE ETKİSİ

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ÖZET

İyi yazılmış bir metin yalnızca dil bilgisi kurallarına uygun değil, aynı zamanda da bağlaşık ve bağlaşımlıdır. Bağlaşıklık araçları bir metnin bağlaşımlı olmasında en temel görevi üstlenir ve yazma eğitimi verilirken mutlaka dikkate alınmalıdırlar. Mevcut çalışma, akademik metin bağlaşıklık araçlarının öğretiminin ikinci dil öğrencilerinin yazılı üretimlerinin dil doğruluğu üzerine etkilerini incelenmesini rapor etmektedir. Çalışmanın ana amacı, bağlaşıklık araçlarının öğretiminin öğrencilerin geçmiş bilgilerini geliştirip geliştirmeyeceği ve nihayetinde yazılı dil doğruluğunu artırıp artırmayacağını belirlemektir. Ön-test, son test araştırma deseniyle kurgulanmış çalışmada Malezya'daki bir üniversitede Akademik Amaçlar için İngilizce dersini alan 40 öğrenci katılımcı olarak yer almıştır. Çalışmada, uygulama öncesi ve sonrasında bir not-alma sınavı yapılmıştır. Yapılan uygulamada öğrencilere bağlaşıklık araçlarını içeren dersler verilmiştir. Veriler betimsel istatistik ve bağımlı iki örnek t-testi kullanılarak incelenmiş ve rapor edilmiştir. Ön ve son test sonuçlarının incelenmesiyle elde edilen bulgular azami ve asgari puanlarda ve ortalamalarda artış olduğunu açıkça ortaya koymuştur. Daha da önemlisi, katılımcıların hatasız t birimlerinin değerlendirilmesiyle bulunan son-test dil doğruluğundaki belirgin iyileşme bulgularıdır. Sonuç olarak, akademik metinlerde bağlaşıklık araçlarının öğretiminin yazılı dil üretimi üzerinde belirgin derecede bir etkisi olduğu söylenebilir. Bu yüzden, mevcut çalışma ikinci dil öğrencilerinin yazılı dil doğruluğunun geliştirilebilmesi için geçmiş bilgilerinin etkinleştirilmesi gerekliliğini önermektedir.

Anahtar Kelimeler: Akademik metin, Bağlaşıklık araçları, Dil doğruluğu, İkinci dil, Not alma

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Introduction

As the first criteria in writing a text (Mikhchi, 2011), cohesion is a feature that provides intact continuation by connecting clauses and sentences together (Coskun, 2011, p. 892). Organizing sentences of a text is not like putting up bricks one upon another for there are relationships between the sentences. So, in writing a well-organized text, both cohesion and coherence must be carefully considered (Aidinlou, 2012). Beaugrande (1995) also asserts that, in linguistics, a text is a communicative part of a language including seven standards including cohesion as the first standard, which syntactically and lexically, joins the text together to create textual unity.

The idea of text cohesion was first established in Halliday and Hasan's (1976) work. They investigated what brought cohesion into a single text, and recognized five cohesive relations that could signal relationships between sentences in a text. These relations are reference, ellipsis, substitution and conjunction, which make use of elements such as coordinating and subordinating conjunctions, as well as conjunctive adverbials and finally lexical cohesion (Shea, 2009). Grammarians and researchers described and grouped these cohesive devices as 'connectives' (Pander & Sanders, 2006), 'conjunctive adverbials' (Chen, 2006) 'transitional words and phrases', 'conjuncts' (Quirk et al, 1985) and "discourse markers" (Blakemore, 2002). These phrases are often used interchangeably to refer to words and phrases that signal to the listener or reader the direction of the text (Shea, 2009). In this study, the term 'academic text cohesive devices' is used throughout.

The main function of academic text cohesive devices is to connect linguistic features such as sentences, paragraphs and are classified as time order, sequence, addition, generalization, comparison-and-contrast as well as cause and effect cohesive devices (Quirk et al, 1985). Chu (2010) also classifies cohesive devices into four groups: conditional, adversative, coordinative, and cause-and-effect. Academic text cohesive devices conjoin linguistic components, such as sentences, paragraphs and even larger parts of a text (Quirk et al, 1985). They are either one-word item such as however or therefore or fixed word combinations for example, on the other hand. With the help of these devices, the listener or the reader is able to connect units together and make sense of the text (Altenberg & Tapper 1998). Dorn and Suffos (2005) add that academic text cohesive devices are language tools, which makes the text meaningful and the message clear. To have cohesion and make ideas clear and flow smoothly in a text, cohesive devices are required and they act as signals to give direction and to show where the text is going (Shea, 2009). These devices also support the process of extracting meaning from texts (Dorn & Suffos, 2005), mark meaningful relationships and eventually help in text comprehension (Brown, 1999). Essentially, these devices are words or phrases which show the transition or movement from one idea to another between clauses, sentences and paragraphs of a text (Biber, et al., 1999; Liu, 2008; Peacock, 2010).

Numerous empirical researches have been conducted to show the role of cohesive device in English language compositions either among native speakers or non-native speakers of English. The results can be seen as contradictory (Aidinlou, 2012; Emad, 2014; Hinkle, 2001; Izumi 2011; Mckay, 2007; Zhang, 2000). Emad (2014) and Jalilifar (2008) assert that studies on the relationship between the use of cohesive devices and quality of writing are not consistent and more studies are required to be conducted to show a more significant relationship between the two. For example, some studies (Aidinlou, 2012; Emmanuel, 2013; Liu & Braine, 2005) show positive relation between use of cohesive devices and quality of writing while findings from Castro 2004; Zhang 2000) do not show any relations between cohesive devices and quality of composition.

In addition to the conflicting results, Mckay (2007) states that use of academic cohesive devices might be much different in text types than with individual writers. To examine the above hypotheses, further research is required both across different L2 writers and across different writing tasks.

Cohesion and Coherence

Writing cohesively has not only remained a challenge among ESL/EFL learners but is even a key concern to native English speakers as well (Liu & Braine, 2005; Hinkel, 2001; Zhang, 2000). Rese-

arch shows that cohesive devices are essential tools that have L2 learners' write cohesively. Hinkel (2001) asserts that cohesive devices play an important role in L2 academic written texts. Emmanuel (2013) also states that cohesive devices are important tools that a writer uses to help the reader keep the development and flow of information in a text because they are used to signal to the reader the relationship between the current and former idea.

According to Emad (2014), studies on cohesive devices can be classified into three main categories. In the first category, researchers try to count and compare the overall frequencies of cohesive device used in native speakers' and non-native speakers' written texts. In total, the findings of first category suggest that non-native speakers use more cohesive devices than native speakers. For instance, Hinkel (2001) compares the use of a type of cohesive device in academic compositions written by English native students and non-native students. The results show that non-native students use significantly more sentence cohesive devices in comparison to native students. Nartia, Sato and Sugiura (2004) also investigate the use of twenty five logical cohesive devices in the writings of Japanese students with a high level of English proficiency as well as in the writings of native English speakers in two sub corpora of the International Corpus of Learners English. They find that Japanese EFL students significantly overuse logical cohesive devices, especially at the beginning of sentences. The result also reveal that some cohesive devices are used more frequently by EFL students than other devices, such as the contrastive cohesive devices yet and instead. In addition, Simcikaite, (2012) in his investigation between native speakers of English and non-native speakers (Lithuanian learners) compares the use of cohesive devices. He finds that Lithuanian learners of English tend to use more cohesive devices in their academic essays . More particularly, Simcikaite's study reveals that out of fifteen cohesive devices in the corpora, the Lithuanian learners use inference and sequencing cohesive devices such as then and so much more than native learners.

In the second category, studies have examined the use of cohesive devices within different genres of writing, such as argumentative and expository writing. Findings suggest that L2 learners tend to use a particular set of cohesive devices depending on the type of writing assignment. For instance, Rahimi (2011) examines the frequency and type of cohesive devices used by Iranian undergraduate EFL learners in two types of writing: argumentative and expository. Findings show that elaborative cohesive devices, specifically and, are the most frequently used whereas conclusive cohesive devices are the least used in both types of writing. Izumi (2011) on the other hand examines how Japanese English language learners create cohesion in their written texts. The results indicate that the way that Japanese English learners use cohesive devices in their written texts depends upon their knowledge of cohesive devices equivalents in their own language. Those cohesive devices which have Japanese equivalent are used more frequently while the use of cohesive devices which do not have their equivalents is restricted. In the end he suggests conscious instruction of cohesive devices as a remedy to this problem.

Finally, studies in the third category explore the relationship between the use of cohesive devices and the overall ESL writing quality or writers' language proficiency levels. In general, however, findings of the studies have been inconsistent and contradictory (Emad, 2014). Some studies show a significant relationship between the frequency and type of cohesive devices used and the overall writing quality of L2 texts while others demonstrate no such correlation. For example, Aidinlou (2012) examines the impact of cohesive devices instruction on 20 Iranian learners' writing ability in two control and treatment groups. The treatment group receive instructions on cohesive devices while the control group does not. The result reveals a significant impact of teaching cohesive devices on in enhancing students' awareness and sensitivity of text and consequently raising their writing levels. Thus, Aidinlou recommends that the teaching of cohesive devices to EFL learners require more attention and research. Emmanuel (2013) also conducts a study to find if the use of cohesive devices can enhance effective academic writing such as laboratory reports, field trip and final year project reports. He examines different views of scholars in his study. The results show that cohesive devices are essential linguistic devices that lead the reader to the direction of the flow of text. In addition, Jalilifar (2008) investigates the way Iranian students use cohesive devices in their descriptive compositions. Without any instruction, he gives the participants a topic to write a descriptive composition per week for eight weeks. In the end, Jalilifar collects 598 compositions to analyse. The results demonstrate that students utilize cohesive devices with different degrees of occurrence. Elaborative cohesive devices are the most frequently used followed by inferential, contrastive and causative cohesive devices. The findings also show a direct positive relationship between the use of cohesive devices and the quality of writing. Furthermore, Liu and Braine (2005) examine the use of cohesive devices used in the argumentative writing of fifty Chinese undergraduate students. Besides

a quantitative analysis of how frequently the Chinese participants use cohesive devices in their compositions, the study is also aimed to determine whether or not there is a relationship between the frequency of cohesive devices and quality of writing. After counting the number of cohesive devices, the researchers correlate the total number of cohesive devices used by students with their writing scores. The findings show that there is a significant relationship between the quality of students' compositions and a higher use of cohesive devices in general and lexical devices, references, and conjunction devices in particular.

However, Castro (2004) who evaluates the use of grammatical and lexical cohesive devices in low, mid and high rated essays written by thirty homogenous Pilipino EFL students contradict and say that there is no significant difference in the total number and type of cohesive devices used by students at the three levels of language competence. Zhang (2000) also conducts a quantitative and qualitative analysis of the use of cohesive devices in one hundred and seven expository compositions of Chinese undergraduates and finds no significant relationship between the frequency of cohesive devices and quality of writing.

In sum, studies have shown that non-native students use more cohesive devices in their writing than English native students. In addition, it is also highlighted that different genres of writing require different use of cohesive devices. However, studies on the relationship between the use of cohesive devices and quality of writing are not reasonably consistent and more studies to find a significant correlation between the use of cohesive devices and quality of composition among the non-native speakers are required (Aidinlou, 2012; Emad, 2014 and Julilifar, 2008).

Language Accuracy

Lennon (1990: 390) defines language accuracy as the ability to produce error-free speech. Accuracy is the conformity of second language knowledge, which targets language norms, and it primarily relates to L2 knowledge representation as well as the level of analysis of internalized linguistic knowledge (Wolfe-Quintero et al. 1998: 4). Hammerly (1991) also explains accuracy as almost the oldest, most obvious and the very consistent construct of the triad, which shows the degree of deviancy from a certain norm. Deviations from the norm are typically considered as errors. James (1998; Polio 1997). Accuracy is a concept that is generally used to evaluate L2 learners both in second language acquisition research as well as in L2 education contexts (Housen, 2009). Polio (1997), Wolfe-Quintero, Inagaki and Kim (1998) introduce three measures as best to gauge the level of accuracy: the number of error-free T-units, error-free T-units per T- unit and the number of errors per T-unit. They emphasize that the first two measures are more effective in measuring the intermediate and advanced level learners' accuracy because it is not very easy to find error-free units in writing production of low-level learners. What these measures have in common is that they provide information in global, general terms, like the total number of words and the number of clauses or errors per T- unit, without further specifying the nature of the words, clauses or errors involved (Kuiken, 2006).

According to Polio (1997), a T-unit in linguistics is defined as an independent clause plus all its dependent clauses and error free T-unit can be referred to as an independent clause, which is free from lexical and grammatical errors. The number of errors in each T-unit specifies overall accuracy of the learners, but this measure does not tell us about the nature of the errors. For example, it does not tell us about the type of errors and how serious they are. Thus, it is better to make a more distinction regarding the degree of seriousness as well as the types of errors that the learners make, such as lexical problems, morpho-syntactic errors, spelling mistakes and so on (Kuiken, 2006).

Several studies have investigated language accuracy using T-units. Tavakoli and Rasekh (2011) evaluate the effects of two task types; argumentative and instruction writing task on three aspects of language production which are fluency, complexity, and accuracy. In the study, one hundred sixty eight intermediate students of English are randomly selected and divided into two task type groups. With respect to accurate language use in written tasks, four measures (error free T-units, error free T-units percentage, error free clauses, and error free clauses percentage) are used in this study. The results show that in terms of fluency and accuracy the participants in the instruction- task group performed much better than the participants in argumentative-task group. In total, based on the analysis, results for accuracy denote that argumentative essays were more accurate than instruction essays. In addition, Samaeel and Kashani (2011) also examine the impact of task complexity on EFL learners' narrative writing task performance. One hundred seven Iranian EFL learners participate at this study. The ratio of error-free T-units per total T-unit (accuracy) is used to assess accuracy of L2

written narratives. The findings of the study reveal that the impact of both task complexity and language proficiency with respect to complexity and accuracy, were found significant. A comparison of the performances in terms of accuracy indicates that the participants on the complex task performed better than the participants on the simple task. Moreover, Kuiken (2006) conducts a study to examine the impact of task complexity on L2 learners' writing proficiency. 84 Italian and 75 French college students participate in his study. Kuiken uses T-units to measure the participants' accuracy in terms of types of errors. The results reveal a main impact of task complexity on lexical errors. Both Italian and French participants in the complex task produce fewer lexical errors in their written productions. It implies that the general increase of accuracy is mostly due to a decrease of lexical errors.

Thus, research shows that several measures have been proposed and used in second language learning in order to assess linguistic performance. However, in some circumstances it is preferred to use measures of a more specific characteristic such as using error-free T-units to measure the accuracy level of intermediate or advanced learners. On the other hand, most of the studies using error-free T-unit as a measurement have often been associated with assessing language accuracy to inform writing research. So, using error-free T-units as a measurement, this study proposes to look at language accuracy of the written production from listening input in a note-taking note-making activity.

Method

As part of a bigger experimental study on cohesive devices and listening comprehension, the current study examined the impact of teaching academic text cohesive devices on L2 students' language accuracy in their written production of a listening comprehension input. This study was guided by the following research questions:

1. Does the input on academic text cohesive devices influence the language accuracy of L2 students in their written production?

2. Is there significant improvement in the participants' written production after receiving input on academic text cohesive devices?

Procedure

The data for this study was obtained from one intact group through a pre-test post-test design (Table 1). This design used the subjects as their own controls and to reject the need for a control group design (Bell, 2010). Seliger and Shohamy (1989) claimed that the usefulness of this design was that it controlled a number of inessential variables that could impact the homogeneity of subjects when more than one group was involved. To some degree, the design also controlled for attrition or loss of subjects. Since the same group was used for both pre-test and post-test, it did not need to be matched to another group.

Table 1. *Research Design of This Study*

Groups	Pre-test	Treatment	Post-test
One group (n= 40)	0	X (Listening Test)	0

The participants of this study were 40 first year students enrolled in the English for Academic Communication (EAC) course at Universiti Malaysia Pahang. There were 15 male and 25 female participants with ages ranging between 19 to 24 years old. Table 2 illustrates the demographic data of the participants.

Prior to the treatment, in which participants were taught academic text cohesive devices over a period of 4 weeks, a pre-test was administered. A listening test which was aimed at investigating the effect of treatment on language accuracy was used as the pre- and post- test.

The test comprised of three questions. Each question in the test assessed the participants' language accuracy through their note taking of the listening input. The test format was as follows:

In the first question, the participants had to listen to a talk and take notes of what the speaker said.

Then they had to complete the notes using appropriate cohesive devices. In the second question, the participants had to listen to a lecture of two prominent people speaking. They were asked to take down notes on the similarities and differences of the two prominent peoples' lives and put it in a given table and finally in the third question, they were required the to listen again to the lecture in Question 2 and write a compare and contrast summary about the two prominent people using the notes they took down in Question 2.

Table 2. *Demographic Data of the Participants*

| Age | Gender | | Total |
	Male	Female	
19	6	13	19
20	2	3	5
21	6	7	13
22	0	1	1
23	0	1	1
24	1	0	1
Total	15	25	40

Data Analysis Procedures

In the current study, the participants' language accuracy was measured through the calculation of error-free T-units in the pre-test and post-test. In order to ensure inter-rater reliability, two raters were engaged for this analysis. Twenty percent of the tests were

scored and reliability analysis was conducted. The Kappa agreement between the raters was 0.77 which signifies a moderate inter-rater reliability (Mackey & Gass, 2005). After achieving the reliability score, the researcher continued calculating the T-units individually.

Findings

This study aimed to examine the impact of teaching academic text cohesive devices on L2 students' language accuracy in their written production. The participants' language accuracy level was investigated through the calculation of error-free T-units in the pre-test and post-test. According to the results, comparing language accuracy in the pre-test and post-test, the students performed significantly better in their post-test. The mean score of the post-test is much higher than that of the pre-test.

The results from the pre and post-tests were analysed using descriptive statistics and paired-samples t-test. The significance value for the paired samples t-test was set at $p < 0.005$. Table 3 lists the number of T-units as well as error-free T-units that every participant uses in written production.

Table 3. *Pre- and Post-test T-units*

| Participants | Pre-test | | Total % | Post-test | | Total % |
	T-units	Error-free		T-units	Error-free	
1	20	4	0.2	21	12	0.57
2	16	8	0.5	21	9	0.43
3	19	6	0.32	19	9	0.47
4	21	9	0.43	19	12	0.63
5	16	4	0.25	21	6	0.29
6	28	12	0.43	16	10	0.63
7	12	1	0.08	7	4	0.57
8	16	9	0.56	21	12	0.57

9	18	1	0.06	21	11	0.52
10	16	0	0	17	0	0
11	9	0	0	19	12	0.63
12	23	11	0.48	8	6	0.75
13	15	14	0.27	18	8	0.44
14	17	1	0.06	13	3	0.23
15	12	11	0.92	7	7	1
16	18	8	0.44	14	13	0.93
17	7	7	1	19	16	0.84
18	11	1	0.09	11	9	0.82
19	22	8	0.36	14	4	0.29
20	16	8	0.5	20	14	0.7
21	21	10	0.48	24	10	0.42
22	14	0	0	13	7	0.54
23	17	6	0.35	20	13	0.65
24	13	4	0.31	16	10	0.63
25	16	9	0.56	15	9	0.6
26	14	2	0.14	12	10	0.83
27	13	1	0.08	4	4	1
28	19	10	0.53	19	16	0.84
29	20	4	0.2	23	10	0.43
30	11	5	0.45	11	5	0.45
31	20	2	0.1	21	15	0.71
32	17	6	0.35	18	9	0.5
33	23	1	0.04	20	9	0.45
34	19	8	0.42	19	8	0.42
35	15	9	0.6	16	3	0.19
36	15	11	0.73	19	18	0.95
37	14	7	0.5	20	12	0.6
38	23	6	0.26	19	10	0.53
39	11	6	0.55	21	13	0.62
40	14	5	0.36	26	17	0.65
Total	661	225	0.35	682	385	0.58

Table 3 demonstrates that in the pre-test, the 6th participant's written production includes 28 T-units, which is the highest number of T-units in the pre-test. Among the 28 T-units, 12 (5.11%) are error-free. The lowest number of T-units in the same test is 7 and is written by participant number 17, while all 7 (2.98%) are error-free.

On the other hand, in the post-test, participant number 40 writes the most T-units which are 26 among which 17 (4.42%) are error-free while student number 27 writes the least T-units which are 4 and all 4 (1.04%) are error-free.

However, participant number 10 writes 16 T-units in the pre-test and 17 T-units in the post-test. Interestingly, there is no even a single error-free T-unit in his written production in any of the tests. More interestingly, this participant scores completely the same in noticing as well as listening comprehension with no improvements. He gets the same mark, which is 6 in both the pre-test and post-test of noticing and gets 10 in listening comprehension pre-test and post-test.

Unlike participant number 10, participant number 22 has the most improvement in language accuracy test. Among his 14 T-units in his pre-test, he has no error-free but in his post-test, he writes 7 T-units while all are error-free. Conversely, this participant's has no improvement in noticing scoring 9 in each of the tests. Besides, he declines in listening comprehension scoring 8 in the pre-test and 6.5 in the post-test.

Thus, the analyses show that participant number 10 who gets satisfying marks in listening comprehension as well as noticing is better at his listening proficiency then his grammar's. As for participant number 22, since he has the most improvement in his language accuracy, it can be concluded that his grammar proficiency is better than his listening proficiency.

In total, table 3 shows that the number of T-units in the pre-test is 661 among which 235 are error-free. Conversely, the total number of T-units in the post-test is 682, among which 385 are error-free.

A paired-samples t test is calculated to compare the mean pre-test score to the mean post-test score. Table 4 demonstrates statistical analysis of language accuracy of the participants' written production.

Table 4. *Statistical Analysis of Language Accuracy*

Paired Samples Statistics				
Mean	n	Std.	Std. Error	
		Deviation	Mean	
Pair 1 Pre EF T .348	40	.241	.038	
Post EF T .583	40	.221	.034	

Paired Samples Correlations			
Pair 1 Pre EF T / Post EF T	n	Correlation	Sig.
	40	.330	.038

Paired Samples Test						
Paired Differences						
Mean	Std. D	Std. Error Mean	95% Confidence Interval of the Dif Lower Upper		t df	Sig. (2- tailed)
Pair 1 Pre EF T - -234 Post EF T	.268	.042	-.320 -.148		-5.52 39	.000

The mean on the pre-test is .348 (sd = .241), and the mean on the post-test is .583 (sd = .221). A significant increase from the pre-test to post-test language accuracy is found (t) = -5.52, p = .000). The mean increase in the language accuracy between the pre-test and post-test is illustrated in Figure 1 below:
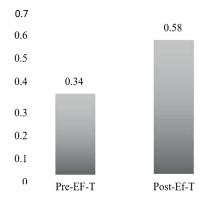

Figure 1. The mean difference in language accuracy between the pre-test and post-test.

The bar graph above (Figüre 1) shows the mean for language accuracy in written production in the pre-test was 0.34 while in the post-test the mean was 0.58.

Discussion

The current study tested the impact of teaching academic text cohesive devices on F2 students' language accuracy in their written production of a listening comprehension input. Based on the analyses, there was significant improvement in the students' language accuracy as signified in the pre-test and post-test scores.

The participants' language accuracy was assessed through calculating the number of error-free T-units in the pre-test and post-test. As shown in both Tables (3 & 4), analysis discovered statistically significant differences between the participants' pre-test and post-test results. Totally, as shown in Table (3), the number of error-free T-units in the post-test is much higher then the number of error free T-units in the pre-test, which indicate significant improvement.

More specifically, the findings of the current study indicate that when the learners were taught the academic text cohesive devices they were able to identify the key sentences. They used more and appropriate cohesive devices in their post-test written production, which led to a better flow of ideas considering the sequence and logical order of what they wrote. So it can be claimed that teaching cohesive devices prior to writing was effective in creating more cohesive writings by the participants and it could improve the overall quality of the writing accuracy.

The relationship between learning academic text cohesive devices roles and the level of the language accuracy in written texts as indicated in Table (4) is identified at (= -5.52, p= .000 level of significance). It indicates that there is a strong correlation between knowledge academic cohesive devices and the ability to write more accurate text.

The findings of the current study are supported by Aidinlou (2012), who investigated the impact of teaching discourse markers as a type of cohesive devices on 20 Iranian learners' writing ability. Aidinlou finds and concludes that teaching text markers to the participants of his study enhanced their awareness and sensitivity of discourse and

consequently raised their writing levels. In addition, the result of this study is in line with Emad, (2014), Emmanuel (2013), Jalilifar (2008) and Liu and Braine's (2005) studies on the correlation between the use of cohesive devices and the quality of L2/FL learners writing abilities. They all find that cohesive devices are fundamental linguistic devices, which lead the readers to the direction of the flow of text. In general, these studies also conclude that there is a significant relationship between the higher use of cohesive devices and the quality of students' written production.

However, the findings of the current study are in contrast to several other studies. Castro, (2004), Aidinlou (2012), Emad (2014), Julilifar (2008) and Zhan, (2000) conclude that the use of cohesive devices and quality of writing are not soundly consistent and further studies should be done to come up with more significant correlation between them especially among the non-native speakers. Thus, the findings of the current study, add to previous studies denoting that knowledge of academic text cohesive devices significantly impacts L2 students' written language accuracy.

Conclusion

A well-written text is not only grammatical, but also cohesive and coherent. Cohesion is the relation between elements as well as the connection of ideas in a text. Cohesion happens through the use of appropriate cohesive devices in a text. It is cohesion, which differentiates a text from non-text (Holliday & Hassan, 1976).

Research shows that there is a correlation between knowledge cohesive devices and L2 writing ability. More specifically, research has demonstrated that different genres of writing require different use of cohesive devices. In case of frequency, research highlights that non-native students apply more cohesive devices in their written production than do English native students. However, research also emphasise that this correlation should be investigated more specially in second language context. To provide much evidence, concentrating on grammatical cohesive devices, this study aimed at

investigating the impact of teaching academic text cohesive devices on L2 students' language accuracy in their written production of a listening comprehension output. The level of the accuracy was measured through the number of error-free T-units in the pre-test and post-test.

Based on the analysis, there was a significant difference in the students' language accuracy between the pre-test and post-test. So, the result claims that cohesive devices are essential tools that enhance L2 students' written language accuracy.

More specifically, the findings of the current study indicate that when the learners were taught the academic text cohesive devices they were able to identify the key sentences. They used more and appropriate cohesive devices in their post-test written production, which led to a better flow of ideas considering the sequence and logical order of what they wrote. So it can be concluded that teaching cohesive devices prior to writing was effective in creating more cohesive writings by the participants and it could improve the overall quality of the writing accuracy. The results of the study also imply that teachers should teach their students how to use academic cohesive devices in their academic writing. Moreover, it is implied that teachers should also help students understand certain grammatical structure in order to enhance their writing abilities.

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