Applying SPSE Model to the Comprehension of Text Organization by EFL Learners

Hussein Shokouhi
Shahid Chamran University, Ahvaz, Iran
&
Seyyed Mohammad Reza Adel
Islamic Azad University, Mashhad Branch, Iran

Abstract

In order to test the effect of discourse organization on reading comprehension, two expository texts having an SPSE (situation- problem- solution- evaluation) pattern were adminestered to a group of 30 undergraduate EFL students from Shahid Chamran University of Ahwaz who had been screened from among 100 students. These students had scored 60 and over from a language proficiency test having 75 items. The results of the study confirmed that the subjects had relatively more difficulty in recalling the evaluation and the solution sections, and in particular the details of 'solution', than other sections of the expository texts. It is concluded that in addition to language proficiency, other factors such as voice and cognition which contribute to the organization of text and hence to the comprehensibility of it are essential.

Key words: Discourse organization, reading, SPSE model (situation, problem, solution, evaluation), voice

INTRODUCTION

Discourse organization, a fairly recent phenomenon in the acquisition of reading, can be very crucial in understanding and processing of this language component (Carrell, 1984; Swales, 1990; Grabe, 1991; Hunston & Thompson, 2000; Barron, 2003, among others). The structural pattern of discourse organization of different types of texts may not, however, be similar. For instance, expository texts can be description, time-order, comparison-contrast, and problem-solution

(Smith & Tompkins, 1988, p. 47) while other texts types might have structures not quite similar to the expository ones.

Discourse organization, Lee & Riley (1990, p. 25) note, provides a rhetorical (formal) organization for the relationship of ideas that are presented in the text. As Carrell & Eisterhold (1983, p. 560) maintain, readers should be aware of the differences in the rhetorical structures of different genres; be they fables, simple stories, scientific texts, newspaper articles, poetry, etc. in order to appreciate them. Englert & Hiebert (1984, p. 65) further note that the perception of organization is basic to the comprehension of sentences and paragraphs that form a passage. Still further, Connor (1995, p. 683) asserts that proper analyses of formal schemata of reading passages which have to do with macrolevel text structures (structures beyond sentence or paragraph level) have to be taken into account. Yang & Allison (2003, pp. 373, 375) go one step forward and hold that rhetorical organization is essential not only to the overall structure of a text but to the build-up of the result, discussion and conclusion sections of some research articles, especially those in the discipline of 'applied linguistics'.

Expository texts, like most other text types, are organized both hierarchically and linearly (Hinds, 1979). The hierarchical structure of texts can be seen in a unit such as a paragraph where the sentences are not at random collection but have a unified orientation. However, text organization differs not only from language to language (Swales, 1990, p. 64 and Leki, 1991, p. 124) but, as Givon (1992, p. 8) notes, in the degree and depth of the hierarchic organization of discourse enormously from one genre to another, and from one specific text to the next. In addition, Buck & Brewer (1985) stress that the major hurdle in the acquisition of discourse comprehension skills may be related to expository texts since more of the knowledge that students are expected to acquire in school is conveyed in that format. It then seems that expository discourse presents a crucial step in the development of text understanding.

As for the effect of discourse organization in expository prose, Carrell (1984) has shown the effects of four different English

rhetorical patterns on the reading comprehension of ESL readers of various native language backgrounds. These are causation, problem, solution, and culture. She found that students coming from different language backgrounds like Spanish, Asian, and Arabic had different reaction to recall and understanding depending on the organizational patterns of texts. The Arabic students, for instance, found the descriptive texts (having no explicit organization) less facilitative of recall than the other groups of students. The Asian ones (predominantly Korean, plus some Chinese) found both the causation and problem-solution types equally facilitative in the degree of recall. She also concluded that culture, too, plays an important role in comprehending different types of texts, and certain types of expository organization may be generally more facilitative of recall for ESL readers than some other types (p. 464).

Aside from linguistic units such as vocabulary and syntax, extra-linguistic entities that can affect the comprehension of texts may include schematic knowledge, and metacogintion, which, according to Cross & Paris (1988, p. 131), is defined as 'self-appraised knowledge about cognition and self-management of one's thinking'. Studies by Li & Munby (1996) and Wenden (1998) among others on the relation between metacognition and the degree of understanding texts have indicated tremendous impact the extra-linguistic properties have on text comprehension. Li & Munby, for that matter, selected two Chinese graduate students at Queen's University who participated in a study for two months. Interviews, think-aloud sessions and taking note of journal articles while reading served as the main source of data. They found that reading comprehension at university level is a complex process which involves consciously and actively a set of metacognitive strategies such as the use of connectives, paraphrasing, repetition, prediction, self-questioning, skimming, scanning, etc.

Discourse organization may also differ from one text to another. Several types of discourse structure such as description, time-order, cause-effect, definition-example, comparison-contrast, and problem-solution have so far been identified seminal to text organization. The problem-solution type, which is also one of the goals of the present

study, is very crucial in creating coherence (Salkie, 1995, p. 94). This study, besides the problem-solution, takes the whole model of SPSE to investigate the role of all four patterns of this model in the organizational processing of text.

METHOD
The SPSE model standing for situation-problem-solution-evaluation expanded by Hoey (1994) is utilized in this study. This model is mainly used for expository texts, and the reason we choose exposition is that the organization patterns in this genre are relatively more straightforward, hence easier to observe than other genres.

In this model a situation is described and then a problem is raised. Depending on the nature of the problem, some solutions are proposed and at the end a discussion is given to test the suitability of the given solutions. The model is undoubtedly an outstanding model for expository text schemata embodying rhetorical organization because there exist so many similarities between this model which is specific to exposition and the ones applicable to narratives, especially the one proposed by Labov & Waletzky (1967) in which there is a problem, a complication of the problem, an evaluation, and a resolution. Since organizational patterns are very significant in processing a text (Hunston & Thompson, 2000) and since not much research on the application of the SPSE model has been done on second or foreign language learners, it occurred to us that it would be very beneficial if we conducted an experiment to either verify the previous findings or arrive at a localized formula specific to the Iranian learners of English.

Moreover, the purpose in this article is to see what section of this hierarchic pattern of SPSE is more readily identifiable by the subjects. For this reason, we intended to find out 1) if Persian speakers with a fairly good command of English can understand rhetorically-orientd texts (in this case SPSE frame), 2) whether they can exactly identify each part of the SPSE pattern or not; and if not whether other types of knowledge, besides proficiency, say pragmatics or else, are required for this, and 3) in what section of the model, this group of learners experience more difficulty and how each part of this model is

signalled or identified by the learners. In other words, the attempt is to see if there are specific strategies employed by the learners for the identification of each pattern.

Since foreign language learners need to be aware of various rhetorical strategies when confronting various text types, the significance of the study lies in sheding light on the relation between reading comprehension and various levels of text organization. If text types with such patterns (SPSE) are found suitable, they may be considered as a remedy to increase the learners' power of comprehension; hence could be of value to syllabus designers.

Subjects

Before conducting the main experiment, twenty senior students majoring in English literature from Shahid Chamran University of Ahwaz participated in a pilot study. The results of this pilot study confirmed the feasibility of obtaining the desired results and showed the likelihood of conducting the main experiment.

For the main study, a group of 100 undergraduate students at their third year from the same university were randomly selected. A language proficiency test containing 75 items including grammar, vocabulary and reading comprehension items was administered to these students and 30 of them (both male and female) who scored the highest on the scale, that is 60 and above (which is equal to 80 out of 100), were selected. We chose the highest scores on the scale since the recognition of the organizational patterns of texts requires a relatively good mastery in language.

Materials

The texts chosen for this study are two expository texts, labelled Text A and B in the appendix. Both texts are about social issues and contain the SPSE pattern. They are authentic texts selected from Time magazine (1999), since authentic or real world texts as Brett (1994, p. 330) stresses are more interesting and motivating to learners. A careful survey of the two texts by the researchers of this article and the raters (see below) revealed that both texts could be recognized as

intermediate level of English so that the students' rate of comprehension would not be affected by highly complex linguistic structures. It is to stress that our recognition was later confirmed by the pilot study. The two passages entitled "Because every child counts ..." and "Dean of the low- fat diets," were 256 and 226 words in length, respectively. The reason for choosing two texts instead of one was to increase the reliabilty of of the data and the findings.

Procedure
The experiment was carried out in the subjects' regular English classes and administered by their lecturers. The texts were given to them separately, with a short break of 5 minutes between the two tests. They were told to take time reading each passage and, when they finished reading each text, write down in English everything they remembered without referring back to the text. The instructions emphasized that remembering exact wording was not critical, and encouraged the subjects to understand the ideas and write them in their own words. This was to let the subjects try their recall and not deprive them of what they had remembered.

Furthermore, subjects were allowed to take notes while reading each text. This was to help them write a summary of major points of each text. The appropriate time for reading and summarizing each text was about 15 minutes, which was determined on the basis of the pilot study.

Scoring system
First, each of the two original texts was broken down into idea units or as we called them 'recall protocols' by two individual informed raters who had been asked to identify the idea units of each text both in the original texts and in the subjects' protocols. If both raters had agreed, then that was considered final. If not, it was given to a third rater. Afterwards, each recall protocol was analyzed separately for each section of the model (situation, problem, solution, evaluation) to determine whether or not it followed the SPSE pattern of the original text. In the solution section, however, where we found too many

details, we divided them into two sub-sections (solution details 1 and 2).

In case the main idea of each section of the SPSE model reported by each subject exactly conformed to the one supplied by the raters, that section showed the proper rhetorical organization of the text and classified as correct. However, if the section did not match the raters' classified section, it was rated contradictory or incorrect. Moreover, those cases the raters could not classify were counted as non-classifiable. Finally, if the subjects did not report a particular section at all, that was classified as non-reported. The scoring procedure was done for each section separately and then tabulated, as seen in tables 1 and 2 below. Bear in mind that this study is a qualitative one, so less weight is given to the quantity aspect of it.

RESULTS
Analysis of the subjects' responses show the expected effect of the organizational pattern of discourse in relation to the amount of recall. It is noteworthy that the mean score of the subjects in the recall pattern of Texts A and B was 25.33 (84.41% correct) and 23.5 (78.36% correct) respectively. In other words, the students could somewhat correctly recall different levels of the SPSE model.

As mentioned earlier, the first question the study addresses is whether or not language proficiency alone can account for the identification of different parts of a rhetorically- oriented framework. And the second question is that in what section of the SPSE model the subjects experience more difficulty.

As Table 1 below for Text A demonstrates, there is a decline in the amount of recall in the evaluation section (83.3%) when compared to the solution section (100%). This decline is more considerable in the details of solution, that is 86.6% vs. 50%. We should, nevertheless, bear in mind that for one problem in a text there may be more than one solution or sub-solutions. (Sub-solutions in this article are taken as equal to solution details). All in all we can say that whereas all subjects correctly reported the solution section, 16.7 percent did not

report the evaluation, 10 percent did not do it properly for the situation section, and 3.4 percent for the problem section.

Table 1. (Text A) Percentage of subjects' responses to index units

	Reported correctly	Contradictory	Not- classifiable	Not- reported
Situation	90.0%	---	---	10.0%
Problem	96.6%	---	---	3.4%
Solution	100.0%	---	---	---
Details of	86.6%	3.4%	---	10.0%
solution (1)	50.0%	3.3%	---	46.7%
&				
Details of				
solution (2)				
Evaluation	83.3%	---	---	16.7%

As for Text B (Table 2 below), the results are not sharply distinct from those of Text A. The outcomes show that differences for the 'reported correctly' and 'non-classifiable' categories are somewhat less noticeable in the situation, problem, and solution sections in both texts. As for the 'contradictory' and 'non-reported' instances, we can observe that in comparison to the 'reported correctly' category, they are much less pronounced in the three sections above in both texts.

Table 2. (Text B) Percentage of subjects' responses to index units

	Reported correctly	Contradictory	Not- classifiable	Not-reported
Situation	93.4%	---	3.3%	3.3%
Problem	93.4%	3.3%	---	3.3%
Solution	93.4%	6.6%	---	---
Details of	73.3%	---	---	26.7%
solution (1)	53.3%	---	---	46.7%
&				
Details of				
solution (2)				
Evaluation	63.3%	6.6%	3.3%	26.7%

Nevertheless, in Text B, more problems run in the solution details and the evaluation section. 73.3% and 53.3% of the solution details (1) and

(2) respectively were correctly reported by the subjects. This means that they did not report 26.7% and 46.7% of the details of solution sections (1) and (2) respectively. However, no contradictory responses in the details of solution were observed. Furthermore, as Table 2 indicates, 63.3% of the evaluation section was reported correctly and 6.6% of the evaluation section was considered as contradictory reports. Finally, 26.7% of the evaluation section was not reported at all. As for the non-classifiable ones, none was seen in Text A, but 3.3% in the situation and evaluation sections of Text B.

As the results indicate, proficiency alone is not adequate and there appear to be some other factors than language proficiency which can affect reading comprehension. A deeper look at the results shows that one of the hypotheses set at the outset is confirmed and the other is not upheld completely; that is, the first hypothesis that language proficiency is not adequate to overcome reading difficulties is somewhat proved. As for the other hypothesis that in what section of the text these learners experience difficulty, it is found that the difficulty is mainly in the evaluation section. The difficulty in other sections is much less observable.

DISCUSSION

No doubt language proficiency plays a significant role in reading. As Walters & Wolf (1986, p. 60) hold, it seems that language proficiency can potentially overcome the structural ambiguity reflected in the various orders of presentation. However, as the result of this study shows, language proficiency alone is insufficient to overcome fairly widespread difficulties this typical structure of discourse (the SPSE pattern) brings forth. There are some other important features within the texts (cohesion), and a particular organizing pattern (coherence) which help readers track various parts of the texts.

Halliday & Hasan (1976, p. 4) distinguish five kinds of cohesive ties: conjunction, coreference, substitution, ellipsis, and lexical cohesion. Of these cohesive chains, Halliday (1994, pp. 336-37) asserts that the referential chain is typical of narratives and ellipsis as well as substitution are more characteristically found in dialogues. The

conjunctive and lexical chains, he notes, are typical of exposition, description, and argumentation. Thus, in the following section, we are trying to demonstrate how some of these ties, particularly conjunctive and lexical chains, have been tremendously helpful to the subjects in identifying the relevant organizing patterns of the texts in question. Once again it is to express that because of its discoursal nature, this study deserves a qualitative analysis, and a lengthy discussion of points at work is necessary.

The conjunctive chain: spatial, temporal and causal links

To achieve a better and thorough understanding of how conjunctive chains can contribute to reading comprehension, some outstanding components of the chain such as spatial, temporal, and causal links need to be highlighted.

The spatial chain is generally composed of words of location and direction, like the phrase 'to your left' in Text A that describes the location of a picture which shows a child. This helps the reader form a mental image of picture of the child. Mental images, in Chafe's (1987, p. 32) terms 'memory islands' or 'concepts', configured from the spatial relations and geometric shapes may create a sustainable picture in the memory for later activation of that image.

In addition, the temporal chain indicates time and sequence that link utterances within a text. The temporal markers 'this year', 'soon-to-be-born-infant', 'each year', and 'today' in Text A indicate the temporal sequence of events. Some of these temporal phrases from the subjects' summaries illustrate how significantly such temporal junctures may work in the retrieval of information.

These temporal chains create a chronological order which link the occurrence of one event to another. Various temporal chains showing the time occurrence of the events help readers keep up the threads of the paragraphs, absorb the meaning of the whole text, and consequently activate that temporal link.

Besides spatial and temporal chains, the cause-effect chain which indicates cause, effect and reason can further contribute to the text organization. The chains of 'because...' and 'so that...' in Text A

show a chain of cause-effect which links the whole paragraph. The two examples below from the subjects' reports of Texts A and B respectively can reveal the impact of cause-effect chain in the retention of information.

1. "...control is needed for the protection of children's right such as health care and education. *Because of this,* UNICEF works...".
2. *"So* the results of this experiments show that...".

Since causal links can motivate a 'why' image in the readers' mind as a back and forth mechanism in search of reasons for the occurrence of an event, the links will enjoy a long-term effect in the readers' retention frame. Such challenging with the links can then be adopted as a trigger in subsequent occasions for the information retrieval.

The lexical chain

Among lexical chains, word repetition, synonymy, and hyponymy are some major types (Salkie, 1995, p. v). Repetition which is most often the reiteration of a full NP acts like a glue that can enhance the coherence feasibility of a text. For instance, the repetition of 'children' in Text A and 'Dr. Ornish' in Text B five times, as the main participant of both texts, can be a great help in retaining that specific fragment in the memory. The fact that full-NP's are more prevalent in expository written texts than in conversational texts, and pronominalization most constrained in the expository text (Fox, 1986, p. 41; Cox, Shanahan & Tinzmann, 1991, p. 184) could be another contributive factor to memory retention since the repetition effect of full NP is tremendous and much higher than pronominals. Thus, the use of lexical words in these texts does not increase the cognitive load of memory and the repetition of full NP can facilitate the recall of the discourse organization. Furthermore, repetition highlights the points of a text and its relevance to the preceding discourse. Through repetition, events in the texts are forced into readers' mind and sustained there. Repetition as Johnston (1987, p. 212) believes is not

limited to words only. Sometimes, it is a mechanism for assimilating the new information to the old one and thus makes it cohesive and very much influential in the activation of events (Chafe, 1987, p. 28).

In addition to repetition, synonymy which is seen as a sense relation holding between propositions is another organizing feature (Allen, 1996, p. 175). Using synonyms adds variety and beauty to the text and gives it a thriving voice (a term which will be discussed shortly). There are recurrences of some synonymous pairs in Texts A and B in the subjects' protocols such as 'new born' and 'birth' for 'infant', 'uncounted' for 'unregistered' (in Text A) and 'intake' for 'diet', 'drug' for 'medicine', 'diet' for 'food', 'ill' for 'patient', and 'project' for 'program' (in Text B) which can create a frame of chain in readers' minds and may thus help their recall. Typically, such interlocking chains overlap, one taking over the other, and this, as Halliday (1994, p. 311) notes, is one of the sources of the dynamic flow of discourse.

Using a general word (superordinate) and a more specific word (hyponym) is another way of linking words in a text. Using 'person' or 'human being' as a superordinate term and 'child' as a hyponymous one and some others in subjects' protocols can be indicative of this link.

Hyponymy, as Lyons (1977, p. 292) holds, is a transitive relation and there is some degree of hierarchical organization in all areas of vocabulary in different languages (p. 301). The occurrence of a general word or superordinate dominates more specific words or hyponyms in the texts and helps the organization of the whole texts. This domination, based on semantic relations, itself serves as a basis for drawing a family-like tree in the memory which can be helpful as a remembering criterion for later use.

However, the above arguments should not lead us to conclude that cohesion is an index or predictor of a text' coherence. We tend to agree with Carrell's argument that cohesion is not coherence (Carrell, 1982, p. 479). If a reader fails to access the appropriate background schema underlying the text, all the cohesive ties *in the world* (our emphasis) will not help that text cohere for that reader (p. 485).

Blakemore (1988, p. 232) notes that even when two sentences are related by a cohesive tie, hearers have to go beyond their linguistic resources in order to recover an interpretation. So, readers need to hold to something which goes beyond these cohesive devices. One frame for that matter is the SPSE pattern. The SPSE pattern is a way of indicating how the information is relevant, what the point of saying it is, and how its structure is crucial in creating coherence. The SPSE pattern involves interaction between language and the knowledge, beliefs, and expectations of language users (Salkie, 1995, p. 94).

The SPSE model has four sections and the findings of this study show that more difficulty run in the evaluation and details of solution sections. We should first determine the possible reasons behind these results and then demonstrate the fact that how readers could identify or signal the SPSE parts within the texts. Before any explanations, it seems in order to probe for another organizing feature which is not separable from cohesion. As Cox et al. (1991, p. 185) maintain, cohesion gives exposition and narration their distinct voices.

Voice
Rather than just being coherent, the two texts have an engaging or a motivation feature called voice. Beck, McKeown & Worthy (1995, p. 220) emphasize that giving voice to a text can improve students' understanding. They believe that voice involves the simultaneous presence of social, cultural, and political influences that contribute to the speakers' perspective and world view. These researchers developed a conception of voice that comprise three themes, the major of which is activity; that is, making text situations more dynamic by using verbs of action nature and the use of active and human agents rather than passive and vague agents.

A browse at the reading texts in this study shows that the themes of activity are all used to develop voice qualities of these texts. It is noteworthy that most of the verbs in Text A are of active voice and dynamic (expressing activity and processing), such as, 'will enter', 'could become', 'go unregistered', and 'are organizing'. Text B is also completely free of passive verbs.

Overally, it seems that giving voice to a text can promote text understanding. But, as Beck et al. (1995, p. 223) have documented, it cannot be assumed that intuitively appealing features of a text will necessarily promote better understanding. Coherence is as important, if not more than voice, and a voiced text without coherence is not comprehensible. As the results of this study show, the organization of discourse (coherence) in combination with voice qualities do help readers develop understanding and recall.

The SPSE pattern:
Situation
Situation, as the encapsulating statements, is an initiation to familiarize readers with what is to come next. In fact, as Horiba, Van den Broek & Fletcher (1993, p. 367) note, L2 readers may use this as a setting-up point to form a general background which gains importance in the memory representation of the text. But more important is the fact that how readers can identify the situation section. It is seen that the amount of recall was 90% for Text A and 93.4% for Texr B. As Hoey (1994, p. 37) declares, there are some signals in the situation section such as verb tense and position that help readers identify this section. He stresses that verb in the situation is normally in the simple non- past form, unless it is a summary of events or a recapitulation. Verbs in the situation part of Texts A and B also demonstrate this (e.g. 'counts', 'will enter', 'may sound', 'doesn't go', and so forth). It appears that, as Hoey anticipated, these verbs could be of great help in the retrieval of this section.

Problem
The key part of the pattern is probably the problem (Salkie, 1995, p. 94), which often stands as the second part of the SPSE pattern. However, the 'problem' sometimes precedes even the situation (Hoey, 1994, p. 39), as in Text B. Generally, once we know which part of the text sets out the problem, the relevance of the other parts of the text becomes easier to figure out.

For the identification of the problem section, there are lexical signals like the negative verbs 'unregistered', 'uncounted' and so on that encourage the readers in search of more information. These negative verbs signify the problem and whet the reader's appetite to see why the events do not occur as expected. To reveal the role of such verbal construction in retaining information, the following instances from the subjects' reports attest to this.

3. "UNICEF reports that about one third of births *are unregistered* and ..."

4. "A lot of births *are uncounted*".

5. "One third of 120 million new- born babies will *remain unregistered*".

Further, in one part of Text B the problem is introduced by a question, 'How much fat is too much?'. As Hoey (1994, p. 42) declares, questions involve the introduction into the discourse of what is not explicit. In other words, this question implicitly shows the problem. The weight of a question in terms of encouragement somewhat equals that of a negative verb, which persuades the subjects in search of further information. Some relevant examples from the subjects' summaries which attest to the fact that they could have readily recognized the problem section of Text B are presented below.

6. *"The question* is how much of our daily food can be using the fat".

7. *"How much fat* in a daily diet is really considered *too much?"*.

Solution

As pointed out earlier, once readers identified the problem, they begin searching for the solution. Solution is almost easy to identify, and in our case hardly anybody had difficulty identifying the solution part in Text A. And as for Text B, 93.4 % of the solution section was reported correctly by the students.

There may be more than one solution or details of solution to a problem in a text. As the findings indicate, subjects, in addition to evaluation section (see the discussion below), showed great variation in the recognition of the details of solution (see Tables 1 & 2 above).

Readers cannot retain an entire text in their short-term memory for processing and due to the conscious attention required in this process, they lose some of the essential information held in this part of memory. With fewer cognitive demands on short-term memory, readers increase their chances of storing propositions in a coherent text base that is easily retrieved in the recall task (Garnham, 1985, p. 111). Garnham (1985, p. 139) further notes that people remember gist rather than verbatim detail and rapidly forget details of surface structure. Besides, it can be noted that the details of solution may be interesting but not important (Wade & Adams, 1990 cited in Beck et al., 1995, p. 223). Both these facts of 1) inability to recall verbatim details of the solution section and 2) unimportance of the details to the learners could be a proof to the less amount of recall in this section.

In a similar vein, it has been asserted that one member of a pair of text structure is more central than the nucleus and one more peripheral than the satellite (Mann, Mathiessen & Thompson, 1992, p. 42). In the SPSE pattern we may find the details of solution standing as supporting statements (peripheral to the main statement) and the solution part itself acts as the main idea or nucleus. The satellite supports the nucleus and the nucleus is more deserving of response, including attention, deliberation, and reaction. Readers may remember the nucleus but they may forget the details of solution (the peripheral part of solution).

Evaluation
Evaluation is an essential contributor to discourse structure (Hunston, 1994, p. 210). In the SPSE model, evaluation is considered as the terminal point. The results of this study show that readers have more difficulty in this section than other sections. One principal reason, as Perkins (1992, p. 167) notes, is that evaluation needs drawing bridging inferences which will increase text processing time and require more

short-term memory capacity, all of which can pose great difficulty for readers.

Evaluation, however, is not always problematic. As Coulthard (1994, p. 8) documents, when possible solutions, which are related to the interpretation of evaluations, are rejected or only partially accepted, more complex discourse patterning arises. This is due to the fat that what the speaker or writer puts first will influence the interpretation of everything that follows (Brown & Yule, 1983, p. 133). The results of the evaluation sections in Texts A and B support the above argument. The evaluation recall in Text A is shown to be easier than Text B for the readers (83.3% vs. 63.3%). This may be due to the fact that the solution and evaluation in Text A are complementing each other and what is introduced as a solution is accepted at the evaluation part. In other words, they are somewhat harmonious. Let us see the following extracts as the solution and the evaluation of Text A which are complementing each other and consequently make less cognitive burden of readers' memory.

Solution: *"There should be registration systems."*

Evaluation: *"Registration is a vital right for a child. It is not only an affirmation of identity, but a ticket to opportunity."*

Solution in Text B is, however, partly accepted in the evaluation part. The sentence *"although some doubt the effectiveness of this treatment"* as the evaluation part in Text B is not in complete agreement with the proposed solution (*"Ornish, as a treatment, puts his heart patients on a strict vegetarian diet allowing for-at most-a third of the fat of the A.H.A. diet"*) and because of the distance in the two ideas more complex discourse patterning for readers occur.

A further point with respect to the comparative case of retention in the evaluation section of Text A to Text B is the order of given-new information in a text. It is recommended to writers that if syntax allows, and if no desired stylistic effects are lost, and further if there is no need to call special attention to new information by placing it in an

earlier position in a string, they should express given before new information in their sentences (Vande Kopple, 1986, p. 89). One typical construction in English for presenting given before new information, according to Bloor & Bloor (1996, p. 39), is the 'not only ..... but also' construction which, because of its archetypal effect of 'given first hypothesis', can help the retention and recall of such constructions. And it is worth noting that the evaluation section in Text A is based on *"not only... but also"* structure.

CONCLUSION
This study presents a step toward a better understanding of the role of discourse structure in reading comprehension. The results suggest that it is more efficient for readers to focus their attention on a rhetorical framework than merely on the surface syntax of the text.

With regard to the precedence of top-down or bottom-up processing, this study insists on a top-down fashion but not ignoring the bottom-up. In other words, this top-down prospect helps readers gain a metacognitive control over the text and in this way can enhance their understanding of unfamiliar linguistic items. Undoubtedly, knowing these linguistic items is a requisite to gaining a top-down control over the text.

The use of texts for the purpose of teaching reading deserves much attention, but not every text is suitable for this. L2 learners need to be provided with ample opportunities to read connected discourse, to consider the nature of linguistic markers which signal inter-segment text relations, and to infer those relations that are not explicitly marked in the text.

As Muth (1987, p. 255) maintains, simply identifying the structure of a text may promote rote learning instead of meaningful learning. Asking the right questions can promote students' understanding of the relationships among the text ideas. For example, when problem-solving structure is used (as in this study), the questions should focus on having students identify the problem, its cause, solution or evaluation that are described in the text. In other words, triggering students' motivations to search for textual connections is essential for

understanding the rhetorical structures of a text, hence very beneficial to the information recall.

Revised version received 28 January 2004

REFERENCES

Allen, K. (1996). The structure of action narrative. In K. Allen and G. Kamyab (Eds.), *The analysis of discourse* (pp. 1-77). Australia: Distance Education Center, Monash University.

Barron, C. (2003). Problem-solving and EAP: Themes and issues in a collaborative teaching venture. *English for Specific Purposes*, Vol. 22, pp. 297-314.

Beck, I. L., Makeown, M. G. & Worthy, J. (1995). Giving a text voice can improve students' understanding. *Reading Research Quarterly,* Vol. 30, pp. 220-238.

Blakemore, D. (1988). The organization of discourse. In J. Newmeyer (Ed.), *Linguistics: The Cambridge survey* (pp. 229-250). Cambridge: CambridgeUniversity Press.

Bloor, M. & Bloor, T. (1996). Given and new information in the thematic organization of text: An application to the teaching of academic writing. *Occasional papers in Systemic linguistics,* Vol. 6, pp. 33-43.

Brett, P. (1994). Using text reconstruction software. *ELT*, Vol. 48, pp. 329-336.

Brown, G. & Yule, G. (1983). *Discourse analysis*. Cambridge: Cambridge University Press.

Buck, J. K. & Brewer, W. F. (1985). *Discourse structure and mental models*. Cambridge: Illinois University Press.

Carrell, P. L. (1982). Cohesion is not coherence. *TESOL Quarterly,* Vol. 16, pp. 479-488.

Carrell, P.L.(1984). The effects of rhetorical organization on ESL readers. *TESOL Quarterly,* Vol. 18, pp. 441-469.

Carrell, P. L. & Eisterhold, J. C. (1983). Schema theory and ESL reading pedagogy. *TESOL Quarterly*, Vol. 17, pp. 553-573.

Chafe, W. (1987). Cognitive constraints on information flow. In R. Tomlin (Ed.), *Coherence and grounding in discourse* (pp. 21-51). Amsterdam: John   Benjamins.

Connor, U. (1995). Text analysis. *TESOL Quarterly*, Vol. 10, pp. 682-685.

Coulthard, M. (1994). *Advances in written text analysis*. London: Routledge.

Cox, B. E., Shanahan, T. & Tinzmann, M.B. (1991). Children's knowledge of organization, cohesion, and voice in written exposition. *Research in the Teaching of English*, Vol. 25, pp. 179-218.

Cross, D. R. & Paris, S. G. (1988). Developmental and instructional analyses of children metacognitive and reading comprehension. *Journal of Educational Psychology*, Vol. 80, pp. 131-142.

Englert, C. S. & Hiebert, E. H. (1984). Children's developing awareness of text structures in expository materials. *Journal of Educational Psychology*, Vol. 76, pp. 65-74.

Fox, B. (1986). Local patterns and general principles in cognitive processes: anaphora in written and conversational English. *Text,* Vol. 6, pp. 25-51.

Garnham, A. (1985). *Psycholinguistics*. Cambridge: Cambridge University Press.

Givon, T. (1992). The grammar of referential coherence as mental processing instructions. *Journal of Linguistics*, Vol. 30, pp. 5-55.

Grabe, W. (1991). Current developments in second language reading research. *TESOL Quarterly*, Vol. 25, pp. 375-406.

Halliday, M. A. K. (1994). *An introduction to functional grammar.* (2nd. ed.). London: Edward Arnold.

Halliday, M. A. K. & Hasan, R. (1976). *Cohesion in English*. London: Longman.

Hinds, J. (1979). *Organizational patterns in discourse*. In T. Givón (Ed.), *Discourse and syntax: Syntax and semantics* (vol. 12) (pp. 135-157). New York: Academic Press.

Hoey, M. (1994). *Signaling in discourse: A functional analysis of a common discourse pattern in written and spoken English*. In M. Coulthard (Ed.), *Advances in written text analysis* (pp. 26-46). London: Routledge.

Horiba, Y., Van den Broek, P. W. & Fletcher, C. R. (1993). Second language readers' memory for narrative texts: Evidence for structure- processing top- down processing. *Language Learning*, Vol. 43, pp. 345-372.

Hunston, S. (1994). *Evaluation and organisation in a sample or written academic discourse*. In M. Coulthard (Ed.), *Advances in written text analysis* (pp. 191-219). London: Routledge.

Hunston, S. & Thompson, G. (2000). *Evaluation in text: Authorial stance and the construction of discourse*. Oxford: Oxford University Press.

Johnston, B. (1987). An introduction. *Text,* Vol. 7, pp. 205-214. (Special Issue on Perspectives on Repetition.)

Labov, W. & Waletzky, J. (1967). Narrative analysis: Oral versions of personal experience. In J. Helm (Ed.), *Essays on the verbal and visual arts* (pp. 12-44). Seattle: American Ethnological Society.

Lee, J. F. & Riley, G. L. (1990). The effect of pre-reading, rhetorically oriented frameworks on the recall of two structurally different expository texts. *SSLA*, Vol. 72, pp. 25-41.

Leki, I. (1991). Twenty- five years of contrastive rhetoric: Text analysis and writing pedagogies. *TESOL Quarterly*, Vol. 25, pp. 123-143.

Li, S. & Munby, H. (1996). Metacognitive strategies in second language academic reading: A qualitative investigation. *English for Specific Purposes*, Vol. 15, pp. 199-216.

Lyons, J. (1977). *Semantics*. Cambridge: Cambridge University Press.

Mann, W. C., Mathiessen, C. M. I. M. & Thompson, S. A. (1992). Rhetorical structure theory and text analysis. In W. C. Mann and S. A. Thompson (Eds.), *Discourse description: Diverse linguistic analyses of a fund-raising text* (pp. 39-78). Amsterdam: John Benjamins.

Muth, K. D. (1987). Teachers' connection questions; promoting students to organise text ideas. *Journal of Reading*, Vol. 30, pp. 254-259.

Perkins, K. (1992). The effect of passage topical structure types on ESL reading comprehension difficulty. *Language Testing*, Vol. 9, pp. 163-172.

Salkie, R. (1995). *Text and discourse analysis*. London: Routledge.

Smith, P. L. & Tompkins, G. E. (1988). Structured note-taking: A new strategy for content area-readers. *Journal of Reading*, Vol. 32, pp. 46-53.

Swales, J. M. (1990). *Genre analysis*. Cambridge: Cambridge University Press.

Vande Kopple, W. J. (1986). Given and new information and some aspects of the structure, semantics and pragmatics of written texts. In C. R. Cooper and S.

Greenbaum (Eds.), *Studying writing: Linguistic approaches* (pp. 72-111). Beverly Hills: SAGE Publications.

Walters, J. & Wolf, Y. (1986). Language Proficiency, text content, and order effects in narrative recall. *Language Learning*, Vol. 36, pp. 47-63.

Wenden, A. L. (1998). Metacognitive knowledge and language learning. *Applied Linguistics*, Vol. 19, pp. 515-537.

Yang, R. & Allison, D. (2003). Research articles in applied linguistics: Moving fromresults to conclusions. *English for Specific Purposes*, Vol. 22, pp. 365-385.

APPENDICES
Appendix A
Because every child counts, every child should be counted.
This year, the six-billionth person will enter our world. And, like the child in the photograph to your left, this soon-to-be-born infant could become a thriving entrepreneur. A brilliant scientist. A great humanitarian.

Or, like some 40-million children born each year, this infant could become an anonymous person.

Because, according to UNICEF, one third of the worlds' 120-million annual births go unregistered. Creating a huge but silent group of children denied the right to a name, a nationality, and more.

Birth registration is essential because it can ensure that the identities, locations, and numbers of all children are known. So that the rights of all children, including access to health care and education, can be upheld.

Luckily, for an increasing proportion of newborns, progress is being made. UN agencies such as UNICEF working with national governments, are organizing training workshops to improve civil registration systems. And more that 30 countries are making extra efforts to reach otherwise uncounted children, with traveling registrars who issue birth certificates outside the traditional realm of officialdom.

We at Canon appreciate this progress.

As a company which leads today's world in imaging technology, we envision every face as an individual with a name and nationality. We believe that every child has many rights. And that the first of those rights is registration soon after birth. Providing a small but vital document that is not only an affirmation of identity, but a ticket to opportunity.
The children of today, the promise of tomorrow.

Appendix B
Dean of the Low-Fat Diets
How much fat is too much? The American heart Association says 30% of a day's calories. That may sound strict, but it doesn't go nearly far enough to satisfy Dr. Dean Ornish, a university of California Cardiologist and dean of the eat-right-for-a-healthy-heart school of medicine. Ornish has long maintained that changes in diet and lifestyle can treat heart disease as effectively as drugs and surgery- perhaps even more so. But modest reductions in fat intake, he says, usually do your heart no good at all.

Ornish puts his heart patients on a strict vegetarian diet allowing for-at most-a third of the fat of the A.H.A. diet (Patients also take part in an exercise and stretching regimen, plus meditation and group therapy to reduce stress.) Result; according to a five-year published in 1998, patients on the Ornish regimen had lower cholesterol levels and fewer angina episodes, and in many cases they were able to avoid bypass surgery and angioplasty.

Even Ornish acknowledges that his diet isn't for every one. A third of the patients in his study dropped out, and critics wonder whether it's really necessary to cut that much fat-and fun-out of life. But Ornish scoffs at the skeptics. "Rather than literally or figuratively bypassing the problem," he says, "my treatment addresses the cause."

By Alice Park

SPSE pattern of Text A

Title of the text: Because every child counts, every child should be counted.
Situation: Children's birth increase the population of the world as a natural phenomenon.
Problem: A number of annual births go unregistered.
Solution: There should be registration systems.
Details of solution:
1. UN agencies such as UNICEF working with national government are organizing training workshops to improve civil registration systems.
2. 30 countries try to send traveling registrars to issue birth certificates.
Evaluation: Registration is a vital right for a child. It is not only an affirmation of identity, but a ticket to opportunity.

SPSE pattern of Text B

Title of the text: Dean of the low-fat diets
Situation: How much fat is too much? (modest intake of fat)
Problem: modest reductions in fat intake do your heart no good at all.
Solution: Putting on a strict vegetarian diet allowing for-at most-a third of the fat of the A.H.A diet is the solution.
Details of solution:
1. Patients should take part in an exercise and stretching regimen.
2. They will undergo meditation and group therapy to reduce stress.

Evaluation: Rather than literally or figuratively bypassing the problem, the treatment addresses the cause, although some doubt the effectiveness of this treatment.