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The Influence of Drawing on Third Graders' Writing Performance

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This study compared the writing products of 60 third grade students who drew before writing a story on a self-selected topic (Experimental Group) with the writing products of 59 third grade students who simply wrote without drawing (Control Group). An analysis of the students' writing products revealed two important findings. First, students who drew before writing tended to produce more words, more sentences, and more idea units, and their overall writing performance was higher than the students who wrote without drawing. Second, these results were consistent for boys and girls regardless of group membership. The findings indicate that the differences in writing performance were probably due to the integration of drawing and writing. Implications for writing research and instruction are discussed.

The lack of writing skills among American school children has been widely discussed by parents, teachers, and education critics. Why do children not write more often and more skillfully? Graves (1978) contends that poor writing by school children occurs because writing has been changed by inappropriate, formal, scholastic demands, from a pleasure or even a skilled discipline, into what is viewed by some students as a punishment. In many instances, the mechanics of writing, in which the students have not been adequately grounded, have been assigned much more importance by teachers and parents than the content of the writing. In spite of children's apparent resistance to this mechanistic approach, Graves asserted that there is a need in human beings to express themselves through writing since the act of writing helps them to examine the human

experience. He further maintained that in American schools, "We have substituted the passive reception of information for the active expression of facts, ideas, and feelings," (p. 25) and a more equitable balance needs to be struck. Graves (1983b) affirmed the importance of children's desire to write when he insisted,

Children want to write. They want to write the first day they attend school. This is no accident. Before they went to school they marked up wall, pavement, newspapers with crayons, chalk, pens, or pencils ... anything that makes a mark. The child's marks say, 'I am.' (p. 21).

Anxiety about the decline of writing ability in American school children and the subsequent consequences of that decline is not a new issue. Graves (1978) reported that in the American elementary schools he surveyed in the late 1970s for the Ford Foundation, student writing was neither encouraged nor emphasized, and, even more disheartening, largely non-existent. While reading and listening skills were stressed, students seldom formally wrote subjective answers to questions. In fact, on the average, children in elementary schools averaged only one written assignment a month (Graves, 1983a). Cooper (1997) noted the two most common reasons teachers historically gave for ignoring writing in the classroom were, first, that they felt writing was not very important, and second, there was not enough time because of the other required subjects.

On behalf of the National Council of Teachers of English (NCTE), Applebee (1981) conducted a survey of secondary schools in the United States in the late 1970s. Results showed that less than one-half of one percent of students' class time was spent on any form of creative or personal writing. In addition, schools spent only one dollar on writing programs for every thirty dollars spent on reading programs. Although the survey was undertaken at the secondary school level, the conclusions also reflected on the probable lack of writing activities in the country's elementary schools. To further project the possibility of a bleak writing future for school children, Applebee pointed out that courses available to prospective teachers which concerned methods in the teaching of writing were almost never required by colleges of education, while, at the same

time, those same institutions were increasing their requirements of the number of courses in the teaching of reading. Silberman (1989, p. 8) maintained that "As a result of lopsided training and skewed values, school systems have had to resort to hiring teachers who have learned neither how to teach writing nor how to write themselves." Further, Graves and Stuart (1985) noted,

The anxiety that inexperienced writers feel when they try to teach writing is as natural as the anxiety of a non swimmer trying to teach swimming. If teachers are to feel confident about themselves and their work, they must feel confident in their ability to do the very things they teach others to do." (p. 147).

Fortunately, there have been some slight improvements at the university level. More recently, Donald Graves and Carl Wilcox reviewed the elementary education requirements for future teachers at what Graves and Wilcox considered to be the top 50 state universities in the United States. In an interview, (Routman, 1995) Graves stated that he was encouraged by the fact that more than half of those state universities were, at that time, offering courses in writing.

Also on a more optimistic note, there has been a growing movement in elementary schools to expand the amount of time that is devoted to writing. Giving students daily classroom time to write in response journals has become commonplace (Gunderson and Shapiro, 1988), and teachers interested in the importance of writing are searching for ways to inspire and encourage their students, especially those students who write reluctantly.

Chew (1985) wrote that in the years since the movement to encourage writing in the schools began, much more has been learned about the stages of young writers' development and of the significance of the teaching of writing. For example, research synthesized by Anderson, Hiebert, Scott, and Wilkinson (1985) has verified the importance of writing as the most consequential way in which children learn to spell and develop their ability to use grammar. In a written interview quoted by Jensen (1993) Peter Elbow, a noted children's writing authority, offered the premise that

writing is learned in a natural way, since children "can write anything they can say," and [writing] "is the gateway to literacy" (p. 291). As teachers learn more about the relevance of writing, more classrooms are being supplied with ample writing materials, and teachers increasingly are setting aside time during the school day to make writing a formal part of the curriculum. Some states, such as California and Vermont, have gone as far as establishing statewide writing programs for students.

Another often neglected aspect of the elementary school curriculum is the discipline of visual arts. According to Morris (1987), art has been a standard part of the American public school curriculum since the latter part of the nineteenth century. Arnheim (1979, p. 219) wrote that it was well-known by art teachers that the visual arts, "when intelligently pursued," helps students develop their individual mental resources, because of the cognitive problems posed by the production of the art form. Notwithstanding the recognized importance of art in children's lives, numerous schools in the United States are increasingly affected adversely by budget cuts, with visual arts programs frequently at the top of the elimination list. At the same time, classroom teachers are frequently reluctant to allot school time to art, especially when faced with the demands of more publicized academic needs.

Many elementary school teachers can attest to their students' evident enjoyment of classroom time devoted to creative art activities; therefore, perhaps the best aspects of both art and writing would be enhanced by combining the two. Janet Olson (1992, p. 36), a professor of art education, calls her version of this solution "the visual-narrative approach," and feels that students can be trained to move back and forth between the realms of writing and drawing with little trouble. Platt (1977) seemed to establish a foundation for Olson's contention by stating:

There is a direct correspondence between the drawn symbol and the written symbol. Graphic images are part of a visual vocabulary which has intense personal meaning of the child. There is a symbiotic relationship among drawing, writing, reading, speaking, and listening (p. 262).

Indeed, the random marks made by young children were described by Reutzel and Cooter (1996, p. 92) as "the wellsprings of writing discovery." The researchers further stated that children soon discover that drawing and scribbling are alternate forms of written expression. Investigation by several researchers have shown that initial drawings seem to enhance writing by giving the young students a scaffold on which to build ideas, or a pathway which leads them to the words they later select (Bissex, 1980; Calkins, 1986). As noted by Sticht and McDonald (1992, p. 322), the alphabet itself is but "a graphical representation of spoken language."

Although much research has focused on the separate subjects of children's art and children's writing, relatively little research had been published on the integration of the two until the work of Olson (1992). Her research and work with young students, spanning more than twenty years, suggested numerous benefits of such an integration. As a result of her extensive investigations, Olson came to believe that children's visual vocabulary improved as much as their drawing skills when the two processes were integrated. As she detailed in her book, characters who children have first brought to life in drawings, "characters who cry, who are frightened, who are happy or angry" (p. 18), are easier to develop in stories. In Olson's opinion, some students need the help such drawings provide.

If children are able to draw a variety of characters, make them move, change their emotions, as well as control a variety of changing environments, they then have access to a rich visual vocabulary that will serve them well when developing an interesting and meaningful plot (p. 276).

The relationship between drawing and writing has been discussed in literature which considers the literacy development in children (Bissex, 1980; Calkins, 1983, 1986; Graves, 1978, 1981; Harste, Woodward, and Burke, 1984). Researchers (Atwell, 1990; Graves, 1983a; Calkins, 1983; and Wilson and Wilson, 1979) also have written about the unique kinship of drawing and writing during the planning phase of the writing process used by children. Tompkins and Hoskisson (1991) recommend using drawing and other art activities as a strategy before writing takes place, especially with children who otherwise have problems expressing themselves

in written form. The importance of that strategy further was emphasized by Hoyt (1992) who noted that such children may find "that artistic expression focused on a learning experience can help them to organize thinking and rehearse for more traditional means of expression" (p. 583).

Studies by Sarnoff (1981) and Rubin (1990) converge with the work of Olson (1992) who stated, "children with highly visual aptitudes are capable of complex problem-solving and thinking processes." (p. 2). She continued by asserting, "the elements of plot are frequently more complex and detailed in children's drawings than is evident in their writings" (p. 3). Olson also stated that there is an untapped reservoir of visual experience and understanding that can be translated more effectively into words by using a visual approach to writing. The close relationship between writing and the visual arts previously had been noticed by Sealey, Sealey, and Millmore (1979, p. 6) when they wrote,

Writing is a graphic form; it involves making marks on paper. As such, motor skills are involved, but one also needs to develop a sense of order and pattern ... Some approaches to the correct formation of letter shapes have been through art, but picture and pattern making also seem to release energy in some children for speaking and writing. In many classrooms where there is art of a varied and high standard, the writing is of corresponding quality.

Friedman (1985), a first-grade teacher who researched the writing ability of her students over a number of years, believed that the majority of even her very young students, able to function in a regular classroom also were able to write competently. She found that incorporating drawing with her writing program seemed to be a helpful method to inspire students suffering from writer's block, suggesting each child first should draw a picture. After the children were finished with their drawings, they were asked if they then could write about their pictures. The answer was always an enthusiastic affirmative. More recently, Reutzell and Cooter (1996, p. 412) noted that the practice of drawing before writing seems to have the power "to help children hold the world still for a moment — long enough to select a topic for writing."

There has been limited formal study of the role of drawing in the writing process of children in specific primary grades. We define primary grades for the purposes of this study as grades one through three. Two of the studies which investigated such a relationship are unpublished and include Zalusky (1982) who analyzed the relationship between drawing and writing in first grade children, and Skupa (1985) who conducted a somewhat similar study with second grade children. The findings in both studies stress the importance of drawing as a way of facilitating idea generation for writing. The study presented here seeks to explore the influence of drawing on third grade students' writing performance. Our guiding question was: Do children who draw pictures before writing produce better stories as measured by number of words, sentences, idea units, and overall writing grades?

Method — Subjects

The subjects used in the present study consisted of 119 third grade students from three elementary schools in a small, midwestern, lower to lower-middle class socioeconomical rural community. School records indicated similarity in student populations; children shared similar linguistic, cultural, and socioeconomic backgrounds. None of the children was identified as having any specific learning problems or handicapping conditions. All of the children had completed their first and second grade years in the same school district with comparable records of socioeconomic status, student achievement, and teacher competency. Permission to conduct the study was granted at the beginning of the school year by the classroom teachers, the school principals, and the parents.

Six third grade classrooms available in the school district were randomly assigned, three to each of two treatment conditions. Sixty students became the subjects for the experimental group, who drew prior to writing stories, and fifty-nine students in the control group wrote without drawing. Students who attended the three schools in the study were predominantly caucasian in the lower to lower-middle socioeconomic classes. The majority of the students in the three schools received free or reduced-price

breakfasts and lunches while at school. A more detailed description of the subject populations used is presented in Table 1.

A letter of information was distributed by the participating teachers to the parents/guardians of each of the subjects. The letter contained information about the purpose of the study, an explanation of the method of collection of the writing samples, and of the two tests that would be administered, the assurance of confidentiality, and the assurance of the parents'/guardians' rights to deny their child's participating in the study. Two copies of a consent form also were sent to the parents/guardians of each subject. The parents/guardians were asked to sign one copy of the consent form and return it to the subject's teacher, while keeping one copy of the form for their personal use. Additionally, during a visit to each classroom by the first author, the subjects were informed of the purpose of the research, that participation in the study was entirely voluntary, and that they would have the option of refusing to participate at any point during the study.

Data Collection

The data collected consisted of 1) an initial assessment of writing and creative ability and 2) drawing and writing samples. The Test of Written Language-2 (TOWL-2, Form A) by Fammill and Larson (1988) was administered to check for possible existing differences in writing ability between the experimental and control groups. T-test analyses showed no significant differences ($t=0.366$, $df=117$), suggesting that the two groups began the study with similar levels of writing ability. However, TOWL-2 composite scores were used as a covariate in the analyses with the aim of increased precision (Keppel, 1991) despite the lack of significant initial differences between the groups.

The Torrance Test of Creativity (TTCT) (Torrance, 1974) was also administered to the subjects in order to check for possible existing differences in creative ability between the experimental and control groups. The results indicated similarity in creative ability between the groups, but the

TTCT was not found to correlate highly with any of the dependent variables in the study ($r < .20$), so it was excluded from all statistical analyses.

Table 1

Description of Subjects by Age, Gender, and Ethnicity

	<u>M</u>	<u>F</u>	<u>Total</u>
Experimental Group			
Subjects (n-119)	27	33	60
Mean Age	8.92	8.97	
Ethnicity:			
Caucasian	21	22	43
Native American	05	08	13
African American	01	03	04
Total	27	33	60
Control Group			
Subjects (n-119)	31	28	59
Mean Age	8.91	8.98	
Ethnicity:			
Caucasian	17	18	35
Native American	12	09	21
African American	02	01	03
Total	31	28	59

Each subject was asked to write three different stories during three separate sessions approximately one week apart. Subjects were given several choices of story topics, as well as the option of choosing their own topic. Subjects in the control group were given thirty minutes in which to write their stories, following the presentation of suggested topics which were written on the board with instructions. Subjects in the experimental group were first given thirty minutes in which to write their stories, following the presentation of suggested topics which were written on the board with instructions. Subjects in the experimental group were first given

thirty minutes in which to draw a picture about their chosen topic, then given an additional thirty minutes in which to write a story about the topic.

Analyses

Four dependent variables were selected as measures of the subjects' writing performance: the number of words; the number of sentences; the number of ideas units; and an overall story grade. An idea unit was defined as a focus of consciousness that is linguistically expressed in written form, the completion of which is often, but not always, signaled by a period or other end mark (Chafe and Danielewicz, 1987; Gere and Abbott, 1985; Kroll, 1977). Since idea units and overall story grade contain some subjectivity, efforts were made to reduce the degree of subjectivity. The number of idea units for each story was determined by a jury of three raters, all of whom have graduate degrees and experience as elementary school teachers. Any written selections for which differing numbers of idea units were obtained were discussed by the jury members until unanimous agreement was reached.

The overall quality of the subjects' writing was evaluated using a modified composition scale developed by Hughey, Wormuth, Hartfiel, and Jacobs (1983) used in scoring the stories. This scale weighs content 50%, organization 30%, and mechanics 20%. The scale directs the rater's attention to specific features of the piece of writing and suggests relative point values for each feature. The overall score is derived by summing scores on the various subparts of the scale. Each subject's story was rated three times using this scale. The three scores were averaged with the average used for purposes of analysis. The interrater reliability obtained from the three ratings was .88. The four measures used, words, sentences, idea units and story grades, taken together, reduce measurement bias and provide a more comprehensive picture of the subjects' writing performance than any one measure.

Results

The data obtained were analyzed using repeated measures ANCOVAs with group (experimental and control) and gender as

independent variables. Story number was a repeated measures variable (each child wrote three stories), and TOWL-2 composite standard scores was a covariate, to control for any pre-existing differences in writing ability. The main variable of interest was group: Did children who drew pictures before writing produce better stories as measured by number of words, sentences, ideas, units and overall writing grades? Gender was checked for any possible interactions: Did drawing make a difference for one sex but not the other? The story variable was used to obtain more data without greatly increasing error variability.

Table 2

Means and Standard Deviations by Group

<u>Experimental Group</u>		
<u>Dep. Variables</u>	<u>M</u>	<u>SD</u>
Words	113.81	70.94
Sentences	10.02	5.80
Idea Units	1.39	6.31
Overall Grade	69.34	16.77
<u>Control Group</u>		
<u>Dep. Variables</u>	<u>M</u>	<u>SD</u>
Words	71.20	18.17
Sentences	7.05	2.67
Idea Units	7.65	2.95
Overall Grade	45.37	18.17

Since there were four dependent variables, the alpha level for each result was set at .0125, which was obtained by using a modified Bonferroni adjustment, determined by dividing the desired alpha level of .05 for the whole experiment by the number of dependent variables. Following the advice of Huberty and Morris (1989), the use of a preliminary MANCOVA was deemed unnecessary, since the study was exploratory in nature. The results are presented in Tables 2 and 3.

Table 3

F-Values for Group, Gender, Story, and Gender by Group Interaction

Variables	df	F	pr>F
<u>Group</u>			
Words	1	19.26	.0001
Sentences	1	12.98	.0005
Idea Units	1	17.98	.0001
Overall Grade	1	60.04	.0001
<u>Gender</u>			
Words	1	.96	.3302
Sentences	1	3.88	.0513
Idea Units	1	4.72	.0319
Overall Grade	1	1.05	.3085
<u>Gender by Group</u>			
Words	1	.06	.8116
Sentences	1	.51	.4787
Idea Units	1	.60	.4404
Overall Grade	1	.10	.7495
<u>Story</u>			
Words	2	.51	.5828
Sentences	2	.17	.8418
Idea Units	2	.27	.7669
Overall Grade	2	.67	.5142

Significant at alpha = .0125

Values adjusted by Huynh-Feldt epsilon correction.

The results revealed significant differences between the experimental and the control groups with respect to each of the four dependent variables. As shown in Table 2, students who drew before writing (e.g., the Experimental Group) wrote significantly longer and better stories, on average, than those in the control group who did not draw before writing.

These subjects wrote more words ($M=113.81$ vs. 71.20), more sentences ($M=10.02$ vs. 7.05), produced more idea units ($M=11.39$ vs. 7.65), and earned higher story grades ($M=69.34$ vs. 45.37) than did their counterparts in the control group. However, there were no significant interactions between gender and group, nor were there any significant gender differences, for any of the dependent variables (See Table 3). The story variable also was not significant for any of the four dependent variables, indicating that children did not change their performance across the three different stories that they wrote, making all of the story data valid. Overall, the results were highly consistent across all four dependent variables.

Discussion

Two important findings resulted from this study. First, significant differences were found between the experimental and control groups on all the measures used. The students who drew before writing tended to produce more words, sentences, and idea units, and their overall writing performance was higher. Such results strongly indicate that the physical act of drawing ideas prior to writing about those ideas appeared to be beneficial to writing performance among third grade children. Anecdotal evidence collected by the first author during the course of the study supports this explanation of the results: the students who were allowed to draw first seemed to be much more enthusiastic about the visits from this researcher than did the children who simply wrote stories without drawing. Groans often were heard in the classroom each time they were told the time with the researcher had come to an end, and it was time to stop writing. Also, between the researcher's visits, some of the students in the experimental group independently drew about and composed extra stories, according to their teachers. The test of whether things are going well in the classroom is whether the students really want to write, and evidence of writing pleasure was apparent among the students in the experimental group.

During the course of the study, the students in the control group often seemed to be suffering from lack of confidence in their writing ability, indicated by comments they made such as, "I don't know what to write," or "I know what I want to say, but I don't know how to say it." Some

appeared to be stymied completely after writing only a few lines. Even after beginning a story, a number of the students in the control group stopped writing well in advance of the required time limit of thirty minutes. As found by Skupa (1985, p. 179), the process of idea generation "can be a serious obstacle for writers if they do not possess procedures for gaining access to their resources that generate the ideas for writing," which in this instance seemed to be the opportunity to complete drawings before writing was begun.

Also, the high level of enthusiasm found among the experimental group students appeared to be lacking among the control group students. Some in the control group already were receiving extra instruction from a special writing instructor who visited their school, and they felt it was "not fair" that they were allowed only to write during the study, when they knew some of the other students were drawing before writing. The second findings was that these results were consistent for both boys and girls, regardless of group membership. This was a welcome discovery, since in most elementary schools, boys' writing usually lags behind that of girls (Silberman, 1989). In fact, one of the teachers of some of the experimental group students expressed surprise when she was told that all the boys in her class had participated willingly in the writing portion of the study.

The combination of quantitative data and informal qualitative observations collected in this study suggest several observations about the effects of drawing before writing for third grade students. Drawing provided students with the opportunity to speculate, contemplate, and reflect about their ideas and thoughts prior to actually writing them down, and this appears to have been a catalyst that caused an improvement in their writing. The technique of drawing seemed to precipitate unconscious planning, which helped students when they began to write their thoughts down. The act of representing ideas visually through drawing also seemed to enhance the enjoyment of the writing task for the members of the experimental group. Results indicate that drawing became a very effective planning strategy for the students, and they appeared to rely on their drawings as a

reference point to prompt them toward what should come next in their writing. While it may be presumptuous to state that drawing always should take place before writing occurs, perhaps it would be reasonable to suggest that drawing before writing could become a valuable adjunct of the overall writing curriculum in third grade classrooms.

Many elementary teachers view themselves as being extremely unartistic, and seldom have the benefit of an art teacher being on the faculty in the schools in which they teach. Beyond early elementary grades, it is a fairly common practice for classroom teachers to "save" art activities to do with other classes on Friday afternoons or on bad-weather days, when the students can't go out for recess. However, Broudy (1979) on the question of the role of art in general education, pointed out that if a balanced education is to include the aesthetic domain of a child's experience, art should be considered just as basic and necessary as any subject in a required curriculum. In addition, in many elementary schools, only occasionally are students given the opportunity, once they are past the first or second grades, to coordinate art with writing, and that coordination is usually in the use of art as an "after-the fact" activity, as a decoration or illustration when stories are completed (Williams, 1977).

The findings of this study are encouraging, especially to those elementary school teachers who are concerned about their students' writing skills. Integrating drawing and writing may be used as a way of motivating students to write and have fun doing it. However, since the study was conducted in intact classrooms, its generalizability is limited to third grade students. Further research at different grade levels is strongly suggested. Since this study was conducted with primarily rural students, it needs to be replicated in a number of geographical areas, in a variety of school settings, and with a number of diverse socioeconomic and ethnic groups.

Another aspect of the study which might be seen by teachers and researchers as a potential area of concern is the length of time given to each group for the drawing and writing tasks. The experimental group was given 30 minutes to draw and 30 minutes to write, while the control group

was simply given 30 minutes to write. Thus, the experimental group had a longer total amount of time in which to think about the chosen topic. However, the classroom observations by the original researcher suggest that a longer period of time for the control group would not have made much difference in the quantity of writing, since children did not appear to need more time to finish their stories. Rather, it appeared from their actions and verbal comments that the act of getting down their thoughts on paper was difficult and not always enjoyable.

In contrast, the members of the experimental group were able to use their drawing time productively, laying out their ideas in a visual format which was easy for them, then translating those ideas to the more difficult written format. This possible limitation does, however, suggest some avenues for further research; in particular, a more in-depth observation and analysis of the drawing/writing process as it occurs should provide valuable data for helping teachers and researchers realize the importance of integrating drawing and writing.

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