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ABSTRACT
                A study investigated the organizational processes
accessed during the composing process by elementary student writers
whose teachers had been instructed by the Project READ/Inquiring
School Initiative at the University of Pittsburgh in helping children
develop organizational structures. Subjects were 28 fourth-grade
students in the experimental classroom and 27 students in a control
classroom from an elementary school in an economically depressed
area. Students in the experimental classroom wrote regularly and were
accustomed to having their teacher use graphic structures that
emphasized organization during prewriting activities to help them
organize their thoughts prior to writing. Students in the control
classroom were exposed to the use of visual organizers but with far
less regularity than students in the experimental classroom. The
teacher from the experimental classroom taught writing to both
classes for two 90-minute periods on consecutive days. Writing
samples form students and transcripts of interviews were analyzed.
Results indicated that: (1) the number of students using higher
levels of organization was greater in the experimental group than in
the control group for all levels of student achievement; and (2)
students in the experimental group had greater awareness of their
writing processes and had an easier time verbalizing about their
writing behaviors. Findings suggest that the instructional activities
had an impact upon the organizational strategies and resultant
complexity of compositions produced by writers in the experimental
group at all ability levels, but particularly those in the low to
average levels. (RS)

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Students' Ability to Apply and Reflect on Organizational Structures

Used in Composing

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Recent research on the composition processes of young children supports
the relationship between cognitive processing and the ability to write
coherent passages. A major educational problem, however, appears to be in
enabling students to independently sustain high-level portions of the
composing process (Bereiter & Scardamalia, 1987). Evidence indicates that
students' main difficulty with content is in gaining access and giving order
to the knowledge that they have (Bereiter & Scardamalia, 1987).

The analysis of student writing samples can reveal indications of the
application of such skills. However, analyzing compositions for the purpose
of determining the writer's ability to organize his/her thoughts requires a
high degree of interpretation. Although a text cannot directly reveal the
composing process behind it, it can provide insight into the knowledge
structures that the writer utilized to direct the composition. Therefore, the
study of a writer's composing processes can indicate the level of
accessibility of their knowledge and the kinds of strategies they use to bring
this knowledge into use in their compositions. Analyzing the overall
rhetorical structure of the composition can, therefore, provide an indication
of how writers organize and develop their writing and, in effect, manage its
complexity.

For the past six years at the University of Pittsburgh, in collaboration
with 10 school districts, the issue of helping children develop organizational
structures to facilitate the reading/writing connection has been addressed
through the Project READ/Inquiring School Initiative. This initiative is based
on Calfee's (1991) notion that the development of critical literacy, the
ability to use language in various forms as a tool for communication and

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problem solving, is a primary goal of the elementary school. An integral part
of the Project READ/Inquiring School Initiative, is its focus on the
development of higher order thinking through the use of instructional
strategies designed to develop student ability in using organizational
structures for learning across the curriculum (this initiative applies these
premises to the theory of the connectedness of reading and writing). Research
supports the idea that the structures and strategies that readers and writers
use to organize, remember, and present messages are basically the same for
reading and writing, and that these activities are related to both language
and cognition (Langer, 1992).

After years of working with teachers to help students to learn to learn
by using organizational strategies with reading activities and encouraging
teachers to connect writing activities with the reading activities, the
question remained as to whether students used their knowledge of
organizational structures to access knowledge during the composing process in
expository writing. Exposition was chosen as the focus of this study because
it accounts for 80 percent of the reading and writing experiences students in
the United States encounter during their school careers (Langer, 1992).

Additionally, our interest in focusing on the use of organizational
structures for helping students organize information prior to drafting
exposition was prompted by results of a full scale evaluation of the Project
READ/Inquiring School Initiative (Bean, Lazar, DeStefano, 1992). We learned
that use of graphic organizers increased student involvement in learning
regardless of ability. Although all students benefited from being exposed to
organizational strategies for learning and comprehending written material,
students of average and below ability appeared to benefit the most. The

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organizers enabled this group of students to contribute more to the class.

The current research was designed to investigate the organizational

processes accessed by elementary student writers during the composing process

and sought to answer the following questions: 1) Does explicit teaching of

organizational strategies for use in reading and understanding expository

text affect the organizational structure of expository writing produced by

elementary students? 2) Does the degree of exposure to strategies for

accessing and organizing knowledge affect the organizational structure of

exposition produced by elementary students of varying reading abilities? 3)

To what extent do elementary students have an awareness of organizational

strategies they use for directing their expository writing.

Methodology

Setting

The study was conducted in an elementary school in a large district in

an economically depressed area. The school houses 600+ students in grades K-

4; 58 percent come from low income families and are eligible for free or

reduced lunch. In 1990-91, 13 percent of the third graders participated in

the Chapter I reading program. Additionally, 12 percent failed to achieve

minimum proficiency in reading on the state-mandated third grade reading test.

This school had participated for four consecutive years in the Project

Read/Inquiring School project and had sent 98 percent of its teachers to the

University for staff development workshops.

Students

Students from two intact fourth grade classrooms of comparable size

participated in the study. One class was comprised of 28 students and the

other, 27 students. Groups were heterogeneous in reading ability and included

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a range of low to high ability readers. We selected fourth grade for the

study since previous research (Langer 1985, 1986) revealed that, beginning in

third grade, students have systematic, well-developed knowledge of exposition

that they use as they read and write. Thus we expected our fourth graders to

be able to handle the task given them.

The experimental classroom (28 students) was taught by a teacher who,

after repeated observations by university project staff, evidenced full

integration of elements of the instructional model stressed in staff

development workshops (high implementation). Daily instruction was

characterized by regular use of graphic structures that emphasized

organization. Students wrote regularly and were accustomed to having their

teacher use the structures in prewriting activities as a means of helping them

organize their thoughts prior to writing.

The control classroom was chosen on the basis of principal

recommendation. We asked the principal to recommend a teacher who had

attended staff development workshops, had implemented the instructional model,

but had not fully integrated it into daily c'assroom instructional routines

(low implementation). Therefore, students were exposed to use of visual

organizers but with far less regularity than students with the high

implementation teacher. The control students were instructed by the high

implementation teacher for spelling, so they had also been exposed to extent

to his teaching methods.

Method

During the last month of the school year, the teacher from the

experimental classroom was asked as part of this intervention to teach writing

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to both classes for two 90-minute periods on consecutive days. Specific

writing activities, which were planned jointly by the researchers and the

teacher, were implemented with both classes. They are described below:

Day 1. Students were given the following writing prompt: "A new

handbook is needed for incoming fourth grade students to help them make the

adjustment to the fourth grade. To help us in writing the handbook, I would

like you to write about what you experience as a fourth grader at this

school." The teacher then described to the class, in detail, how they were

going to prepare to write their papers and why. Students then brainstormed

ideas and developed a graphic organizer on the board with the teacher. Then

they sorted and catagorized words on the web to further organize their

thoughts for writing. After categories were created, the class voted on those

they would actually use for their writing activity, discarding the rest.

The teacher then directed the students to use the organizational structures

they had created to write a section of the student handbook.

The teacher was asked to target a group of high achieving students and a

group of lower achieving students (based upon Stanford Achievement Test

scores) who were then observed by the researchers (nine per group). Observers

recorded writing behaviors (i.e. how students used the material on the board,

other visible organizational structures developed independently, overall ease

with the writing task) on each day.

Day 2. The teacher began the second day's classes by asking students

to recall, step-by-step, what they had done during the previous class to

organize information for writing and pressed them as to why they had done

these things. He then gave the topic for the second day's writing activity:

"Some students new to the fourth grade may also be new to the neighborhood,

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so today I would like you to write about things that you do after school which might be of interest to new students. In this way they can be informed about life both inside and outside of school." The teacher informed the classes that, unlike the previous day, he was not going to help them organize their thoughts for writing. Rather, he was going to let them make their own decisions about how they wanted to write their papers.

Researchers again observed and recorded writing behaviors of targeted students from the previous day, specifically looking for evidence of visible organizational structures produced prior to writing. When targeted students were finished with the writing task, they were invited to discuss their writing with one of the researchers away from the classroom. Children from each group both experimental and control were asked the same series of questions about if, when, and how they organized information prior to writing. Also they were asked questions specific to their writing experiences of the past two days and about their expository writing in general. All discussions were audiotaped.

Analysis

Both writing samples (two per student from both the experimental and control classes) and transcripts of interview from audiotapes were analyzed. To assess students' use of organizational strategies in their exposition, the Langer (1992) model of prose analysis was used. This model, adapted from Meyer's prose analysis system (Langer, 1985, 1986), uses tree diagrams to show interrelationships within the text. Meyer's (1984) original intent was to provide a hierarchical description of the text in a manner suitable for scoring recall protocols for information remembered in a reading task. Langer adapted the scales to be useful in analyzing the hierarchical structure

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in student compositions.

Using Langer's model, student compositions were coded according to five levels of expository writing complexity: 1) Level 1 (Simple Description) - Students at this level present strings of information in a sequence of related ideas with no overarching topic or controlling idea; 2) Level 2 (Topic with Description) - Students focus more clearly on a point being made. They present and discuss a main topic, and elaboration is done primarily through description; 3) Level 3 (Topic with Description and Commentary) - Descriptive language continues to dominate at this level. The beginnings of elaborating comments appear. Information is clustered into related topics; 4) Level 4 (Topic with Elaboration) - Topics are defined and organized by pertinent elaborations using a variety of linguistic devices; and 5) Level 5 (Point of View with Defense) - The writer sets out to present and elaborate on a thesis. Reasons, explanations, and defenses are given for points of view (Langer, 1992). In this study, none of the student papers exhibited Level 5 features. This is consistent with Langer who also found that only ninth grade participants in her study sed the Level 5 structure for organization .

All writing samples written on Day 2 were coded by the researcher. A second trained rater recoded 75 % of the samples to establish reliability. Rater training procedures were as follows: the second rater read the Langer(1992) article to become familiar with scoring levels and discussed questions with the researcher; the rater and researcher together coded selected samples from Day One representing each of the four levels and discussed features of each of the levels; the second rater and researcher then scored selected Day One samples independently and compared scoring. Seventy five percent of the Day 2 writing samples were recoded for reliability

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with an 80 percent agreement between raters.

Data were analyzed in several different ways to determine differences in organizational patterns used by experimental and control students: Day Two papers were sorted by group and frequency counts and percentages of students using each of the four expository levels of organization were calculated; performance of low, average, and high ability experimental and control students were compared with those of Langer's (1992) sample of high ability third grade students;   performance of low, average, and high ability experimental and control students were compared.

Protocols from audiotapes were transcribed and coded for metacognitive responses specifically related to knowledge of organizational strategies used prior to drafting expository text.   Responses of experimental and control students were compared.

Results

Writing Samples.   Analysis of writing samples indicated that the number of students using higher levels of organization was greater in the experimental group than in the control group.   Fifty two percent of the control group used the lowest level of topic development, Level 1-Simple Description (a simple sequence or descriptive listing about the topic), to present information.   In comparison, 28 percent of the experimental group used the Simple Description format.   Compositions from those in the experimental group contained more examples of higher level topic development with some type of support, at all three levels: Level 2- Topic with Description (experimental 32% vs. control 22%), Level 3-Topic with Description and Commentary (experimental 28% vs. control 17%), or Level 4-Topic with Elaboration (experimental 12% vs. control 9%) .   These data indicate that

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the students in the experimental group were able to produce compositions in which ideas were organized using more sophisticated structures.

When data of both low ability experimental and control group students (low ability fourth graders) were compared with high ability third grade students from Langer's study (1992), a greater percentage of experimental group students used Level 3 organizational structures in their writing than did Langer's group (43% vs. 14%). Control group students also used Level 3 organizational structures at a slightly higher rate than Langer's group (18% vs. 14%). Average ability experimental fourth graders also used higher level organizational structures than Langer's students, most notably at organizational Level 3 (29% experimental vs. Langer 14%).

When performance between the experimental and control groups, using reading levels were compared, differences appeared. When comparing low ability experimental and control students, 43 percent of experimental students used Level 3 organizational structures in their text while 18 percent of the control students used this level or organization. Fifty five percent of the low ability control group students used Level 1 organizational structures while 14 percent of the experimental group students used Level 1 structures.

Average ability experimental students also used higher levels of organizational structure in their compositions: a) forty three percent used Level 2; b) twenty nine percent used Level 3; and c) fourteen percent used Level 4. In comparison, average control group students used only Levels 1 (67%) and 2 (33%). At the above average ability levels, experimental group students used more Level 3 and 4 structures than control group students. For the experimental group, 27 percent of their compositions utilized Levels 3 and 4, whereas only 8 percent of the controls' compositions fell into these

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organizational levels.

Comparisons of students with different reading abilities suggests that low and average ability students from the experimental group were able to write at a higher level of topic development than those of similar ability from the control group. This finding is noteworthy because it supports findings of the Project READ/Inquiring School evaluation (Bean, Lazar, DeStefano, 1992). In light of this relationship, it was of interest to the determine whether these trends were significant. Therefore, an analysis of variance was performed using the Langer levels as the dependent variable and the classroom instructional treatment as the independent variable. Although results of the ANOVA did not reveal significant differences, the lack of significant differences may be due to the small sample size and the limited range of possible scores. However, trends were in the expected direction.

Discussion Group Transcripts. Qualitative analysis of the interviews indicated that students in the experimental group had greater awareness of their writing processes and had an easier time verbalizing about their writing behaviors (i.e. strategies and rationale for organizing before writing). Writing samples from both classes revealed that only one student (from the high implementation class) produced any visible organizational structure prior to writing on the second day. However, other students may have internalized this form of organizing information prior to drafting as evidenced by a statement made by an experimental student during small group discussions. Students were asked why they did not independently produce webs during the second day's writing task. One student responded, "You didn't see our br ins." Students in the experimental group reported that their perceived need and/or the nature of the writing task (i.e. content subject vs. descriptive

paragraph) determined whether they generated a visual structure for

organizing their ideas before drafting. Students reported two specific

conditions for generating visual organizers: (1) lack of prior knowledge of

the topic and (2) the desire to generate and organize complex informatior.

They reported using the prewriting organizer from Day One as an external

memory source of ideas from which to make connections for their writing rather

than as a means for organizing their ideas for composing. As one student put

it, "...if you come up with all these ideas, you might forget some, so if you

put them all down, it helps you remember." The one student who produced the

web on Day Two commented that she had created the web because then she "didn't

have to keep saying to herself, "I want to put this down, and I want to put

that down." "I could just read it on the web and write the story. "

Reading ability did not appear to be a factor affecting use of visual

structures prior to drafting. Rather, students at all ability levels

indicated that perceived need and utility would influence their choice of

prewriting activities. Several students, regardless of ability level, who

perceived themselves as good writers and who liked to be creative in their

writing (i.e. draw inferences as they write) felt constrained by the external

organizational structure imposed upon them during the Day One activity. This

insight supports research by Bereiter & Scardamalia who found that prewriting

activities can be perceived as time consuming and not useful when the topic is

familiar. As one student put it, "I didn't make a web because I have

thoughts in my head and I can use them as the web." While another student

commented, "I didn't use the web [on Day Two] because I know what I do every

day after school and it is usually the same."

Finally, students reported that they needed the freedom to determine

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which type of organizational structure would be most helpful to them. For

example, one of the students in the discussion group suggested that a "weave"

would have been more helpful than the web during the Day One writing task.

Conclusions

Findings indicated that the instructional activities associated with the

Project READ/Inquiring School initiative had an impact upon the organizational

strategies and resultant complexity of compositions produced by writers in the

experimental group at all ability levels, but particularly those in the low to

average levels. These findings were consistent with those revealed in the

evaluation regarding the impact of organizational strategies on reading

comprehension. In addition, we learned that such instruction can increase

student awareness of decision-making strategies regarding the best means of

accessing knowledge structures for expository writing. The regularity with

which students are exposed to different organizational structures appeared to

affect their ability to make appropriate choices for themselves in terms of

when and how to use organizational strategies before drafting.

From this work, we were able to see the need for flexibility in teaching

students ways of organizing for a variety of composition tasks. In terms of

instruction, this means that teachers need to model organizational options for

students and then encourage students to make their own decisions about what

options to use. Group generated organizers create a rich language environment

for students and may offer a good starting point for accessing knowledge prior

to writing, but the next organizational step needs to be selected by the

writer and is dependent upon the type and purpose of the exposition

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