Explicit/Implicit Signals, Text Types, and Reading Comprehension

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Abstract

In the area of foreign language reading research not enough is known of the extent to which foreign language readers can comprehend the texts in which textual signals are explicitly or implicitly marked, and in which the discourse mode varies from one type to another. This research investigates how Iranian undergraduate readers of English approach narrative, expository, and argumentative text types in which propositional relations have been explicitly or implicitly marked through connectors. Participants read passages of each text type in both their explicit and implicit versions. The readability, length, average word frequency, and learner level which are hypothesized to have affected the results of the previous studies were controlled. The results demonstrate significant differences between learner level, and the explicit and implicit versions. The results confirm the contributory effect of these markers in comprehension. Therefore, language teachers, testers, and materials developers need to further consider the relationship between textual signals and text types in devising appropriate materials and techniques to improve foreign language learners' reading comprehension.

Key Words: Explicit/Implicit connectors, Text type, Narrative text, Expository text, Argumentative text, Reading comprehension.

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Introduction

There are suggestions in L_1 literature that discourse comprehension may be hampered by difficulties in processing logical relationships, or by the type of the text. Lipson and Wikon (1986), among others, claim that research on reading ability as well as reading disability should adopt an interactive view. Such a view takes into account the dynamic process of reading in which the reader, text, process, and the setting conditions of the reading situation interact in an active and flexible manner. The claim should be extended to reading in L_2 as well. To understand how L_2 learners comprehend texts, many researchers have emphasized the need to study the differential contribution of text-based characteristics such as genre, text structure parameters, and textual markers (Geva, 1992; Camiciottoli, 2003; and Carrel, 1985). This research tries to investigate the role of textual connectors in the comprehension of narrative, expository, and argumentative texts. It also tries to examine the impact of the presence or absence of such connectors in the comprehension of such texts.

Different text types focus the receiver's attention on different aspects of the communicative situation and are related to different mental activities. Hatim and Mason (1997) argue that expository text type involves analysis and synthesis of concepts. Furthermore, Weaver and Kintsch (1991) believe that expository texts are materials written to communicate information to help readers learn something new, e. g., textbooks, newspapers, magazine articles, and manuals. Expositions can be analysed in terms of their basic procedure: analysis (taking a concept and working out its constituent elements) or synthesis (taking the constituent elements of a complex concept and working out a shorter formulation for it).

In argumentative texts the need to persuade through evaluation is paramount with a predominance of emotive diction, metaphoric expression and subtle uses of modality (Hatim and Mason, 1997). Argumentative texts focus on relations between concepts, where one opinion is upheld and its relation with opposing opinions or solution investigated. It deals with the mental process of judging. All argumentative texts promote or evaluate certain beliefs or ideas with conceptual relations such as reason, significance, or opposition frequently.

Narratives construct a pattern of events with a problematic and /or unexpected outcome that entertains or instructs the reader or listener. They tend to induce 'visualization' in the reader as part of the reading process (Denis, 1982). They are stories written to entertain. The most common elements found in narrative texts are characters with goals and motives, event sequences, morals and themes (Graesser et al., 1991).

Connectives, text types, and reading comprehension

There have been a number of studies investigating the role of coherence signals (connectives) in text processing in narrative, and expository text types. For example, Sanders and Noordman (2000) focused on the cognitive status of these relations. Using reading verification and free recall tasks, they investigated the type of coherence relation between segments (e.g., problem-solution vs. list), and the implicit and explicit marking of the relations by means of signaling phrases in expository texts. Both factors affected text processing. Explicit marking of the relations resulted in faster processing but did not affect recall. Carrel (1985) argued that explicit teaching of various aspects of text structure and rhetorical organization of expository texts significantly increased the amount of information ESL students could recall. Furthermore, Joyce, et al. (1998) examined the effects of text genre and repeated reading on written language comprehension in younger and older healthy adults. Participants verified four text-based statements (i.e. explicit, implicit, contradicted, and elaborated) after reading expository, narrative, and procedural texts. Text genre, statement type, and repeated reading produced significant effects. Text genre influenced reading time, with expository passages being read faster than narrative and procedural passages, irrespective of age. In the same vein, Laura and Fuchs (2002) examined the reading difficulty of secondary students with learning disabilities in expository and narrative texts. The participants were administered two expository and two narrative texts. The results indicated that students had more difficulty with expository text than with narrative text in terms of reading fluency and comprehension. Also, Degand and sanders (2002) investigated the effect of

causal connectives and signaling phrases in expository texts that were manipulated with respect to the presence or absence of linguistic markers. In some texts they manipulated the presence or absence of causal connectives, in others the presence or absence of causal signaling phrases. The comprehension questions focused either on a manipulated relation or on other parts of the text. The results showed that the implicit condition differed significantly from the explicit condition while the explicit versions did not significantly differ from each other.

Statement of the problem

Prior research on signals and reading comprehension suggests a complex picture of the relationship between text signals and comprehension skill. Some studies found no differences between good and poor readers in terms of their responses to signals (Britton, et al., 1982; Loman and Meyer, 1983). Others reported differential effects. In some studies less skilled readers benefited from the presence of connectors in text (Goldsmith, 1982; Marshall and Glock, 1978; Meyer et al., 1980; Chung, 2000). Other studies reported that skilled readers benefited from the presence of connectors more than less skilled readers (Johnston and Pearson, 1982; Zinar, 1990). Finally, Geva and Rayan (1985) reported both similar and differential effects, depending on the way in which logical connectors were included in text. There were positive effects of including connectors for both kinds of readers if the connectors were included and highlighted. If the connectors were not highlighted, only skilled readers benefited.

In the area of L_2 research not much is known of the extent to which L_2 learners with different levels of L_2 proficiency can infer the logical relationships intended by textual markers, and the extent to which they can infer logical relations when these are not explicitly marked in text, and when the discourse mode varies from one type to another. To shed light on these issues, this research tries to delve into the way L2 readers at different proficiency levels approach different text types in which logical relations have been explicitly or implicitly marked, and integrate the macrostructure of the texts in their minds. To this end, the following main research question will be

investigated in this study: "Is there any significant difference among learners with low, intermediate, and high language proficiency in their comprehension of implicitly and explicitly-marked *narrative, expository, and argumentative* text types?"

This question has three parts. In the next section, the methodology used to deal with this question will be explained in further detail.

Participants

The participants for this study were 160 Iranian EFL university students studying science and technology, both male and female. They included junior and senior undergraduate EFL engineering university students who have their normal general English classes at Iranian universities. They were selected from a range of universities in Tehran, i.e., Iran University of Science and Technology, Shahid Rajaii Teacher Training University, Islamshahr Azad University, and Karaj Azad University. At the end of the experiment, 115 participants were qualified to be included in the final data analysis. The participants not included in the analysis were those who were not able to complete all the experiments according to instructions, as well as those who were not able to take all the three test versions.

Instrumentation

Three instruments were employed in this study: Michigan Language proficiency Test for classifying participants into a particular English proficiency level, The Explicit Test Booklet, and The Implicit Test Booklet. Each test booklet included six reading comprehension passages; two passages for each text type. The Explicit Test Booklet included passages with logical connectors present in them, and The Implicit Test Booklet included texts with the connectors absent in them.

The passages were selected from college level English textbooks, the Encyclopedia of Encarta (2002), and the Encyclopedia of Britannica (2002). Great attention was paid to select expository passages of general encyclopedic knowledge to avoid any bias in terms of the degree of topic familiarity. Narrative passages were

chosen with great care to avoid the intervening effect of cultural familiarity of the topic. Argumentative passages were selected in such a way that the writer was presenting a thesis first, and then evaluating it in terms of the pros and cons of the argument, which was finally ended with the writer's attempt to persuade the reader to accept his antithesis as valid and justifiable.

Several passages of each text type that were deemed to be of comparably similar features were selected at the initial phase of the project. Then, for the trial administration, nine passages out of this pool of passages with comparable features in terms of length, word frequency, number of paragraphs, text type, and readability index were selected. These passages were then shown to three experienced instructors involved in teaching English reading courses, and were judged appropriate for the intended participants. After the trial administration, two passages were selected for each text type for the final administration, the features of which are explained in Table 1 below.

Table 1. Features of the text types used in the study

Passage	Word frequency		Paragraphs	Flesch Kincaid readability index	
	Explicit	Implicit		Explicit	Implicit
Argumentative1 (Marine parks)	322	294	4	11.6	9.5
Argumentative2 (Animal testing)	297	284	4	10.6	8.1
Expository1 (The question of sacrifice)	331	307	4	10.8	8.7
Expository2 (The diversity of life)	292	262	4	12	10.8
Narrative1 (The question of exercise)	280	262	4	11.7	9.3
Narrative2 (The Watergate)	302	288	4	12	9.7

Each passage included eight questions. The first five questions were of a matching type, testing the comprehension of logical relations of additive, adversative, causal, and temporal kind, as well as grammar. The completion of the matching test required matching the stem sentences with their appropriate endings from the possible options available. These questions were followed by three multiple-choice questions testing the understanding of the passage's main idea or gist, writer's tone in the passage (arguing, agreeing/disagreeing, sympathizing, etc.), inference, and detail. Therefore, these questions examine the integration of pre-and-post connective material, as well as micro and macro-propositional understanding of the texts.

Procedure

The developed instrument was piloted with a group of 19 EFL learners similar to the target population. The pilot version included three passages for each text type followed by twelve questions. The results of the administered test demonstrated that the number of the items as well as the number of the passages needs to be cut for each text type for practicality purposes to control for the time and fatigue factors. Therefore, two passages, and eight questions for each text type were included. Finally, each test booklet for the final administration included six passages and 48 items in total.

To develop the implicit versions of the texts, the scheme proposed by Halliday and Hassan (1976) for identifying the connectors in the texts was used. This scheme is used as a valid scheme for identifying logical connectors in the texts (Ventola, 1991; Jafarpour, 1991; Goldman and Murray, 1992; and Geva, 1992). This classification system discusses additive (e.g., in addition, for example, in particular, indeed, moreover, etc.), adversative (e.g., however, nevertheless, but, in contrast, etc.), causal (e.g., thus, consequently, therefore, as a result, so, etc.), and temporal (e.g., first, second, briefly, in short, finally, etc.) connectors. The selected passages were reviewed for these markers, and therefore the above-mentioned markers were edited out. The number of connectors deleted from the passages ranged from 13-16. This required minor manipulation of some sentences in the texts. These passages in

the implicit version were followed by the same questions as in the explicit version with the same order and layout. Consequently, each test booklet consisted of six passages to be completed by each participant (two expository, two argumentative, and two narrative texts).

Participants took the tests in three sessions. For the first session, Michigan Language Proficiency Test was administered to determine the participant's level of language proficiency and to classify them into low, intermediate, and high language proficiency groups based on their mean (Mean=19.83) and standard deviation (SD= 6.77). In the remaining two sessions each lasting 1.5 hours, the participants took the reading tests. Then, for the first administration of the tests, each subject was assigned to a test booklet which contained six reading passages (two passages for each text type). To counterbalance the administration of the tests, half of the participants took the explicit version, and the other half took the implicit version. 18 days later, in the third session, the participants in the first half were assigned the implicit booklet, while those in the second group took the explicit version. Also, the reliability and validity of the instruments were calculated. Table 2 demonstrates high reliability estimates of the instruments in both versions.

Table 2. Reliability estimates for each instrument

Number of cases	Number of items	Explicit version	Implicit version
115	48	Alpha=.81	Alpha=.78

To investigate the concurrent validity of both test versions, the correlation between the language proficiency test and each of the test versions was calculated. The results of the validity analysis also demonstrate a significantly high degree of validity for each of the test booklets.

Table 3. Validity results for each instrument

Correlations	Explicit version	Implicit version
Language proficiency	.62**	.68**

The performance of the subjects in each text type was scored. A score of one for each correct response and a score of zero for incorrect responses were inserted. The participants' mean scores, and differences in their performances on each text type were compared using descriptive statistics, and multiple analysis of variance, as well as Repeated Measures ANOVA.

Results

First, a description of the performance of the participants in different text types and versions is presented in Table 4.

Table4. Descriptive statistics for groups' performances on different text types

Text type	Level	Mean	Std. Deviation
Explicit Narrative	Low	6.47	1.922
	Intermediate	8.52	3.080
	High	11.86	2.308
	Total	**8.86**	**3.220**
Explicit Expository	Low	6.00	2.236
	Intermediate	7.68	2.648
	High	10.81	3.516
	Total	**8.03**	**3.103**
Explicit Argumentative	Low	6.13	1.767
	Intermediate	7.32	2.273
	High	10.81	2.994
	Total	**7.80**	**2.773**
Implicit Narrative	Low	5.73	1.534
	Intermediate	7.53	2.464
	High	11.48	2.064
	Total	**8.02**	**2.871**
Implicit Expository	Low	4.60	1.682
	Intermediate	6.90	2.421
	High	10.48	2.379
	Total	**7.25**	**2.877**
Implicit Argumentative	Low	3.60	1.724
	Intermediate	6.63	2.709
	High	9.43	2.976
	Total	**6.75**	**3.095**

Total mean scores demonstrate that the participants' overall performance on the explicit argumentative texts is lower than their performance on explicit expository texts, which is also lower than that on the explicit narrative texts. Overall mean performances for the implicit text types also demonstrate the same pattern of performance. We notice that all the three learner levels find the implicit argumentative texts more difficult than the other text types and versions.

To find out whether there are any significant differences in the performance of the participants across different versions and text types in different groups, an overall Repeated Measures ANOVA was conducted. The results are presented in Tables 5 and 6 below.

Table5. Repeated Measures ANOVA within subjects effects across text, version, and learner level

Source	df	Mean Square	F	Sig.
Text type	2	59.991	11.450	.00
Text type * level	4	1.059	.202	.93
Version	1	111.551	20.289	.00
Version * level	2	5.863	1.066	.34
Text type * version	2	7.044	2.212	.11
Text type * version * level	4	4.841	1.520	.19

Table6. Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	26463.470	1	26463.470	1577.733	.000
Language level	1714.668	2	857.334	51.114	.000

The results of the Repeated Measures ANOVA within and between subjects effects demonstrated significant differences across the texts, versions, and the three

language levels investigated in this study. Moreover, no interactions between text type and language level, text type and text version, nor between text type, version, and language level were noticed.

To find out where these significant differences lie, an overall post hoc analysis was conducted. Table 7 presents the results of the Scheffe analysis for different groups' performances on all the texts and their versions among the three learner levels. The results demonstrate significant differences between the three learner levels in all the implicit versions, and some of the explicit versions of the texts.

Table 7. Scheffe analysis of the performances of the three groups on texts and versions

Dependent Variable	(I)Level	(J) level	Mean Difference (I-J)	Std. Error	Sig.
Explicit Narrative	Low	intermediate	-2.05*	.798	.040
		high	-5.39*	.957	.000
	Intermediate	high	-3.34*	.695	.000
Implicit Narrative	Low	intermediate	-1.80*	.647	.024
		high	-5.74*	.777	.000
	Intermediate	high	-3.94*	.564	.000
Explicit Expository	Low	intermediate	-1.68	.782	.103
		high	-4.81*	.939	.000
	Intermediate	high	-3.13*	.682	.000
Implicit Expository	Low	intermediate	-2.30*	.657	.003
		high	-5.88*	.789	.000
	Intermediate	high	-3.58*	.573	.000
Explicit Argumentative	Low	intermediate	-1.18	.666	.211
		high	-4.68*	.799	.000
	Intermediate	high	-3.49*	.580	.000
Implicit Argumentative	Low	intermediate	-3.03*	.749	.000
		high	-5.83*	.898	.000
	Intermediate	high	-2.80*	.653	.000

As for the first part of the research question of the study, we notice that for all the three groups, the overall test performance in explicit narrative texts is higher than that in the implicit version. The results of the analysis in Table 7 present

significant differences in performances of the three groups in both versions of the narratives. The intermediate group outperformed the low, and the high group outperformed both groups. This shows that with an increase in proficiency, readers' understanding of narratives increases too. This pattern happens in the implicit narrative version too.

As for the second part of the research question, it was noticed that the groups' performances on the explicit expository texts are different from those on the explicit narrative texts. In the explicit version of the expository texts, differences between the low and intermediate groups cannot reach the point of significance. However, in the implicit version, this difference gets significant. Moreover, the high level group outperformed both learner levels in both implicit and explicit expository texts.

The results for the third part of the research question showed that the performance of the participants on the argumentative texts showed a pattern similar to the low and intermediate group's performance in the expository texts. In the explicit version of argumentative texts, there is no significant difference between the low and intermediate learner groups, while this difference becomes evident in the implicit version. That is, the intermediate group outperforms the low level group when the connectors in the texts are not present. However, the high group outperformed both groups in a significant manner. In sum, the high group outperforms both low and intermediate groups on all the three explicit text types and their relevant implicit versions.

Discussion

The analysis of the results for the first part of the research question demonstrated significant differences between all the three learner levels in explicit and implicit narrative texts. The same pattern of difference was noticed for the three groups in the implicit version. This finding simply shows that narrative comprehension is a function of reading proficiency level, both in the explicit and in the implicit condition.

Results for the second part of the research question demonstrated significant

differences between the high group, on the one hand, and both intermediate and low groups, on the other hand, in their comprehension of expository texts. Contrary to the differences noticed between intermediate and low group in the explicit and implicit narrative version, we do not see any significant differences between the two groups in the explicit expository version. This finding is in line with Chung (2000), and Ozono (2002), as far as L2 learners are concerned (Chinese and Japanese readers of English were investigated in these studies respectively). Chung (2000) found that the low group's performance was as good as the intermediate group in signaled texts. Furthermore, Ozono (2002) found that both high and low groups gained higher degrees of comprehension in the explicit texts. Expository texts are assumed to be more difficult to process than narrative texts because of the undergraduates' less experience with such texts, as well as their limited domain-relevant knowledge (Geva, 2004; Bialystock and Rayan, 1986). Both groups are challenged by the need to note and process micro and macro-structure of the texts. This finding is further supported by Geva (2004) who found no significant differences among good and poor readers on unfamiliar texts. However, the two groups' differences get significant in the same texts in the implicit version. Similarly, in Geva's study underachievers' scores were drastically impaired on the implicit expository texts. Interestingly, one can safely claim that this difference in the implicit version is attributable to the absence of connectives. It seems that the low group can enjoy the service of connectors in the explicit versions of expository texts to have a satisfactory performance on a par with the intermediate group.

The high group's performance is significantly higher than the other two groups in these kinds of texts too. In a similar vein, Zinar (1990), and Loman and Mayer (1983) found that better readers recalled more causal relations in the explicit condition than the low-group readers. The low group, however, falls behind intermediate group in the implicit version of the expository texts. In the implicit version, they are denied the service of logical connectors which could have helped them develop a structure strategy to round off the difficulty of processing expository texts (Walker and Meyer, 1982). This idea is also supported by Meyer (1984) who

found that signals helped less skilled readers increase their understanding of difficult unfamiliar texts.

The performance of the participants in the argumentative texts followed a pattern similar to that in the expository texts. Unfortunately, there is scarcely any research on the role of connectors and their absence in understanding argumentative texts. Nonetheless, some educators argue that argumentative writing is the most challenging type of writing "because students do not understand argument" (Gleason, 1999, p. 81). The explicit argumentative texts appear to be as challenging for the low group as for the intermediate group. This idea is further corroborated as we examine the overall mean performances of the groups on the three text versions. Argumentative texts proved to rate the lowest means in the overall analysis. However, similar to their performance on the implicit expository version, the intermediate group outperforms the low group in the implicit argumentative version in a significant manner. This shows that when the connectors are absent in the same texts, low level group may not be able to integrate the micro or macro propositional content of the argumentative texts as efficiently as when such texts enjoy such textual organizers. It is argued that poor comprehenders tend to use a listing strategy through which they list all content in memory as being equal in importance (Spyridakis, 1989; Meyer, 1984). The inclusion of these signals can theoretically aid the low level groups identify the relationships between propositions and their hierarchical relations to the content and topic, thus facilitating their comprehension of such challenging texts.

It is interesting to see why in the connective-present expository and argumentative texts, we see no significant differences between the low and intermediate groups, while such a difference emerges in the implicit versions of such texts. This can be related to the presence of connectives. Connectives are supposed to give 'texture' to a text and specify the way in which what is to follow is systematically connected to what has gone before (Halliday and Hassan, 1976). In this way, connectives let the readers sense a 'unity of purpose' from structurally independent propositions (Ben-Anath, 2005), i.e. they help readers identify the

thematic relations between the units of discourse.

The results could be explained through a cognitive approach too. The cognitive approach assumes that text comprehension is the result of a cognitive representation of meaning conveyed by the propositions constituting a text. This idea is mainly grounded in Sperber and Wilson's (1987) relevance principle. Accordingly, communication is guided by an infinite variety of assumptions and beliefs that interlocutors may draw upon to derive appropriate inferences. At the same time, as Sperber and Wilson argue, humans try to organize and streamline these assumptions by allocating cognitive resources to identify and process information that is most relevant to the discourse context. As such, the reader must exert auxiliary processing effort to sort through and identify the most relevant contextual effect pertinent to the communicative situation. What is the role of connectives then? Connectives function as procedural devices that help readers process the resulting contextual effects. Each contextual effect is relevant to a preceding proposition because the readers construct appropriate inferences from the possible assumptions generated.

Based on such a cognitive perspective, the procedural nature of connectives enables the readers to achieve a level of optimal relevance. Thus, linguistic devices such as connectives, in addition to signaling thematic relations (Halliday and Hassan, 1976), serve a cognitive function to constrain the potential contextual effects that emerge by limiting and identifying relevant assumptions, and therefore aiding the readers to get to an appropriate interpretation of the communication at hand.

In sum, connectives serve to constrain the degree of relevancy of propositions and thus may be viewed as procedural signals that enable optimum rewards of interpretation at minimum processing costs. This perspective gives connectives a more central role in function which goes beyond Halliday and Hassan's perspective which is a linguistic perspective. Thus, connectives can be "conceived as procedural instructions for constructing a semantic representation" (Caron, 1997, p. 70). That is the meaning schemas of linguistic markers help identify the relevant features of context which must be taken into account.

We can argue that both language ability, and by extension cognitive control, and explicit or implicit condition (presence or absence of linguistic signals), and type of text can affect the performance of the undergraduate EFL participants.

The results of this study can help language teachers with greater insight into the nature of different text types and how they are approached and processed by learners at different proficiency levels, and thus help instructors take the new information into account. The results may also help writing instructors and researchers discover whether there are differential effects of textual markers on comprehension at different proficiency levels. Moreover, the results could pave the ground for extending the findings to investigate the impact of logical connectors on comprehension in other skills (e.g., speaking, and listening).

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