

# Comprehension of Discourse Markers and Reading Comprehension

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## Abstract

According to many research findings, the presence of discourse markers (DMs) enhances readers' comprehension of the texts they read. However, there is a paucity of research on the relationship between knowledge of DMs and reading comprehension (RC) and the present study explores the relationship between them. Knowledge of DMs is measured through examining the subjects' recognition of DMs. To carry out the research, 86 Iranian sophomores majoring in English took a test of DMs alongside a RC test. The correlation between their scores on the two tests was calculated using the software SPSS. The analysis revealed that there is high correlation between the students' knowledge of DMs (i.e., their correct recognition of discourse markers) and their reading comprehension ( $r_{xy} = .71$ ). Moreover, high correlation carries a strong regression power and scores on a test of DMs could be a good indicator of the test takers' reading ability.

**Keywords:** Discourse marker, Reading comprehension, Correlation

## 1. Introduction

Since the last few decades, linguists have recognized that communication is not based only on sentence-level criteria (lexis and sentence structure) and that the study of language and language learning should involve longer stretches of text or what has come to be known as *discourse*. Many linguists have more enthusiastically explored the relationship between sentences in a text and labeled this relationship as *texture*. A set of sentences constitute a text if there is a relationship within and between the sentences, otherwise they would be only a bunch of unrelated sentences. These relationships are called cohesive relations (Yule & Brown, 1989, p.191). Different parts of a text (or a conversation or any stretch of language) are interlinked in various ways. Sometimes the underlying semantic relations between the sentences and propositions have the cohesive power and indicate texture (coherence); however, in many cases there are some linguistic elements which show the relationship between the facts and propositions in a text (cohesion). Yule and Brown (1989) refer to the latter as cohesive markers and mention *reference, substitution, ellipsis, lexical relationships, and explicit markers of conjunctive relations* as different types of cohesive markers.

The last category, explicit markers of conjunctive relations, has been widely studied and variously labeled by different scholars. Fraser (1997, as cited in Warsi, 2001) mentions some of these labels: *discourse connectives* (Blakemore, 1987, 1992), *discourse operators* (Redeker, 1991), *discourse particles* (Schoroup, 1985), *phatic connectives* (Bazanella, 1990), *pragmatic connectives* (Van Dijk, 1985; Stubbs, 1983), *pragmatic formatives* (Fraser, 1987), *pragmatic particles* (Ostman, 1989), *semantic conjuncts* (Quirk et al., 1985), and *sentence connectives* (Halliday & Hasan, 1976). Fraser (1997) refers to them as discourse markers and describes a discourse marker (DM) as a

lexical expression which signals the relationship between the discourse segment of which it is a part, S2, and the foregoing segment, S1. Each DM has a core meaning, but the meaning is not conceptual, such as is the case for the noun 'boy' which denotes a young, male human, but rather procedural, where the DM signals how S2 is to be interpreted, given S1 (p. 3).

Halliday and Hassan (1976) developed an extended taxonomy of discourse markers containing four types: additives (e.g., and), adversatives (e.g., but), causals (e.g., so), and temporals (e.g., then).

Discourse markers have also interested many scholars in applied linguistics such as language teaching and language learning. Richards and Schmidt (2002) describes DMs as "expressions that typically connect two segments of

discourse but do not contribute to the meaning of either. These include adverbials (e.g., *however*, *still*), conjunctions (e.g., *and*, *but*), and prepositional phrases (e.g., *in fact*)”

A great number of studies have explored the effect of discourse markers on reading comprehension. In interactive approaches to reading, the manner in which the readers use the linguistic features to work out a meaning from the text is considered very important. Also, much emphasis has been placed on the manner in which readers combine the sentences and propositions to comprehend a text. Accordingly, cohesion has gained a great deal of interest in the field of reading. Research findings suggest that the presence of DMs facilitates text comprehension by decreasing reading time and improving content recall. Haberlandt (1982, as cited in Ying, 2006) found that target sentences preceded by a connective resulted in faster reading times than unconnected sentences. Ying (2006) suggests that “while the absence of DMs does not affect a sentence grammatically, it does omit a powerful clue about the speaker’s perception of the relationship between prior and subsequent discourse” (p. 52). Therefore, DMs and their presence in a text are shown to enhance readers’ comprehension of texts and provision of DMs in reading passages will facilitate second language learners’ reading comprehension.

Majority of the studies on the effect of DMs on reading comprehension have examined the effect of the presence or absence of DMs on the subjects’ comprehension of the texts they read through manipulating some original texts by adding or omitting some DMs and comparing the subjects’ reading comprehension of the original and the manipulated texts. In most of the studies, subjects had higher RC scores on the tests which employed passages with more DMs than the tests involving texts with fewer DMs. The researcher felt that there is a paucity of research on the relationship between second language learners’ knowledge of DMs (which could be measured by examining the subjects’ correct recognition of DMs) and their reading comprehension. Therefore, the researcher decided to conduct a research in which a sufficient number of subjects (around 90 students majoring in English) would take a test of reading comprehension alongside a test of DMs. The results would show the relationship between knowledge of discourse markers and reading comprehension. To that end, the following research questions and hypotheses were put forth:

- (1) Is there a significant relationship between the subjects’ recognition of discourse markers and their reading comprehension?
- (2) Is there a significant regression between the subjects’ scores on a DMs test and a RC test?

The following null hypotheses were formed for the questions above:

- (1) There is no significant relationship between the subjects’ recognition of discourse markers and their reading comprehension.
- (2) There is no significant regression between the subjects’ scores on a DMs test and a RC test.

## 2. Previous studies

Discourse markers are widely studied in second language teaching and their effect has largely been explored on the four language skills. Researchers have investigated the effect of DMs on the learners’ comprehension of written and spoken texts. There also has been much research on the use of DMs by native speakers and non-native speakers of different language levels.

Arapoff (1968), from a word count by Ernest Horn, estimated that roughly 50 of the 1000 most commonly used words in written English were sentence connectors. This count involved only single words and did not include common idiomatic discourse markers, such as *off course*, *in addition*, and *as a matter of fact* which may well be as highly frequent as single word DMs, like *otherwise*, *thus*, or *therefore*. She suggests that “just the fact that such words occur frequently makes them worth studying”.

Ying (2006) studied the use of DMs by native speakers and Japanese and Chinese non-native speakers through investigating their English compositions. There was an obvious difference among the three groups of students in their preferences for particular types of discourse markers. Also, various kinds of misuse of discourse markers were found in the essays written by the non-native speakers. Geva (1996) studied the effect of the level of second language ability on the comprehension of DMs.

Moradan (1995) investigated the effect of explicit teaching of DMs on the appropriate use of DMs by students in their writings and found that the students’ conscious awareness of forms and implications of DMs improved their appropriate use of DMs. He also found that comparison of DMs in the first language and English had a great advantage for the students. Therefore, he suggested that explicit instruction of DMs should be involved in language courses to help learners take advantage of their knowledge of DMs in reading comprehension and other language uses.

Warsi (2006) explored the use of contrastive discourse markers by native speakers and advanced Russian students of English. Some Russian subjects used markers appropriately in a range of functions, while some used them with a more limited range of functions.

There also has been some research on the role of DMs on listening comprehension, among which is the research by Eslami and Eslami-Rasekh (2007). In this study, two groups of students listened to two different versions of a lecture. The two versions were different according to quantity and type of discourse markers. Listening comprehension tests and their mean scores were compared and the findings clearly indicated that subjects comprehended the lecture better when discourse markers were included than when they were omitted.

In the area of reading, there has been much research on the effect of DMs on reading comprehension. However, there is no consensus on the exact effect of explicit DMs on text understanding. Three different findings are reported in the literature: markers would have a facilitating effect, an interfering effect or no effect at all. A handful of studies have suggested that DMs have a negative influence on reading comprehension as they make the linked sentences longer and add extra load on the reader's brain. Degand et al. (1998) suggest that

It seems that connectives facilitate the comprehension process in that they improve threading process, but that they do not increase comprehension of the text. It might even be possible that they ease the reading task in such a way that they provide the reader with the "impression" of having understood the text instead of a real understanding (p. 1).

However, majority of the studies in this regard have indicated that DMs have a positive effect on reading comprehension. Most of the studies manipulated the texts by adding or omitting DMs and examined the effect of the presence or absence of DMs on the reading comprehension of the subjects.

Bahrami (1992) studied the effect of the number of DMs in the texts on the subjects' reading comprehension. He added 26 and 48 DMs to some original texts in a reading comprehension test and developed two extra versions of the same test. He administered the three tests among three groups of subjects with the same language ability level. The group who took the test with the greatest number of DMs performed better than the other two groups.

Akbarian (1998) and Degand et al. (1999) examined the comprehension of two groups of subjects with the same language ability, reading two versions of the same texts (original and manipulated ones whose DMs were deleted). The subjects who had the original texts, from which no DMs were omitted, performed better.

Innajih (2007) investigated the effect of explicit instruction of DMs on the reading comprehension of the second language learners. The participants in the treatment group were explicitly taught DMs types and their relation to reading comprehension for three months before they took the reading test. The results showed that the treatment group performed better than the control group on the reading test.

Finally, Stoodt (1972, as cited in Innajih, 2007), in a cloze study with fourth-grade American children, found a significant relationship between reading comprehension and the comprehension of discourse markers.

### **3. Method**

#### *3.1 Participants*

In the first phase of the study 35 second-year students majoring in English Language and Literature from Qom University were selected to take the test for the development of the DMs test. Then, 33 second-year students of English at Islamic Azad University (Qom branch) took the final DMs test along with Story's (1997) discourse cloze test to help the researcher validate the DMs test (criterion validation). Finally, 91 students majoring in English Language and Literature and English Translation at Allameh Tabatabai', Qom, and Mofid universities took the final form of the DMs test alongside a reading comprehension test. The number of the female subjects and that of the male subjects were approximately the same (47 female subjects and 44 male subjects). The study was conducted at the end of their fourth semester. However, five subjects did not take the time to do the reading test properly and their scores were not included in the study.

#### *3.2 Instrumentation*

Three tests were used in the present study: a reading comprehension (RC) test, a test of DMs, and a discourse cloze test. All of them were multiple choice tests. The reading comprehension test and the test of DMs each contained 25 items and the discourse cloze included 13 items.

##### *3.2.1 Reading comprehension test*

Five passages of reading comprehension were selected from the Michigan Test's reading section. The four types of discourse markers in Halliday and Hassan's (1976) taxonomy (additives, adversatives, causals, and temporals),

alongside some other DMs beyond this taxonomy, such as intensifiers and exemplifiers, were identified in these texts. Then 20 more DMs were added to these five texts in a manner which preserved the naturalness of the texts. The DMs were added in places where the relationship between propositions and facts were indicated through the underlying semantic relations. These relations could have been indicated by DMs without changing the content and message of the text. The new texts were examined by two native speakers, an American undergraduate student of medical sciences (Jacob Williams) and a Canadian high school teacher of history (John Smith), and some university instructors of English and PhD candidates in TEFL. All of them approved of the naturalness of the texts. The final form of the reading texts ranged from 142 words long to 220 words long and contained six to ten discourse markers of different types respectively. The reading passages were followed by the original reading comprehension questions, which were global questions and examined the overall comprehension of the texts. Each passage was followed by five questions.

### 3.2.2 Discourse markers test

The discourse markers which were employed in the reading passages were identified and on the basis of these DMs a test was developed. The DMs used in the reading texts are:

*as well as, besides, moreover, and similarly* (additive); *although, despite however, nevertheless, on the other hand, though, and yet* (adversative); *accordingly, because, consequently, for, since, so, therefore, thus, to conclude* (causal); *afterwards, as soon as, at first, finally, first, then, and until* (temporal); *actually, after all, as though, in case, in fact, and such as* (other types).

Forty multiple choice items were developed for these DMs. To do so, 40 original sentences of appropriate level of difficulty, which had one of these DMs, were found in natural and authentic texts. Then their DMs were replaced with a blank space and four choices of discourse markers were added to them, one of which completed the sentence correctly. In this way a test of discourse markers with 40 items was developed. 35 second-year university students of English took this test and an item analysis was performed on the test items. Henning's (1987) facility and discriminability indexes were used for verifying the appropriacy of the items. Items with an item facility ranging from 0.33 to 0.67 and item discrimination of 0.67 and above were considered appropriate. The upper and lower groups were defined as the upper and lower third, or 33%. They also had appropriate distracter efficiency. Twenty two of the items had the appropriate item facility and item discrimination and three of the remaining items had some small problems which were fixed to make appropriate items. These 25 items constituted the final form of the DMs test.

### 3.2.3 Discourse cloze

Story's (1997) discourse cloze test was used for the criterion validation of the developed DMs test. The test was one of a battery of diagnostic reading tests developed in a comparative study of construct validation techniques (Storey, 1994). A discourse cloze test is an extension of cloze procedure in which deletion of information carrying propositions are avoided, instead linguistic elements which establish interrelationships between the text propositions (cohesive devices and rhetorical markers) are deleted. The discourse cloze was a 13-item, multiple-choice, rational-deletion discourse cloze test.

### 3.3 Procedures

The final form of the DMs test was administered among 33 second-year university students of English together with Story's (1997) discourse cloze test. The discourse cloze test was used as a criterion for criterion validation of the developed DMs test. The scores on the two tests were analyzed by the software SPSS for the Windows and a significantly high correlation coefficient was shown to exist between the scores on the two tests ( $r_{xy} = 0.77$ ). Then 91 second-year students of English took the DMs test alongside the reading comprehension test. Five subjects did not complete the reading test properly and were excluded from the study, leaving 86 subjects. The correlation between the DMs test and reading comprehension test was worked out by using SPSS program. The correlation was significant ( $r_{xy} = 0.71$ ).

## 4. Data analysis

In this study, a test of reading comprehension and a test of DMs were administered among 86 subjects. The scores on the two tests were analyzed and a correlation analysis was performed on them. The correlation coefficient was 0.71, which suggests a high relationship between the subjects' ability to recognize DMs correctly and their reading comprehension. Recognition of DMs can be considered as knowledge of DMs.

## 5. Results

Table 1 shows the main characteristics of the scores of the 33 subjects who took the developed discourse markers test and Story's (1997) discourse cloze test. The mean (8 and 13.9) and standard deviations (2.3 and 3.4) of the two sets of scores indicate that the two tests have similar characteristics and the traits being measured by the two tests

are most probably the same. Remember that the DMs test contained 25 items and the discourse cloze test contained 13 items; therefore, the values of the mean and standard deviation of the discourse cloze test should be multiplied by 2 to be comparable to those of DMs test. Story's (1997) discourse cloze test measures the ability of the subjects to comprehend the relationships between text propositions and correctly recognize the appropriate cohesive devices (discourse markers and cohesive ties). Also the DMs test is supposed to measure the subjects' ability to comprehend the relationship between the two propositions in each item and correctly recognize the appropriate DMs. Therefore, if the scores on the two tests have similar characteristics it is logically possible to suggest that they are measuring the same trait and the DMs test is justified as a valid test of DMs.

Table 2 shows the correlation analysis on the two sets of scores. The correlation coefficient is 0.77 which indicates that the two measures are highly correlated. This high correlation between the newly developed DMs test and Story's (1997) discourse cloze test validates the DMs test and provides the justification for using the DMs test as a valid measure of DMs knowledge.

Table 3 displays the descriptive statistics of the 86 subjects' score on the reading comprehension test and the DMs test. The two sets of scores have similar means and almost the same standard deviation. The subjects who performed well on the DMs test did well on the reading test too and the ones who performed poorly on the DMs test got low scores on the reading test. This may indicate that the constructs being measured by the two tests have a great deal in common.

Figure 1 is the scatter plot of the scores on the two tests (RC test and DMs test). It visually shows that there is a high positive go-togetherness between the scores on RC test and DMs test. Before going to correlation table, we can observe that there is a positive correlation between the scores on the DMs test and those on the reading comprehension test. There seems to be a significant correlation between the scores on the two tests.

Finally, table 4 represents the correlation analysis on the scores of reading comprehension test and DMs test. The correlation coefficient is 0.71 which is significant at the 0.01 level. It means that there is a high relationship between the two measures.

## 6. Discussion

The high correlation between the RC test and the DMs test (.71) allows the researcher to reject the null hypothesis that "there is no significant relationship between the students' reading comprehension and recognition of discourse markers".

$R^2$  (.71<sup>2</sup> = .50) reveals that more than half of the variation in the scores of RC test can be accounted for by the knowledge of discourse markers (scores on DMs test) and that an examinee's score on a DMs test is much helpful in regressing his or her score on a RC test. Therefore, the second null hypothesis is rejected.

The subjects' recognition of discourse markers in the DMs test represents their knowledge of DMs; because the items require the subjects to first comprehend the relationship between the two propositions and then recognize the appropriate DMs. And since the same DMs as in the DMs test were used in the reading texts to indicate the interrelationship between the propositions in the texts, the subjects had to comprehend the DMs in order to have an overall comprehension of the texts. Therefore, the subjects' comprehension (or lack of comprehension) of the reading texts could be partly due to their comprehension of DMs in the texts and accordingly to their knowledge of DMs. The subjects who had a good command of DMs enjoyed a better comprehension of the texts and the subjects who had poor knowledge of DMs could not comprehend the interrelationships between text propositions and hence the overall message of the texts. We can conclude that one of the factors contributing to the overall comprehension of reading texts is the comprehension of DMs and the relationships between text propositions. Other factors include vocabulary, sentence structure, and background knowledge related to the content of the texts.

A study by Nunan (1999) indicated that the "background knowledge was a more important factor than grammatical complexity in the ability of the readers to comprehend the cohesive relations in the texts" (p. 260). Here, the subjects were able to better comprehend the cohesive devices probably due to the fact that they had the background knowledge and hence a better global comprehension of the texts. Thus, comprehension of DMs and cohesive relations, on the one hand, and overall comprehension of texts, on the other hand, are highly interrelated. What the results of the study suggest is that for a better global comprehension of reading texts, second language readers need to comprehend and recognize meanings and functions of discourse markers, that is, they require to have a good command of DMs. One suggestion could be explicit instruction of discourse markers, their meanings and functions in different contexts.

## 7. Implications and suggestions for further research

The present research attempted to verify the researcher's informed impression that there should be a high correlation between reading comprehension and the knowledge of DMs. The researcher had observed that his students had

problem comprehending the parts of the reading texts where they did not know the meanings and functions of DMs. After the correct meanings and functions of the DMs were provided by the instructor, they could comprehend the texts easily. This led the researcher to investigate the relationship between comprehension of DMs and reading ability. The research findings indicate a high correlation between the two. This suggests that, on the whole, students who have good command of DMs can comprehend reading texts significantly better than students who are poor at the comprehension and recognition of DMs.

What the results propose is that for a good reading comprehension an appropriate command of English DMs is required. The implication of the study for language teaching would be that we should pay more attention to discourse markers in reading comprehension courses. As the research by Innajih (2007) shows, explicit instruction of DMs is to the advantage of second language learners and it enhances their reading comprehension significantly. In fact explicit teaching of DMs seems to influence all language skills since they are important components of language. As some studies have shown (Moradan 1995, Nunan 1991), it is recommended that the instructor compare the DMs in English with those in the students' first language.

A high correlation suggests a strong regression power. If there is a high correlation between recognition of DMs and reading ability, scores on DMs items could be a good indicator of the test takers' ability to comprehend the relationship between the propositions in a text and therefore their overall reading comprehension. The suggestion is that DMs can be better exploited in reading comprehension tests. Discourse cloze tests are good choices to be included in reading comprehension test batteries. These tests mainly measure the test takers' overall comprehension of a text and the relationship between the parts of the text.

However, like all studies this research had limitations and could not include all the issues related to the topic. Therefore, there is need for further studies to shed more light on the issues. First, the study needs to be replicated as there is a paucity of research on the relationship between comprehension and recognition of DMs and reading comprehension. Second, many research findings suggest that different DMs affect reading comprehension differently. Different DMs impose different amount of 'cognitive load' (the psychological load imposed on the readers' processing capacity by linguistic constituents within text). DMs which have the same direction of reasoning as the reader's direction create less cognitive load. Therefore, further research can investigate the relationship between reading comprehension and different types of DMs separately. Third, interested researchers can study the relation between recognition of DMs and reading comprehension on other levels of language ability. It is hoped that more research on this topic will solve more problems in the field of second language reading.

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Table 1. Scores on the DMs test and the discourse cloze

	N	Minimum	Maximum	Mean	Std. Deviation
Discourse cloze	33	4.0	12.0	8.0	2.3
DMs test	33	8.0	23.0	13.9	3.4

Table 2. Pearson Correlation between the DMs test and the discourse cloze

	Discourse cloze	DMs test
Discourse cloze		.77**
DMs test	.77**	

\*\*p < 0.01 N = 33

Table 3. Scores on the RC test and the DMs test

	N	Minimum	Maximum	Mean	Std. Deviation
Reading Comp	86	6.0	23.0	14.9	4.4
DMs test	86	4.0	23.0	12.4	4.3

Table 4. Pearson Correlation between the Reading Comprehension (RC) test and the DMs test

	RC test	DMs test
RC test		.71**
DMs test	.71**	

\*\*p < 0.01 N = 86

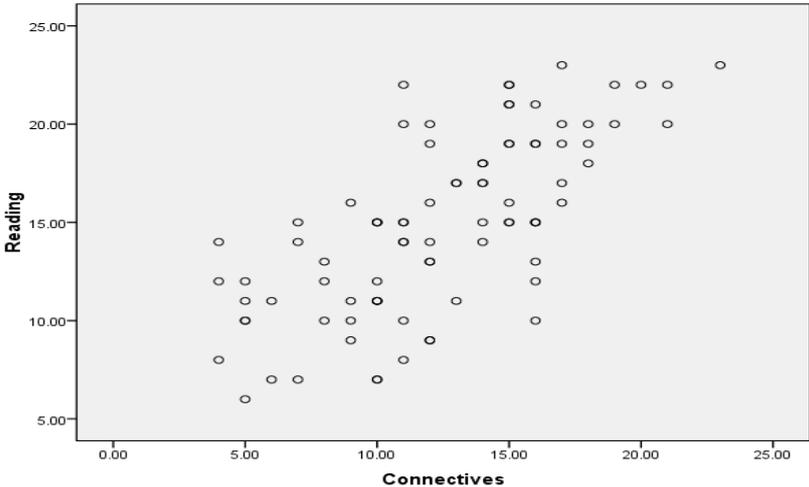


Figure 1. Correlation between the RC test and the DMs test