

## DISCOURSE ANALYSIS, COHERENCE, AND READING INSTRUCTION

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Over the past 15 years, research on discourse analysis and language comprehension has increasingly demonstrated that text structure awareness has a strong impact on reading comprehension. Text structure awareness also has important implications for reading instruction with several studies demonstrating improved reading comprehension following instruction on text structure. This article will focus specifically on research which examines how textual coherence and the patterning of textual organization contribute to reading comprehension. The review will also highlight more recent research and practices which use the concept of textual structuring for reading (and writing) instruction.

### 1. INTRODUCTION

Over the past 15 years, research on discourse analysis and language comprehension has increasingly demonstrated that text structure awareness has a strong impact on reading comprehension. Text structure knowledge is an effective resource for comprehension both directly and indirectly; that is, students' comprehension and recall improve when students have a greater awareness of text structure, when students are trained to recognize the organizational features of texts, and when students develop strategies which take advantage of textual structure. Text structure awareness also has important implications for reading instruction with several studies demonstrating improved reading comprehension following instruction on text structure.

The primary focus of this article is to examine how text coherence is supported by text structure, how text structure contributes to comprehension, and how text structure training can improve students' reading

abilities. The large majority of the relevant research on text structure is carried out with informational, expository texts; for this reason, research on narrative texts will only be noted briefly here at the outset.

Research on comprehension with narrative texts has primarily involved instruction in story structure schemas and the generating of anticipatory questions (Fitzgerald 1989, Pearson and Fielding 1991, e.g., using pre-organizers to generate expectancy about characters, plot, episodes; presenting background knowledge and synopses of events; giving direct instruction on components of a story --setting, problem, goal, action, outcome-- and identifying these in stories). These instructional treatments have proven to be useful for low-level students in L1 elementary school contexts.

While the use of narrative texts is prevalent in early instruction, and while it is possible to argue that narrative texts are crucially linked to a variety of cognitive activities (Britton and Pellegrini 1990, Bruner 1990, Graesser et al. 1991), there remains some disagreement regarding whether or not awareness of narrative text structure actually improves comprehension (Fitzgerald 1989, Pressley et al. 1989). It appears, for instance, that older and more skilled readers do not seem to demonstrate as much improvement in narrative comprehension from training (Hansen and Pearson 1983). And while there are a number of research studies which support the use of story structure schemas for instruction at lower grades, for populations beyond the elementary school levels, such instruction may not be as helpful.

When considering older students and more advanced L2 students, a much greater emphasis is typically placed on expository prose. These students need to understand the more abstract patterns of text structuring which are possible in expository prose as well as comprehend the denser and more complex information typical in academic contexts. For this reason, the remainder of this discussion will focus on the text structuring in expository prose and the effect of teaching text structure to improve reading comprehension.

In a recent review of research on L1 text structure instruction, Pearson and Fielding (1991) gave the following overwhelmingly positive endorsement:

In general, we have found incredibly positive support for just about any approach to text structure instruction for expository prose. It appears that any sort of systematic attention to clues that reveal how the authors attempt to relate ideas to one another or any sort of systematic attempt to impose structure upon a text, especially in some sort of visual re-representation of the relationship among key ideas, facilitates comprehension as well as both short-term and long-term memory for the text. (p. 832)

While this assessment may be a bit too optimistic, it does point out the clear impact of text structure instruction on improving expository prose

comprehension when the training is carefully and systematically done, and when it is grounded in reasonable instructional approaches. This review will focus specifically on research which examines how textual coherence and the patterning of textual organization contribute to reading comprehension. The review will also highlight more recent research and practices which use the concept of textual structuring for reading (and writing) instruction.

## 2. TEXT COHERENCE AND READING COMPREHENSION

Text structure awareness in students is important because it reflects features of texts which consistently support reading comprehension. These features of text structure, together, also contribute to the coherence of a text. While it is certainly true that the reader contributes an important interpretive component to the coherence of a text, it is also true that the text itself organizes and signals information in ways that create and enhance text coherence.

Research on textual features of coherence has been an on-going enterprise since the mid-1970s. Recognizing that coherent text tends to hold together in consistent ways, researchers have sought to understand which aspects of text promote coherence and contribute to overall comprehension. Early work by Kintsch and van Dijk (1978), Frederiksen (1977) and others has suggested that the coherence of texts is tied to relations between semantic propositions of texts, their integration into larger textual units, and some mechanism which identifies and connects higher-level textual relations (macropropositions). From this initial work, discussions of coherence have centered around three themes: 1) the relation between surface linguistic forms and the underlying structure of text; 2) the means by which textual relations might build up to higher-level text propositions representing main ideas, central themes, and greater connectivity; and 3) the extent to which coherence is due to textual processing versus reader's background knowledge (Barsalou 1992, Brown and Yule 1983, Just and Carpenter 1987, Kintsch 1988, Mann and Thompson 1988, Mann et al. 1992, Oakhill and Garnham 1988, Rayner and Pollatsek 1989, Singer 1990, van Dijk and Kintsch 1983, Weaver and Kintsch 1991).

Among cognitive psychologists, the notion that text is comprehended propositionally and integrated as a network of linked propositions to form a text model of comprehension is generally accepted. There is a fairly extensive research literature supporting the psychological reality of propositions as text-meaning units (Anderson 1990, Barsalou 1992, Singer 1990, Weaver and Kintsch 1991, cf. Brown and Yule 1983). For example, the greater the number of propositional units in texts of equal length, the slower the texts will be to read. Also, referents in a propositional unit will be activated faster if the antecedent is in the same proposition than if the

antecedent is in a prior unit, even if the number of separating words remains constant (e.g., Singer 1990, pp. 37-41). Moreover, propositionally-based research has established consistently that 1) texts exhibit a levels effect; that is, texts appear to have hierarchical structure; 2) text information is remembered and recalled better when the information is central to the topic (thematic) and connected to many other propositions in the propositional network; and 3) text information is restructured as more information is entered into the text model.

All of these findings would suggest that a good part of textual coherence is generated from the text processing rather than from background knowledge. While all discourse analysts recognize that background knowledge contributes to an interpretive model of comprehension and assists in producing various types of inferences, many researchers also argue that there are distinct *text models* and *situation models* created for a given text; that is, a reader will store a representation of the basic text meaning and also store a more elaborated and interpretive mental model of the text which is filled out extensively by the reader's background knowledge. The situation model is heavily dependent on background knowledge of various kinds; the text model, on the other hand, is more dependent on the information being drawn from the text processing itself and is dependent on principles of text coherence (Garnham 1985, Perfetti and McCutchen 1987, Singer 1990).

Thus, many cognitive psychologists can accept that a reader's overall understanding of a text may vary depending on background knowledge, but also argue that coherence at the level of a text model of comprehension is driven, in good part, by the text information. Seen this way, text structuring and the semantic relationships signalled by a text (along with specific bridging inferences) contribute strongly to a notion of text coherence (Barsalou 1992, Meyer 1985, 1992, Singer 1990, Weaver and Kintsch 1991). Research of this sort, then, provides theoretical support for the many research and training studies which assume that texts have certain types of structural relations above the sentence level, and that students made aware of these relations will improve their reading comprehension.

More recent research has also consistently pointed out the strong functional relation between the semantic structuring of texts and the supporting linguistic signalling regularly provided by coherent texts. While it is possible to demonstrate that surface signalling could be misleading in contrived texts, or that coherence does not always require surface signalling, it is nonetheless true that texts are intended to obey Grice's cooperative principle as much as spoken interaction is. The surface linguistic form provides a number of supportive signalling systems which alert the reader to the underlying text structure, signal more important information from less important information, and signal new information from previously given or readily inferable information. For this reason, research which examines the influence of given and new information in

texts; the relations between lexical co-referents; the various thematic, foregrounding, and transition devices; and the cohesive harmony of a text all show that surface form supports text coherence.

For example, research has shown that the given-new relation, as a preferred way to organize texts, leads to improved comprehension and recall (Beck et al. 1991, Britton and Gülgöz 1991, Singer 1990, Vande Kopple 1986). Lexical co-reference is a powerful means for establishing networks among text information (Halliday and Hasan 1989, Hoey 1991, Singer 1990). Thematic relations in texts are signalled by linguistic structure and provide an important resource for text comprehension (Goldman and Murray 1992, Marshall and Glock 1978, Singer 1990, Spyridakis and Standal 1987, Vande Kopple 1991). Finally, there are a number of research studies suggesting that Halliday and Hasan's (1989) theory of cohesive harmony correlates with performances by better readers and writers (Cox et al. 1990, 1991, McCutchen 1986, Spiegel 1992). This evidence, taken together, argues that the surface structure of texts correlates strongly with the underlying textual coherence and that text coherence can be generated, in good part, from the text itself.

Further aspects of research on text coherence center around the notion of rhetorical predicates which may or may not appear explicitly in the surface structure. When a reader processes text, s/he will gradually build a text model by incorporating each new proposition or set of propositions, drawn from the clause in working memory, into the existing text model. In doing so, the reader must establish specific links to the existing model through co-referents and links from "given" information in the clause to that information in the text model. In addition, the incoming information has to be linked thematically to the text model in the sense that each clause in the text serves some purpose for the building of a text model. These purposes are either indicated by linguistic forms which signal the relation of one clause to a previous clause or they must be inferred.

Whether explicit or inferred, this view of text linkage is central to a number of major text processing theories. Kintsch and van Dijk (1978), Mann and Thompson (1988), and Meyer (1985) all assert the need for the reader to create relational connections between clauses, not all of which are reducible to given-new information or text co-reference. These relational predicates establish the contribution of each clause to the overall model and allow for the nomination of certain propositions as major themes or macropropositions, or allow for the combination/restructuring of propositions as major themes (see also Fox 1987, Hatch 1992, Mann et al. 1992).

At present, there is no strong research evidence that building a text model from rhetorical predicates between propositions will lead, in any instructional sense, to better reading comprehension. However, to the extent that research on top-level text structuring builds on a more general notion of rhetorical predicates between all clauses in a text, then Meyer's research and other supporting instructional research provide evidence for

the importance of this notion for reading comprehension (Carrell 1992, Meyer 1987). There is, however, a growing body of evidence, from research on text revision, that these principles will lead to more readable texts and, by extension, improved reading comprehension; this research, in turn, provides additional support for the notion that principles of coherence are central to text structuring.

### 3. TEXT DIFFICULTY, READABILITY, AND ADAPTATION

Analysis of instructional texts has gradually incorporated discourse processing perspectives. One particular line of research over the past decade has focused on the nature of reading difficulties created by instructional texts. The basic concern has developed out of the general observation that L1 elementary students in the U.S. are asked to move from learning-to-read to reading-to-learn from grade four on. This transition requires students to read not only from general reading texts but from various content-area texts as well. It has been noted that many texts for social studies, history, math, and natural science have reading material which could be labeled as "inconsiderate". That is to say, they do not take into account the students' lack of prior knowledge, the need for supportive text writing, or the difficulties involved in students' transitions to working with content-area information (Alvermann et al. 1985, Anderson and Armbruster 1984, Armbruster 1984, Beck et al. 1991, McKeown and Beck 1990). In a general sense, these texts do not provide textual structuring appropriate to students' reading abilities, and they do not support students' efforts to build coherent text models.

The problem of *inconsiderate text* is exacerbated by a related phenomenon with respect to learning from instructional texts. In many situations, students activate prior knowledge which is incompatible with text information (or *incompatible texts*). In these cases, students typically retain their pre-established knowledge and disregard the correct but counter-intuitive information of the text (Alvermann et al. 1985, Dole and Niederhauser 1990, Gardner 1991, Guzzetti et al. 1992, 1993, Hynd and Alvermann 1986, Santa and Alvermann 1991). Thus, in addition to the problem of inconsiderate text, students often are led astray in their comprehension by their own "naive" conceptions of the text material. This problem is particularly noted with science and history texts.

Naive or intuitively inaccurate perceptions of information which are contradicted by texts have led to research studies examining the effects of text revision, especially the use of refutational texts (Gardner 1991, Guzzetti et al. 1992, 1993). Such texts are revised explicitly to point out the difference between an intuitive understanding of the topic and the more technical counter-intuitive account which happens to be the right explanation. General results of this research indicate that refutational texts do improve comprehension and learning, especially when combined with other adjunct tasks and representations. The difficulty, however, is in

identifying which textual information will require students to reconceptualize their prior knowledge, and then to adapt instruction and texts accordingly.

As a result, a second response to the text difficulties created by both incompatible and inconsiderate texts is to examine ways of revising a text in its entirety to make it more accessible. Unlike readability formula approaches, these efforts consider a given text as a whole, making revisions in order to clarify content, highlight main ideas, add signalling information, and provide supporting background information. The results of this discourse-oriented approach to readability have led to effective revisions of instructional texts in a number of studies (Britton et al. 1989, 1991, Duffy et al. 1989, cf. Graves et al. 1988, Graves and Slater 1991). Britton et al. (1991) also point out that revisions based explicitly on discourse analysis, in their case the extent of inferencing required, could be generalized to make more effective text revisions.

In fact, the concern to incorporate explicit discourse processing research into text revision has recently been examined in detail by Beck and her colleagues (Beck et al. 1989, 1991, 1995, McKeown and Beck 1990, McKeown et al. 1992) and by Britton and Gülgöz (1991). As noted by Beck et al. (1991), the goal of such research is not only to use discourse-based notions for text revision but also to explain the actual research-based decisions used in the revision process. For example, text revisions were driven by possible sources of reader failure such as lack of word meaning, lack of background knowledge, or need to recognize the relevance of certain specific information. Possible sources of text failure included 1) references that were ambiguous, indirect, or distant; 2) the lack of information to give student sufficient context; 3) the lack of connections among information in the text; 4) the intrusion of irrelevant information; and 5) an overly high density of information. Thus, Beck and her colleagues examined explicitly the revision decisions they made in accordance with text processing research. As might be expected, the revisions resulted in significant improvements in student comprehension and learning from instructional texts.

In a study with a similar goal, though a somewhat different revision methodology, Britton and Gülgöz (1991) developed a revision procedure directly from Kintsch and van Dijk's (1978) model of propositional integration. Each sentence in the text was analyzed to examine connections between that sentence and prior sentences being processed into a text model. Whenever a new sentence failed to connect with information already in the text model, the text was revised to fill in explicitly an otherwise required inference or set of inferences. Revisions basically depended on three related principles:

- 1) Rewrite a sentence so that it provides a linking word;
- 2) Arrange information according to given before new order of information;

- 3) Present information explicitly that previously required a necessary inference.

The purpose was to provide an explicitly principled revision strategy which would allow for a more coherent text model during processing. While this strategy only represented one aspect of the more complex approach adopted by Beck et al. (1991), the results still produced improved student comprehension. The research of Beck et al. and Britton et al. demonstrate that discourse analysis has the potential not only to influence reading instruction but also the nature of instructional texts that students learn from. Their work also provides additional evidence that textual coherence can be strengthened through certain text-structuring principles. One text-structuring principle that has received extensive study is the role of top-level text structure, a major source of text coherence.

#### 4. TOP-LEVEL TEXT STRUCTURES AND READING INSTRUCTION

Early efforts to focus on the usefulness of text structure have sought to demonstrate a number of organizing principles:

- 1) that texts are hierarchically organized,
- 2) that readers tend to focus on and remember information at higher levels in the text hierarchy,
- 3) that top-level structural information (or rhetorical macropropositions) seems to influence comprehension and recall,
- 4) that better students seem to recognize and use top-level structuring to assist recall and comprehension, and
- 5) that top-level structuring can be taught so that students will recognize this aspect of texts and use it to assist in their own comprehension (Carrell 1984, 1985, 1992, Meyer et al. 1980, Slater and Graves 1989, Taylor 1980, 1982).

After a decade of additional research, it is now well accepted that texts have hierarchical structuring, that comprehension and recall from texts is influenced by a levels effect --students comprehend and recall the higher level information better-- and that hierarchical text structuring is related to, but not the same as, textual features such as informational centrality, connectedness, and causality (Singer 1990, Weaver and Kintsch 1991). Moreover, students who recognize hierarchical text structure independently (though not necessarily consciously), and make use of it in their comprehension processing, are likely to comprehend better and recall more information (Armbruster et al. 1987, 1991, Carrell 1984, 1985, 1992, McGee 1982, Meyer 1987, Richgels et al. 1987, Taylor 1992, Taylor and Beach 1984).

Despite the converging evidence for the supportive effect of text structure, the relative influence of different specific text structures is not as



well established; that is, it is still not clear that any particular type of text structuring --collection, description, cause-effect, comparison-contrast, problem-solution-- is better for the learning of new information (cf. Carrell 1984, 1992, Meyer 1987, Richgels et al. 1987. See also Martin 1989, 1993, Mohan 1990, Slater and Graves 1989 for other expository text structure patterns). In a recent study, Carrell (1992) argued that claims related to specific texts structures --whether, for example, a comparison-contrast structure improves comprehension better than a description structure-- are more likely to be related to other variables such as specific student groups, topics, instructional contexts, and training procedures.

A second major issue concerning the influence of text structure is the extent to which such knowledge of top-level discourse organization can be directly taught to students so that it will lead to improved comprehension. There are three major lines of research on the effect of text structure instruction. One involves the impact of direct instruction which explicitly raises student awareness of specific text structuring (Armbruster et al. 1987, Carrell 1985, Miller and George 1992). A second line of research develops student awareness of text structure through graphic organizers, semantic maps, outline grids, tree diagrams, and hierarchical summaries (Alvermann 1986, Armbruster et al. 1991, Berkowitz 1986, Guri-Rosenblit 1989, Slater and Graves 1989, Taylor 1992). A third line of instructional training follows from instruction in reading strategies more generally. Since a number of reading strategy training approaches include attention to structure, main idea identification, and text study skills, this line of instructional research is also a source of studies supporting text structure instruction. Thus, strategy training which includes summarizing, semantic mapping, predicting, forming questions from headings and sub-headings, and using adjunct questions all appear to improve awareness of text structure (Carrell et al. 1989, Flood and Lapp 1990, Pressley et al. 1989, Shih 1992).

All three lines of research argue that instruction which focuses on text structure, when carried out appropriately, increases comprehension and learning. The most common set of effective instructional strategies has been to use various types of graphic displays to assist in student awareness of text structure. This general approach also receives support from various efforts to develop content-based instruction, both for language instruction with L2 students and for content-area instruction with L1 students. (One recent caveat is reported by Hare et al. (1989), who point out that research with contrived texts does not guarantee similar results when students encounter naturally occurring, and less structurally constrained, texts.)

## 5. TEXT STRUCTURE AWARENESS AND LITERACY INSTRUCTION

Two important approaches for teaching text structure awareness within elementary and secondary education contexts involve work done in Canada by Bernard Mohan and in Australia by Francis Christie and others. The former approach stresses consistent patterns of text structuring which can be taught; the latter stresses the functional purposes underlying written

genres and the different language resources that varying genres consistently deploy.

The work of Mohan (1986, 1990) focuses on the development of text-structure knowledge in terms of "knowledge structures." Mohan argues that all texts consistently make use of six basic patterns of organization in varying combinations. When students are made aware that texts are composed of these organizational formats and patterns, they will be able to understand better the coherence and logic of the information being presented, and they will be able to locate the main ideas and distinguish them from less important information. Such knowledge structures also indicate the intent of the author and the purpose of the text.

The six basic knowledge structures include three each for "specifically presented" information and for "generalizable" information. This distinction suggests that there are text structures which organize particular objects, events, and problem situations (text structures for *descriptions, sequences, choices*). These individualized occurrences have parallel generalized text structures which organize principles and abstract away from the particular (text structures for *classifications, principles, evaluations*). Below is a schematic representation of this approach to knowledge structures.

CLASSIFICATION	PRINCIPLES	EVALUATION
Classifying Categorizing Defining	Explaining Predicting Interpreting data and drawing conclusions Developing generalizations (cause, effects, rules, means-ends, reasons) Relating causes and effects Experimenting	Evaluating Judging Criticizing  Justifying preference and personal opinions  Forming personal opinions
Observing Describing Naming  Comparing  Contrasting	Plan procedures Carry out procedures Arrange events in sequence  Understand time and chronology Note changes over time	Recommending Making decisions Recognize issues, problems Identify alternate solutions Problem-solving
DESCRIPTION	SEQUENCE	CHOICE

Some core thinking skills across curricula.  
(Social Studies Grades 1-7, 8-4; Science Grades 1-7, 8-10).  
Early, Thew and Wakefield 1986.

CLASSIFICATION OR CONCEPTS	PRINCIPLES	EVALUATION OR VALUE
Tree Venn diagram Table headings	Graph of function/ Line graph Crossbreak table Ordered pair table	Rank ordering Rating scale Value labelling
Pictures, slides Diagrams Maps	Action strip Time line Flowchart	Flowchart decision Decision tree Decision table
DESCRIPTION	TEMPORAL SEQUENCE	CHOICE OR DECISION MAKING

Graphic conventions for representing knowledge structures

In fact, the argument that there are textual structures which underlie the information which students encounter is a fairly common one (cf. Martin 1989, Meyer 1987, Slater and Graves 1989). It is also commonly argued that such organizational structures underlying texts provide the means for determining the purpose of the text and the main ideas. Indeed, Mohan (1990) points out similarities between various approaches to text structuring, explicitly comparing his approach to Martin's (1989) and Meyer's (1985) models. Perhaps the most distinguishing aspect of Mohan's approach is his emphasis on training students to be aware of knowledge structures through graphic representations of the various structures. For example, Mohan (1990) notes that classification texts are most appropriately represented by tree graphs, venn diagrams, and table headings. Descriptions are best explored through pictures, diagrams, maps, and slides. Time sequences can be highlighted by action strips, time lines, and flow charts. Evaluations can be highlighted by rank orderings, rating scales, and value labelling.

A major problem for students who read difficult texts is that they often do not comprehend the text well as a whole even though they feel that the vocabulary and sentence structure have not been major obstacles to understanding. The attention to knowledge structures, their graphic representation, and the effort to teach students how to make their own graphic representations, provide a well-supported means for developing comprehension strategies. (See also Flood and Lapp 1990, Paris et al. 1991, Pearson et al. 1992, Pressley et al. 1989, Readance et al. 1992, Santa and Alvermann 1991, Tang 1992, 1993, Tierney et al. 1985.)

Additional theoretical support for the use of graphic organizers as described by Mohan can also be drawn from the dual coding theory of Paivio (1986, Sadoski and Paivio 1994, Sadoski et al. 1991). This theory, typically viewed as an alternative theory to schema theory, stresses the additive interaction of verbal knowledge representations and visual knowledge representations. Further research supporting the mutually reinforcing interaction of visual and verbal processing is found in Mayer and Anderson (1991), and Purnell and Solman (1991).

The second major instructional approach to text-structure awareness, which parallels Mohan's approach in many ways, is that being developed currently in Australia (Christie 1992, Cope and Kalantzis 1993, Hasan and Martin 1989, Martin 1993). In this "genre approach," the notion of textual genre is adapted from Halliday's systemic linguistic theory and is elaborated as a set of discourse structures which guide the use and shape of written discourse, particularly academic discourses. This approach argues that the functions of academic writing are realized, in good part, by their genre structure; yet students are seldom taught this important set of relationships. Educationally, their arguments center around the importance of students learning to control this linguistic knowledge in their reading and writing and, thereby, gain power over context-reduced academic prose (Gray 1990, Martin 1989).

Building on Halliday's views, this approach sees the register functions of the social context (the subject-matter, the intended interpersonal relationship, and the channel of communication) interacting with the linguistic resources that are organized by ideational, interpersonal, and textual metafunctions. Over time, the functional potential of the linguistic resources, combined with the register parameters defined by the social context, have led to conventional generic forms for organizing information. These generic forms, or genres, are particularly important in academic settings since the initial form-function relationships are often obscured by the need to present information on a technical and theoretical level of abstraction, a defining criterion of much written academic language. Studies by genre-based researchers have pointed out many ways in which the language of specific disciplines varies, both in terms of the conceptual demands on the language resources and in terms of the formal structuring of the discourse. A full explanation of this research line is beyond the scope of the present paper though it is a direction of inquiry which rests on the assumption that discourse is consistently structured in ways that can be analyzed and which lead to specific instructional practices (Christie 1990, 1992, Christie et al. 1990a, 1990b, Collerson 1989, Derewianka 1990, Hasan and Martin 1989, Gray 1987, 1990, Martin 1989, 1993).

This theoretical approach to the discourse of academic texts has led to the analysis of school-based "curriculum" genres which can be discerned in written discourse and used to raise both teacher and student awareness of genre organization in their reading and writing activities. Since students

have relatively little practice with a number of these genres, it is important that the genre structures underlying much of academic discourse be made explicitly aware to students, and that they be a focus of direct instruction. Much like Mohan, Martin (1989) suggests that there are a number of basic patterns for text structuring. On a general level, these include recount, procedure, description, report, explanation, and judgement. More specific efforts to define the structure and staging of genres in specific disciplines is an on-going line of research (Cope and Kalantzis 1993, Derewianka 1990).

## 6. INSTRUCTION WHICH SUPPORTS TEXT STRUCTURE AWARENESS

In addition to the above curricular approaches to text structures awareness there are many instructional techniques and practices that researchers and teachers have developed in order to raise student awareness of textual structure. These various practices, of course, need to be seen as examples of activities that can be used in a systematic long-term effort to teach students knowledge of textual structure as well as skills for using this knowledge to comprehend and produce texts. These practices are drawn from a variety of sources and some are commonly referred to in training texts (Graves et al. 1994, Grellet 1981, Readance et al. 1992, Silberstein 1994, Tierney et al. 1985, Vacca and Vacca 1993).

Among those techniques that are regularly found in both L1 and L2 reading curricula include:

- 1) Semantic mapping,
- 2) Graphic organizers,
- 3) Summary writing,
- 4) Fill-in outlines, and
- 5) Analysis of top-level text structure.

In addition, a number of activities which assist in examining text structure include exercises which are also used in writing classes. These activities include:

- 6) The re-organization of scrambled paragraphs,
- 7) Logical-connector multiple-choice cloze activities,
- 8) Odd-man-out sentences in paragraphs,
- 9) The identification of various constructions and cohesive devices in texts from two different genres,
- 10) The creation of main ideas statements for texts and for paragraphs,
- 11) The creation of sub-headings for multi-paragraph text segments in a longer text, and
- 12) Exercises that match main ideas and supporting details from two columns.

These two groups of activities, incorporated on a regular basis in the language curriculum, should provide students with many opportunities to explore the organization of texts and develop awareness of text structure.

Additional activities which extend student awareness of text structure include exercises which require students to complete a passage with appropriate concluding sentences or, for a longer text, with appropriate concluding paragraphs. These logical completion activities allow teacher and students to explore ways that writers continue and conclude the development of a given text.

Texts may also be examined as a whole-class activity with the teacher using an overhead projector to mark text relations as they are noticed and then analyzed. The teacher can also combine the overhead display with think-aloud analyses of the text structure as the teacher reads the text aloud to the class. Stopping at every sentence or every 2-3 sentences, the teacher verbalizes the patterns and connections that the text makes for the skilled reader. In this way, students are able to "see" the various signals provided by the texts as well as the inferences that a skilled reader makes with respect to text organization.

As part of a think-aloud activity, the teacher can focus specific attention on the sorts of evidence used to examine and defend arguments in a text. Students can then work in groups to verbalize the evidence supporting arguments that they see in the text, and explore how such evidence structures a text and supports a main idea. The teacher can also direct students' attention to these issues by having them read a set of short passages, finding sets of evidence used to support an argument, and evaluating the evidence in terms of clear explanation, organization, and persuasiveness.

Another technique that focuses attention on the structure of texts involves students determining the top-level structure of a text or a section within a longer text. Students in groups decide on the top-level structure of a text segment and explain the reasons for their answers (since many text segments will not indicate a single clear-cut solution). This technique can also be introduced through teacher think-aloud techniques: Having the teacher model the activity a number of times for the class allows students to develop the appropriate analytic technique and also learn the vocabulary for describing different text structures (Richards and Gipe 1995).

An additional technique which can be introduced by the teacher involves the analysis of texts to determine the appropriate audience for the text. The teacher might begin a think-aloud activity by discussing who the probable reader of a text may be, and what evidence might suggest a specific audience. The teacher can ask: Who would read this text? Why would a certain audience read the text? What parts of the text indicate who the audience might be? etc. This process can be gradually transferred to students so that they examine different texts and discuss why one text will have a certain audience and a second text might have a different audience.

An important goal would be to focus on specific features of the text which lead to audience identification (Johns 1995).

Finally, teachers can engage in "questioning the author." In this activity, students are made aware that written texts are the product of authors who are fallible. The main activity involves students identifying the main ideas of the author, with the teacher's guidance, and then deciding whether or not the author has made the ideas clear for the reader. This activity raises student awareness that all texts are open to evaluation and that all ideas in a text can be recast in a more understandable way (Beck et al. 1995). This technique is also appealing for instructional contexts where readers doubt their abilities to understand and interpret a text.

## 7. CONCLUSION

Overall, the research on text structure and its applications for instruction demonstrate considerable evidence to support text-structure instruction as a way to improve reading comprehension. Awareness of text structuring 1) improves higher level comprehension processes, 2) provides the frame for both bridging and elaborative inferencing in the comprehension and interpretation of text material (Oakhill and Garnham 1988, Singer 1990), and 3) allows students to recognize differences between prior knowledge (that may be inaccurate) and textual knowledge that forces students to restructure their prior knowledge.

There are, of course, a number of caveats with respect to the research on the effects of text structure awareness. First, it is important to recognize specifically those studies which indicate transfer of processes and strategies to independent contexts and independent tasks. There is a danger in much training research for post-treatment measures to be very sensitive to the students' training. Second, there is also the danger, specifically for text structure research, of doing research with contrived texts: It is not clear in a number of cases that research with contrived texts will indicate similar abilities with naturally occurring texts that students encounter (Hare et al. 1989). Third, research on text-structure awareness, and in the area of reading strategy instruction more generally, has shown that students need considerable time to practice these activities in a variety of contexts, tasks, topics, and activities.

On the positive side, many advances have been made in the teaching of text structuring and the evidence overwhelmingly supports the role of text-structure awareness in improving reading comprehension. In short, there is considerable support for the direct instruction of textual organization as a way to improve reading comprehension. As a set of reading and study strategies, text structure instruction has also been shown to improve students content learning in many academic subjects. Thus, it serves both language skills and academic content learning. To close, it is safe to say that one major applied accomplishment of written discourse analysis is its

impact on reading comprehension instruction. Needless to say, however, further research with many different student groups and instructional contexts should be carried out to establish better the various ways in which research in written discourse analysis supports instructional practices.

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