

***THE EFFECT OF CONJUNCTIVE TYPES ON THE ENGLISH LANGUAGE
READING COMPREHENSION OF LIBYAN UNIVERSITY STUDENTS***

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Abstract

This paper investigated the effect of conjunctive types: additives, adversatives, causals and temporals on the reading comprehension of Libyan university students. By revising the related literature, it appeared that so far there is no consensus on the actual effect of the explicit presence of conjunctive types on foreign language text understanding. Many studies came to the conclusion that different conjunctive types have different effect on the reading comprehension of foreign language readers. Two experiments were organised: pre-post-test and only-post-test experiment to collect data for the study. Participants were assigned randomly to comparative groups and treatment groups. The participants of the treatment groups were explicitly taught conjunctive types and their relation to reading comprehension for three months before they, together with the comparative groups, were post-tested. The findings suggested that the treatment groups benefited most from the additives and least from the adversatives and the causal conjunctives. It is recommended that conjunctives are taught individually not in groups with more focus on the difficult conjunctive types.

Key words: *reading comprehension, conjunctives, additive, adversative, causal, temporal, cohesion, coherence*

Introduction

This study investigates the impact of textual cohesive conjunctives on the reading comprehension of fourth year English department students in two Libyan universities. The cohesion theory as suggested by Halliday and Hasan (1976) was adopted as the main theoretical background to this study. Consequently, the terms and conjunctives as defined and classified by Halliday and Hasan (1976) were followed. Only the conjunctives which join independent sentences and contribute to the local and global coherence of the text were examined.

According to their semantic function, conjunctives are divided by Halliday and Hasan (1976) into four types: additive/ *and* group, adversative/ *but* group, causal/ *so* group and temporal/ *then* group. Whether all types of conjunctives facilitate reading comprehension with the same level of effect is controversial. Contradictory findings have been revealed by many empirical studies. Some of these findings have confirmed the facilitating role of all conjunctive types to reading comprehension (Chapman 1983, Chaudron and Richards 1986, Geva 1992, Sanders and Nordman 2000, Chung 2000, Degand and Sanders 2002). They argue that conjunctives signal the semantic relations existing in a text and make these relations explicit which help in facilitating reading for comprehension. A large number of studies have revealed that different types of conjunctives affect reading comprehension differently (Stoodt 1972, Cooper 1984, Caron, Micko and Thûring 1988, Goldman and Murray 1992, Millis and Just 1994, Murray 1997, Ozono and Ito 2003).

Other researches' findings, however, have challenged this positive impact, claiming that a text is coherent with or without the explicit presence of conjunctives (Irwin 1982). A handful of studies have even found that conjunctives have a negative impact on reading comprehension because they make the linked sentences longer and

add extra load on the reader's brain (Millis, Graesser and Haberlandt 1993). "Thus, so far there is no consensus on the exact role of explicit [conjunctives] in text", (Degand and Sanders 2002, p.470).

Based on these contradictory findings, the researcher decided to shed more light on this topic by investigating the impact of all conjunctive types on the reading comprehension of fourth year English department students in two Libyan universities. However, after Innajih's (2006) study suggested that all conjunctive types facilitate the reading comprehension of foreign language readers, this study investigated the effect of every individual conjunctive type on the reading comprehension of Libyan students. It explored whether the conjunctive types affect reading comprehension in the same way or whether some of them are more facilitative of reading comprehension than others.

Literature review

In this review some of the studies which suggested that some conjunctive types are more facilitative to reading comprehension than others are discussed.

Stoodt (1972) examined the relationship between understanding grammatical conjunctions and reading comprehension. His reading comprehension test included conjunctives such as *and*, *as*, *because*, *but*, *either*, *since*, *so*, *for*, *if*, *while*, and *yet*. His second purpose of the study was to "explore the difference in the difficulty of various conjunctions".

Stoodt's (1972) study findings revealed a significant relationship between reading comprehension and understanding of conjunctions. In addition, he found that some conjunctions are significantly difficult and a few others were significantly easy. Conjunctions such as *so*, *but*, *or*, *while* were found to be difficult, whereas

conjunctions such as *and*, *how* and *for* were found easy for readers to use in reading comprehension.

Even though the findings of this study suggested that there is a strong relationship between reading comprehension and the comprehension of conjunctions, it appeared that the sample of conjunctions Stoodt (1972) used did not represent the large number of this grammatical category. Furthermore, there was no clear distinction between the conjunctive types. This makes it difficult to decide which conjunctive type is more facilitative to reading comprehension than others. For example, he found *or* a difficult conjunction and *and* an easy conjunction though both of them are sisters of the additive family as Halliday and Hasan (1976) classify them.

Cooper's (1984) research findings, which involved what he called practiced (skilful) and un-practiced students as participants, revealed that practiced readers were better than un-practiced readers in identifying the cohesive relations which are signalled by cohesive devices such as conjunctions.

Cooper concluded that unskilled readers did not benefit from the explicit presence of conjunctions because they are uncertain of the meaning of conjunctions, especially the adversative type. It seems that "the only relationship that they seemed fairly sure of was addition, typically signalled by *moreover*, *furthermore*...etc" (Cooper 1984, p.132). Skilled readers were in a better position to benefit from the explicit presence of conjunctives in written texts since they managed to recognize the semantic relationships beyond the sentence level.

Caron et al's (1988) study is another contribution to the clarification of the contradictory findings related to the impact of conjunctives on reading comprehension. It examined the actual impact of conjunctives on the sentence

processing in that whether different conjunctives lead to different representation, and whether this affects the recall of the sentences joined by conjunctives.

Caron et al. (1988) selected *because*, *and*, and *but* to be the representatives of causal, additive and adversative conjunctive types in their study. This choice was based on their assumption that causally related events are easy to remember, *and* suggests many semantic relations, and *but* could be as useful to inference as *because*, but it may act differently. Temporal relation was not represented by any conjunctive in Carol et al.'s study. The researchers gave no explanation for this exclusion which may affect generalisation of the findings to all conjunctives.

As expected, *because* sentences were found to be better recalled than *and* sentences and the unconnected condition. The unconnected sentences recorded the lowest percentage of the recall scores.

It deserves to mention here that the testing materials used in Caron et al.'s (1988) study included unrelated sentences which made the recall task difficult. This meant imposing any semantic relationship on unrelated clauses/sentences requires much of inference and elaboration which consequently consumes more time and faces the risk of failure in producing the correct interpretation. Only coherent events are encoded and remembered quickly and easily.

In Goldman and Murray's (1992) study several conjunctives were selected as representatives of all conjunctive types (i.e. additives, causals, adversatives, and sequential conjunctions). From the additives, *for example*, *for instance*, *in addition*, *in particular*, *in fact* and *indeed* were chosen. The causals were represented by *thus*, *so*, *consequently*, *as a result*, *as a consequences*, and *therefore*. The adversatives were *but*, *however*, and *nevertheless*. And finally the sequential conjunctives were represented by *briefly*, *first*, *finally*, *in short*, *second* and *third*.

The study findings suggested that the participants were more successful in choosing the additives and the causals than in choosing the adversatives and the sequential conjunctives. However, contrary to the researchers' expectations, confidence rating data revealed no significant difference among conjunctive types. As Goldman and Murray (1992, p.517) stated, it seems that "ESL students were no more confident of their adversative or sequential choices than they were of their additive and causal choices".

Murray (1997) investigated how different conjunctive types facilitate reading comprehension differently. This study intended to "explore the psychological mechanism underlying the differential contribution made by additive, causal and adversative [conjunctions] to integrative processes" (Murray 1997, p.228).

Three types of conjunctives were used: additives which represented by *moreover*, *furthermore*, and *and*; causals represented by *therefore*, *so*, *thus*, and *consequently*; and adversatives represented by *yet*, *nevertheless*, *however*, and *but*.

The findings of this study supported the 'continuity hypothesis' suggested by Murray (1997). It was found that conjunctives are "powerful indicators of continuity and discontinuity in text" (Murray 1997, p.231). The causal and the additive conjunctives signal continuity whereas the adversative conjunctives signal discontinuity. This meant that the adversative conjunctives have "the greatest degree of processing facilitation when they were used appropriately" (ibid. p, 235).

This conclusion contradicts many other research findings which revealed that the causal conjunctives are more beneficiary to reading process and reading comprehension than other conjunctive types (Canon et al. 1988 and Millis and Just 1994).

Ozono and Ito (2003) examined the effect of what they called 'logical connectives and the semantic relations they signal on the comprehension of written text.

Japanese university students studying English as a second language were the participants of the study. The research participants were divided into two groups according to their English proficiency: low proficiency group and high proficiency group. Three conjunctives representing three semantic relations were used. Adversatives were represented by *however*; causals by *therefore* and illustrative by *for example*.

The finding of the study showed that both low and high language proficiency groups benefited from the explicit presence of conjunctives in the texts used for testing their reading comprehension. However, it appeared that certain types of conjunctives are more useful to reading comprehension than others. For instance, "unlike the high group, the low group tended to find *however* more difficult than *therefore*, and *therefore* more difficult than *for example*", (Ozono & Ito 2003, p. 290).

This finding could be explained by what Ozono and Ito (2003) called the 'cognitive load' which they defined as "the psychological load imposed on the reader's processing capacity by linguistic constituents within text" (ibid. p, 293). They argued that this theory could explain why *for example* is processed easier than *however*. With *for example*, there is a little amount of cognitive load since the direction of reasoning is coincided with the reader's direction, *however*, in contrast, collides with the reasoning direction.

Methodology

This paper tried to answer the question which asked whether certain conjunctive types are more facilitative to reading comprehension than others. To answer this question quantitative data were collected by the application of two intervention programmes. This quantitative approach included *pre and post- tests* and *post-test only* experiments. The first one organised in Gharian English Department and the second, i.e. '*post-test-only*' experiment was held in Sabrata English Department.

The rationale behind adopting experimentation as the prime method of investigation was to examine whether the reading comprehension of Libyan university students improved if they were explicitly taught conjunctives in their reading comprehension course. In other words, there was a need to assess whether explicit teaching of conjunctives causes an improvement of the reading comprehension of Libyan university students. The participants of the experiments were randomly assigned to two groups. One group was explicitly taught conjunctive items (i.e. treatment group), and another group was taught the traditional syllabus (i.e. comparative group). And by pre- and post-testing both groups and comparing their tests results, it was possible to know whether the teaching of conjunctives had any significant effect on the reading comprehension of the treatment group.

Participants

Forth year English department students from two Libyan universities were selected to be the sample of this study. 30 students from Gharian University contributed to the first intervention programme and 70 students from Sabrata English Department participated in the next post-test only intervention programme. The

sample selected for the two experiments which were organised in the Gharian and the Sabrata English Departments were assigned randomly to the intervention groups: comparative and treatment.

Testing materials

In this research a *multiple-choice rational cloze test* was used as the measuring instrument for both pre and post-tests. This test type has been used by many educational researchers because of its consistency and practicability. For example, Goldman and Murray (1992) used this test procedure to test the reading comprehension of their participants. Many other researchers have examined the validity of this test type and found it consistent. McKenna and Layton (1990) cited in Goldman and Murray (1992) stressed the sensitivity of the rational cloze test to the inter-sentential integration.

The test covered all conjunctive types. From the additive type *and, furthermore, not only, for example, in other words* were chosen; from the adversatives *still, yet, whereas, nevertheless, however*; from the causals *arising from this, therefore, since, consequently, thus*; and from the temporals *then, at this point, at this moment, firstly* and *finally* were selected.

Intervention materials

Selected materials were used as the main syllabus for the reading comprehension course of all fourth year students. However, the research intervention programme which was taught to the treatment groups was distinguished by the inclusion of different activities (suggested by Salimbene and Widdowson 1986). Those activities focused on explicit teaching of conjunctives and their facilitative role

in reading comprehension. Apart from that, similar reading texts were used by both treatment and comparative groups and time period allocated to the intervention programme was similar: two hours per week for 12 weeks.

Data analysis

In Innajih (2006, p.18) it was found that “explicit teaching of conjunctions was found to be useful for better reading comprehension”. In this paper, post-tests results of Gharian and Sabrata treatment groups were analysed in relation to conjunctive types. Data collected were presented and analysed in relation to the research question by using SPSS for Windows software, version 12.0. Statistical t-tests were conducted to find out if there were any significant differences between the means of the conjunctive types scores in the post-tests of the Gharian and the Sabrata treatment groups.

Gharian post-test data

Every correct answer was given two scores which meant that the full mark of each conjunctive type was 10. The total marks of the test was 40 (i.e. 10 the full mark of each conjunctive type X 4 the number of conjunctive types = 40). The result of each conjunctive type was calculated separately. This helped to examine the level of difficulty for each conjunctive type in comparison with the other types. Frequency and percentage of conjunctive types' scores are shown in Table 1 below.

Table 1 Conjunctive type scores out of ten are classified into categories

<i>Score Of 10</i>	<i>Additive</i>		<i>Temporal</i>		<i>Causal</i>		<i>Adversative</i>	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
0	0	00.0	0	00.0	1	6.66	5	33.33
2	0	00.0	0	00.0	4	26.66	3	20
4	1	6.66	3	20	5	33.33	3	20
6	6	40	6	40	4	26.66	4	26.66
8	7	46.66	5	33.33	1	6.66	0	00.0
10	1	6.66	1	6.66	0	00.0	0	00.0
Total	15	100.0	15	100.0	15	100.0	15	100.0
Mean	7.06		6.53		4.0		2.8	
Percent	70.7		65.3		40.0		28.0	

The types of conjunctives score means were arranged in an ascending in order to explore the highest achievement and the lowest one. It was suggested that the participants were able to score high marks with easy conjunctive type(s) and low marks with difficult conjunctive type(s). With this in mind, and by reviewing the means calculated for each conjunctive type, the following classification was suggested: easy, moderate, difficult, and very difficult conjunctive type(s). From the means of the conjunctive types obtained it was concluded that the additive conjunctives were the easiest and the adversatives were the most difficult. In between came the temporals which were classified as moderate and the causals as difficult as shown in the table below.

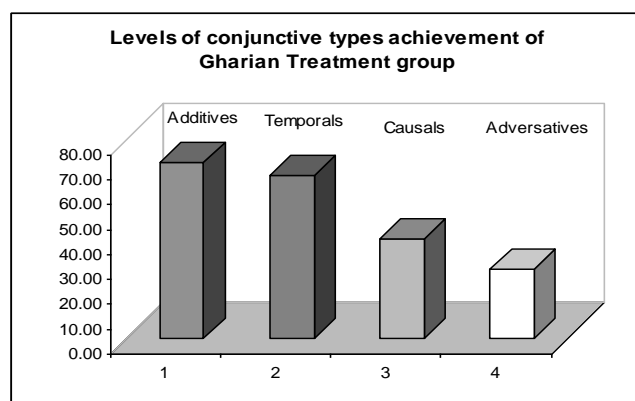
Table 2 Level of difficulty of conjunctive types

Level of difficulty	Easy	Moderate	Difficult	Very difficult
<i>Conjunctive type</i>	additive	temporal	Causal	adversative
Mean	7.06	6.53	4.0	2.8
Percent	70.7	65.3	40.0	28.0

Figure1 below illustrates the level of difficulty the participants of the treatment group found with the conjunctive types. This result answered the question of whether some conjunctive types are more facilitative to reading comprehension than others. It was clear that the participants of the Gharian treatment group

performed much better with the additive conjunctives. This was followed by the temporal conjunctives. The causals and adversatives appeared to be difficult.

Figure 1 Classifying conjunctive types according to their level of difficulty



Sabrata post-test data

The participants of the Sabrata treatment group were able to score high marks with easy conjunctive type(s) and low scores with difficult conjunctive type(s). By considering the calculated means of the conjunctive types we were able to classify them according to their levels of difficulty as follows. “Easy” label was given to the highest mean and “very difficult” for the very difficult mean. In between “moderate” and “difficult” levels were suggested as presented in Table 3 below.

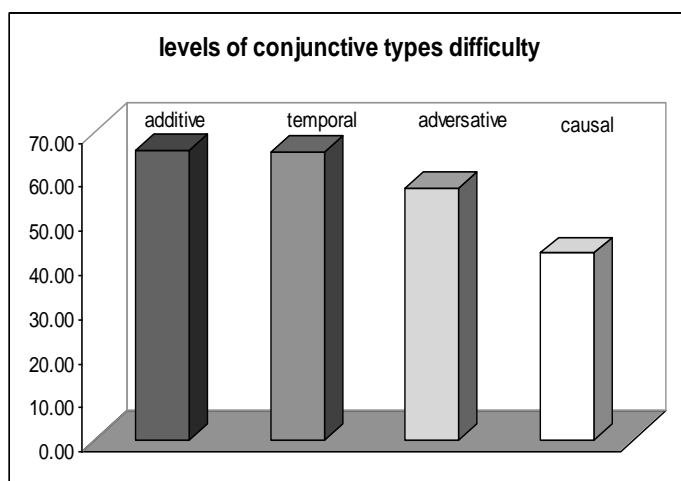
Table 3 Classifying conjunctive types according to their level of difficulty

Level of difficulty	Easy	Moderate	difficult	very difficult
<i>Conjunctive type</i>	<i>Additive</i>	<i>Temporal</i>	<i>Adversative</i>	<i>Causal</i>
Mean	65.7	65.1	57.1	42.3
Percent	65.7	65.1	57.1	42.3

By describing the scores of the conjunctive types of the reading comprehension test and presented them in the form of frequency and percentages, and by calculating the score mean of every conjunctive type, the question which asked whether some conjunctive types are more facilitative to reading comprehension than others was answered. It was clear that the additive conjunctives were the most

facilitative conjunctive type to the reading comprehension of the Sabrata treatment group and followed by the temporal conjunctive type, while the adversative and the causal conjunctives were the least facilitative types as illustrated by Figure 2 below.

Figure 2 Levels of conjunctive types' difficulty



By comparing the findings of the Gharian and the Sabrata post-tests results in relation to conjunctive types it was found that both groups were 75 per cent equal with regard to conjunctive type achievement as shown in Table 4 and Figure 3 below. These findings evidenced that the reading comprehension programme and the measuring instruments used in this study were highly consistent and had sufficient internal validity.

Figure 3 Conjunctive types achievements of Gharian and Sabrata treatment groups

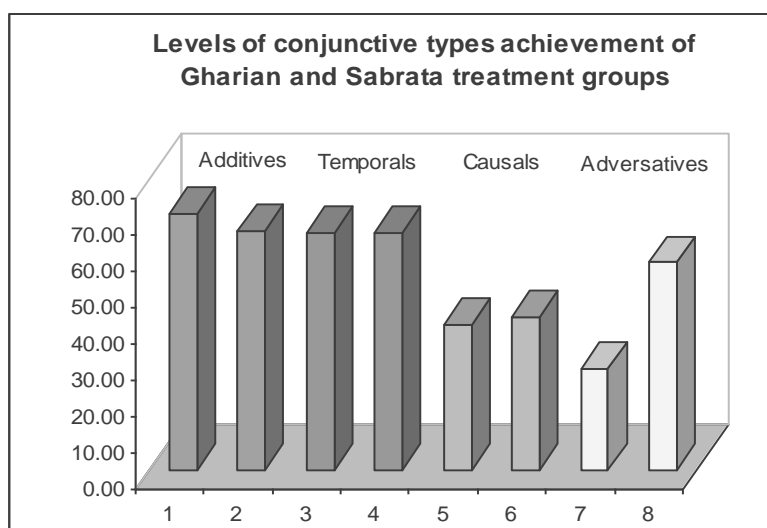


Table 4 Conjunctive types score means, significance, and percentage of similarity of Sabrata and Gharian treatment groups

	<i>Additives</i>	<i>Temporals</i>	<i>Causals</i>	<i>Adversatives</i>
Ghar. Tr. Gr.	70.7	65.3	40.0	28.0
Sab. Tr. Gr.	65.7	65.1	42.3	57.14
Significance	No significance	No significance	No significance	Significance
Percent of similarity	Seventy five percent (75%)			25%

Discussion

The findings of the study mentioned above were expected since they were in congruence with many other research findings. Goldman and Murray (1992) found that the additive conjunctives were the easiest to be chosen by their study participants, which meant that these conjunctives were the most facilitative textual cohesive items to reading comprehension. Similar to this, Ozono and Ito (2003) came to the conclusion that their experiment participants performed much better in their reading comprehension with the additive conjunctives' assistance.

Goldman and Murray (1992, p.506) argued that the additive conjunctives might be the easiest for their research subjects because "for additives, readers need only determine whether an elaboration relation exists between the ideas being connected." There was also a possibility that Goldman and Murray's participants overused this type of conjunctives because of the various semantic relations this type of conjunctives could represent. *And*, for example, can signal many other semantic relations existing between the sentences it joins beside the additive function as Carston (1993) reported. Caron et al. (1988, p.320-21) indicated that "the function of 'and' appears to be quite different. [...] this conjunction can express not only a logical conjunction, but also a variety of semantic relations between sentences, including, in particular, causal/temporal relationship."

Contrary to the above findings, Caron et al. (1988) and Murray (1997) found that their studies participants' recall and comprehension did not improve with the presence of the additive conjunctives in the text they were asked to recall and comprehend. Other conjunctive types were found to be more effective to recall and reading comprehension than the additives. It is suggested that these findings could be exclusive to the additive conjunctive *and* since it is commonly used by researchers as a representative to the additives. Caron et al. (1988, p.321) found that "*and* sentences were recalled least of all." (My italic)

Contrary to our expectation, the participants of the treatment groups in Gharian and Sabrata found the temporal conjunctives as easy as the additives. No statistical significant difference was recorded between their score means. The temporal conjunctives as cohesive ties usually impose local and global semantic relations on the segments of the written text. Because of this characteristic it was assumed that FL readers could find the global relations difficult to recognise. This was highlighted by Goldman and Murray (1992). They stated that the temporal conjunctives were "more difficult for all types of readers largely because they require reference to the more global discourse context" (ibid. p. 506). As reported above, Geva (1992, p.735) also stressed that L2 readers "may be unable to deal with global coherence, based on larger text chunks."

The causal conjunctives had a significant impact on the reading comprehension of the participants of the intervention programme, but the effect was not as high as with the additives and the temporals. This finding is in agreement with the assumption of Sanders and Noordman (2000, p.44) who expected that "problem-solution relation leads to slower processing because it is more informative (it contains

more information) than the list relation is; after all, causal relations presuppose additive relations.”

However, this finding is inconsistent with Caron et al.’s (1988, p.320) who found that “pairs of sentences connected by the conjunction ‘because’ were much better recalled than the same pairs of sentences presented unconnected and, more so, when connected by the conjunction ‘and’.” Even though recall is different from comprehension, there is a close relationship between them since recall presupposes comprehension. Other studies also found that the causal conjunctives speed the integration of sentences and save the reader’s time, (Millis and Just 1994 and Traxler et al. 1997) though of the different description they had about the stages of integration.

The little effect of the adversative conjunctives on the reading comprehension of the Gharian treatment group was expected because, as Ozono and Ito (2003) argue, the adversatives add heavy cognitive load on the L2 readers who have limited cognitive reading capacity. Another reason could be attributed to the adversative conjunctives’ lower frequency of occurrence in text books which resulted in less exposure to them, (Goldman and Murray 1992). Furthermore, the adversative relations could be more difficult to construct than others, (Caron et al. 1988).

These findings were supported by Millis and Just’s (1994) finding. It was revealed that “*although* sentences resulted in lower comprehension accuracy and slightly lower reading times than *because* sentences, there is some reason to suspect that these sentences were tougher to comprehend” (ibid. p. 143).

Contrary to the Gharian treatment group, the Sabrata treatment group found the adversative conjunctives more facilitative to the reading comprehension than the causal conjunctives which had less effect than the additives and the temporals and

with no significant difference between them. This surprising result is in accordance with Murray's (1997) continuity hypothesis. This hypothesis predicts that "additive and causal connectives should lead to less processing facilitation than adversative connectives because the former indicate continuity in the discourse whereas the adversatives indicate discontinuity" (ibid. p. 229).

In summary, the findings of this study are in agreement with the majority of the studies mentioned in the literature review which found that all conjunctives facilitate reading comprehension. However, it appeared that some conjunctive types are more facilitative to reading comprehension than others. Additive conjunctives are the most facilitative to English foreign language reading comprehension and adversatives are the most difficult.

Conclusion

An overview of the research findings suggested the conclusion that some conjunctive types were more useful to the participants of the study's reading comprehension than others. In the Gharian English Department, additive conjunctives were found to be the most facilitative type to the participants' reading comprehension and adversatives were the least. Causals and temporals occupied the second and the third position in the ladder of difficulty respectively. In the Sabrata English Department, the participants found the additives the most facilitative conjunctive type and the causals had the lowest scores in the reading comprehension post-test even though no significant differences between the causals, temporals and the adversatives were found.

Based on the findings of this study, teachers and university professors teaching English as a foreign or a second language are recommended to focus on the

explicit teaching of textual cohesive conjunctives in reading comprehension lessons. Nunan (1999, 260) recommends that “cohesive relationships should be taught explicitly. In particular, logical relationships should be taught in academic reading programmes”.

However, it appeared that some conjunctive types are more facilitative to reading comprehension than others. This requires explicit teaching of conjunctives with special focus on the difficult types.

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