



## Impact of an Art-and-Literature-Based Approach on Writing and Reading Skills of At-Risk Learners: Sixteen Years of Evidence

Beth Olshansky

Center for the Advancement of Art-Based Literacy  
University of New Hampshire

### Abstract

*A yearlong empirical investigation into the impact of two art-and-literature-based literacy models reveals significant gains in the writing skills of students participating in the treatment as compared to a demographically matched comparison group, particularly among those at risk. The study also reveals significant gains in students' use of visual elements as a vehicle for the communication of their ideas as compared to students in the comparison group. These findings are supported by 6 years of reading and writing standardized test score data in one school-wide adoption, with at-risk students making remarkable gains as compared to state and national averages*

### Background

The development of this body of work grew out of a perceived need to develop instructional methods that would support the literacy learning of students who do not learn effectively when participating in traditional linguistic modes of instruction. The initial impetus for developing an art-infused model for teaching writing was very personal, sparked by my interest in unlocking the key to literacy learning for one of my own children who, like myself, was a visual and kinesthetic learner. Early observations of my daughter painting and then "telling about her picture" made it clear that an invitation to "read the picture" can serve to elicit descriptive language that is not available when trying to write while staring at a blank piece of paper. This single observation, made in the late 1980s, was the catalyst for what has become an



ongoing exploration and investigation into the rich relationship between pictures and words.

Fueled by a deep respect for the writing process approach to teaching writing,<sup>1</sup> originating with the research of Donald Graves (1983), and balanced with the recognition that even this highly regarded approach to teaching writing does not work for all learners, artists/writers workshop was born. Designed to provide an alternative pathway into literacy learning for those who are not straight verbal learners, artists/writers workshop gives equal weight to the study of, and engagement in, the complementary languages of pictures and words. Through the study of text and illustration within quality picture books, hands-on art experiences, and a progression of focused writing mini-lessons, artists/writers workshop gives students access to visual and kinesthetic, as well as verbal, modes of thinking at each and every stage of the writing process.

### Phase I: Initial Observations

During the summer of 1990, an initial exploration of the relationship between art and writing was conducted with a dozen neighborhood children during a week-long story illustration workshop held on my back porch. Observation of 12 neighborhood children (ages 6-12) engaged in story development through a non-weighted process of picture-making and writing revealed that, when given the choice, all students preferred to develop their story ideas in pictures first before drafting their written text. One could argue that this was a self-selected group in that participants either chose to enroll in this story illustration workshop or their parents chose to enroll them.

### Phase II: Action Research

A seed grant from the New Hampshire State Council on the Arts and the National Endowment of the Arts allowed for further exploration of the rich relationship between art and writing beginning in September of 1990 in 3 elementary classrooms (grades 1/2, 3, 4/5) at the Oyster River Elementary School in Durham, NH. The action research question that arose from observations of

students at work was: *When asked to create a story and left to their own devices, do children choose to create pictures first or write first?*

Four months of action research supported the notion that a majority of students (grades 1-5), when given the choice as to whether to create pictures first or write first when developing a story, preferred to develop story ideas in pictures first using a variety of rich art materials rather than write their stories first. In a combination 1/2 classroom in which students were told that it was time to begin "working on" their stories, 22 out of 23 students chose to create their stories by making pictures first. This finding mirrored later research by Dr. Sue Teele that revealed that in a typical primary classroom, 25 out of 26 students were strong visual and kinesthetic learners (Brudnak, 1995).

Additionally, students' use of descriptive language was far greater at all grade levels when students created pictures before they wrote (Olshansky, 1993; 1994). This finding was later supported by the work of Kathleen Walsh-Piper (2002) who explored the interplay between image and word in museum settings as she asked students to write to works of art in the gallery. Also striking during this initial inquiry was the immediate and remarkable success of students who were considered struggling readers and reluctant writers (Olshansky, 1994; 1998).

During this same general period, other researchers and teacher/researchers were independently exploring the rich relationship between pictures and words (Dyson, 1986; Ernst, 1994; Hubbard, 1987, 1989; Moore & Caldwell, 1993; Olson, 1992; Smagorinsky, 1995). Still others began exploring the dynamic relationship between the visual image and reading comprehension of elementary school and middle school students (Bell, 1986; Gambrell, 1982; Gambrell & Bales, 1986; Gambrell & Jawitz, 1993; Long et al, 1989; Pressley, 1976; Sadoski, 1983, 1985; Wilhelm, 1995). Each of these studies documented increased reading comprehension when students were instructed to visualize text. Other studies investigated the role that the arts can play in increasing academic achievement (Catterall, 1998) and critical and learning skills (Burton et al, 1999).

Independent of these investigations, a series of private, state, and federal grants allowed for further development, field-testing, refinement, and evaluation of an art-infused literacy model across



grades K-8 which utilized collage made from hand-painted textured papers as a medium for constructing story. Inspired by the colorful collage work of author/illustrator Eric Carle, students created their own portfolios of hand-painted textured papers using a variety of simple art techniques, discovered stories within these nonrepresentational paintings, and then developed stories using their hand-painted papers as raw materials for literally constructing story. This collage model offered students visual and kinesthetic tools for thinking (Olshansky, 1998).

### Phase III: Quantitative Research

A quasi-experimental research study involving 377 first- and second-grade New Hampshire students within 3 school districts was designed and conducted by Dr. Susan Frankel between 1991-1993. Pre- and post-test art and writing samples from students in demographically matched treatment and comparison groups documented significant gains in students' writing skills when participating in the collage-based approach to writing described above over a 3-month period as compared to a demographically matched comparison group over the same time period. The study documented significant gains in students' plot development and use of descriptive language. Significant gains in students' use of art as a vehicle for communicating their ideas were also documented (<http://www.picturingwriting.org/effectiveness.html>). This study, submitted to the Program Effectiveness Panel of the National Diffusion Network within the US Department of Education, resulted in the validation of this model<sup>2</sup> as an "innovative and effective literacy program" in 1993. Subsequent federal funding through the National Diffusion Network supported national dissemination from 1993-1996.

### Further Model Development

A second art-based literacy model was developed in 1996 in response to requests from teachers across the nation who had participated in the collage-based writing process. Having experienced success with some of their most challenged learners, teachers reported the value of this approach and were interested in utilizing art-based writing methods in their classrooms throughout

the entire school year. A simpler, easier-to-manage, crayon resist-based process, which utilizes a carefully designed progression of literature, art and writing mini-lessons, was designed to teach specific art and literary elements through the study of the work of professional authors and illustrators.<sup>3</sup>

While the use of quality picture books as "mentor texts" was independently being explored in the teaching of writing by Ralph Fletcher and Joann Portalupi (1998) and later by Katie Wood Ray and Lisa Cleaveland (2004), the extension of this notion of mentor texts to include the study of the language of pictures within picture books had not been previously explored. Teacher researchers elsewhere however were observing the power of drawing to extend thinking and story development (Harste et al, 1984; Harste et al, 1988; Olson, 1992). Additionally, the phenomenon of transmediation, or the recasting of meaning from one sign system to another, was being explored by Marjorie Siegel (1995).

### Phase IV: Quantitative Research

A second quantitative research study was designed to evaluate and document the effect of combining the two art-based literacy models to create a yearlong progression of art-and-literature-based instructional experience.

### Objective

The objective of this study was to document the impact of a yearlong art-and-literature-based approach to writing on students' writing and on their use of visual elements to communicate their ideas. It was hypothesized that the writing skills of students using this artists/writers workshop approach<sup>4</sup> as a yearlong instructional model would exceed the skills of students receiving straight verbal methods of writing instruction. It was also hypothesized that the impact on student writing using this visual approach 3 times a week for the entire school year would result in far greater gains in writing skills than the gains that had been documented during the previous 3-month study. Additionally, it was anticipated that students' skills using visual elements as a language for communicating their ideas would increase.



## Design

A three-sample treatment/comparison group quasi-experimental design was developed by Dr. Susan Frankel of RMC Research, Inc. to evaluate the impact of this alternative yearlong art-and-literature-based intervention on student writing and students' use of visual elements to communicate their ideas. Students in the treatment group participated in artists/writers workshop 2-3 times a week for 60-90 minutes per session throughout the school year. The comparison group consisted of classes whose teacher agreed to continue implementing whatever approach to teaching writing that they were currently using. Art and writing samples from treatment and comparison groups were collected in early September (baseline), end of January and end of May.

## Sample

The study involved 555 first- and second-grade students from 13 schools in three states: New Hampshire, Hawaii, and Texas. Because of the striking body of evidence which demonstrated that developing essential literacy skills before the third grade is critical to the success of students throughout their school careers (Anderson et al, 1985; McPartland & Slavin, 1990), first- and second-grade students were again targeted for this study. This also provided an opportunity to build on the previous study of first- and second-grade students who participated in the collage-based writing process for a 3-month period (Olshansky & Frankel, 1993). School sites were carefully selected across three states (NH, HI, and TX) to insure that participating students represented a range of geographic regions as well as achievement levels and socio-economic levels. The treatment group was comprised of 16 classes of students whose teachers agreed to participate in the yearlong art-and-literature-based intervention as a yearlong language arts instructional model.

Thirteen out of 16 teachers had previously attended a teacher training and implemented the collage-based writing model in their classrooms. Only 2 out of 16 had attended a teacher training and implemented the crayon-resist-based process previously. Three teachers had no previous implementation experience with either process but had attended a 5-day summer institute. All treatment teachers had agreed to closely follow the progression of detailed

art-and-literature-based mini-lessons 2-3 times per week which were outlined in three Picturing Writing teachers manuals (Time of Day, Weather, and Winter) and one Image-Making manual on crafting collage stories, thus students in each of the 16 treatment classrooms received very similar instruction. The treatment teachers in NH met monthly to insure that students were receiving similar instruction. Teachers in Hawaii and Texas stayed connected to the group via email and periodic phone conversations. The final comparison group was comprised of 12 classes of students who were participating in the language arts program that was currently being used at their school. While the study began with 16 treatment classrooms and 15 comparison classrooms, three comparison classrooms were ultimately eliminated due to the sudden death of one teacher, contamination of data by one teacher, and failure to provide student samples by another. Many of the comparison classrooms were using a writing process approach to teach writing; none were using either of the two art-based approaches to teach writing. Students in the comparison group were demographically matched to those in the treatment group based on each participating school's percentage of students on Free and Reduced Lunch Programs, geographic region, and population density. As often as possible, comparison classrooms were identified within the same schools where the treatment took place.

## Instrumentation and Procedures

In order to evaluate the use of the two different languages used within an artists/writers workshop approach (the language of words and the language of pictures), two different scoring instruments were required. The precedent for using non-standardized measures for evaluation of students' writing was established by Dr. Donald Graves in his early research evaluating the effects of the writing process (Graves, 1983). Non-standardized measures have also been used by researchers in the field of art education where standardized measures or other adequate measures do not exist (Burton et al, 1999). Two scoring instruments had been previously developed at the University of New Hampshire in 1991 for use in a preliminary quantitative evaluation (Phase III) by two different panels of experts, one consisting of a team of first- and second-grade educators and one consisting of a team of art education specialists. The Text Only scoring instrument was



aligned with state standards for narrative writing across the three states. The Picture/Word instrument, which looked at the how visual elements were used to convey meaning, crossed into an interdisciplinary arena where there were no known standards or instruments. Both instruments were field-tested in the previous 1991-1993 evaluation and subsequently passed the scrutiny of the National Diffusion Network's Program Effectiveness Panel (PEP) within the US Department of Education in 1993. That research study was deemed to be valid by the PEP.

*Instrument I: Text Only.* The same Text Only instrument used in the 1991-1993 (Phase III) evaluation was used to evaluate the text portion of each writing sample at Time 1 (September), Time 2 (end of January) and Time 3 (end of May). The instrument consisted of 22 items pertaining to the quality of student writing including traits such as sense of setting, beginning, middle, and end, plot development (including problem and solution), use of descriptive language, voice, and overall quality. The traits were rated on a scale from 1-6. Number 1 indicated that the trait was not present in the writing and number 6 indicated that the trait was developed to an extraordinary degree for that specific grade level. This scale had been refined from the 1-5 scale used in the previous study due to the existence of so many pieces of writing that deserved more than a score of 5 (fully developed). To guard against an unintentional shift in evaluation criteria with the expanded 1-6 scale, the same benchmarks for student work that were established in the earlier study were used. The following rating system was used for both Text Only and Picture/Word studies:

1 = none, 2 = minimal, traces of trait, 3 = shows trait but in abbreviated form, 4 = displays trait but not fully developed, 5 = fully developed, 6 = extraordinary

*Instrument II: Picture/Word Study.* A second instrument was used to evaluate the use and quality of visual elements to convey students' ideas. This "Picture/Word" instrument looked at the relationship between the visual images students created and their written text. The instrument assessed students' use of the language of pictures to communicate and enhance the expression of their ideas. The instrument consisted of 24 items pertaining to the use of color, texture, shape, detail, composition, sequence, and overall

quality of student artwork in expressing the students' ideas (in relation to their written descriptions). These traits were also rated on a scale of 1-6 as described above which had also been revised from the 5-point scale used in the previous study. Again, the same criteria used in the Phase III 1991-1993 study were used to evaluate the work—which is again why it was determined that a 6-point scale was required. Students' use of visual tools over the course of a full school year had moved considerably beyond the level of skill obtained during a 3-month period. The same instruments were used for both first- and second-grade levels for all three sets of samples (Time 1, Time 2, and Time 3).

### Data Collection

Art and writing samples were collected from students in the treatment and comparison groups three times over the year: September, end of January, and end of May. Baseline writing samples from both groups consisted of one or more pictures and an accompanying story. The January samples collected from the treatment group were the result of students participating in a progression of art-and-literature-based mini-lessons using simple crayon resist-based art processes from September through end of January. The May samples collected from the treatment group were the result of students participating in the collage story construction process using hand-painted textured papers. The art processes available to the students were limited for the following reasons: 1) to prevent the classroom teacher from becoming overwhelmed by a wide assortment of unfamiliar art processes, 2) to give the students the opportunity to develop a sense of expertise with each medium, and 3) to standardize the process for the sake of the research study. January and May art and writing samples collected from the comparison group were the result of whatever language arts approach was currently being use in their classroom to teach writing and whatever art materials were made available to the students for illustrations (typically crayons, colored pencils, and magic markers).

### Scoring Procedure

To rate the Text Only portion of each sample, a blind study was conducted in which all the writing samples were extracted

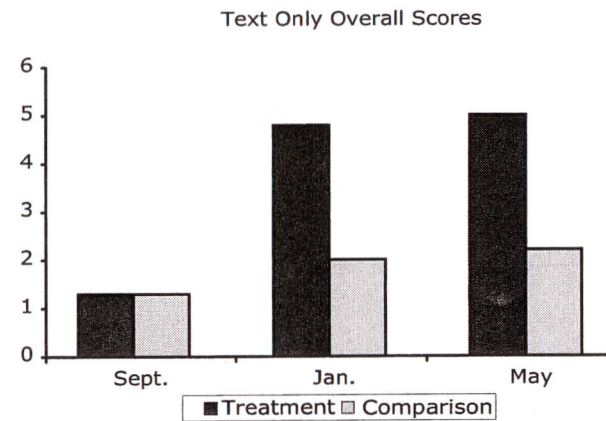


from their original form and typed in a uniform fashion without revealing collection date, school, teacher, student name, or whether the piece was from the treatment or comparison group. The Picture/Word Study was, by its very nature, not a blind study because of the overt appearance of the artwork (which indicated which group the piece belonged to). Students' artwork was not scored on its aesthetic qualities but rather on the students' ability to use key visual elements to communicate their ideas.

A team composed of 5 independent raters was trained to score all art and writing samples. The raters were teachers who were not using either art-based approach in their classrooms and were not teaching at a school where the research was being conducted. Following two 3 1/2 hour training sessions for each separate study (Text Only and Picture/Word), the reliability of the raters was measured by correlating their scores for a random set of stories. Correlation coefficients among the raters ranged from .94-.97 using the Text Only instrument and .93-.96 using the Picture/Word Instrument. Following the training session, all samples collected (September, January, and May) were evaluated using both instruments (Text Only and Picture/Word). Each art and writing sample was scored twice by two different raters.

### Research Findings of Phase IV

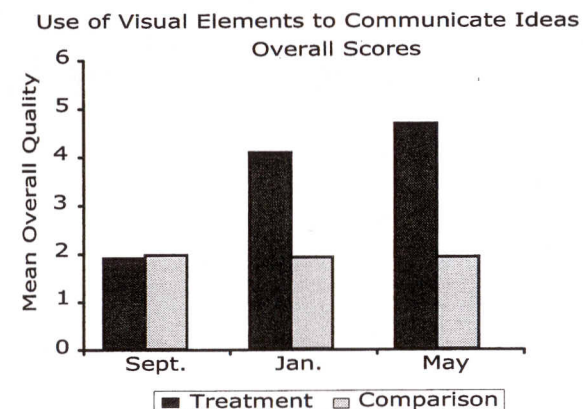
Figures 1-5 summarize research findings for both the Text Only Study and the Picture/Word Study (in which student work was analyzed for how students used the language of pictures relative to their text to communicate their ideas). For the Text Only Study, Figure 1, both the treatment and comparison group demonstrate the same minimal overall writing ability (1.34) in September. By January, following 5 months of Picturing Writing, the average score for the overall quality of student writing for the treatment group climbs to 4.80 (almost fully developed) while the average score for overall quality of writing for the comparison group increases to 2.03 (still minimal). By the end of May, following Image-Making, the average score for the overall quality of student writing in the treatment group continues to increase to 5.04 (fully developed). The average score for the overall quality of student writing in the comparison group increases to 2.22 (slightly above minimal).



**FIGURE 1:**  
*Text Only Study*

For the Picture/Word Study, Figure 2, which looked at how students used visual elements to communicate their ideas, in September the comparison group begins the year with slightly more skill in using pictures as a language (1.97 for the comparison group as compared to 1.90 for the treatment group). Both groups demonstrate less than minimal abilities.

By January, following Picturing Writing, the treatment group's overall use and quality of visual information jumps to 4.07 (displays trait but not fully developed) while the scores of the comparison group remain minimal at 1.92. By the end of May, following Image-Making, students' skills in the treatment group increase to 4.67 (almost fully developed) while the skills of students in the comparison group remain static 1.92 (minimal).



**FIGURE 2:**  
*Visual Element Study*



In September, at-risk<sup>5</sup> students begin the year with marginally lower scores in overall quality of student writing (1.27) than their regular education classmates (1.40), see Figure 3. By January, Figure 4, the writing skills of at-risk students in the treatment group more than double those of the at-risk students in the comparison group (4.70 to 1.93) yet still marginally lag behind those students in the treatment group who are not considered to be at-risk (4.85).

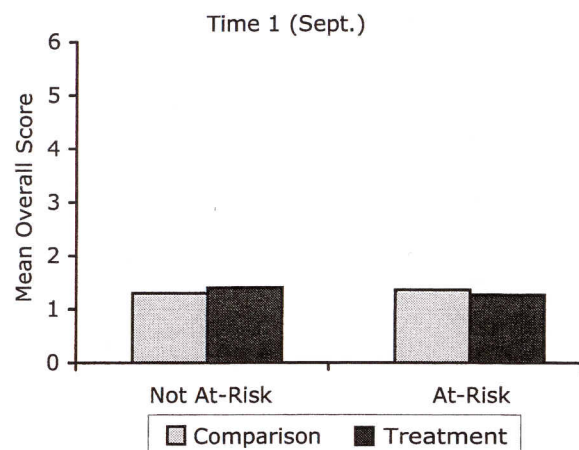


FIGURE 3: September Writing Sample

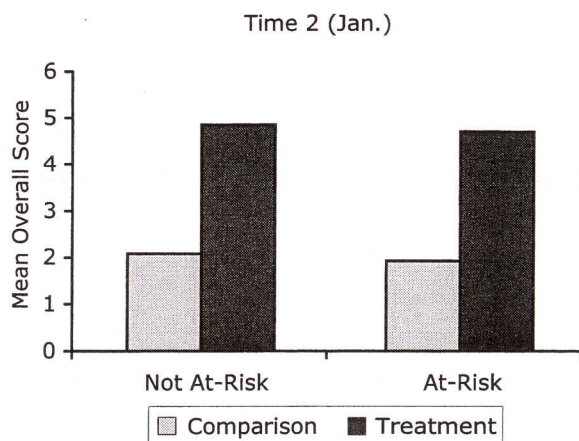


FIGURE 4: January Writing Sample

By the end of May, Figure 5, at-risk students in the treatment group achieve writing scores equal to those students in the treatment group who are not identified as being at-risk (5.00 to 5.04) and have excelled far beyond the writing skills achieved by all students in the comparison group (2.22).

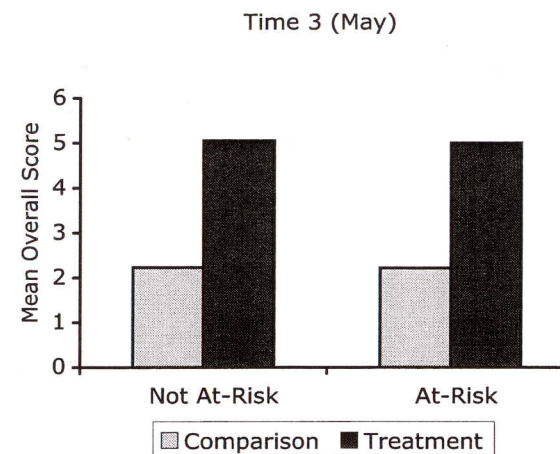
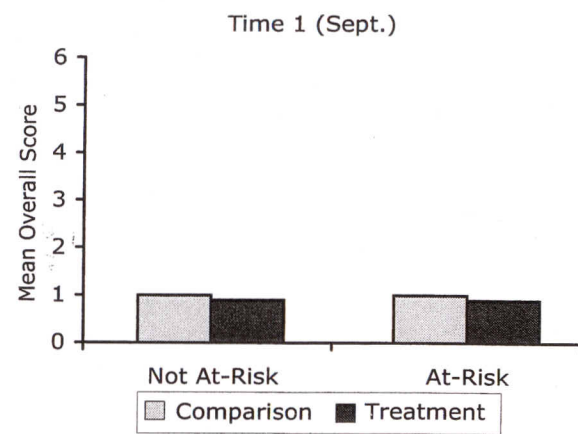


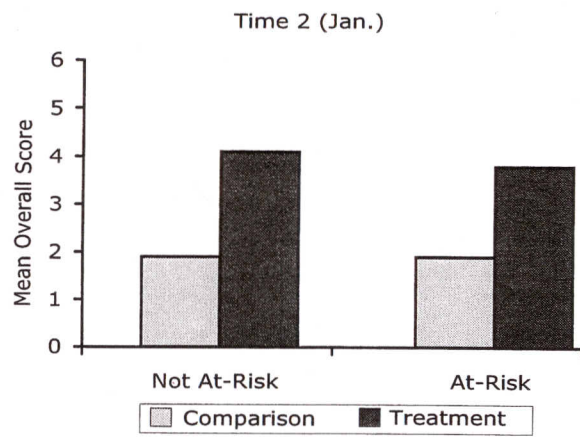
FIGURE 5: May Writing Sample

In the Picture/Word Study at-risk students in the treatment group begin the year with similar levels of skills to students who are not identified as being at-risk in the treatment group (1.91), Figure 6. Comparison group students (both at-risk and not at risk) displayed slightly greater skills in use of pictures as a language (1.95 and 1.97 respectively). By January, Figure 7, at-risk students in the treatment group begin to build a strong foundation of skill in the use and quality of visual information as compared to at-risk and not at risk students in the comparison group (3.89 for at-risk treatment group as compared to 1.87 for at-risk comparison group and 1.94 for those not at risk in the comparison group). January at-risk treatment students (3.89) still lag marginally behind treatment students who are not at-risk (4.22). By the end of May, Figure 8, at-risk students in the treatment group have achieved scores marginally higher than students in the treatment group who are not identified as being at-risk (4.68 to 4.66).

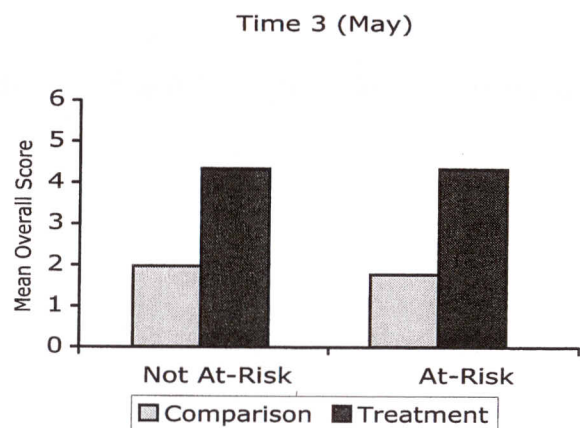




**FIGURE 6:**  
*Sept. Picture/  
Word Sample*



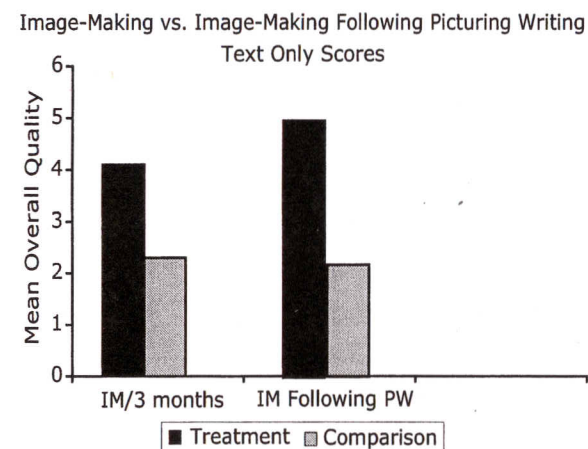
**FIGURE 7:**  
*Jan. Picture/  
Word Sample*



**FIGURE 8:**  
*May Picture/  
Word Sample*

At-risk students in the treatment group have also excelled far beyond students in the comparison group who are not identified as being at risk (4.68 to 1.99). At-risk students in the comparison group score 1.74 as compared to at-risk students in the treatment group who score 4.68.

Because the 1997-1998 study expanded upon the research model used in the 1991-1993 study, it was possible to compare the gains made by students who participated in Image-Making for 3 months (during the 1991-1993 study) to the gains made by students who participated in Image-Making following 6 months of Picturing Writing (during the 1997-1998 study), Figure 9. Significant gains were documented for those students participating in a full 9-month visual approach to writing instruction as compared to those who participated for only 3 months (5.03 compared to 4.09).



**FIGURE 9:** *Image-Making Study*

### Phase V: Standardized Test Score Data

Based on the above research findings, Main Street School in Exeter, NH received a 3-year Comprehensive School Reform Demonstration Grant (CSRD) (1999-2002) to adopt these proven art-based literacy methods school-wide and integrate this visual approach to writing instruction into their language arts and science curriculum. The entire staff 80 people participated in school-wide teacher training over the course of Year 1 (1999-2000); grade level



teams developed and implemented integrated curriculum science, language arts, and art units during Year 2; and during Year 3 each classroom teacher refined their integrated curriculum units through continued implementation. Teachers generally facilitated artists/writers workshop 2-3 times a week for between 60-75 minutes. No other writing programs and no new reading programs were adopted from 1999-2005.

With school-wide adoption, the opportunity to gather standardized test score data over time was created. The following graphs represent only a sampling of a larger pool of standardized test score data from the Exeter School District (O'Connor, 2006).

On the California Achievement Tests given to all second grade students at Main Street School, the disaggregated data for Title I second graders shows overall increases in percentage of students scoring in the high and middle ranges and decreases in the percentage of students scoring below the national average over time (see Table 1). While all Title I students qualified for Title I services at the beginning of each school year by scoring below the 50<sup>th</sup> percentile, many of these students no longer qualified for Title I services by the end of the year. Beyond the general trend toward improvement in scores, fluctuations in scores within individual classes reflect the natural variations that occur year by year in student populations.

TABLE 1. California Achievement Test

	California Achievement Test Title I Grade Two Total Language Arts Scores		
	Percentage of students in each Normal Curve Equivalent Range		
	HIGH 68-99	ABOVE AVERAGE 50-67	BELOW AVERAGE 49-1
1999	28	50	22
2000	26	53	21
2001	37	26	37
2002	34	53	13
2003	64	36	0
2004	45	45	10
2005	33	61	6

While it was anticipated that there would be improvement in students' writing scores, gains in reading comprehension was not anticipated. After only two years of school-wide implementation, Title I students and Special Education students taking the Gates MacGinitie Reading Comprehensive Test outsourced the national average of their regular education peers across the country, see Figure 10.

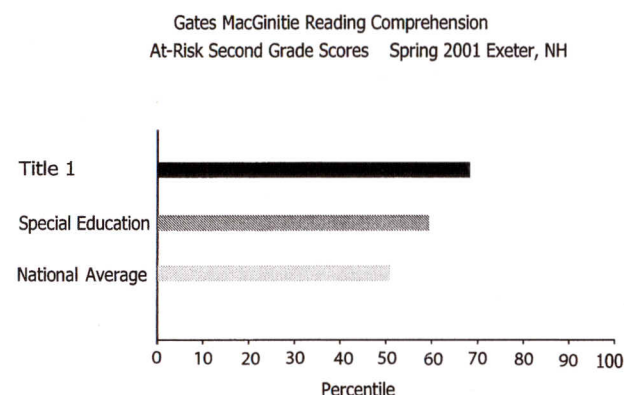


FIGURE 10: Gates MacGinitie Reading Comprehension Scores

When looking at Gates MacGinitie Reading Comprehension scores before, during, and after the grant period, there is an overall increase in high scores and a decrease in low scores of all second grade students, see Table 2.



**TABLE 2: Gates MacGinitie All Grade Two Students**

<b>Gates MacGinitie Reading Comprehension All Grade Two Spring Scores</b>			
	<b>Percentage of students in each Normal Curve Equivalent Range</b>		
	<b>HIGH 65-99</b>	<b>ABOVE AVERAGE 50-64</b>	<b>BELOW AVERAGE 49-1</b>
1999 (before PW/IM)	42	36	22
2000	45	38	17
2001	60	30	10
2002	56	34	10
2003	57	27	16
2004	60	28	12
2005	63	30	7

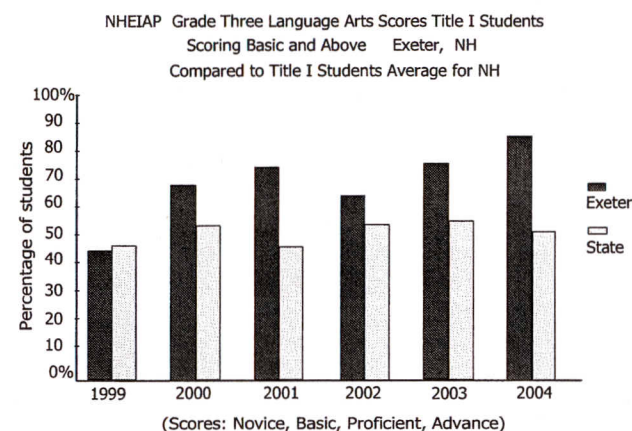
Looking at disaggregated Gates MacGinitie data, see Table 3, Title I students demonstrated steady improvement with an increase in high scores and a decrease in low scores.

**TABLE 3: Gates MacGinitie Title 1, Grade 2**

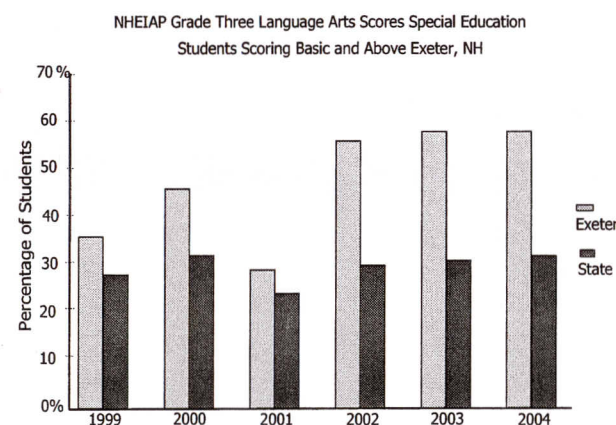
<b>Gates MacGinitie Reading Comprehension Title I Grade Two Spring Scores</b>			
	<b>Percentage of Title I students in each Normal Curve Equivalent Range</b>		
	<b>HIGH 65-99</b>	<b>ABOVE AVERAGE 50-64</b>	<b>BELOW AVERAGE 49-1</b>
1999 (before PW)	12	32	56
2002	44	38	18
2003	49	36	15
2004	43	36	21
2005	26	74	0

On the New Hampshire Educational Improvement and Assessment Program (NHEIAP), Figures 11 -13, which was New Hampshire's statewide assessment, the State collected state averages

for specific subgroups, including many of the group that are now targeted under No Child Left Behind. Exeter's Title I population has scored significantly higher than the State average for Title I students since 2000, the first full year of the CSRD Grant.

**FIGURE 11: NHEIAP Grade Three Title 1 Scores**

Special Education students have also shown growth on the NHEIAP when compared to the State average for Special Education students. In 2004, 58% of our Special Education population scored Basic and Above when compared to 32% for the State average.

**FIGURE 12: NHEIAP Grade Three Special Education Scores**



In 2002, the NHEIAP began reporting scores for socio-economically disadvantaged students. Exeter's socio-economically disadvantaged students also scored favorably when compared to the state average for socio-economically disadvantaged students (O'Connor, 2006).

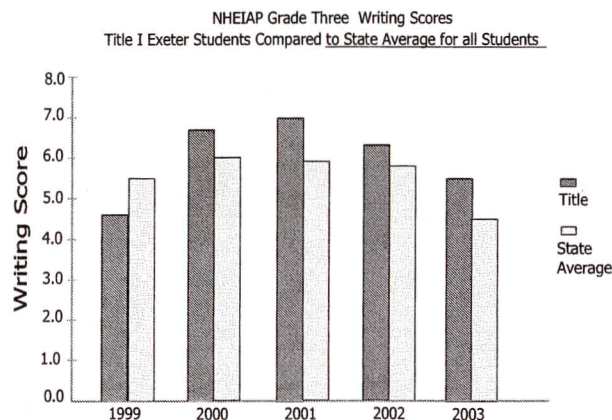


FIGURE 13: NHEIAP Grade Three Writing Scores

The NHEIAP also included a separate Writing Assessment from 1994 to 2003, see Figure 13. Third grade students responded to a prompt (usually an essay) in one sitting. One of the most significant findings with the NHEIAP was that on the Writing Assessment, *Title I students scored above the State average for all students from 2000 to 2003.*

When comparing the NHEIAP test scores of Exeter's students to students across New Hampshire, disaggregated data reveals that Exeter's students have consistently scored better than the State average across all subgroups with the greatest gains being made by those students within various subgroups exposed to the treatment over time.

TABLE 4: NHEIAP Grade Three Language Arts Scores

NHEIAP English Language Arts Grade 3				
Percentage of Students Scoring Basic and Above (State results in parenthesis)				
Year	All Students	Educational Disability	Title I	Socio-economically Disadvantaged
1999	79 (72)	36 (28)	45 (47)	not reported
2000	84 (75)	46 (32)	69 (54)	not reported
2001	85 (72)	29 (24)	75 (47)	not reported
2002	84 (76)	56 (30)	65 (55)	56 (55)
2003	89 (76)	58 (31)	76 (56)	67 (58)
2004	88 (73)	58 (32)	86 (52)	86 (54)

In October of 2005, Exeter students took the new NECAP assessment (New England Common Assessment Program) for the first time. This statewide assessment was developed to meet the mandates of the No Child Left Behind legislation. The third grade reading assessment included nine open response items. Exeter's third grade Title I, Special Education, and Economically Disadvantaged students all scored above the New Hampshire state average for their subgroup (O'Connor, 2006).

## Discussion

Given that previous arts education researchers have had difficulty establishing a significant causal link between participation in the arts and increased academic achievement (Deasey, 2002; Eisner, 1998; Winner & Cooper, 2000;), arts advocates and future researchers may benefit from considering why this series of studies was able to succeed in documenting such a clear and significant causal link between an arts intervention and reading and writing achievement.

One possible explanation for the marked improvement in the writing skills of those participating in the treatment group is that the intervention involved a sustained, carefully developed



progression of art-infused writing mini-lessons designed to teach specific literary elements. These mini-lessons, delivered within an artists/writers workshop format, recognize and utilize the parallel and complementary languages of pictures and words and are specifically designed to provide visual and kinesthetic learners with visual and kinesthetic tools for thinking and recording their ideas. The design of the intervention also relies heavily on the power of transmediation to deepen students' thinking (Cowan & Albers, 2006; Siegel, 1995).

While the body of work presented herein was developed for the purpose of improving students' writing skills, it would be reasonable to wonder why students' reading scores improved so dramatically on standardized tests, particularly for those identified as "at risk," given that reading instruction was not part of the intervention. Since no new reading interventions were introduced during the years that standardized test score data were collected, one can only hypothesize regarding the positive effects of the treatment in order to better understand such dramatic gains in reading achievement. Within the structure of artists/writers workshop, several literacy practices were enhanced. Among them: daily read alouds of quality picture books, the regular use of picture books as mentor texts (for the study of both pictures and words), attention to reading the details in illustrations (a comprehension strategy), the purposeful reading of nonfiction text and illustrations to gather information relevant to inquiry-based integrated curriculum stories, the reading that naturally occurs during the writing process as students read and re-read their texts during drafting and revision, the reading and re-reading of students' own published books as they prepare for their "artists/writers celebrations," and finally the reading of each others' published books which are kept in the classroom library. Furthermore, within artists/writers workshop, students typically delight in learning that "silver dollar words" paint pictures in the reader's mind. They listen purposefully to text to determine if the author's words paint pictures in their minds; they listen to their own and each others' writing to determine whether it paints pictures. This ability to visualize, to create a "movie in one's mind" as one reads or is read to, has been shown to be closely linked with reading comprehension (Bell, 1986). Additionally, as students stretch to include words that paint pictures in their own writing,

they find themselves writing with increased descriptive language. While the use of invented spelling allows even emergent writers to record challenging descriptive language as they write, once these words are typed using standard spelling in their published pieces, students find themselves faced with the challenge of having to stretch in order to read their own writing. Eager to read their stories out loud to their family and friends during artists/writers celebrations, students are highly motivated to tackle sounding out these challenging words.

Finally, the very act of defining oneself as an artist and crafter of picture books naturally results in students viewing the world differently. They begin to look at the world around them with a heightened sense of purpose. As they watch the sky change from sunrise to morning or from sunset to twilight, they wonder what color paint they will need to use to recreate that sky. They look intently at the structure and color of trees. Students who define themselves as artists engage in the act of taking mental snapshots of the natural world in order to be able to recall that image later when it comes time to paint. As a result of participating in artists/writers workshop, students engage regularly in seeing, retaining, recalling, and recreating on paper (in pictures and in words) stored mental images as they live the life of an artist/writer. This too serves to strengthen their ability to visualize, to create visual representations, as well as to paint pictures with words as they craft their own literary masterpieces, thus strengthening their skills as both writers and readers. While motivation and engagement are high among all students as they work on creating their own quality picture books, the success and pride experienced by those at risk (who are generally not successful in the reading-writing arena) is critical to their growth as readers and writers.

## Conclusion

This sixteen-year investigation into the dynamic relationship between art and writing, which utilized action research, quasi-experimental research designs, and a battery of standardized tests over time, provides a substantial body of evidence documenting the effectiveness of an ongoing progression of art-and-literature-based mini-lessons in dramatically improving students' readings



and writing skills, particularly for those "at risk." Given that at-risk students are currently being targeted by No Child Left Behind, and that traditional straight verbal methods of reading and writing instruction have already proven themselves to be ineffective in supporting the literacy learning of at-risk students, these findings suggest that educators and administrators must broaden the scope of what is considered to be valid literacy practices in order to meet the learning needs of *all students* and address the federal mandate of NCLB.

With a deeper understanding of the rich parallel and complementary relationship between the language of pictures and the language of words, a growing body of evidence which links the ability to visualize with the development of solid reading and writing skills, and the recognition of diverse learning styles and needs among students, educators and administrators are being called upon to recognize the vital role that the arts can play in the literacy learning of all students, particularly for those "at risk."

These research findings also raise some important questions. While this sixteen-year investigation documents the powerful role that art can play in improving the literacy learning of all students, it calls into question the validity and effectiveness of our current system for identifying and delivering services to those considered to be "at risk." Given the fact that Title I and Special Education students outscored the national and state averages of the regular education students on standardized reading and writing assessments respectively after participating in art-infused literacy practices over time, and that Title I and Special Education students consistently outscored their peers across the state in state-wide language arts assessments, one has to wonder if our narrow, verbocentric methods of delivering reading and writing instruction are in themselves creating a problem. When "low performing students" consistently outperform their regular education peers while participating in alternative art-infused literacy practices, it is time to take notice. It is imperative that educators, administrators, and policymakers consider whether our educational system is, in fact, creating a class of discouraged, low-achieving students by its very design and if so, how might we remedy this situation. The substantial body of evidence presented in this paper suggests that participation in artists/writers workshop and an ongoing

progression of thoughtfully designed art-and-literature-based mini-lessons offers one viable solution toward resolving what remains a national educational crisis.

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## Appendix

### Text Only Scoring Instrument

#### Individual Score/Average

1. Sense of setting \_\_\_\_\_
2. Details about time of day, weather, season, place \_\_\_\_\_
3. Beginning, middle, end \_\_\_\_\_
4. Sense of beginning \_\_\_\_\_
5. Sense of middle \_\_\_\_\_
6. Sense of end \_\_\_\_\_
7. Plot \_\_\_\_\_
8. Sense of sequence \_\_\_\_\_
9. Story development/plot \_\_\_\_\_
10. Problem or anticipated event \_\_\_\_\_
11. Solution or sense of culmination \_\_\_\_\_
12. Cohesiveness \_\_\_\_\_
13. Descriptive language \_\_\_\_\_
14. Adjectives \_\_\_\_\_
15. Verbs and adverbs \_\_\_\_\_
16. Sensory component \_\_\_\_\_
17. Similes, metaphors, personification \_\_\_\_\_
18. Inclusion of detail \_\_\_\_\_
19. Voice \_\_\_\_\_
20. Overall quality \_\_\_\_\_
21. Type: Fiction or Non-fiction \_\_\_\_\_
22. Additional Characteristics: \_\_\_\_\_

1 = none, 2 = minimal, traces, 3 = abbreviated,  
4 = not fully developed, 5 = fully developed, 6 = extraordinary

### Picture/Word Instrument: Use of Visual Elements to Communicate Ideas

#### Individual Score/Average

1. Color \_\_\_\_\_
2. Color used to convey sense of setting \_\_\_\_\_
3. Color used to create mood \_\_\_\_\_
4. Texture \_\_\_\_\_
5. Textured used to enhance sense of setting \_\_\_\_\_
6. Textured used to create sense of motion \_\_\_\_\_
7. Shape \_\_\_\_\_
8. Shape/contour used to enhance setting \_\_\_\_\_
9. Shape/contour used to enhance story expression \_\_\_\_\_
10. Detail \_\_\_\_\_
11. Details used to create sense of setting \_\_\_\_\_
12. Picture details used to illustrate text \_\_\_\_\_
13. Picture details create sense of motion \_\_\_\_\_
14. Composition \_\_\_\_\_
15. Foreground/background provide  
information about setting \_\_\_\_\_
16. Placement/size used to enhance  
sense of importance \_\_\_\_\_
17. Picture composition helps to tell the story \_\_\_\_\_
18. Picture(s) reflect descriptive language \_\_\_\_\_
19. Sequence \_\_\_\_\_
20. Sequence reflects changes in time of  
day/weather, etc. \_\_\_\_\_
21. Picture sequence helps to tell the story \_\_\_\_\_
22. Changes in perspective used to enhance the text \_\_\_\_\_
23. Overall use and quality of visual  
information to tell the story \_\_\_\_\_
24. More information in pictures or words? \_\_\_\_\_
  - a. words and pictures are equally expressive
  - b. pictures are more expressive than words
  - c. words are more expressive than pictures

1 = none, 2 = minimal, traces, 3 = abbreviated,  
4 = not fully developed, 5 = fully developed, 6 = extraordinary



## Notes

<sup>1</sup> This approach to teaching writing involves treating students as professional authors by providing them with regular opportunities to write on topics of their own choice. Students are encouraged to develop their pieces of writing through rehearsal, drafting, and revision before their work is "published."

<sup>2</sup> Image-Making Within The Writing Process

<sup>3</sup> Picturing Writing: Fostering Literacy Through Art

<sup>4</sup> Specifically the Picturing Writing and Image-Making processes

<sup>5</sup> At-Risk students are defined as any students who were identified as requiring Special Education or Title I services in the areas of language arts.

**Beth Olshansky** is the Director of the Center for the Advancement of Art-Based Literacy at the University of New Hampshire. She is the developer of *Picturing Writing: Fostering Literacy Through Art and Image-Making Within The Writing Process*, two art-and-literature-based instructional models that have proven particularly effective with at-risk students. Additional data, student work, and video clips of young students discussing their creative process are available at [www.picturingwriting.org](http://www.picturingwriting.org).