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ABSTRACT

      The second phase of a 3-year project examining the
effect of a process approach to writing instruction on students'
expository reading and writing skills, a study determined the impact
of three writing programs that emphasized different aspects of a
process-oriented writing environment. Data were gathered from 159
fifth and sixth grade students and their teachers. Results indicated
that a writing environment emphasizing peer editing and publication
and/or instruction in text structure significantly increased
students' ability to compose expository text. Findings also showed
that writing environment and text structure instruction significantly
increased students' ability to summarize information across two
expository passages. Data indicated that students in the text
structure instruction groups made significant gains in free writing,
surpassing the control students on all measures of writing ability.
Similar results were obtained both when teachers directed instruction
in text structure and when students directed the learning through
peer editing and conferences. (Statistical tables are included, and a
think sheet for prewriting, student problem/solution text and
accompanying worksheet, and compare/contrast pattern guide are
appended.) (JD)

Research Series No. 177

THE IMPACT OF TEXT STRUCTURE INSTRUCTION
AND SOCIAL CONTEXT ON
STUDENTS' COMPREHENSION AND PRODUCTION
OF EXPOSITORY TEXT

Taffy E. Raphael, Carol Sue Englert, and
Becky W. Kirschner

Published By

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Abstract

This paper describes the second phase of a three-year research project, examining the role of text structure instruction in improving expository reading and writing skills within a process approach to writing instruction. The study synthesizes research in text structures and research on the writing process. Data from the first year suggest that text structure instruction enhances sixth-grade students' comprehension of expository text but has only moderate impact on students' expository writing. Research in the process approach to writing instruction suggests that such instruction may be most effective when embedded within a process-oriented writing program where children perceive themselves as authors. Data from the second phase of the project, reported in this paper, provide information concerning the impact of three writing programs emphasizing different aspects of a process-oriented writing environment (e.g., peer editing, publication, text structure knowledge) on students' composition and comprehension of expository text. Results suggest that establishing a writing environment emphasizing peer editing and publication, instruction in text structure, or a combination of the two, significantly increases students' ability to compose expository text. Furthermore, writing environment and text structure instruction significantly increases students' ability to summarize information across two expository passages. Similar, but less significant, patterns were found on a free recall task.

THE IMPACT OF TEXT STRUCTURE INSTRUCTION AND SOCIAL CONTEXT ON STUDENTS' COMPREHENSION AND PRODUCTION OF EXPOSITORY TEXT [1]

Taffy E. Raphael, Carol Sue Englert, and
Becky W. Kirschner [2]

The connections between reading and writing have received increased attention in recent literature (e.g., Rubin & Hansen, 1985; Squire, 1983; Tierney & Pearson, 1983). The underlying belief of research in this area assumes that both reading and writing are active, constructive processes. Research within a schema-theoretic view of reading (see Anderson & Pearson, 1984) underscores the constructive nature of text comprehension. The research Anderson and Pearson describe demonstrates that readers actively engage in a variety of strategic activities as they construct meaning from text. Studies in the process approach to writing stress the importance of the active composing processes (Flower & Hayes, 1981; Graves, 1983; Murray, 1982). These composing processes require writers to use a variety of strategies as they construct their texts. The concept that both reading and writing are constructive processes provides the basis for our research program focusing on instructional links between teaching reading and writing.

This article describes the second phase of a three-year research program. The program is based on the integration of research from the areas of

reading comprehension and composition, specifically examining the role of in-
struction in social context and text structure on students' comprehension and
production of expository text. In the first year, we developed and tested a
program for instructing sixth-grade students in an expository reading and
writing strategy based upon knowledge of text structure (Raphael & Kirschner,
1985). Raphael and Kirschner conducted a training study in which they taught
sixth-grade students about comparison/contrast expository texts. The
instructional program focused on the concepts that (a) different texts answer
different types of questions, (b) using questions to guide information seeking
helps readers identify what is important and helps writers determine how what
to include in reports, and (c) summarizing what has been read and using
questions as guides to help students remember text information.

Results of the first year indicated that text structure instruction
enhanced students' ability to write a comparison/contrast summary using
information from more than one article and enhanced their free recall of
comparison/contrast texts. We have no clear evidence concerning the impact
of instruction on students' ability to compose a comparison/contrast text on
a topic of their choice. Although the students included more information in
their reports and wrote more well-formed texts, their papers often lacked
voice. The lack of voice in the students own writing led us to questions
addressed in the second phase.

The second phase of the project extended Raphael and Kirschner's research
in three ways: (a) instruction in text structure was embedded within process-
ented writing classrooms, (b) instruction focused initially on writing,
with reading as the secondary application, and (c) teachers, rather than
researchers, conducted the instruction within the context of their fifth- and
sixth-grade language arts and social studies curricula. This paper focuses on
extensions from the previous study. These extension are designed to address

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the shortcomings of researcher-taught classes, the lack of attention to building students' sense of authorship, and the ownership of the strategies taught. In the third year of the study, the focus is to determine those aspects of the program that remain in use, with or without modifications and extensions, when formal participation of the researchers ends.

Theoretical Rationale

Three lines of research influenced this study: research on the composing process, research on the role of text structure knowledge in both composing and comprehending text, and research on writing instruction.

Research on the Composing Process

Research on the composing process has revealed a nonlinear, recursive process that includes the subprocesses of prewriting, drafting, revising (Flower & Hayes, 1981). Throughout the process, writers are guided by a complex awareness of their purpose for writing, the subject about which they are writing, the audience for whom they are writing, and the form they have chosen to communicate best to their audience both the subject and purpose of their paper (Britton, 1978; Kinneavy, 1971; Moffett, 1968). A number of methods can communicate to students the role of subject, audience, purpose and form during prewriting, drafting, and revising. A powerful means for this communication is through the social context in which the instruction is embedded. The social context has been shown to have an impact both on students' assumptions about writing and on their activities during the writing process.

Research has indicated that the social context in which students learn to write has a major impact on the type of writing they produce (DeFord, 1986) and on their control of prewriting, drafting, revising, and editing

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activities (Hansen, 1983). Two important aspects of the social context are audience and purpose. Audience provides a forum for the expression of one's ideas and communicates to children the purpose of the prewriting, revising, and editing activities. Audience can be created in a number of ways by sharing finished products within a single classroom (Graves & Hansen, 1983), publishing written work (Graves, 1983), and transmitting work via micro-computer networks (Rubin & Bruce, 1986). Audience has a critical impact on the ways children construe the functions of writing. For example, when the audience is the teacher only, students may come to view writing as a way that teachers test knowledge and consider revision activities as punishment for sloppiness or inexactitude. When children write for an expanded audience that includes peers and others, however, they tend to view writing as commu-nication and to consider revision activities as essential to the communica-tion process.

Having a clear purpose in mind, another important aspect of the social context, affects the ideas generated during prewriting and the ways these ideas are communicated. Purpose can be established in different ways. Rubin (1986) described a writing project in a community in Alaska in which elemen-tary school students published a brochure used by the state's Department of Tourism. Purpose can also be established by publishing class or individual books for placement in the school and classroom libraries (DeFord, 1986), or by sharing ideas with teachers in the form of dialogue journals (Atwell, 1983). When both purpose and audience are emphasized in the writing curricu-lum, students are more likely to become aware of the social and communicative purposes of writing. These aspects enter the writing process at the points when children brainstorm topics during prewriting and decide on details to include during drafting. The process helps to ensure that information is clear and organized during revising and editing. In practice, audience and

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purpose are two aspects of the social context that seem thoroughly interrelated and most critical to develop good writing skills.

Research on Text Structure Knowledge

Knowledge of text structure appears to influence writers' perceptions of what to do during prewriting, drafting, revising, and editing (Dunn & Bridwell, 1980), and therefore, appears important to all phases of the writing process. During prewriting, when writers consider their purpose for writing and the ways they will present their subject to their audience, knowledge of text structures or modes of discourse can guide writers as they decide what form to use for presenting their ideas. The plan provided by the text structure can serve as a map for writers as they move through the drafting process. Text structure knowledge can give writers insights about what should be reorganized during revision when they rewrite their texts to make their ideas organized and understandable (Kirschner & Yates, 1983).

In addition to its impact on authors' composing of text, knowledge of text structure appears to enhance readers' ability to construct meaning during reading, particularly when reading expository text (McGee, 1982; Meyer, 1975; Raphael & Kirschner, 1985; Taylor & Beach, 1984). Research about expository texts suggests that there are different structures such as narration, explanation, comparison/contrast, and problem/solution, that they answer different types of questions (Armbruster & Anderson, 1984), and that sensitivity to these questions can affect comprehension (Raphael & Kirschner, 1985). Given the importance of text structure knowledge in reading comprehension and the role of text structures during the composition process, it is reasonable to question how such knowledge can best be conveyed to students to enhance their ability to comprehend and to write expository papers.

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Research Questions

The research described above suggests that students' expository writing ability may be enhanced through a number of different interventions. Increasing students' knowledge and control of the writing process is an important goal, but the optimal methods are subject to study. Students may be taught about prewriting, drafting, and revising through establishing a social context that stresses audience and purpose. They may be taught these writing subprocesses as they learn about different text structures and related questions that guide writing. Or, they may be taught using a combination of methods. This study examined the effect of instruction in process writing and emphasized text structures, audience and purpose, or a combination of both, on students' composition and comprehension of expository text.

Methods

Subjects

Eight fifth- and sixth-grade teachers and their 159 demographically heterogeneous students participated in the study. The teachers had at least 10 years of experience teaching in elementary schools and were considered to be good teachers by the principal, the district language arts coordinator, and the researchers who observed their teaching. They had a minimum of 20 credits beyond their undergraduate degrees. None of the teachers had participated in advanced course work or inservice activities on writing instruction. Based on an extensive interview with each teacher, we assigned each to one of three treatment groups or to the no treatment control group. Each treatment group had one male and one female teacher, with a total of two teachers per treatment group.

The students were from a low socioeconomic status (SES) neighborhood, with an approximately equal mix of Caucasian, Hispanic, and Black ethnic

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groups. Students had been assigned randomly to classes at the beginning of the academic year by the school personnel. From this subject pool, we eliminated students with incomplete data and special education students. Forty students remained in each treatment group, with the exception of the control group, which had only 39 students. To determine if students in the treatment groups were of comparable ability, an analysis of variance (ANOVA) was performed on the language achievement subtest of the Stanford Achievement Test administered in the spring. The results showed that there were no significant differences (p >.05) between treatment groups.

Instructional and Assessment

Materials

We developed materials for both instruction and assessment that were used during inservice activities with the teachers and for student instruction during their language arts and social studies activities. Assessment instruments consisted of pre- and posttests to measure students' expository comprehension and composition.

We used the instructional materials (a) to establish a social context stressing audience and purpose and (b) to introduce students to four text structures. We developed the materials to promote activities thought to be fundamental to successful writing instruction, including daily writing opportunities, opportunities to share writing, make revisions and share the teacher's model of the writing process. Langer and Applebee (in press) and Applebee and Langer (1984) discuss specific features of effective methods of writing instruction using the concept of instructional scaffolding, a metaphor underscoring learners' needs for temporary and adjustable support as they learn new strategies. Scaffolding operates under the fundamental belief that learning is a social process, mediated by more experienced adults or peers who

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provide support through ongoing interactions with the learners. The support is gradually removed as the learner develops the strategies to write and read alone. Thus, the materials served as a guide for teachers and students to promote instructional scaffolding during the implementation and use of the writing program.

Think sheets for social context. We created materials to encourage the scaffolding activities involved in the process of writing from prewriting activities through drafting and revision with a focus on audience and purpose. Six color-coded "think sheets" were created to illustrate and guide the students in their writing activities: (a) prewriting, (b) first draft, (c) thinking about my first draft, (d) editing, (e) revision, and (f) final draft. Each think sheet consisted of a set of questions or guiding statements designed to prompt students to engage in activities appropriate to that phase of the writing cycle. For example, the prewriting think sheet prompted readers to consider their subject, audience, purpose, and organization, asking such questions as "What do I know that will make this easy to write?" and "How do I want my reader to feel as she/he reads my paper?" A sample think sheet for prewriting is provided in Appendix A. Note how this think sheet promotes strategies appropriate to preparing to write.

Other think sheets followed similiar formats, but with different questions. For example, the editing think sheet helped peers to examine each other's papers in terms of interest, organization, and clarity, prompting them with such questions as "What could the author add to make this paper even more interesting?" and "What could the author add or change to make the paper easier to understand?"

Text structure instruction. We developed text structure instructional materials to illustrate well-written texts using different structures and to

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prompt .... to ...... the elements that constitute ... a well formed paper. The .... set of ...... also consisted of four well formed passages one each for comparison/contrast, narrative, explanation, and problem .... from materials students had written during the fall. These passages were ..... and made into overhead transparencies. A worksheet .... four sections accompanied these four papers. Spaces in each section asked students to indicate the text structure, questions the text .... and key words and phrases that signaled the text structure used. Appendix B provides a sample of a child produced problem/solution text and a section from the accompanying worksheet. A similar worksheet was developed, with ... sections rather than four, for students to use individually when examining their own papers written earlier in the program.

Another set of materials consisted of four sample passages taken from the students' social studies text, one passage each to represent comparison/contrast, problem solution, explanation, and narrative. For each passage, a .... guide was developed, consisting of generic questions for the text type. For example, generic comparison/contrast questions were (a) What is being compared? (b) On what are they being compared? (c) How are they alike? and (d) How are they different? We also developed writing handouts consisting of the generic questions, each text type answers, and common key words and phrases for each type of text.

Modified think sheets. We developed modified think sheets to encourage the use of text structure knowledge at critical points in the writing process. We created planning sheets for use with the prewriting think sheet, containing the generic questions relevant to each particular text structure (e.g., "What two things are being compared?" "How are they alike?" etc.). We devised the editing think sheets to relate to the specific text structure

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used in a given paper, asking questions and guiding students to examine their papers for answers to text structure questions and to help them identify key words and phrases.

In addition to think sheets, we developed overhead transparencies consisting of "pattern guides" of the different text types to introduce and review each text structure. These guides were graphic displays of structure, questions, and key words and phrases, using boxes and arrows. Appendix C provides an illustration of the compare/contrast pattern guide.

Composition assessment. To assess changes in students' ability to compose, we developed three free writing activities to administer as pre- and posttests. Students were asked to write first drafts of letters to a friend to (a) tell a story about a personal experience, (b) compare/contrast two people, places or things, and (c) describe a problem and its solution. These free writing measures tested the direct impact of the instructional program on students' writing.

Comprehension assessment. Comprehension tests were used to measure near and far transfer. We selected comparison/contrast texts and activities to reduce potential ceiling effects. Research (Englert & Heibert, 1984) suggests that comparison/contrast structure is one of the more difficult text structures for students of this age group to comprehend.[3] The near transfer measure summarized students' use of multiple sources.

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[3]
Richgels, McGee, & Lomax (1986) noted that this structure was among the easiest for students to recall. However, their results show that this was true only for "high-level information," such as topics being compared. Performance was lowest on this structure in providing supporting details.

For example, given a text on Sparta and one on Athens, students were asked to compare/contrast Sparta and Athens, referring to the two source reading (i.e., gathering information) and writing (i.e., producing text), although students received no specific instruction using multiple information sources. The far transfer task was a free recall measure; students were never directly taught how text structures could help them recall information from texts. Students read a comparison/contrast text (comparing Australia and New Zealand) and then wrote as much of the text as they could remember.

Procedures

We used three treatment groups and one control group to test the relative effects of the social context, text structure instruction, or the combination of social context and text structure instruction on teachers and students. We wish to emphasize that a social context existed in all classrooms prior to our involvement and that we use the term social context in this paper to identify and underscore the environment we created to stress tests as often as needed. This measure directly examined the link between purpose, audience, and ownership in writing. The social context (SC)[4] group learned and practiced writing within the social context, emphasizing purpose, audience, and ownership, but without text structure instruction. The text structure (TS) group received text structure instruction in the absence of the defined social context. The social context/text structure (SC/TS) group received text structure instruction embedded within the defined social con-

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[4]
    Social context in this study is specifically defined as a writing environment in which purpose and audience are stressed through publication and peer editing. In fact, social contexts existed in all classrooms and the term itself represents the range of complexities in any environment (Raphael, 1986) for more complete discussion.

text. A control (C) group did not have elements of this particular social context or instruction about text structures.

Phase I. We interviewed teachers in early fall to determine the treatment group most appropriate to their goals of instruction (e.g., a teacher who used journals and some peer editing was placed in one of the social context groups; a teacher who indicated that she and probably her students were uncomfortable sharing papers was placed in a group without social context). Although our method runs counter to the assumption of random assignment of subjects to treatment group, we determined that it was not ethical to ask a teacher who already used elements of one treatment to stop doing so for an entire academic year. Further, students had been assigned randomly to classrooms. Once teachers were assigned to treatment groups, we administered pretests to students in their classrooms. Students were pretested on five consecutive days on the free recall, summarization, and the three free writing tasks; group and individual questionnaires were administered over the next five days.

Students in the SC, SC/TS, TS groups then wrote one narrative, one explanation, two comparison/contrasts, and two problem/solution texts based on their personal experiences. However, the specific writing activities differed across treatments. In the two treatment groups in which the social context was established for writing (SC, SC/TS groups), students completed a "writing cycle" for each text type. This cycle involved prewriting, drafting, preparing for a peer conference, peer editing, and revising. To guide students during each of these writing phases, students in the SC and SC/TS groups completed the think sheets. Students in these classrooms also voted on which type of format to use for the publications they chose. Consistent with research on writing instruction, we focused on the importance of writing

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almost daily for a purpose and on flexible support for each aspect of the writing process. In contrast, students in the TS classrooms also wrote six papers, but did not participate in revising, peer editing, or publication.

During the first phase, teachers from the two social context groups met with the researchers on a weekly basis to discuss these activities. For example, some sessions focused on introducing students to prewriting activities, using the (student) author's chair,[5] or on introducing and implementing peer editing. Other discussions concerned teachers' and researchers' observations of changes in students and changes in instruction.

Phase II. Phase II focused on embedding text structure instruction in social context classrooms in which children perceived themselves as writers (i.e., SC/TS classrooms) and in classrooms in which a social context for writing had not been established (i.e., TS classrooms). Table 1 provides a summary of the activities of the four treatment groups in Phase I and Phase II. Using Table 1 as a guide, note that during Phase I, the SC and SC/TS groups had been writing in an environment that emphasized audience and purpose, including peer conferences, peer editing, and publishing. The TS group had practiced writing the assignments, but outside of an environment that encouraged peer editing or publication.

During the second phase, the groups differed as follows. The SC group continued to receive explicit instruction in subject, audience, purpose, and peer revision but received no instruction in text structure forms. The SC/TS

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[5]
   The student author who is sharing his or her writing with the class sits in a special author's chair.

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group continued to receive explicit instruction in subject, audience, purpose, and peer revision and received additional instruction in four text structures. The TS group received explicit instruction in the composition and revision of drafts based on text structure forms but received no explicit focus on audience, purpose, and publication. The control group received no explicit instruction in subject, audience, purpose, or text structure forms but participated in regular classroom writing and social studies activities. Thus, all three treatment groups were involved in writing and revising papers, but differences existed between the presence or absence of structure instruction and between the presence or absence of a focus on purpose, audience, and ownership (e.g., author's chair, publishing, and peer editing).

Table 1

Summary of Activities of
Treatment Groups

Group	Phase I (10 weeks)	Phase II (10 weeks)
SC	Social Context introduced	Continue writing in social context using social studies topics
SC/TS	Social Context introduced	Text structure instruction for four structures embedded in social context
TS	Weekly writing assignments	Text structure instruction for four structures
Control	No treatment	No treatment

The second phase included two major pieces. First, teachers gave instruction in text structures for those in the two text structure groups (SC/TS, TS). Second, students in the three treatment groups (SC, SC/TS, TS)

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repeated the fall-term cycle of using think sheets to guide them through the steps of the writing process in writing four different types of texts: comparison/contrast, narrative, explanation, and problem/solution. Specifically, students in the SC group used similar think sheets to those they had used in the fall but with minor changes which focused their writing on social studies topics, peer editing, and publishing a class social studies book. Students in the TS group wrote on social studies topics using their knowledge of text structure and the think sheets to help them plan, draft, revise, and edit their papers, but they did not peer edit or publish. Students in the SC/TS group used their knowledge of text structure in conjunction with the think sheets to help them plan, draft, peer edit, and revise their papers for publication. Thus, all students wrote on social studies topics and used social studies texts as a basis for gathering information about their topics. However, students in the text structure groups were given specific information about text forms to help them plan and revise their papers.

In January, students in the two text structure groups (SC/TS and TS) were introduced to the concept of text structures. The basis of this instruction emphasized that different types of texts answer different questions, that they use different key words and phrases to signal readers about content, and that they have different ways of organizing information. The four text structures taught paralleled those used in Phase I: comparison/contrast, narration, explanation, and problem/solution. Students spent approximately two weeks on each structure to learn to recognize their characteristics (i.e., questions answered and key words and phrases).

Students examined well-formed examples of other students' writing produced during Phase I. They also critiqued their own Phase I writing for use of key words and phrases and for their success in answering relevant questions (e.g., for problem/solution, did they answer, "What is the problem?

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What caused it? How was it solved? What were some steps in the solution?").
Next, they examined and critiqued paragraphs in their social studies texts.
They then planned, drafted, and revised a social studies report of their own
(comparing and contrasting two locations in a state). In the SC/TS group,
these papers were subject to peer review and eventual publication, as in
Phase I.

Teacher/researcher meetings continued throughout Phase II. The two SC
teachers met with one researcher, while the four TS and SC/TS teachers met
with the other two researchers. Students took the posttests in late spring
which included the same measures administered during the fall pretesting.

Students' Writing and Reading Performance

Scoring Procedures

Students' performances on the free writing and transfer measures were
scored by six trained coders who were blind to the experimental hypotheses or
the assignment of students to treatment groups. In scoring the writing
tests, each student's composition was independently read by two coders who
assigned each student's composition two scores: (a) a primary trait score
ranging from 0-12 points based on the degree to which the composition used
the required organizational pattern for a specific text structure and to
which it contained the appropriate key words and phrases (Mullis, 1980) and
(b) a holistic score ranging from 0-5 points based on the degree to which the
composition was interesting and to which it communicated the top-level struc-
ture associated with a particular text structure form (Meyer, 1975).

Two coders independently read the multiple source and the free recall
measures, assigning scores for each. To score the multiple source task (the
near transfer task), students' summarizations were assigned a rating from 0 to

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12 based on the number of ideas recorded, the degree to which the students synthesized information from the two sources, and the student's adherence to the top-level structure of a comparison/contrast text. For the free recall measure (the far transfer task), students were assigned a rating from 0-12 based on the completeness of their recall and the degree to which the recall reflected the compare/contrast structure of the stimulus passage.

The two coders' rating were averaged to yield a mean score for each variable of interest. However, this averaging was performed only when the ratings of the coders were in close agreement (e.g., within a 2-point spread). When ratings were not in close agreement, the coders met to discuss their reasons for assigning a specific score and to reach consensus. In cases where coders could not reach consensus, one of the researcher's independently read the students' compositions and assigned a final score.

Reliability on the coders' rating was calculated after coders tried to reach consensus and before the third person independently reconciled differences. Reliability was calculated by dividing the number of agreements by the sum of agreements plus disagreements. For the free writing measures, reliability was above 90% for both the primary trait and holistic scores. For the tests of transfer, reliability on the multiple source and recall of measures was again greater than 90%.

Writing Measures

Free-writing scores were analyzed in a 2 (text structure: present, absent) x 2 (social context: present, absent) x 3 (free writing: narrative, comparison/contrast, problem/solution) multivariate analysis of variance (MANOVA). Pretest-posttest gain scores were computed for primary trait and holistic scores and these were entered into the MANOVA as dependent measures. Text structure (present, absent) and social context (present, absent) were

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were between-subject factors in this design. Within-subjects factors in-
volved repeated measures across the three types of free writing (narrative,
comparison/contrast, problem/solution) and the two dependent measures.

The statistical testing procedure involved two steps. As recommended by
Hummel and Sligo (1971), the first stage consisted of an examination of the
multivariate Fs with primary trait and holistic scores considered simul-
taneously. If a multivariate result was significant, the separate univariate
ratios were examined for each dependent variable, and follow-up mean compari-
son tests were performed to determine where the significant effects were
located.

A summary of the multivariate results is presented in Table 2. Means
for the dependent variables by text structure, social context, and free
writing conditions are shown in Table 3.

Results of the MANOVA revealed significant main effects for social
context and type of writing as well as for statistically significant text
structure x social context and free writing x text structure interactions.
Although text structure was not significant in the overall multivariate
analysis, the multivariate F ratio for text structure was approaching statis-
tical significance, and the univariate tests for both dependent variables
were significant at the .05 level. Given the a priori hypothesis that text
structure would have a significant impact on writing performance, these
results cannot be entirely dismissed since they represented strong trends
suggesting the probable influence of text structure instruction on students'
free writing.

To interpret the overall multivariate effect for social context, the
univariate results for each dependent variable were examined. Inspection of
the univariate F ratios revealed that both dependent variables made a

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Table 2

Summary Table for Multivariate Analysis of Free Writing

Source	df	Multivariate		Univariate	
		F	p	F	p
Text Structure (A)	2,154	2.62	.07		
Primary Trait				5.07	<.05
Holistic				4.95	<.05
Social Context (B)	2,154	6.00	.003		
Primary Trait				11.79	<.001
Holistic				8.21	<.01
A X B	2,154	5.20	.007		
Primary Trait				6.92	<.01
Holistic				10.15	<.01
Free Writing (C)	4,152	19.91	.0001		
Primary Trait				25.35	<.0001
Holistic				5.44	<.01
A X C	4,152	4.37	.002		
Primary Trait				2.30	ns
Holistic				5.09	.01
B X C	4,152	1.74	ns		
Primary Trait				2.29	ns
Holistic				1.33	ns
A X B X C	4,152	2.13	.07		
Primary Trait				1.23	ns
Holistic				2.34	ns

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Table 3

Means and Standard Deviations for Gain Scores on Free Writing Measures

		n	Narrative		Comparison		Problem	
Group			PT [a]	Hol [b]	PT	Hol	PT	Hol
Text Structure	M	40	7.63 [c]	1.88 [d]	1.90	.96	3.71	1.24
Absent (SC only)	SD		(6.58)	(1.56)	(3.55)	(1.37)	(4.88)	(1.47)
Social Context Present (SC)								
Text Structure	M	40	7.30	1.51	2.19	1.08	3.15	1.04
Present (SC/TS)	SD		(7.92)	(1.73)	(3.40)	(1.50)	(5.59)	(1.89)
Text Structure	M	40	6.63	1.56	2.76	1.60	1.98	.61
Present(TS only)	SD		(6.14)	(1.34)	(2.79)	(1.17)	(4.70)	(1.57)
Social Context Absent								
Text Structure	M	39	1.95	.54	-.13	.05	1.80	.65
Absent (Control)	SD		(8.32)	(1.82)	(3.34)	(1.31)	(4.19)	(1.33)
Marginal	M	159	5.90	1.38	1.69	.93	2.66	.89
	SD		(7.57)	(1.68)	(3.43)	(1.44)	(4.89)	(1.58)

a
 PT = Primary trait ratings
b
 Hol = Holistic ratings
c
 Total number of points possible = 12
d
 Total number of points possible = 5

significant contribution to the multivariate main effect, although primary trait scores made a slightly greater contribution. Comparison of the gain scores of social context groups indicated that students in the social context classrooms (primary trait $\underline{M}$ - 4.31, holistic $\underline{M}$ - 1.28) made significantly greater gains than students who wrote outside of social context. The strong contribution of primary trait scores in the overall analysis suggested that students who wrote and edited their expository papers with a focus on writing process, audience, and publication made specific gains in their acquisition of specific traits associated with text structure.

The impact of social context, however, was subsequently interpreted in light of the interaction of text structure and social context. Examination of univariate tests for the text structure x social context interaction revealed that both primary trait and holistic scores made a significant contribution to the overall statistically significant multivariate $\underline{F}$ ratio, but that holistic scores made a slightly greater contribution. Tukey's post hoc comparison test was performed on the primary trait and holistic scores of students in the four treatment groups. The results revealed that, without text structure or social context, students in the control group made relatively minimal gains from pre- to posttreatment.

In contrast, students in the SC/TS, TS, and SC groups made strong gains in their primary trait (SC/TS $\underline{M}$ - 4.22, TS $\underline{M}$ - 3.79, SC $\underline{M}$ - 4.41) and holistic (SC/TS $\underline{M}$ - 1.21, TS $\underline{M}$ - 1.25, SC $\underline{M}$ - 1.36) ratings from pre- to posttreatment. All three of these groups significantly ($\underline{p}$ < .05) outperformed the control group (primary trait $\underline{M}$ - 1.21, holistic $\underline{M}$ - .41), although there were no significant ($\underline{p}$ < .05) differences between the three experimental treatment groups. Thus, writing gains were similar if students received text structure instruction without social context (TS group) or if they received text structure instruction embedded in a social context (SC/TS).

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The significant main effect for free writing reached univariate signif-
icance on both primary trait and holistic scores, although primary trait
scores made a slightly larger contribution. When Tukey's post hoc comparison
test was applied to the primary trait scores of students, the analyses showed
that, overall, students made significantly greater pretest-posttest gains in
writing narrative forms ($\underline{M}$ = 5.90) than they made in writing comparison/
contrast ($\underline{M}$ = 1.60) and problem/solution ($\underline{M}$ = 2.66) forms (which were not
significantly different from each other, $\underline{p}$ > .05). Similarly, post hoc
comparison tests on the holistic scores of students indicated that students
made significantly greater gains in the qualitative ratings they received for
their narrative texts than for their comparison/contrast and problem/solution
texts (which were not significantly different, $\underline{p}$ > .05).

Of the three text structures, comparison/contrast tended to be the most
difficult text for students to master, as evidenced by the least pretest-
posttest gains. Students did best in writing narrative forms, however, at
the time of the pretest, and this also was the area of greatest growth from
pretest to posttest. Thus, students tended to make the greatest gains in the
text structure that was initially easiest for them. Furthermore, this growth
could not simply be attributed to development or maturation. This is sug-
gested by the fact that control group students showed relatively minor pre-
test-posttest gains in writing narrative forms.

However, the significant main effect for free writing was further
limited by the interaction with text structure. Examination of the univari-
ate $\underline{F}$ tests for the text structure x free writing revealed that only the
holistic scores differentiated text structure groups. Tukey's multiple com-
parison procedure was used to analyze holistic score differences on the three
types of free writing. For comparison/contrast texts, the gain scores of

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students who received text structure instruction ($M = ?$...) were signifi-
cantly greater than gain scores of students ($M = ?$) who did not receive
... ... instruction. For other types of writing, the gains exhibited
by students receiving text structure instruction were comparable to the gains
exhibited by students who did not receive text structure instruction. Thus,
text structure instruction did affect the pattern of making gains only with
respect to the narrative form since students' proficiency in writing compari-
son/contrast text structures also improved. The failure to find a signifi-
cant interaction between social context and free writing indicated that the
specific effects of social context on children's writing were more general
and did not result in specific gains on particular types of text forms.

Transfer Tests

To examine the effects of the program on transfer tasks tapping reading-
writing connections and reading comprehension, pretest-posttest gain scores
were calculated and analyzed in a 2 (text structure present and text struc-
ture absent) x 2 (social context present and social context absent) MANOVA
with a repeated measures on multiple source and free recall scores. Table 4
shows the means and standard deviations for the two dependent variables used
in the analysis. Table 5 presents the results of the MANOVA.

The results of the MANOVA revealed no significant main effects for text
structure or social context, but there was a significant text structure x
social context interaction. Examination of the univariate F ratios revealed
that only multiple source scores reached univariate significance, although
the F ratio for free recall was approaching statistical significance. When
Tukey a post hoc comparison tests were performed on the multiple source gain
scores, the results revealed no significant ($p > .05$) differences between TS
and SC groups, but both of these groups obtained significantly ($p < .05$)

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Table 4

Means and Standard Deviations for Gain Scores on Free Writing Measures

Group			n	Free Recall	Multiple Source
	Text Structure Absent (SC only)	M	40	1.50	2.73
		SD		(2.76)	(4.29)
Social Context Present (SC)					
	Text Structure Present (SC/TS)	M	40	.82	2.10
		SD		(3.84)	(3.51)
	Text Structure Present (TS only)	M	40	1.39	3.35
		SD		(2.85)	(2.99)
Social Context Absent					
	Text Structure Absent (Control)	M	39	.31	.10
		SD		(3.08)	(2.86)
	Marginal	M	159	1.00	2.08
		SD		(3.16)	(3.64)

a
 Total number of points possible — 12
b
 Total number of points possible — 12

Table 5

Summary Table for Multivariate Analysis of Transfer Tests

Source	df	Multivariate		Univariate	
		F	p	F	p
Text Structure (A)	2,154	2.83	.06		
Free Recall				.16	ns
Multiple Source				5.69	<.05
Social Context (B)	2,154	.84	ns		
Free Recall				.37	ns
Multiple Source				1.56	ns
A X B	2,154	6.72	.002		
Free Recall				3.12	.079
Multiple Source				12.42	<.001

higher gain scores than students in the SC/TS and C groups (which were not significantly different, p > .05). Despite the lack of significant differences between SC/TS and C students, control students showed virtually no progress from pretest-posttest, whereas SC/TS students showed a pattern of pretest-posttest gain predicted by the experimental hypotheses. The results also suggested that the more pure forms of the experimental treatment (TS, SC) resulted in greater near transfer to a task that required students to see the reading-writing connections between summarizing information from multiple sources than for students in either a combination treatment (SC/TS) or in no the treatment (C) group.

Although the free recall scores of students were not significant in the univariate analysis, the pattern of results was similar to that found for the

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multiple source scores; therefore, the free recall scores warrant attention. Post hoc comparison tests were not performed because of the failure to find univariate significance for free recall. However, an inspection of the gain scores of students indicated that the biggest gains from pretest to posttest were for the TS and SC groups, whereas the gain scores of SC/TS and control students were moderate to small, respectively. This result tended to corroborate trends found on the near transfer tests. Students who tended to transfer their knowledge to comprehension tasks were the students in the more pure forms of instructional programs.

Discussion

We predicted that text structure and social context would positively, though differentially, affect students' expository composition and reading comprehension. Results indicated that students in the three treatment groups (TS, SC, SC/TS) made significant gains in free writing, surpassing the control students on all measures of writing ability. Furthermore, students receiving instruction in text structure made specific gains in their proficiency to write the comparison/contrast text structure forms. Thus, instruction in text structure and social context positively influenced students' ability to organize and compose expository text, with text structure instruction having a specific impact on one of the text forms that was the most difficult for children to write. This extends the findings of researchers who have found positive relationships between story grammar instruction and narrative writing (e.g., Gordon & Braun, 1985) in young children and between text structure knowledge and writing in adults (Dunn & Bridwell, 1980).

On tests of near and far transfer to reading, the results were more equivocal but supported the predicted positive effects of text structure and social context treatments on students' reading performance. On the measure

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of students' ability to synthesize information from multiple sources, students in the TS and SC groups made significant gains and surpassed all other groups. Although not statistically significant, a similar trend was found for free recall favoring the TS and SC groups. Experimental students who received concentrated forms of instruction, focusing either on text structure or social context, but not both, tended to make the greatest connections between writing and reading.

To understand why students in the social context and text structure groups transferred their knowledge from writing to reading, it is helpful to consider the components of the respective instructional programs. For example, social context students were asked to summarize other students' writing as part of the peer editing conference and to ask questions when students' papers did not make sense. Both activities have been shown to enhance comprehension and recall of written text (Taylor & Beach, 1984; Wong & Jones 1982). Interviews with students confirmed that they focused on sense making in editing other student's papers. In these respects, distinctions between writers and readers were blurred as authors and audience maintained a constant dialogue. In addition, students in social context classrooms gathered information from social studies texts when writing and publishing their social studies books. Thus, they had ample opportunities to read and monitor well-structured and poorly structured texts in the context of reading social studies texts and student papers. Since comprehension monitoring and sense making underlies mature comprehension performance (Brown, 1982), these activities may have affected students' abilities to understand not only how texts are organized for the purposes of composition but also to study how to monitor text for the purposes of comprehension. This may account for evident gains in their primary trait and holistic scores in their expository compositions as well as gains in their reading comprehension.

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Similarly, TS groups also received instruction that promoted making connections between reading and writing. Students in TS groups read social studies texts that conformed to text structure expectations, and they also read the texts as bases for gathering, composing, and revising their own expository papers. These activities could well have heightened their awareness of how to read and comprehend expository texts.

What is less certain is the failure of SC/TS groups to make similarly strong improvements on the multiple source and free recall measures. In other words, if text structure and social context have positive effects on reading and writing performance, why was the pattern of results not more strikingly in favor of the SC/TS group? To answer this question it must be noted that SC/TS groups had two treatments in a single year. In the first half of the year, SC/TS groups participated in writing activities in which there was a social context for writing; in the second half of the year, text structure instruction was embedded in this context. Thus, students in the SC/TS groups concentrated on audience and writing process and added to that knowledge by learning about specific text structures.

For students just beginning to master expository writing, the dual rather than single focus may have been slightly confusing. This may have consumed their attention and they may have had less attention available to focus on a single process and to see connections between writing and reading. This hypothesis is partly supported by interviews with teachers in the SC/TS group who suggested that the adults were working through similar changes associated with the introduction of text structure in their classrooms. They regressed from higher level concerns about "How does this affect my students?" to lower level management concerns. Similar adaptations and regressions on the part of their students may have affected students' ability to

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make links to reading (see Kirschner, Raphael, & Englert, 1985, for a thorough treatment of the data on teacher perceptions and effects). However, research is necessary to determine if a longer training program for students in the SC/TS group would promote their ability to make writing-reading connections or if a program that combined foci at the beginning would prove to be more effective than one that delayed introducing text structure until midyear.

In summary, this study shows the strong effects of social context and text structure on writing and reading. Significantly, similar results were obtained when teachers directed instruction in text structures or when students directed the learning through peer editing and conferences with other students. The powerful effects of the two treatments are most apparent when we consider that text structure instruction occurred in only one-half of the time apportioned for the social context treatment and that students engaged in examining, questioning, composing, and critiquing text structure forms in the absence of teacher-directed study were still able to accumulate impressive data about expository text structures. The latter finding raises questions about the nature and focus of peer editing conferences. Perhaps the interaction between author and reader allows new understanding to emerge as students discuss text structures and coach each other on how to write and revise papers to meet assumptions triggered by specific text forms.

Given the importance of peer interactions and revision processes to writing instruction, future analyses of the think sheets, revisions, and final drafts of student papers in the various treatments will provide valuable measures of students' conditional knowledge about how to write and edit particular text structure forms. Further analyses of the performance patterns of pretest-posttest gainers and nongainers during training will help specify factors that account for growth or lack of growth and will suggest

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specific treatments best suited for certain types of students. As we build

our understanding of the elements of effective writing instruction, we can

enhance both the theoretical bases for directing practice and improving the

practice of writing instruction in today's classrooms.

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Appendix A

<u>Think Sheet for Prewriting</u>

Author _____
Date _____

<u>PREWRITING FORM</u>

<u>Subject</u>:   My topic is _____.

I want to write about this topic because _____

_____

Two things do I already know that will make it easy to write this paper are:

1.
2.

<u>Reader</u>:   Who will read my paper?

My reader will be interested in this topic because

1.
2.

<u>Purpose</u>:   My purpose in writing about this topic is to _____

_____

I want my reader to feel _____ when he or she reader my paper?

<u>Form</u>:   What ideas will I put in my paper to make it interesting to my reader?

1.   2.
3.   4.

I will organize the ideas to make them easy to following using this order:

First,   _____
Second,   _____
Third,   _____
Fourth,   _____

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Appendix B

Student Problem/Solution Text and Accompanying Worksheet

I don't want to move

You know how it is. You like your friends. You like your school. You love your house but you don't want to move. It happens to everyone at least once in your life and now it's happening to me. I came home one day and my mom said that she wanted her very own house. I didn't think it was possible. I just laughed at her and went to my room. Boy was that stupid. Just a few days ago we got a phone call and a guy said we could get a house! It all happened so fast! My mom says we are going to get the house as soon as we can. I have to leave my friends behind. I have to say goodbye to my house. I have to say goodbye to my school. I just don't want to go! Well, maybe I'll get over it.

Worksheet #1

Lesson 1

Paper 1

1. What kind of paper is this?_____

2. What key words & phrases tell what it is?

   _____   _____

   _____   _____

3. What questions does this paper answer?

   1. _____

   2. _____

   3. _____

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Appendix C

Compare/Contrast Pattern Guide

```
 _____
|                                                          |
| What is being                                            |
|     compared/contrasted?                                 |
|_____|


            _____
           |                                        |
           | On what?                               |
           |_____|


  both      _____        _____    in
  same     |                      |      |                      |   contrast
           |        Alike?        |      |      Different?       |   to
           |                      |      |                      |
           |                      |      |                      |
           |_____|      |_____|


            _____
           |                                        |
           | On what?                               |
           |_____|


 similarly  _____        _____   however
           |                      |      |                      |
           |        Alike?        |      |      Different?       |
           |                      |      |                      |
           |                      |      |                      |
           |_____|      |_____|


            _____
           |                                        |
           | On what?                               |
           |_____|


            _____        _____
           |                      |      |                      |
           |        Alike?        |      |      Different?       |
           |                      |      |                      |
           |                      |      |                      |
           |_____|      |_____|
```

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