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Logical Connectors' Use and Writing Quality in EFL Learners and NativeSpeakers' Essay Writing

Abstract:
The study presents an investigation of the writing performance of Algerian third year EFL students at the Department of Letters and the English Language at the University of Constantineto diagnose the issues concerning the appropriate use of cohesive devices.By extension, it is also intended to explore how learners use the logical connectors and the effect of suchcohesivedeviceson their writing quality. For this, we hypothesised that if students have higher writing proficiency, they will use accurately logical connectors, and will better use them semantically and stylistically.The analysis of the findings providedus with a clear picture that there is no correlation between the learners' use of logical connectors and their writing quality. Hence, there is no clear pattern of using connectors in relation to the level of students' writing performance.
Key words:students' essays, logical connectors, and students' writing quality.

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ملخص:
تقدم هذه الدراسة تحقيقا للأداء الكتابي لطلاب السنة الثالثة لغة إنجليزية في قسم الآداب واللغات بجامعة قسنطينة لتشخيص القضايا المتعلقة بالاستخدام المناسب لأداة الربط. و كذلك تهدف إلى استكشاف كيفية استخدام الطلبة للروابط المنطقية و تأثير هذه الأخيرة على نوعية كتاباتهم. و عليه، افترضنا أنه إذا كان الطلاب ذو كفاءة عالية في الكتابة فسوف تستخدم أدواة الربط بدقة أكثر و على نحو أفضل لغويا وأسلوبيا. لكن تحليل النتائج قدمت لنا فكرة واضحة ومعاكسة لما وضعنا حيث وجدنا أنه لا يوجد أي ارتباط بين استخدام الطلبة للروابط المنطقية و جودة كتاباتهم. وبالتالي، ليس هناك نمط واضح في استخدام الروابط فيما يتعلق بمستوى الأداء الكتابي لدى الطلاب.

Introduction:

Since writing is a multifaceted skill, there were numerous attempts to illustrate what happen during the process of writing. One important step during the writing process is the careful use of linkers to smoothly and clearlyconnects ideas to achieve sense. However,many EFL students encounter problems in the use of cohesive devices, namely the logical/adverbial connectors. Generally,thesestudentsfail in using them appropriately at many levels because they do not possess anawarenessofthestylistic, semantic and syntactic variationsof such connectors.

1. Background of the Research

The authorial research of Halliday&Hasan (1976)into coherence in EFL students' writingwas the departure for several studies maintaining that textual cohesion correlates to some extent with other aspects of effective writing. There has been a great controversial debate between scholars whether cohesion or cohesiveness in writing is a meaningful indicator of writing quality, especially at the advanced level. To dig into this aspect, further studies (Crewe, 1990; Granger & Tyson, 1996;Altenberg& Tapper, 1998) wereconducted to examine the way students use cohesive devices, especially logical connectors in their essays. These works have shown that in their writings,EFL students tend to either overuse or underuse some individual connectors at the expense of others.Otherworks as ofGranger& Tyson, 1996; Bolton et al., 2002; Bikeliene, 2008 claim that some students seem to rely heavily on a limited set of connectors as a safe strategy to write adequately in English.

Thus, the issue of misusing connectors among EFL learners, especially the similar connectors in meaning and different in position and style,seems to be an overwhelming characteristic of many EFL students' writing (Crewe, 1990). This means that despite the differences in the frequency of connector-occurrence in students' essays, overuse and underuse of individual connectors are general patterns of use in EFL writing and not a typical one.

2. Aim of the Research

Classroom observation allowed us to say that a probable causeof some of the EFLstudents' problemsinusing the cohesive devicesappropriatelyisin providing them with lists of connectors, generally known as *charts of connecting words* or simply *transitional signals*. In these lists, the connectors are oftenarrangedunder semantic groups as *contrast, comparison, place, time, manner,* and so on; presented without further syntactic knowledge above sentence level or stylistic awareness of register variation. Consequently, students usually use the connectors under one category, for instance expressing contrast, interchangeably without paying attention to syntactic and stylistic differences between the items of the same semantic unit.Besides,students are sometimes taught that connectors are used for the sake of clarity and coherence most probably at the expense of showing themhow often they should use them in different registers. The aim of this study is to try to shed some light on how

to teach the useof connectors in different contexts to raise students' awareness of their differentsemantic and stylistic variations.

The aimof this study isthen twofold: *1*. Identifying the similarities and differences in the use of logical connectors by EFL students with *different writing levels*, and *2*. Exploring the relationship between the students' *use of connectors* and their *writing quality*.For looking into the issue at stake, we put the following questions:

1) Why doEFL students tend to misuse logical connectors in their writing?
2) Do EFL students with higher linguistic proficiency in writing use more logical connectors and more types of connectors in their writingsthen those with lower linguistic proficiency?
3) Do they perform better in using them in terms of stylistic awareness than those with lower linguistic proficiency?
4) Do EFL students overuse or underuse logical connectors in theirwriting compared to native's writing and to their levels of proficiency?
5) Does the use of cohesive devices affect the writing quality of EFL students? If yes, to whichextend?

3. Population and Means of Research

This researchpopulationarethird year studentswithdifferent writing proficiency levels.The study examinesalso the use of logical connectors in native English speakers' essays in order to conduct a comparative corpus analysis to see how our students use the connectors.The research studiesa corpus material of 28 argumentative essays written by third year Applied Language Studies learners of English. This corpus is compared to native speakers (NS)' corpus(1), which consists of 12 argumentative essays, which is used as a standard for comparison in our analysis.

In the learner corpus, each essay is scored out of 20. The score is used as an indicator to assess the student' writing quality. The learners' corpus was divided into four levels of scoring: LevelsA and B for good writing, levels C

and D for poor writing. The following table indicatesthe descriptive data of the two corpora used in the present study.

Corpora	EFL learners' corpus	NS' corpus
Topic	Argumentation about reality TV shows	
Number of essays	28 (7 for eachlevel)	12
Size of the corpus	8296 words	4106 words
Size of the essays per level	Level A: 2223 words Level B: 2215 words Level C: 2106 words Level D: 1836 words	4106 words
Number (N°) of logical connectors	86 connectors	63 connectors
N° of logical connectors **per 1000 words**	10	15

Table 01: The Two Used Corpora, Data Description

In this research,three variables have been identified to conduct a better comparability. *Advanced learners*are 3rdyearstudentsof English who fit better the purpose of this work. These students generallyencounter discourse-linked problems such as the use of cohesion.*Essay writing* is the most adequate type of text for it is very beneficial for the analysis of discourse-related problems such as of cohesion, coherence, and textual problems. Choosing to write*argumentative essays* (as about *Reality TV Shows*)helps to display how students express their own thoughtsin a persuasive manner and how they use connections while advancingclearly and logically the required evidence.Finally, it is very essential to have *a control nativecorpus* for comparison. This corpus is composed of exactly the same type (argumentative essays)and theme of writing (Reality TV Shows) to detectthe differences in language use.

4. Methodof Analysis

The method applied for the investigation is based on the framework of *Contrastive Interlanguage Analysis (CIA)*(Granger, 1996) that compares and contrasts what non-native and native speakers of one language and of the same language do in a comparable situation. By using the concordance software, AntConc 3.4.1.m (Macintosh OS X) 2014, we have examined the frequency ofoccurrence of individual connectors among our learners who have different writing proficiency levels, then between them and NS (native speakers).

First, the logical/adverbial connectors used by students were selected. Next, the frequency of occurrence of individual connectors was set up using the aforementioned software, but a manual analysis was needed to compare the frequency of occurrence of the connectors across the different proficiency levels and then calculate the correlation coefficient between them and the essays scores.

To analyse the use of logical connectors by EFL students across the different proficiency levels, the essays were divided into four levels: A (score 13-16)and level B (score 10-12) for good writing, level C (score 6-9) and level D (score 0-5) for poor writing. Thesedifferent scorings were needed to investigate the pattern of use of connectors across levels. Concerning the relation between the use of connectors and writing quality, a correlation coefficient analysis has been carried out to see if the former has an effect on the latter.

5. Results and Discussion

The analysis of the results tackled three points. First, connectors'performance in EFL learners' writing was analysed across the four proficiency levels to see whether there is a specific pattern of use in concordance with the writing proficiency scores. Second, the frequency of occurrence of certain connectors was calculated to see whether connectors are overused or underused in comparison to what NS do. Last, the relationship between the use of connectors and the writing quality in EFL learners' essays was measured to see if the former affects the latter.

6.1. EFL Learners' Use of Logical Connectors across the Four ProficiencyLevels

For the analysis, the essays were divided into four proficiency levels to detect any similarities and differences in the use of connectors, and a comparison of their tokens was run as Table 02 shows. The statistical analysis of the semantic distribution of connectors across different scores reveals the following data.

Semantic types	Good essays		Poor essays		NS corpus
	Level A N° per 1000	Level B N° per 1000	Level C N° per 1000	Level D N° per 1000	
Enumeration and addition	48	41	46	53	40
Summation	1	1	1	3	0
Apposition	6	11	6	11	9
Result/Inference	6	5	7	7	2
Contrast/Concession	5	5	6	3	3
Transition	0	3	2	1	2
Others	6	6	8	8	7
Total number of tokens	72	72	76	86	63
	144		162		
Types	37	31	46	32	42
	68		78		

Table 02: The Use of Adverbial Connectors across Four Writing Proficiency Levels

The first remark can be drawn is that the results indicate that learners across the four proficiency levels use more logical connectors in their essays (72, 72, 76, 86)than the NS do (63).This means that the EFL learners relatively overuse connectors in comparison to NS. However, concerning the use of the different types of connectors, results exhibit that more different types of connectors are actually used by NS(42) in comparison to what EFLlearners use (37, 31, and 32) except for level C (46). The last rate (46), however, does not mean that the connectors are used appropriately like that ofNS (42) because students of this category took bad marks in writing.

On another stance,*across the different proficiency levels*, students with low quality essays seem to use more tokens (162 vs.144) and types (78 vs.68)

of logical connectors than those with high quality essays. This shows that good writers appear to be more precise in using connectors than poor writersdid. It seemsthat students with low quality essays tend to overuse connectors (162) as a strategy to hide their weakness in connecting ideas opposite to students with high quality essays, wholikelylink ideas with less overt connectors (144).

Furthermore, in the poor essays, there are many more connectors of enumeration and addition than in the good essays (46, 53 vs. 48, 41); and so it iswith summation (1, 3 vs. 1, 1), result/inference (7, 7 vs. 6, 5), and some other unclassified types like *in my point of view, somehow, after all, above all, etc.* (8,8 vs. 6, 6).Both types of learners use the same number of connectors concerning apposition (6, 11 and 6, 11) and transition (2, 1 vs. 0, 3). Unexpectedly, good writers use fairly more connectors of contrast/concession than poor writers do(5, 5 vs. 6, 3)because, as we put it above,poor writers tend to use in general more connectors than good writers do.

These resultsconfirmed that poor writersactually use many types of connectors than good writers. In all likelihood, they try to use profusely connectors to link their ideas thinking that by so doing they achieve coherence. As an attempt to explain this, it can be said that poor writers may overtook what they did in classrooms at the very beginnings when they taughthow to link ideas in sentence structure.Students possibly used to think that connectors are used just to link two [simple] sentences to join them together. Moreover, this habitmayhave been reinforced in students' mind by fill-in-the-gaps activities whenstudents are given some isolated sentences and provided with some connectors to put in the right place, especially in grammar exercises. Normally, studentsshouldalso be given instructionswhen and when not to use connectors.

Another important observation from the above table manifests in the fact that both types of learners use much more enumeration and additionthan the other semantic connectors, such as summation, opposition, or inference. This shows that EFL learners like the NS rely heavily on the connectors like *and*, *furthermore, secondly, finally, also,* to connect information in their argumentative writings. However,each of summation and transition took the least rates in both types of learners indicating that *both good and poor writers* avoid as Biber et al, (2000) called it "the communicative characteristic of the discourse: the focus on interpersonal interactions with the topic and the conveying of subjective information" (p. 856).Indeed, the use of transitional

signals such as *to sum up*, *to conclude*, *all in all*, *actually*, *of course*, and *indeed* point out that studentsare more confident about their arguments in anattempt to convince their readers. In our case, both types of learners avoided such connectors showing weakness in their persuasion force to convey subjective information.

5.2. FrequentlyUsedLogicalConnectors

What follows is a discussion of the most frequently used logical connectors such as *and, but, or, if, such as, as (like), like, this is may be true…but,* andsoon,to find out the distinctive elements of the EFLlearners' use of English logicalconnectors across different proficiency levels. The following two tables rank the top sixteen logical/adverbial connectors deployed by learners across the quality levels.

	High QualityEssays		LowQualityEssays	
	Level A (Score 13-16)	Level B (Score 10-12)	Level C (Score 6-9)	Level D (Score 0-5)
1	and	And	And	And
2	but	But	Or	But
3	or	Also	Also	Also
4	as (like)	Like	But	as (like)
5	so	Or	If	Or
6	that may be true…but	If	So	If
7	furthermore	So	such as	So
8	for example	such as	Like	Like
9	however	for example	that/this/it is/may be (partly) true…but	such as
10	then	however	in addition	for example
11	in order to	in conclusion	Then	Then
12	therefore	although	However	Although
13	though	thatmaybetrue…but	to sum up	Thus
14	somehow	according to	Finally	However
15	if	moreover	Thus	in conclusion
16	also	in addition to	Secondly	Moreover

Table 03: EFL Learners' Most Used Logical Connectors across the Four Levels

	High QualityEssays				LowQualityEssays			
	Level A	N° per 1000	Level B	N° per 1000	Level C	N° per 1000	Level D	N° per 1000
1	and	41	and	35	and	30	and	44
2	but	5	but	7	also	5	but	6
3	or	4	also	4	or	5	also	5
4	as (like)	4	like	4	but	3	as (like)	4
5	so	3	or	3	if	3	or	4
6	that/this/it is/may be true…but	2	if	3	so	3	if	4
7	furthermore	1	so	3	such as	2	so	4
8	for example	1	such as	3	like	2	like	3
9	however	1	for example	3	that/this/it is/may be true…but	2	such as	2
10	then	1	that/this/it is/may be true…but	2	in addition	2	for example	2
11	in order to	1	in conclusion	1	then	1	then	1
12	therefore	1	although	1	however	1	although	1
13	though	1	however	1	to sum up	1	thus	1
14	somehow	1	according to	1	finally	1	however	0
15	if	1	moreover	0	thus	1	in conclusion	0
16	also	1	in addition to	0	secondly	1	moreover	0

Table 04: The Tokens of Frequently Used Logical Connectors across the Four Levels

Tables 03, 04bespeak the following two findings. First, the four groups use approximatelythe same connectors but with different rates. They all share the useof each of the following connectors*and, but, or, also, as (like), if, such as, for example, however, then, like, this is not true, but*, etc.This leads us to say that learners use in their essays fewer or barely use adverbial connectors, such as *first(ly), second(ly), finally, moreover, in addition to, in conclusion, to sum up, therefore, nevertheless, otherwise, actually, now, in fact*, etc.,compared to the simple conjunctions such as *and, but, or,* and*if*.This indicates that our learners tend to rely on a limited set of connectors, especially the coordinating and subordinating conjunctions, creating a fossilised pattern of use. As a matter of fact, the majority of learners share this pattern, no matter the writing quality is or whether connectors are overused or not.

Secondly, it seems that both good and poor writerstend to use more *informal* connectors typically found in *spoken* discourse such as *and, so, also, then, but*, etc., as presented by McCarthy (1998). We notice that there is approximately a shortage in use of sophisticated *formal* connectors that are generally found in [academic]*written* discourse as *in addition, furthermore, therefore, thus, besides, nevertheless, on the one hand, on the other hand, to conclude, that is to say*, etc. This shows thatprobablythe EFL learners are not well aware of the importance of formality in the quality of essay writing. Such awareness drags them to use poorly these connectors during written examinations, academic reports, and later in writing dissertations.Ineffect, these results showed thatourlearners are unaware of the selection of the stylistic use of logical connectors for thewritten discourse.

5.3. Relationship between the Use of Logical Connectors and Writing Quality

To study the relationship between the use of connectors and the writing quality, we used the *correlation coefficient*,whichis generally used to measure how strong a relationship is between two variables.The correlation coefficient known as the *Pearson Product-Moment Correlation Coefficient* is adopted in this study.

The sample value (correlation coefficient) is called *r,*and it is calculated using the following formula:$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[n\Sigma x^2 - (\Sigma x)^2][n\Sigma y^2 - (\Sigma y)^2]}}$$The correlation coefficient

(r) can take values between -1 through 0 to +1. The sign (+ or -) of the correlation affects itsinterpretation.

r value	*+0.70 or higher*	*+0.40 to 0.69*	*+0.30 to 0.39*	*+0.20 to 0.29*	*+0.01 to 0.19*
Interpretation	very strong positive relationship	strong relationship	moderate positive relationship	weak positive relationship	no or negligible relationship
0	*-0.01 to 0.19*	*-0.20 to 0.29*	*-0.30 to 0.39*	*-0.40 to 0.69*	*-0.70 or higher*
no relationship	no or negligible relationship	weak negative relationship	moderate negative relationship	strong negative relationship	very strong negative relationship

Table 05: The Different Sample Values of r and their Interpretations

When the correlation is positive, it means that the value of one variable increases, so does the other. If a correlation is negative, it means that one variable increases andthe other variable decreases. This means that there is an inverse or negative relationship between the two variables.A value of 0 indicates that there is no association between the two variables.

5.3.1. Calculating the Correlation Coefficient of High Quality Essays

	n	x	y	x^2	y^2	Xy
The sum	14	176	340	2154	7924	4224

Table 06: The Correlation Coefficient of High Quality Essays

In this table, (n) stands for the number of the essays studied, (x) refers to the number of logical connectors, and (y) refers to the essays' scores.Applying the above correlation coefficient formula, we found out that r=-0.36indicating that there is a moderate negative relationship between the use of connectors and the writing quality. This means that while the scores increase, the number of logical connectors decreases but in a moderate pace.

5.3.2. Calculating the Correlation Coefficient of Low Quality Essays

	n	x	y	x^2	y^2	xy
The sum	14	79	324	523	9032	1775

Table 07: The Correlation Coefficient of Low Quality Essays

Applying the same formula, we found out that r=-0.48indicating that there is a strong negative relationship between the use of connectors and the writing quality. This means that while the scores increase, the number of logical connectors decreases in a strong pace.

The comparison of the two results shows that the use of logical connectors in relation to low quality essays reveals strong negative relationshipbetween the use of connectors and the writing quality compared to the high quality essays though both of them have a negative attitude. In other words, poor and good learners exhibit similarity in using connectors despite the difference in their writing proficiency.This means that our EFL learners roughly use connectors in the same manner, with aninsignificant difference, whether they are good writers or not. That is to say, it is safe to say that the learners' use of adverbial connectors does not correlate with writing quality, which isopposite to what we have assumed.

Conclusion

The results of this study have shownthat there is no correlation between the learners' use of logical connectors and their writing proficiency/quality.Good students tend to use fewer connectors in comparison to what poor students do.Furthermore, there is an inclination towards an overuse of the logical connectors with EFL learners in comparison to NS' writings. This might be due tothe teaching instructions that focus on the use of isolated connectors at the expanse of the use of such connectors in essay-writing practice activities.Conversely,good writers are supposed toperform better in using connectors semantically and stylistically, which is not the case in this present study, as they have shown a pattern of use similar to that of poor writers.To sum up, the hypothesis put earlier has been disconfirmed.Actually, students with higher linguistic proficiencydo not use more different logical connectors, neither they perform better in using them semantically and stylisticallythan poor writers do.This study tried to spot some lighton the EFL learners' use of logical connectors in comparison to what NS doand to draw the

teachers as tohelp students pay more attention to the difference between the connectors of the same semantic category.

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1-These essays are taken from the specialised native-English writing website <http://www.anti-essays.com/free-essays>

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Appendix

Table 07: The Exhaustive Frequency List of Connectors Studied in this Research.

N	Adverbial Connectors	Level A	Level B	Level C	Level D	Learners' Corpus	Natives Corpus
1	And	92	77	63	81	313	135
2	But	11	16	6	11	44	19
3	Also	2	10	11	10	33	10
4	Or	9	7	10	7	33	22
5	If	2	7	6	7	22	5
6	So	6	7	6	7	21	-
7	As (like)	9	1	1	8	19	13
8	Like	1	8	4	6	19	10
9	Such as	1	7	5	3	16	8
10	For example	2	7	1	3	13	5
11	That/this/it is/may be (partly) true…but	4	4	4	1	13	-
12	However	2	3	2	1	8	6
13	Then	2	1	3	2	8	4
14	In conclusion	1	3	1	1	6	-
15	Although	-	3	1	2	6	-
16	In addition	1	-	4	-	5	3
17	Moreover	1	1	1	1	4	1
18	To sum up	1	-	2	1	4	-
19	In order to	2	1	-	1	4	1
20	Not only (that)…but (also)	1	-	2	1	4	4
21	Finally	1	-	2	1	4	-
22	Thus	-	-	2	2	4	1
23	Secondly	1	-	2	1	4	-
24	Therefore	2	-	2	-	4	1
25	Furthermore	3	-	-	-	3	1
26	In addition to	1	1	1	-	3	1
27	Besides	1	-	2	-	3	-
28	For	-	2	1	-	3	-
29	First of all	-	-	2	1	3	-
30	On the other hand	-	-	2	1	3	1
31	First	1	-	1	-	2	-
32	Though	2	-	-	-	2	1
33	For instance	-	1	1	-	2	1
34	In fact	-	1	1	1	3	-
35	As far as	-	1	1	-	2	1
36	Of course	1	1	-	-	2	-
37	As a result of	-	-	1	1	2	-
38	In spite of	-	1	1	-	2	-
39	According to	-	2	-	-	2	1
40	Actually	-	-	2	-	2	2
41	Otherwise	1	-	-	-	1	-
42	That is	1	-	-	-	1	2