

Improving Literacy Across the Curriculum: A Study of Instructional Development

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ABSTRACT

The New York City Writing Project (NYCWP) undertook a multiyear effort to initiate the development of a writing-intensive school in fall 2006. The school, which serves grades 7–12, was designated an Empowerment School under recent New York City Department of Education (NYCDOE) reforms, giving the principal greater autonomy over curriculum development and budget expenditures. NYCWP is the sole literacy provider.

This study investigates how NYCWP professional development for teachers contributes to instructional practices across the curriculum and to student writing outcomes. In order to assess changes in practices over time, the NYCWP used a causal-comparative design. Measures were taken from 17 teachers, a principal, and other administrators from the school before and after they were exposed to the NYCWP program. Analysis of teachers' and administrators' growth relied primarily on interviews and surveys regarding instructional practices, attitudes, and policy development. Students' growth was measured by pre- and post- student writing prompts, drawn from an archive of established prompts and assessed independently. Students (n=54) were arranged into three NYCWP-exposure groups (high, moderate, and low) based on the number of their classroom teachers who had had exposure to NYCWP professional development. Students in the high-exposure group had classes with three or more content-area teachers who had regular contact with the NYCWP teacher-consultant. Students in the moderate- and low-exposure groups had classes with two or fewer teachers who worked with the NYCWP teacher-consultant.

Teachers who had contact with the NYCWP teacher-consultant implemented NYCWP literacy practices, which include valuing students' voices, using writing-to-learn strategies, and viewing writing as a recursive process. These teachers' practices reflected the NYCWP emphasis on student-centered pedagogy as a means of developing students' reflective thinking and conceptual understanding across subject areas. In turn, students who had high exposure to NYCWP made significantly greater gains in writing prompt scores than those in the other two groups combined.

Our results not only support the conclusion that it is necessary to develop writing across the curriculum in order to obtain significant gains in students' writing scores but also demonstrate the importance of implementing consistent approaches to literacy development schoolwide, in order to support student achievement. Interviews with the school's administrators and the NYCWP teacher-consultant who worked on site suggest that there is still some distance between the NYCWP's expectations for a writing-intensive school and the school administration's goals for students' literacy development. However, by encouraging writing across the curriculum, the NYCWP has taken an important first step toward creating a writing-intensive school.

INTRODUCTION

The New York City Writing Project (NYCWP) is a professional development program of the Institute for Literacy Studies at Lehman College, The City University of New York. The primary components of NYCWP's model for professional development are on-site consulting and graduate seminars. Because NYCWP believes that writing is essential to learning across the curriculum, the model is designed to serve both new and experienced staff across disciplines and school contexts, including teachers of English language learners (ELL), special education, and career and technology subjects, as well as teachers in alternative schools.

Teacher-consultants serve as a fulcrum in the work lives of teachers who participate in NYCWP professional development programs during the school year. NYCWP teacher-consultants provide on-site assistance by working directly with teachers on a weekly basis and by conducting after-school seminars, held at school sites, on the teaching of writing, reading, and other literacies. In addition to many years of academic training and classroom experience, consultants have expertise in many areas, including English language learning, special education, materials and resource development, and curriculum design.

In fall 2006, NYCWP began the current research endeavor, which builds on a two-year study of NYCWP's impact on a select sample of high school teachers and their students. Findings from that previous study indicated positive effects of NYCWP participation on teachers' instructional practices and on student writing, particularly for those students who face language-learning challenges (Peach & Campos, unpublished). Moreover, teachers in content areas other than English incorporated writing into their instructional practices. The present study represents an effort to assess the NYCWP's progress toward establishing a writing-intensive school. This investigation examines the degree to which NYCWP professional development has an impact on schoolwide approaches to writing, schoolwide instructional goals and policies as they relate to literacy development, and student performance. This report presents findings from a study conducted between September 2006 and July 2007, in one high school where NYCWP is the sole literacy provider.

The New York City Writing Project

Scope

Established in 1978 as a local site of the National Writing Project (NWP), NYCWP is part of a network of two hundred university-based professional development programs throughout the country dedicated to improving the teaching of writing and enhancing teacher professionalism. The New York City Writing Project's mission, like that of NWP, is to strengthen literacy instruction in K–12 classrooms and promote the use of writing as a tool for learning, thinking, and communicating in all disciplines. By collaborating with teachers and schools, NYCWP seeks to transform the ways in which writing is perceived, taught, practiced, and evaluated in urban classrooms.

NYCWP offers inservice professional development support in public elementary, middle, and high schools serving large numbers of low-income and low-achieving students throughout New York City. Since its inception twenty-eight years ago, more than twelve thousand teachers with

responsibilities to 250,000 students have taken part in seminars, workshops, graduate courses, and special programs sponsored by NYCWP.

Approach to Professional Development

NYCWP's approach to professional development is based on a "teachers-teaching-teachers" philosophy that recognizes the importance of teacher knowledge, expertise, and leadership. This approach emphasizes situating teachers' learning in their own writing and classroom practices rather than developing extensive curricular materials for either teachers or facilitators (Borko 2004). It is an approach that values the experience that teachers bring to and from their classrooms and assumes that professional growth is best served when teachers share their knowledge and expertise with each other as peers.

To achieve the goal of improving writing instruction in K–12 classrooms, NYCWP works from a belief that teachers are key agents for transforming how writing is perceived, practiced, and assessed in urban classrooms. NYCWP also believes that student writing improves when students are supported by teachers who encourage them to write for authentic purposes in a variety of genres.

These premises guide implementation of the NYCWP professional-development model, which is based on two mutually-reinforcing components: on-site consulting and support and graduate seminars

On-site consulting and support

On-site teacher-consultants are at the center of NYCWP's work. The primary function of teacher-consultants is to facilitate professional growth in partnership with teachers, who may take advantage of both informal and formal forms of support. Developing stable, long-term relationships with teachers—lasting at least two years—in the context of their schools is of paramount importance. Consultants typically spend one to four days per week in participating teachers' schools, offering various forms of assistance including (but not limited to) one-on-one mentoring to develop lessons and projects; coaching and modeling in classrooms; team-teaching; recommending materials and resources; reviewing student work; introducing writing strategies such as revision and editing; encouraging critical response to texts and student writing; counseling on the use of small-group/whole-class activities; and providing outreach and counsel to interdisciplinary teams, department heads, coaches, assistant principals, and principals.

Graduate seminars

NYCWP teacher-consultants also lead graduate seminars for groups of teachers of all subject areas, staff developers, coaches, and administrators from a school or network of schools. The forty-five-hour seminars are offered as a twelve-session series after the school day or on Saturdays. Most seminars are conducted at school sites; some are offered at Lehman College. These seminars are designed to promote study of and discourse about the theory and practice of writing. Seminars provide participants with opportunities to explore various aspects of the writing process—such as drafting, proofreading, revising, and editing—and to consider how student writing can be assessed. Participants develop greater understanding of the ways in which writing can be used as a tool for thinking and learning across the curriculum and of how it can support reading comprehension of both literature and content-area texts. Differentiated learning

is addressed to help teachers focus on specific needs of diverse student populations, including ELL and special education students. Participants—including classroom teachers, literacy coaches, and administrators—implement seminar activities and approaches in their daily work, reflect on their own practice, and share and analyze student work and assignments.

Implementing NYCWP's Model in the Local Context

New York City public schools educate about one-third of all students in New York State—and more children than in public schools in forty-six other states (Stiefel et al. 2000). The city's public education system is made up of 1,450 schools, eighty thousand teachers, and one million students. NYCWP has had a long-standing commitment to providing services in high-need schools.

Although the overarching aims and approaches of NYCWP have remained constant, local conditions have introduced some recent, notable changes. For example, the New York City Department of Education (NYCDOE) instituted broad reforms in 2003, which included: adoption of a core, systemwide approach to instruction in reading and mathematics; reorganization of NYCDOE's organizational structure (consolidating thirty-two community school districts into a ten-region system); and, creation of more than two hundred new schools, primarily small, secondary schools (9–12 or 6–12).

The demographic makeup of teaching staff in NYC public schools' indicates that at least half of all teachers in this urban system have fewer than five years of teaching experience. Studies of teacher retention in urban areas show strong correlations between teacher quality, levels of support, and student performance (Desimone et al 2002; Feiman-Nemser et al 1999; Garet et al 2001; Lankford et al 2002). We learned from our previous research that, in many cases, the only support novice or veteran teachers in small schools receive derives from on-site professional development. We believe study of urban educational reform should consider the interplay between teachers' contexts, levels of support, and professional development. Findings from the present study shed light on these considerations.

NYCDOE emphasizes a balanced literacy model and uses the state standards as the basis for its curriculum, along with citywide standards and regional units of study. All high school students must meet specific state regents standards through exams in five core curriculum areas. As of 2006–2007, reform efforts have led to the designation of Empowerment Schools, allowing principals greater autonomy. The number of Empowerment Schools increased to 330 in 2006–2007; that number is likely to increase significantly in 2007–2008. Empowerment School principals have considerable decision-making autonomy over curriculum development and budget expenditures and are accountable for student achievement. Principals' goals for school performance are assessed regularly by the NYCDOE.

Previous research initiatives enabled NYCWP to identify more specifically factors that contribute to individual teachers' effectiveness, as well as possibilities for developing students' competence in writing across content areas. These initiatives did not address the degree to which NYCWP's exemplary practices influenced instructional decision making at the school level. The data did, however, suggest that the support NYCWP teacher-consultants provide to principals and other administrators can have a favorable impact on instructional development across the

curriculum. The findings presented in this report offer preliminary insights into the ways in which NYCWP's involvement with teaching and administrative staff in an Empowerment School serving grades 7–12 contributes to collective decision making for literacy-based teaching and learning in the context of reform-oriented urban schools.

Inservice Model Implemented by NYCWP in 2006–2007

Teacher participation in NYCWP's inservice program was voluntary. In late August 2006, with the endorsement of the principal, NYCWP hosted a three-hour workshop for all teachers and administrators in the school. At the end of the workshop, everyone received a reflection sheet, which included space for teachers to indicate whether they would be interested in working further with the teacher-consultant. In following up with teachers who expressed interest, the teacher-consultant explained NYCWP principles and practices; the teachers were then asked whether they intended to participate in the work with the NYCWP teacher-consultant.

The teacher-consultant worked on-site twice a week at the school with teachers of grades 7–12. The teacher-consultant also conducted two 20-hour workshop series (ten 2-hour sessions in the fall and ten 2-hour sessions in the spring). The fall series engaged teachers in various aspects of the teaching of writing. The spring workshops focused on activities to help students gather, process, understand, and use information in all subject areas. The teacher-consultant also involved the principal and other administrators in their work. Generally, the teachers attended the teacher-consultant-led workshops and worked with him individually; others worked with him on an individual basis without attending the workshops. A detailed description of the exposure of the participating teachers to the NYCWP teacher-consultant is given in the Results section.

RESEARCH QUESTIONS, DESIGN, AND METHODS

Research Questions

As a result of implementing NYCWP's inservice professional development program in one Empowerment School, we expected that teachers would

- develop specific strategies (e.g., choice in writing assignments, assignments that use writing in a variety of genres, sharing of student writing) to meet specific teacher and student needs
- use a variety of strategies across content areas (e.g., identifying the literacy practices in each discipline, making time for revision, regularizing the use of low-stakes writing such as journals and freewrites, displaying final products)
- demonstrate a willingness to try new strategies in their classrooms
- develop greater appreciation of the value of writing.

From these expectations the following research questions were developed:

- To what extent do the NYCWP teacher-consultant and school teaching and administrative staff develop common goals over time?
- To what extent did the principal embrace NYCWP beliefs, values, and practices?
- To what extent do teachers' attitudes about the use of writing change over time?
- To what extent do teachers' classroom practices change over time?
- To what extent is there a change in students' attitudes toward writing and writing outcomes?

- To what extent is teachers’ involvement with NYCWP related to students’ writing performance?
- To what extent do students whose teachers participate extensively in NYCWP professional development perform better on writing tasks than students whose teachers have little engagement with NYCWP?
- To what extent are NYCWP practices evident across content areas in the school?

Research Design

The research design is longitudinal. Measures were taken from both teachers and students early in the academic year (baseline) and at the end of the academic year (follow-up). We were also able to track the development of many teachers at different levels of involvement with NYCWP over time. It was also possible to make comparisons across teachers within the school, since some teachers took advantage only of individual consultations with the teacher-consultant, some took advantage only of workshops, and others availed themselves of both consultations and workshops. Moreover, some teachers at the school did not have any contact with NYCWP. Students who provided writing samples (n=54) were then assigned to one of three NYCWP-exposure groups based on the contact their teachers had with NYCWP (see below for details). Students’ writing sample scores were then compared across the three exposure groups.

Methods

Ethical approval. Ethical approval for the study was obtained from the Institutional Review Boards of Lehman College, CUNY, and the New York City Department of Education.

School profile. Table 1 contains demographic data for the participating school (NYCDOE 2004–2005 School Report Cards), which serves grades 7–12.

Table 1
School profile (NYCDOE data)

Enrollment	495
Number of teachers	29
Students eligible for free lunch	54%
Number of teachers with fewer than 5 years of teaching	50%
Students with limited English proficiency	3% ¹
Graduation rate	64%
Ethnicity:	
white	18%
black	22%
Hispanic	51%

¹ NYCDOE data for English language learners are based on quantitative data that do not capture the large number of students for whom English is not the primary language.

Other	8%
Pass NY Regents Language Arts	58%

Research Participants

Informed consent to participate in the research was obtained from administrators, teachers, and students’ parents/caregivers. Assents to participate in the research were obtained from students. Seventeen teachers were interviewed: thirteen had exposure to the NYCWP, and four did not. Teacher characteristics are given in the Results section (Table 2). Data on student outcomes are based on fifty-four students from whom parental consent had been obtained. Student characteristics are given in the Results section below.

Data Collection and Analysis

Administrator interviews and policy development (see Appendix 1). Formal interviews with principal and other administrators were conducted by the second author twice during the academic year.

Teacher-consultant records. Teacher-consultant records and field notes of meetings with administrators and teachers were collected and examined. This was in order to assess the extent to which the teacher-consultant encouraged administrators and teachers to create policy and develop practices consistent with NYCWP objectives.

Teacher-consultant interviews (see Appendix 2). Formal interviews were conducted by the primary author prior to and at the end of the academic year with the teacher-consultant who interacted with teachers through on-site consulting and/or workshops. The initial interview concentrated on the teacher-consultant’s prior experience, how he recruited and worked with teachers, and the general professional-development environment in the school. The second interview focused on the teacher-consultant’s work with the teachers during the year. These interviews were taped, transcribed, coded, and analyzed in the same way as the teacher interviews (below).

Teacher surveys and interviews (see Appendix 3). To provide insight into perspectives about professional development and instructional approaches to writing, teachers were surveyed and interviewed at the beginning and end of each academic year. The instruments were developed and refined based on instruments used in our previous research. The surveys and interviews focused on teachers’ prior professional development experiences, the ways in which teachers used writing in their classrooms, the types of assignments they generated for students, and the extent to which they believed writing was related to student achievement.

The interviews were tape recorded and transcribed by the primary researcher. The primary author and a graduate student blind to study conditions coded the transcripts of the teacher interviews based on an analytic taxonomy developed by NYCWP professional staff in consultation with the national office of the NWP. Analysis of the coded transcripts was carried out using the NVivo qualitative analysis program.

Interviews were assessed to determine the extent to which teacher practices aligned with NYCWP objectives over time. Demographic data from the teacher surveys were analyzed using the SPSS statistical package.

Observation of teachers' classrooms (see Appendix 4). Ten selected teachers were observed with their permission in their classrooms twice during the academic year (in fall 2006 and spring 2007). The observations were conducted by the independent graduate student, blind to the research conditions. The observations were based on protocols developed by the South Coast Writing Project (Santa Barbara, California) and the Gateway Writing Project (St. Louis, Missouri). These observations focused on: the classroom as learning space (both physical and temporal space; the teaching of writing processes, strategies, concepts and culture (e.g., how is writing framed, taught, responded to, and used); and student engagement with each other as writers (e.g., is writing shared among students). Observations of teachers' classrooms were analyzed using an adapted version of a protocol developed by the South Coast Writing Project. This was an attempt to directly assess changes, if any, in teacher practices during the academic year.

Teacher exposure to NYCWP. Teachers were assessed according to their amount of exposure to the NYCWP teacher-consultant over the course of the academic year. For each teacher, one point was allocated for every semester in which s/he attended the teacher-consultant-led workshops regularly. Two points were also allocated for every semester during which a teacher had regular individual contact with the teacher-consultant. A teacher who began a semester having individual meetings with the teacher-consultant and/or attending the workshops but then discontinued the meetings/workshops during the semester was allocated one point. If teachers did not have any contact with the teacher-consultant during a semester, no points were allocated. Thus, it was possible for exposure scores per teacher to range from zero (no contact throughout the academic year) to six (attended teacher-consultant-led workshops and had regular individual meetings with the teacher-consultant during both semesters).

Student exposure to NYCWP. Class schedules for each of the fifty-four students who provided writing prompt data were obtained. These schedules showed the teacher and subject area taught for each class period during a school week. The NYCWP-exposure points for each teacher (see above) were summed across teachers for each student. This total was the NYCWP-exposure score for each student. NYCWP-exposure scores for the individual students ranged from 1 to 21. Students were then sorted into three NYCWP-exposure groups (high, moderate, and low) based on these scores. The groups were constructed to be approximately equal in size. The scores of the high-exposure group (n=17) ranged from 13–21 points. Those of the moderate-exposure group (n=16) ranged from 9–12 points, and those of the low-exposure group (n=21) ranged from 1–7 points. These student NYCWP-exposure scores and groups were calculated by the primary author prior to the NWP Scoring Conference (see below).

Student-timed writing prompts (see Appendix 5). Writing prompts derived from the National Writing Project's archive were administered to students at the beginning and end of the school year. For each administration, students had forty minutes to respond to the prompt. To ensure technical rigor and credibility, scoring and data processing were conducted independently of the local site. The scoring was based on the NWP Analytic Writing Continuum, a modified version

of the Six+1 Trait Writing Model (Bellamy, 2005). The Analytic Writing Continuum, which includes refined and clarified definitions of the constructs measured, assesses the following elements of writing:

- Content (including quality and clarity of ideas and meaning)—The content category describes how effectively the writing establishes and maintains a focus, selects and integrates ideas related to content (i.e., information, events, emotions, opinions, and perspectives) and includes evidence, details, reasons, anecdotes, examples, descriptions, and characteristics to support, develop, and/or illustrate ideas.
- Structure—The structure category describes how effectively the writing establishes logical arrangement, coherence, and unity within the elements of the work and throughout the work as a whole.
- Stance—The stance category describes how effectively the writing communicates a perspective through an appropriate level of formality, elements of style, and tone appropriate for the audience and purpose.
- Sentence Fluency—The sentence fluency category describes how effectively the sentences are crafted to serve the intent of the writing, in terms of rhetorical purpose, rhythm, and flow.
- Diction (Language)—The diction category describes the precision and appropriateness of the words and expressions for the writing task and how effectively they create imagery, provide mental pictures, or convey feelings and ideas.
- Conventions—The conventions category describes how effectively the writing demonstrates age-appropriate control of usage, punctuation, spelling, capitalization, and paragraphing.

A national panel of experts on student writing, along with senior NWP researchers, determined that the Six +1 Trait model, while sufficiently comprehensive, required certain modifications to make it more appropriate for use in research studies. The following modifications were implemented in the NWP Analytic Writing Continuum prior to the scoring conference:

- The scale of the rubric was extended from four to six points in order to ensure sufficient discrimination and therefore to allow increased sensitivity to any changes that might be observed.
- The language defining the traits was clarified to enhance the reliability of evaluative judgments.
- The evaluative judgments were modified to focus exclusively upon the student writing (where, on occasion, the rubric previously included references to the reader's reactions or to the writer's personality as the basis for judgment).

Particular traits—notably Content (including quality and clarity of ideas and meaning), Structure, and Stance—underwent considerable revision in order to bring conceptual coherence to the constructs and thereby to enhance the reliability and validity of the scores relevant to those constructs.

Scoring. The student writing samples were among those from six NWP sites scored at a national conference held in June 2007. Student writing was coded, with identifying information removed so that scorers could not know any specifics of the writing sample being evaluated. Such information included the site of origin, group (high, moderate, low NYCWP exposure), and time

of administration (pretest or posttest). Of the 5,362 papers from students in the middle and high school grades—which included all of the student samples reported in this research project—1,120 (21 percent) were scored twice so that reliability could be calculated.

The scorers participated in six hours of training at the beginning of the conference. Their scoring was calibrated to a criterion level of performance at that time and was then recalibrated following every major break in the scoring (meals and overnight). At the middle and high school levels, which were the focus of this study, reliabilities (measured as interrater agreement, defining agreement as two scores being identical or within one single score point of each other) ranged from 85 to 90 percent with an aggregate across all scores of 88 percent. All data were entered via optical scanning with built-in checks for acceptable score ranges and the like. The resolution of all discrepancies produced a highly accurate data file for use in our analysis.

Student attitude surveys (see Appendix 6). To assess students' attitudes about writing, a questionnaire was administered to students at the beginning and end of the academic year. This quantitative instrument had previously been designed by the Southern Nevada Writing Project (Las Vegas); it assesses students' perceptions of themselves as writers, their attitudes about writing, and the frequency with which they use different aspects of the writing process. The data were entered and analyzed by the primary researcher using the SPSS statistical package.

Student survey results were compared across time points to assess any changes in attitudes toward writing, using nonparametric analyses. Responses to student surveys were also related to performance on the on-demand writing prompts to see, for example, whether there was a positive correlation between students' reported use of strategies advocated by the NYCWP and their scores on the writing prompts.

Instructional development. The teacher-consultant's field notes and records of meetings with teachers were analyzed to see the extent to which they matched with activities reported in the teacher interviews.

The Administrative Context

The NYCWP and the school came into contact initially in a somewhat providential way. The school's parent coordinator met the associate director of the Institute for Literacy Studies (ILS) informally offsite. The ILS oversees NYCWP. The associate director explained the purposes of NYCWP. The parent coordinator then talked with the school's principal. At the interview conducted by the second author, the parent coordinator said that to her knowledge the school had not had any literacy-based professional development providers prior to NYCWP. She said that four years ago there had been two periods of "ramp-up" English a day and two periods of math a day for those students who were designated as needing it. That had been discontinued. Although not a teacher, she thought that the students needed help with their literacy skills, especially reading, spelling, sentence construction, and grammar.

A short time before this, one of the school's English teachers (the former literacy coach) had contact with NYCWP. She obtained information about NYCWP and presented it to the principal. Following these two contacts, the principal approached the director of NYCWP. When interviewed, the principal confirmed this version of events. He thought that students would not

do very well on courses or state tests unless they improved their literacy skills, particularly writing. The New York City Writing Project appealed to him because of its focus on writing.

The principal said that the NYCWP director provided a general overview of how the Writing Project works with individual teachers and in their classrooms. The principal participated in the after-school workshops in the fall semester. He said that the workshops gave him a perspective on how teachers can develop the writing skills of their students.

RESULTS

Teacher Characteristics and Exposure to NYCWP

The teacher-consultant worked with sixteen of the school’s twenty-nine teachers, or 55 percent of the teaching staff. Four (25 percent) of the teachers who worked with the teacher-consultant attended all twenty workshops and met with the teacher-consultant twice a week throughout the year. Another three (19 percent) attended the ten workshops conducted in the fall semester and met with teacher-consultant once a week throughout the year. Two teachers (13 percent) did not attend any workshops but met with the teacher-consultant twice a week throughout the year. Two teachers (13 percent) did not attend any workshops but met with the teacher-consultant once a week throughout the year. The remaining five teachers (30 percent) worked with the teacher-consultant occasionally.

Table 2 shows the amount of exposure to NYCWP for each participant teacher by subject area and amount of teaching experience.

Table 2
Participant teacher exposure to NYCWP and characteristics

All 20 workshops and met with teacher-consultant (TC) twice a week throughout the academic year:	
Math	1 (more than 5 years teaching experience)
Social Studies	1 (less than 5 years teaching experience)
English	1 (more than 5 years teaching experience)
Art	1 (more than 5 years teaching experience)
First 10 workshops and met with TC once a week throughout the academic year:	
English	1 (more than 5 years teaching experience)
Science	1 (more than 5 years teaching experience)
Social Studies	1 (more than 5 years teaching experience)
Met with TC twice a week throughout the academic year:	
English	1 (less than 5 years teaching experience)
English/Music	1 (more than 5 years teaching experience)
Met with TC once a week throughout the academic year:	
English	2 (both less than 5 years teaching experience)
Met TC occasionally:	
English	1 (less than 5 years teaching experience)

Library Specialist	1 (less than 5 years teaching experience)
No exposure	
Math	2 (one more and one less than 5 years teaching experience)
Science	1 (more than 5 years teaching experience)
Social Studies	1 (more than 5 years teaching experience)

Teacher Outcomes

The teacher interviews and to some extent the classroom observations generally indicated that all teachers who worked closely with the teacher-consultant introduced specific NYCWP practices into their classrooms as a direct result of that contact. All reported positive effects on both the quantity and quality of their students' writing, and most of them reported more positive student attitudes toward writing. Many of the writing products were displayed either in the classroom or in school hallways. While specific practices differed from teacher to teacher depending on the individual needs and subject area, each individual practice reflected a general NYCWP approach to pedagogy, such as valuing students' voices, using writing to learn, and viewing writing as a recursive process. The following section examines in detail the extent to which the teaching practices modeled by the NYCWP were implemented in each participating teacher's classroom. Before doing that, however, this section first considers the nature of the teachers' contact with the teacher-consultant—an important factor since subsequent analysis of both teacher practices and student outcomes is based on the teachers' reported contact with NYCWP.

Teachers' Interactions with the Teacher-consultant

i) Teacher-consultant-led NYCWP workshops. The teacher-consultant was approached initially by the school principal, who believed student performance on state exams could be improved. The principal was also interested in encouraging teachers to promote more writing in their classrooms. To meet these objectives, the teacher-consultant conducted a mandatory workshop prior to the beginning of the academic year for the entire staff. This workshop concentrated on the use of journals and was meant to show the teachers how, by careful use of journals, they could tap into students' knowledge and give student voices more prominence. This workshop also featured ways to use journals for these purposes in different subject areas.

The teacher-consultant set up four stations in the workshop. At one station, for literacy, participants read a poem, chose passages from the poem, and then wrote a response. In the next station, geared toward technology or science, participants received a newspaper and some paint and then had to build a free-standing, three-foot tower. But before they did that, they had to write about their ideas: how they would design such a tower, and why it might be good to proceed in the ways they described. After writing, participants at the technology/science station discussed what they had written so that the group could choose which ideas would be best to build the tower. The next station focused on mathematics. Participants received a word problem, which was read out loud. Each person at the station had to figure out how they would solve the problem. After each person tried to solve the problem on their own, they shared their approaches. The fourth station related to history. Participants received a list of dates; they had to write about their personal responses to and memories of those dates.

ii) Effects of pre-semester workshop on teacher practices. Interviews with teachers who participated in the study indicated that the activities of the pre-semester workshop transferred into teachers' classrooms to some extent. For example, the art teacher used the poetry exercise to integrate art and writing. When she used the activity in her classroom, her students had no difficulty understanding what they were supposed to do or executing what was expected. She said that without hesitation, "the students just picked up their pens and wrote wonderful poems." One student "painted a picture of his life that was very poignant and simple . . . his collage looked just like his poem."

She also said that she was fascinated that the students volunteered to read their poems out loud, which was unusual. At the conclusion of the project, the work was displayed on the bulletin board in one of the school's hallways.

A math teacher said that he tried the activity in his math class.

I had a variety of math things—one was an art piece, which was nice because the kids who are not very mathematically inclined can learn a little at the art table where they are at least using something that they are comfortable with. So I thought that was really good, and it went very well. There was a great response.

Interviews with teachers early in the fall semester showed that seven of ten (70 percent) teachers who continued to work with the teacher-consultant explicitly mentioned using journals or some other form of low-stakes writing in their classes. It is possible that these teachers would have used journaling as a teaching technique in any event, but one said that she was using "journal starters" as a result of working with the teacher-consultant. Another teacher said that she introduced journaling into her classes as a result of working with the teacher-consultant, and a third teacher stated that she now used guided freewriting similarly. Of four teachers who did not continue to work with the teacher-consultant in the fall semester, two used journals or low-stakes writing in their classes and two did not. One of the latter two said that she had used journaling previously with her students but had discontinued the practice. However, she did say that her students do freewriting.

Results of follow-up interviews conducted at the end of the spring semester showed that six of the seven teachers who worked with the teacher-consultant and used journals or low-stakes writing with their students in the fall continued the practice throughout the year. The teacher who discontinued journaling introduced reflective lesson summaries in their stead. Two teachers who had not previously used journals introduced them or else freewriting into their classrooms as a result of their interaction with the teacher-consultant. One of the teachers who had not worked with the teacher-consultant in the fall semester began to do so in the spring. She continued her use of low stakes writing. One of the three teachers who did not work with the teacher-consultant said that she was using journals less with her classes than previously, while the other two did not use journals.

iii) Ongoing weekly workshops and individual consultations. After the pre-academic-year workshop, the principal contacted the director of the NYCWP to negotiate an agreement to have the teacher-consultant work on-site two days a week and offer ten workshops each semester. The

principal and NYCWP director also established priorities that would guide the teacher-consultant's work with teachers: support teachers across the curriculum in using writing as a tool for learning; consult individually with teachers who sought the teacher-consultant's assistance; serve as a thinking partner for teachers; and support teachers in their efforts to help students improve their writing skills.

The teacher-consultant structured the fall workshops by emphasizing three themes: (1) beliefs about writing (e.g. "these kids can't write"); (2) creating rubrics to assess writing; and (3) presentations of teachers' work. In addition to the teachers from different subject areas, the principal attended the fall series. The teacher-consultant also met at least twice a week on an individual basis with various teachers (see Table 2).

The teacher-consultant always attempted to meet the individual needs of each teacher. He also observed teachers' classrooms, co-taught some classes, worked with individual students, discussed pedagogy, and gathered resources.

iv) Effects of ongoing workshops and individual consultations. To examine the extent to which teachers who worked with the teacher-consultant implemented the suggested practices in their classrooms, we compared information from interviews with the teacher-consultant and teachers—what the teacher-consultant said he modeled or suggested against the teachers' claims about their practices.

The teacher-consultant said that with a first-year social studies teacher he suggested the development of a gallery walk on Africa. The gallery walk would include a mixture of new and review information and would be posted on the walls of the classroom. Students would be able to move around the classroom, as if they were in a museum, take notes, and eventually write a report. When the social studies teacher was asked what she had been doing with the teacher-consultant, she replied,

We designed a lesson together, and we designed a gallery walk where there were different stations on Africa—independence and democracy—and where the kids were to walk from station to station as if they were in a museum, take notes, and basically write a report on Africa. I had eleven stations that they had to review; they had to use a minimum of four stations for the report. They liked it. I loved it. We played the music and had different pictures and primary documents, poems—I think I will do it again now that I know how to—I have seen the other teachers doing it, but I have never done it myself. We had a lesson from the TC on gallery walks. He did a gallery walk on pi in math. It was really good. I learned a lot. I came up with the idea [about Africa]; the TC offered to help. It developed from that.

When asked how the materials for the gallery walk were prepared, she said,

Some of the materials were prepared by students. Before the gallery walk, we did independence in Africa. One of their assignments involved writing a newspaper report on the independence movement in a particular country. We gave them a copy of The New York Times so that they could see what a report looks like, how to do the heading, date

and name of the reporter, and the different type of writing. They did a good job. I posted their work as a newspaper article. So I included their work into the gallery walk . . . After that, they wrote a report that was started in class. We started by sharing what stations each student chose. The homework was a group project. I gave them three days to finish the report.

This teacher mentioned that her teaching style was changing as a result of her interaction with the teacher-consultant:

He helps me to be more flexible. I tend to be very teacher—teacher-centered—and I want to break away from that. That teacher-centered approach was how I was taught, and I always tend to go back to it. But I find I am becoming more flexible in my teaching now.

The teacher-consultant worked with a math teacher on an investment unit, a playground planning unit, a vacation unit, and a math gossip weekly. In the latter, the teacher-consultant and the teacher developed the idea of having the students write gossip articles about math concepts.

During the interview, the math teacher said:

There are specific projects that we've done as a result of the TC's influence. With the 7th grade, one of those projects involved making a budget for a trip. The students had to do a 7–10-day trip to a country of their choice, and they had to explain why they were taking the trip and what they were going to be doing on the trip . . . there were lots of opportunities for them to do a lot of writing. It turned out that the finished projects had a lot of writing in them. They are hanging around my classroom and in the hallways now. I received some good feedback on that, and I felt very good about that project.

With the 8th grade, they did a design project—designing a park. If I had done it previously, I probably wouldn't have had so much writing in it, but it turned out there was a big writing component in the final requirement as well as a rubric.

For the park assignment, we . . . talked about what questions we were going to answer. We actually brought in an expert who works in New York City's design department. He answered questions and discussed the costs of projects with students—you've got to find the land . . . you've got to get somebody behind you like a councilman or somebody like that; it moves the process along. The [park assignment] was also relevant because we started a garden project around the corner . . . we talked about the kind of plots we would want and whether it would be feasible. We talked a lot about where the green is in this neighborhood. We talked about how Central Park was built, eminent domain, and how people got moved out of neighborhoods. So we got a real discussion that I don't normally get. I was very impressed by that. And it came out in the writing; the best part is, if you look at the final project, there is discussion of eminent domain, and there is a discussion of what kind of park. We also considered that this is an industrial area. We considered that this is not residential, and on Saturdays and Sundays nobody is around here. We also considered that there are ten schools in this area and that we have no place to go outside except to walk on concrete sidewalks, and no place to hang out, and

no place to throw a Frisbee, within miles of here. None of the schools have playing fields, like you would expect a school to, and it really affects the students. We got into all this discussion, and the kids had some great ideas. We had some large-group discussions that were very interesting. The finished products blew me away. They were some of the best projects I've ever done in eighteen years of teaching. I was so happy with them.

An observation of the math teacher's classroom revealed that he was introducing the unit on "The Math Gossip Weekly." This unit focuses students on particular, important math topics. The idea, developed in conjunction with the teacher-consultant, was to have students write tabloid-style articles about math concepts. During the class, the students read examples of such articles and began writing their own articles, which were revised for math and verbal clarity. Interviews with the math teacher revealed that he later had the students create problems based on the math in the articles and used those examples to fashion the final examination. Completed student articles were later published on one of the bulletin boards in a school hallway.

With the art teacher, the teacher-consultant planned lessons and units around self-portraits through the senses, point-of-view writing, history through the eyes of the participants, and creating symbols for a culture. When interviewed, the art teacher indicated that the teacher-consultant gave her "scads of lesson plans and ideas." The teacher continued:

The lesson plans generally had to do with excavating identity. We did one about culture, but that was a while ago, and I can't remember exactly. They combine writing and art together very well. One day we came in, and there were pictures on the table. We went through a series of visual analyses that were more and more refined, so that it got to the point where you were really extracting poetry out of the image. The nice part about it was just picking an image and [having awareness] of how much the picture corresponds to whatever it is you are thinking—a very artistic approach.

Then we did an exercise with a potato chip. We went through the five senses with the potato chip. It was a very useful exercise in terms of deliberate examination of something, which the kids tend not to be in a state of mind to do.

The teacher-consultant collaborated with a first-year English teacher to plan a unit in which the students imagined what a utopian world would be like and then had to create a brochure for it, using an Internet-based brochure program. This was translated into classroom practice. During an interview, when asked about the use of peer-editing, the teacher said:

We do peer editing, and sometimes we have presentations. Other times, they just hand it in to me. Some of it gets displayed. We have two displays up now on the bulletin boards in the hallway. What's up now is a utopia project. It's not a particularly literary work. It's a page of writing alongside a brochure for a utopian society.

The teacher-consultant also worked with three more-experienced English teachers. They reported a variety of changes in their pedagogy. One said,

Specifically developing back story, the class that the TC was working with was called The American Social History Project. It's taught in conjunction with a history class and an art class. They have to develop immortal characters and travel with them through history. The TC has been instrumental in showing them how to develop back story, as in who is your character? Why did they behave as they did? Where did they come from? That's what we've been working on. This was an 11th grade class.

The other two English teachers emphasized how the teacher-consultant's experience reinforced their own approaches to teaching and writing. For example, one stated,

It's just his experience in the classroom—it's huge. I'm in my fourth year of teaching, and I think I've learned how to do some things, but I'm really just starting out . . . to have someone with so much experience—he's really good at helping when I'm thinking about a particular unit I want to do—I'm thinking in one specific area, and he's good at offering perspective and giving a more student-centered perspective, so he helps to mediate my own perceptions and ideas.

The other said,

Every time I've come to him with a question, a problem, or an idea, he offers something that is helpful. He just has a lot of ideas. I have been trying some of them out, and they work well.

A science teacher who attended the fall workshops and worked individually with the teacher-consultant also reported during an interview that she integrated his suggestions into her classroom with positive results.

For example, [when students have questions about] global warming, I let them do freewrites on the topics. They would do the freewrites at the beginning of the topic, like a "do-now," then they would read their contributions, and at the end of the lesson they would be able to rewrite their freewrites, after hearing the information in the class. This went on for a number of lessons, so they were always developing and refining. So the finished product for the environmental science class was that they had to write essays on factors affecting human development—how the environmental conditions affect development and what human beings could do to preserve resources. So we did freewriting throughout the course, and the essays came a lot easier this time than in previous years. They didn't complain as much about having to write an essay. They were more accustomed to writing.

Finally, similar results were reported by an experienced social studies teacher who had worked specifically with the teacher-consultant on developing rubrics to assess research papers.

This was one of the things we talked about on the day when the TC [made a presentation] about rubrics. It's very hard to grade a large quantity of papers because your perception of what is there changes the longer you do it . . . it could be that they're all really bad so the least little victory makes you excited, and you'll give a higher grade than you

otherwise might. Or it might be the opposite, they're all really good until you get one that's not quite as good, and so you hit it a little harder. The rubric helps to balance that out a bit, because there are quite often times when I think how does one thing compare to the other kids, and while there are always subjective things even with the rubric, there are a lot of times when I'm not sure how high to rank a kid in a particular category. Having the rubric in front of me, I can look at it and grade the work in relation to it. It helps me to differentiate. It also allows me to pinpoint for the kids what they're messing up on. With this project most of them gave me a rough draft, and for those who gave me a rough draft, I was able to use the rubric to show them which part they needed to work on and give them comments. I write all over their papers, but I can also write on the rubric. With the rubric I can pretty much circle what it is and tell them specifically what they need to work on. Then more detailed comments will be on the paper. I can give it back to the kid, and they can make at least some of the corrections on the second draft.

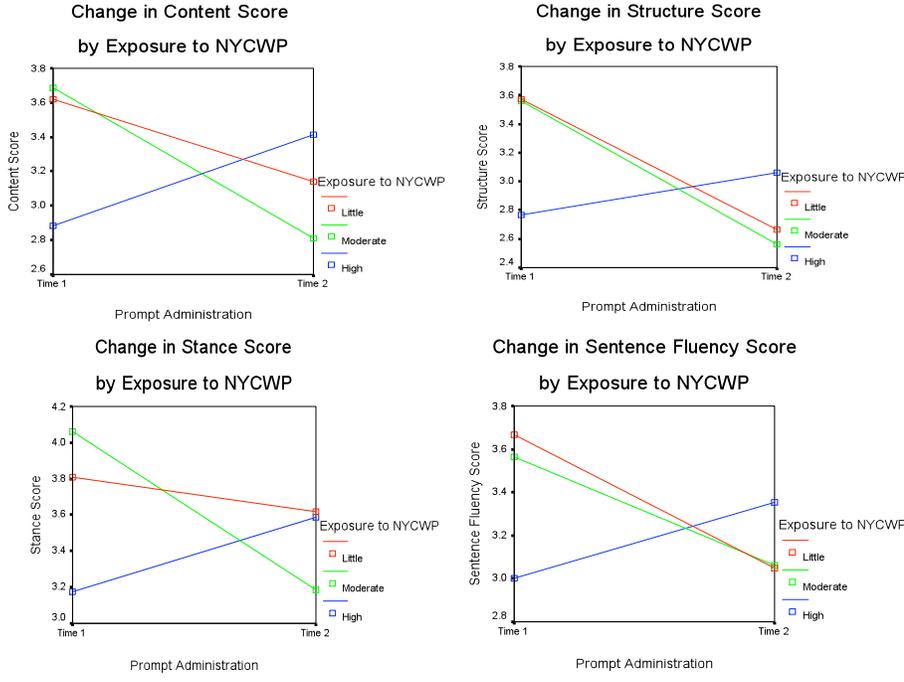
Teachers with no NYCWP exposure. The four teachers in this study who had no exposure to NYCWP generally did not use writing in their classrooms to the extent that the teachers exposed to the NYCWP did. At the beginning of the academic year, one of the math teachers did report asking his students to write a paragraph at the end of the lesson that outlined what they understood about the day's problems as well as any difficulties in understanding the lesson. However, at the end of the year, this teacher said that he had not been employing that approach to any great extent. In contrast to the other three teachers who were not exposed to NYCWP, a science teacher reported using writing extensively in her classroom and in ways similar to the science teacher who did interact with the teacher-consultant.

Student Outcomes

Analysis of student writing samples. The on-demand writing assessments of students who took classes with teachers in the high-, moderate-, and low-exposure to NYCWP groups were compared and analyzed. Differences between groups in the writing prompt scores from baseline sample to follow-up sample were measured on six specific individual elements of writing (i.e. content, structure, stance, sentence fluency, diction, and conventions) and on the holistic score. Figure 1 shows the results for the students (17 high-exposure, 16 moderate-exposure, and 21 low-exposure) who took both the pre- and post-administrations of the on-demand writing test.

Figure 1 shows that for all elements of writing and the holistic impression, scores of the high-exposure group increased across writing prompt administrations, whereas those of the moderate- and low-exposure groups declined. Repeated measures ANOVA demonstrated that the change in scores of the three groups differed significantly on all measures (see Table 3).

Figure 1
Change in mean writing prompt scores across administrations by NYCWP-exposure group



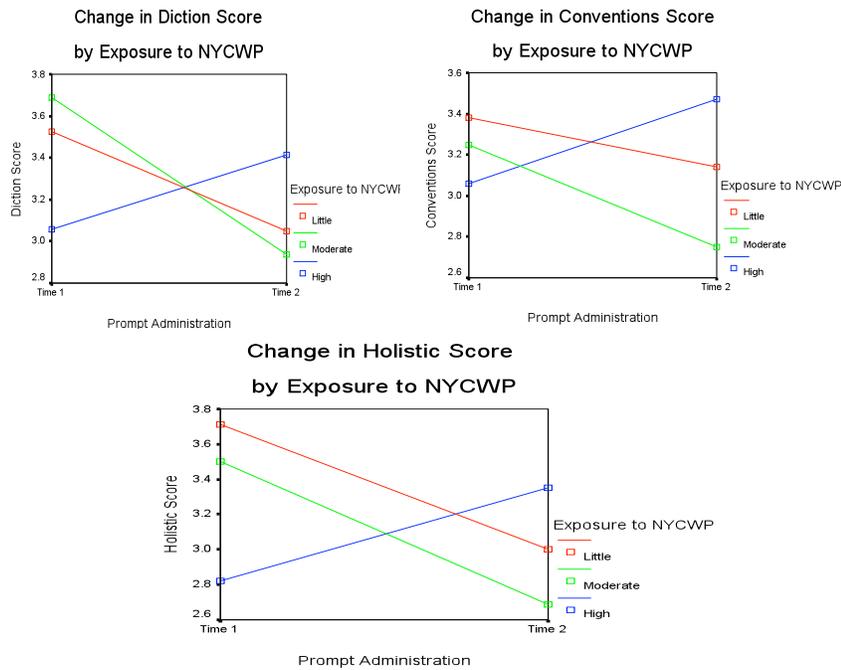


Table 3
Results of repeated measures ANOVA for each writing element

Writing Element	$F_{(2,51)}$	Significance level (p)
Content	6.31	.004*
Structure	5.25	.008*
Stance	3.59	.035*
Sentence Fluency	5.02	.011*
Diction	4.30	.019*
Conventions	3.38	.042*
Holistic Impression	7.60	.001*

Note: * = statistically significant difference at $\alpha = .05$.

The mean scores on the baseline (Time 1) writing prompt scores for the high-NYCWP-exposure group were lower than those for the other two groups (see Figure 1). However, one-way ANOVA showed that the groups did not differ significantly in their initial scores on any of the elements of writing or the holistic score (see Table 4). For this reason, the increase over time in the high-exposure group's score and the corresponding decreases in the scores of the other two groups cannot be explained by floor or ceiling effects.

Table 4
Results of one-way ANOVA for initial writing prompt scores for each writing element

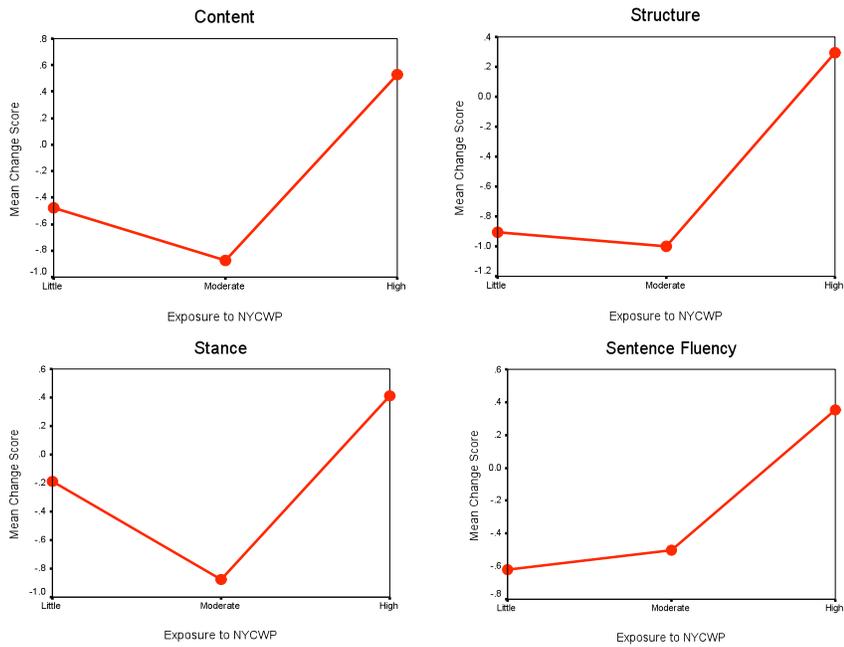
Writing Element	<i>F</i>_(2,51)	Significance Level (<i>p</i>)
Content	2.92	.063
Structure	2.33	.107
Stance	2.68	.078
Sentence Fluency	1.94	.155
Diction	1.31	.278
Conventions	0.53	.591
Holistic Impression	3.11	.051

In order to elucidate the differences among the three groups, change-over-time scores were calculated for each group for each element of writing. These are provided in Table 5.

Table 5
Mean change scores over time and their standard deviations (in parentheses) for each NYCWP-exposure group

Writing Element	Change Scores		
	High-exposure Group	Moderate-exposure Group	Low-exposure Group
Content	.53 (1.01)	-.88 (1.31)	-.48 (1.21)
Structure	.29 (1.21)	-1.00 (1.55)	-.90 (1.18)
Stance	.41 (1.28)	-.88 (1.36)	-.19 (1.47)
Sentence Fluency	.35 (0.86)	-.50 (1.03)	-.62 (1.07)
Diction	.35 (1.11)	-.75 (1.06)	-.48 (1.21)
Conventions	.41 (1.00)	-.50 (1.09)	-.24 (1.04)
Holistic Impression	.53 (0.87)	-.81 (1.47)	-.71 (1.01)

Figure 2
Mean change scores for each NYCWP-exposure group



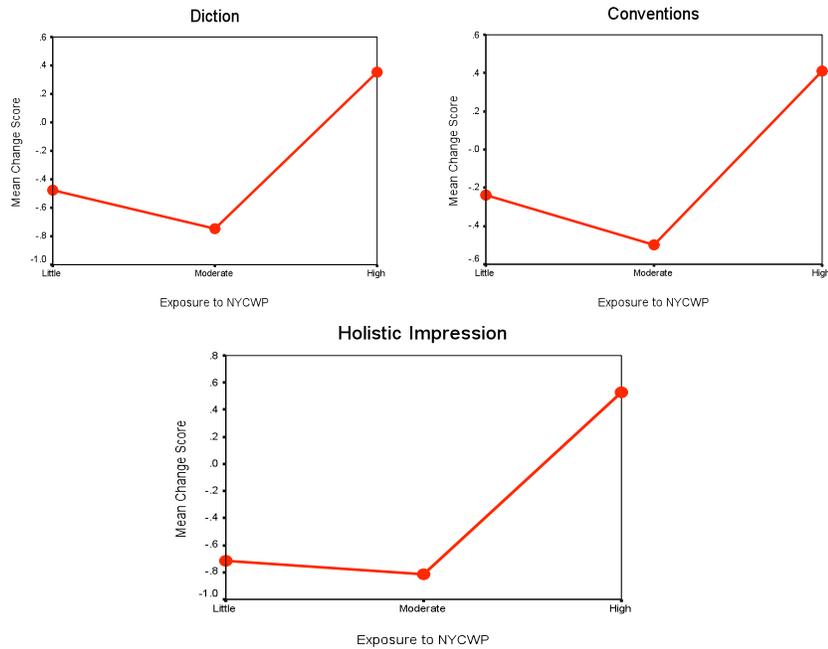


Figure 2 confirms that the high-exposure group had higher change scores than the other two groups, and that the high-exposure group had positive change scores, whereas the change scores of the other two groups were negative. Post-hoc analysis (Sheffé) showed that the change scores of the group with high NYCWP exposure were significantly greater than the combined scores of the moderate- and low-exposure groups (see Table 6).

Table 6
Results of post-hoc analysis (Sheffé) comparing the change scores of the group with high NYCWP exposure to the combined change scores of the other two groups

Writing Element	<i>Sheffé t</i> (<i>df</i>)	Significance Level (<i>p</i>)
Content	3.47	.001*
Structure	3.24	.002*
Stance	2.33	.024*
Sentence Fluency	3.11	.003*
Diction	2.89	.006*
Conventions	2.54	.014*
Holistic Impression	3.90	<.001*

Note: * = statistically significant difference at $\alpha = .05$.

The above findings indicate that those students who had high exposure to the NYCWP through their teachers improved their writing scores over time significantly more than those in the moderate- and low-exposure groups combined. When the size of this differential effect was calculated (Cohen's *d*), results showed that the group with high NYCWP exposure increased its writing prompt score over time by approximately one standard unit more on average (0.88) than the other two groups across all elements of writing and the holistic score (see Table 7). Table 7

also shows the raw difference scores between the high-exposure group and the combination of the moderate- and low-exposure groups.

Table 7
Raw difference scores and effect sizes when the group with high NYCWP exposure is contrasted with other two groups combined

Element of Writing	Raw Difference Score	Effect Size (Cohen's d)
Content	1.21	1.00
Structure	1.25	0.94
Stance	0.94	0.66
Sentence Fluency	0.91	0.91
Diction	0.97	0.83
Conventions	0.78	0.73
Holistic Impression	1.29	1.12
Mean across all above	1.05	0.88

Table 7 demonstrates that, on average, the difference in change scores between the high-exposure groups and the other two groups combined was slightly more than one unit on the six-point scale of the rubric.

Further analysis contrasted the scores of the low-exposure group with the combined scores of the moderate- and high-exposure groups. No significant differences in were found on any of the elements of writing or the holistic score when these contrasts were performed.

High exposure to NYCWP. Fifteen of the seventeen students who were assessed as being in the group with high NYCWP exposure were taught each week by at least three teachers who had substantial contact with the NYCWP teacher-consultant. The three or more teachers who taught each student were drawn from a range of content areas, including English, social studies, science, geography, and art. In general, these teachers had either had regular individual contact with the teacher-consultant throughout the year, or in addition to such individual contact, had attended the teacher-consultant-led workshops during both semesters. The remaining two students in the high-exposure group were taught by two teachers (English and social studies) who had individual contact with the teacher-consultant and attended the workshops regularly.

Moderate and low exposure to NYCWP. Students in the moderate- and low-exposure groups were taught each week by no more than two teachers who had contact with the NYCWP teacher-consultant. In the case of the low-exposure group, students were taught by only one teacher each week who had contact with the NYCWP teacher-consultant. It is worth emphasizing that, in any content area, the same individual teacher could teach across the three exposure groups. What accounts for the difference in exposure among the groups, therefore, is the number of teachers across content areas that have had substantial contact with the NYCWP.

Student exposure to NYCWP by level.

Table 8

Student NYCWP exposure by level

Level	Number and Percentage of Students		
	High-exposure Group	Moderate-exposure Group	Low-exposure Group
Freshman	2 (12%)	4 (25%)	14 (67%)
Sophomore	14 (82%)	11 (69%)	5 (24%)
Junior	0 (0%)	1 (6%)	0 (0%)
Senior	1 (6%)	0 (0%)	2 (9%)

Table 8 indicates that the group with low NYCWP exposure contained substantially more freshmen and fewer sophomores than the other two groups. This difference was significant ($\chi^2 [6] = 20.9, p < .01$). However, when the writing prompt change scores of the sophomores from the high-exposure group were compared with those of the sophomores from the other two groups, the change scores of the former group were significantly greater than those of the latter group for all elements of writing and holistic impression. When the change scores of the freshmen in the combined low- and moderate-exposure groups were compared with those of the sophomores in the same group, no significant differences were found. Linear regression analysis confirmed that student level alone did not significantly predict change score, nor did this variable significantly increase change score prediction over and above NYCWP exposure. The foregoing results indicate that the differences in change scores between NYCWP-exposure groups did not arise from differences in student level among the groups.

Student surveys and writing prompt scores. McNemar's test showed no significant changes in students' attitudes to writing survey responses over time. Pearson's chi-square test demonstrated that there were also no significant differences in responses to the survey among the three levels of exposure to NYCWP. Overall, students' attitudes toward writing as measured by the survey did not predict writing prompt scores; neither did they do so when they were broken down by NYCWP-exposure level.

The administrative context. The interviews with the teacher-consultant and the school principal confirmed that there was a formal agreement between the school and the NYCWP to introduce the program and to define what it would consist of. However, this agreement did not specify any clear and agreed-upon goals for the program.

The teacher-consultant certainly had a clear idea of what it meant to establish a writing-intensive school.

It would be a school where writing was used often in the service of learning so that the intensiveness of it would make it a science-intensive school, too. Writing would go on [in science] to help students to understand what they are learning about science as well as the texts that they're reading. In college, there are writing-intensive classrooms, and what that really means is not necessarily that they are doing everything as a paper, but, rather, that within the classroom on a day-to-day basis, student voices are valued, and their thinking is done through writing. They explore their thinking through writing, and that writing informs their learning. In this school, I think that it would happen at all

levels, so that even, say, the principal would have a meeting where some writing would be involved . . . even the teachers could begin to think, practice, and model ways of approaching writing.

However, the teacher-consultant realized that it would take considerable time and effort to establish the school as writing intensive. Although the administration was supportive of NYCWP, there was, the teacher-consultant said “a big gulf between what the principal wants to get out of the association between his school and the NYCWP and what we envision as a writing-intensive school. I think the NYCWP hasn’t communicated to him yet what we intend.”

From the separate interviews with the teacher-consultant and the principal at the end of the spring semester, it appeared that the gulf had not been substantially bridged. As the teacher-consultant noted:

I think his understanding of what I’m hoping to accomplish has improved. I think it is something that he would like to see happening, too. We talked not too long ago about his goals for the kids. Even then, though I added the part about writing helping them to become lifelong learners . . . I don’t think he’s there completely yet.

Meanwhile, the principal said, “I do recall having brief discussions with the TC about his continuing to work next year. I don’t know if I said anything specifically about what direction I’d like that to go in or what direction he thinks we should go in.”

DISCUSSION

The most significant finding from this study is that students who had high exposure to NYCWP (through the participation of their teachers) made significantly greater gains across writing prompt administrations than those students who had moderate or little exposure to NYCWP through their teachers. Essentially the differences in exposure level resulted from differences in the number of teachers who had regular exposure to NYCWP who taught the students on a weekly basis. In general, the high-exposure group was taught by at least three teachers who had regular exposure to NYCWP. The other two groups were taught by two or fewer teachers who had such exposure. In order to be taught by three or more teachers who interacted with the teacher-consultant, the students would have been exposed to such teachers across several content areas, for example English, social studies, and science. This finding strongly suggests that writing across the curriculum is crucial to developing students’ literacy.

It is noteworthy that the different NYCWP-exposure groups were not necessarily taught by different teachers across content areas. For example, an English teacher who had regular contact with NYCWP was equally likely to have taught students in the low- or moderate-exposure groups as the high-exposure group. Thus, it is extremely unlikely that individual teacher variables caused the differences in writing prompt change scores among the NYCWP-exposure groups.

It is also unlikely that the differences in student NYCWP-exposure groups occurred because the low-exposure group was made up of relatively more freshmen than the other two groups. This is

unlikely because when the student variable level was controlled for statistically, the observed significant differences in writing prompt change score remained.

In addition, there were no significant differences among the NYCWP groups in their responses to the student survey, and no significant relationship between student survey responses and writing prompt scores. Thus it is not probable that the differences in NYCWP-exposure-group change scores resulted from differences in either students' perceptions of themselves as writers, their attitudes toward writing, their reported use of writing strategies, or their reported use of writing across subject areas. This latter finding might seem counterintuitive in view of the positive effect of writing across the curriculum on student writing prompt scores. One might have expected that the high-exposure group would have reported a greater use of writing in other subject areas than the other two groups.

The difference in writing prompt change scores between the group with high NYCWP exposure and the other two groups is generally in the order of one point on a six-point scale. This is a considerable difference. As the starting scores for all groups were around three on the scale (Figure 1), and assuming a score of four or more might be a passing grade on the scale, a differential of one point in change scores could mean the difference between passing or failing on a standardized test, with the high-exposure group being more likely to pass the test than the other two groups. It must be emphasized that for the purposes of this research there was no such "pass-fail" criterion for the writing prompts. However, if the results can be extrapolated to similar tests that do have such a criterion, then it can be argued that the more writing is introduced across the curriculum, the more likely it is that students will be successful on standardized tests.

It is worth noting that the teacher-consultant worked with more English and social studies teachers than teachers from other subject areas. Considering that this was the first year of a multiyear effort to establish a writing-intensive school, it is reasonable to think that initial efforts to increase literacy across the school should be concentrated in those areas. However, in view of the fact that students taught by at least three NYCWP teachers across a range of content areas made significantly greater gains than their peers on the writing prompts, future efforts by NYCWP and school administrators should be aimed at extending NYCWP professional development to teachers in other content areas, particularly math and science. Contact with teachers of English and the social sciences should, of course, be maintained.

Limitations of the Study

The study was conducted in only one school, thus limiting the generalizability of its results. In addition, the small student-sample size and the fact that the student sample was self- or parent/guardian-selected also limited the generalizability of the study's results.

The study concentrated on student literacy performance as measured by on-demand writing prompts. It did not attempt to assess student writing across a range of genres. NYCWP's primary objective is to improve the quality of literacy-related instruction and student writing across the curriculum. It also aims to improve student literacy across a range of genres. There is certainly ample evidence from the teacher interviews that NYCWP did this. Thus, to concentrate on students' performance on essay-type tests might be doing NYCWP an injustice. It might also be

the case that if writing products other than the timed writing prompts were measured, the results for the NYCWP-exposure groups might be different.

This study did not employ a “nontreatment” comparison group, nor was there random allocation of students or teachers to NYCWP exposure. However, use of treatment versus nontreatment designs had previously proved problematic, particularly as it was difficult to control for school, teacher, and student variables across the two groups. This study had the advantage of being conducted in a single school and of having the same teachers work with students across NYCWP-exposure groups. Thus, school and teacher variables were more likely to be controlled for.

Directions for Future Research

A major aim of the NYCWP was to turn the school that is the focus of this study into a writing-intensive school. Results show that throughout the academic year, the teacher-consultant worked intensively (either through workshops or regular individual meetings or both) with eleven teachers, and occasionally with five others, in all 55 percent of the teaching staff. The range of subject areas of these teachers was wide. It included math, science, English, social studies, geography, and art. Our research shows that although there is still some distance between NYCWP’s vision of what constitutes a writing-intensive school and the school administration’s aims with regard to students’ literacy development, there is no doubt that the NYCWP teacher-consultant has taken an important first step toward creating such a school: an initial step toward creating a writing-intensive school is to encourage and develop writing across the curriculum.

In order to increase the generalizability of our results across schools, we will add one school in our future research. We will not be directly comparing the additional school with the current school. We will, however, be interested in seeing whether the attempt to establish a writing-intensive school in the second institution shows similar results to those of the current study. We will also continue to monitor the development of the NYCWP program in the school whose results are reported here. In addition, we have funding to enable us to study the effects of NYCWP in both schools for another two years. We will, therefore, have sufficient time to trace the impact of the NYCWP in each school and assess in more depth the extent to which each school becomes writing-intensive.

We have IRB approval to obtain passive-informed student consent for our next study; this should increase student sample size greatly and add to the relevance of the results within each school.

Together with the Research and Evaluation Department of the National Writing Project, we hope to develop a method of scoring student-writing products other than the on-demand writing samples (e.g., research papers, laboratory reports, memoirs, etc.). This will enable us to assess what changes, if any, occur more generally in student writing as a result of their teachers’ exposure to NYCWP.

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