

Improving Students' Analytical Writing:
Building a Bridge to College and Workplace Success

Appendix D: ISAW Response to Evidence Standards

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Theoretical Rationale

The proposed Improving Students' Analytical Writing (ISAW) model of professional development proposed draws on a combination of theoretical and empirical evidence for support. The content of the proposed program builds on the understanding that most secondary teachers have few opportunities to develop their knowledge of or pedagogy for teaching analytical writing and that, in fact, teaching writing well requires a specialized knowledge. The professional development model under discussion draws on the knowledge that teachers need extended opportunities to learn content and pedagogy and then apply that new knowledge in their classrooms. Professional learning communities can offer additional support while teachers work through this process.

Writing in the Post-Secondary World

Secondary teachers hoping to prepare their students to write successfully in the world of higher education, generally referred to as academic writing, must first navigate the debate over what this mode of writing actually is. According to Bartholomae, academic writing is “the real work of the academy ... (which) makes us think of the page as crowded with others” (Bartholomae, 1995, p. 63). Bartholomae develops the notion that academic writing takes place within a community: It is a conversation in which the writer refers to points made by others. In their work interviewing professors and students across disciplines at George Mason University, Thaiss and Zawacki (2006) found just three common features in participants' responses: “disciplined and persistent inquiry, control of sensation and emotion by reason, and an imagined reader who is likewise rational and informed” (p. 8). Similarly, Carter (2007) found vast differences in how faculty in different disciplines expressed their expectations. After looking for similarities across tasks, Carter emphasized the connections that existed and referred to these as

metagenres, or genres that represent different “ways of doing” associated with various disciplines. These metagenres echo the common features found by Thaiss and Zawacki. This scheme illustrates the general lack of agreement of the sort of literacies, especially writing, students need to be successful in the world of post-secondary education.

The array of definitions creates a dilemma for K-12 practitioners who must both develop definitions of academic writing and determine the best classroom tools and situations to develop students’ knowledge and skills. Perhaps in response to this dilemma, along with pressure to prepare students for standardized assessments of writing and their own lack of education in how to teach writing, many teachers end up utilizing formulas. The most common of these is the five-paragraph essay. In their recent study of the writing instruction that occurs in US middle and high schools, Applebee and Langer (2011) found that formulaic writing continues to dominate the type of writing done by secondary students. But as Rosenwasser and Stephen (2009) state, “Although it has the advantage of providing a mechanical format that gives virtually any subject the appearance of order, it usually lops off a writer’s ideas before they have the chance to form” (p. 124). By privileging form over an exploration of ideas and analysis, the formulaic approach to writing stands in direct opposition to the type of writing expected in the post-secondary world.

In order to move beyond formulaic approaches teachers must establish their own concrete understandings of what analytical writing is. Only then can they develop the specialized knowledge needed.

Knowledge required to teach analytical writing

Acquiring this specialized knowledge is a crucial part of teachers developing what Shulman (1987) refers to as pedagogical content knowledge, or the special knowledge teachers have not just of the specific content to be taught but also of the pedagogy necessary to teach that

content. According to Shulman, this level of understanding begins with a strong knowledge of the content. In the case of analytical writing, this means understanding conceptually what analytical writing is and how best to teach it to the students in a given classroom. However, because of its complexity, what pedagogical content knowledge actually looks like in practice can become fuzzy for both educators and researchers. Ball, Thames, & Phelps (2008), working in mathematics, have attempted to break down Shulman's concept of pedagogical content knowledge into its constituent parts. To teach the content of mathematics, teachers must have *specialized content knowledge*, the content knowledge and skill unique to teaching that extends beyond the *common content knowledge* needed in settings outside teaching. This *specialized content knowledge* allows teachers to explain the content to their students and analyze errors made by students in order to guide their development. Teachers must also develop their *knowledge of content and teaching*—an amalgam of deep content knowledge and strong pedagogical knowledge. When these two types of knowledge combine, the result is pedagogy specially formatted for the specific content. Teachers' *knowledge of content and students*—an amalgam of deep content knowledge and general knowledge of students—allows them to tailor the content for their specific students.

Applying the work of Ball et al. (2008) to writing suggests teachers must know more than simply how to write well. In analytical writing, *specialized content knowledge* includes not just knowing what analytical writing is but how analytical writing is used in school and beyond and how individuals develop as analytical writers. The *knowledge of content and students* requires connecting this content knowledge with teachers' knowledge of students as developing writers. Finally, the *knowledge of content and teaching* in analytical writing takes the *specialized content*

knowledge and connects it to knowledge of how to teach analytical writing, including knowledge of specific instructional practices.

Taking this framework to analytical writing demonstrates the depth of knowledge required by teachers. Individuals outside education understand, through their *common content knowledge*, that good analytical writing is focused and organized. Teachers with *specialized content knowledge* also know and can articulate that a text's organizational structure should match its purpose. They realize that, in school, students must organize their ideas logically to communicate knowledge. Additionally, they know students must understand the purpose of organizing writing before they begin to organize their ideas. Teachers of analytical writing must also have *knowledge of content and students*. Many students believe all analytical writing follows the formulaic five-paragraph format, and frequently, students have difficulty determining their position when asked to articulate an argument. But these teachers know it often takes students multiple opportunities to try out their positions before they can develop a logical argument. Finally, teachers must have *knowledge of content and teaching*, including the specific instructional moves that guide students' development. For example, knowing that providing students with opportunities to analyze the rhetorical effects of models of academic writing can help them to understand why they must move beyond relying on formulas.

In order for teachers to develop students' knowledge of analytical writing, they must develop highly specialized understandings of analytical writing, which goes far beyond what they need to be successfully write academic texts. The ISAW program under discussion aims to develop such knowledge in its participants.

Lack of Opportunity to Develop Writing Knowledge

Lack of preservice preparation to teach writing. Many assume teachers entering the

profession have opportunities to develop the PCK necessary to teach writing during their preservice preparation. But opportunities for this type of development vary widely among programs, with many providing little preparation at all. Thomas (2000) points out that most teachers “were never educated to teach writing” (p. 40). Other research has yielded similar inadequacies in the preparation of teachers. In a survey of a random sample of secondary ELA, social science, and science teachers from throughout the country, Kiuahara, Graham, & Hawken (2009) asked respondents to rate the degree to which they believed they received adequate preparation during preservice to teach writing. Participants had six options ranging from strongly disagree (1) to strongly agree (6). The mean response for Language Arts teachers (2.61) placed the respondents, as a whole, between “slightly disagree” (15%) and “slightly agree” (24%). For all content areas, the mean response was “slightly disagree” (2.25). The difference in the mean scores between these two groups suggests that, although preservice English teachers may have slightly more preparation in their English methods courses, this preparation was still not enough to prepare them to meet the demands they face in the classroom. In a small-scale survey of 102 teacher preparation programs, Totten (2005) learned that most embedded instruction in how to teach writing within content area literacy courses or, for preservice English teachers, English methods courses.

But how writing gets addressed in English methods courses can vary greatly from one program to the next, if it is explicitly addressed at all. Hochstetler (2007) conducted one of the only studies of California institutions’ English methods courses. Through a case study of three institutions, she found that, at one end of the spectrum, the institution provided one general methods course for all content area teachers. In this course, the instructor utilized global instructional methods and focused on directing the preservice teachers to resources. At the other

end of the spectrum, the instructor led his preservice teachers in an extended exploration of seminal texts about teaching writing, with the opportunity to apply theoretical ideas to classroom lessons. This range suggests some preservice teachers leave their preparation programs with little more than the common content knowledge (Ball et al., 2008) of writing they developed through their own experience as students.

The great variance among programs reflects the lack of specificity of what should be included in an English methods course within California, as stipulated in the document *English teacher preparation in California: Standards of quality and effectiveness for subject matter programs* (English Subject Matter Advisory Panel, 2009). According to Standard 15:

Composition and Rhetoric,

In the program prospective teachers learn and apply a variety of composing processes.

Prospective teachers of English analyze and compose texts representing a variety of discourse types and demonstrate the ability to use research strategies, text production technologies and presentation methods appropriately in a range of rhetorical contexts (p. 28).

Essentially, this standard indicates that preservice English teachers should have the opportunity to further develop their common content knowledge of writing (Ball et al., 2008). Anything beyond that, however, is up to the discretion of the preparatory institution, as Hochstetler's (2007) study demonstrated.

Lack of inservice preparation to teach writing. Once teachers enter the profession, the development they receive continues to vary greatly depending on the district and school in which they work. Grossman and Thompson (2004) examined the role district policy played in the development of three first-year English Language Arts teachers who all attended the same

preservice preparation program. In one district, the teachers received little support for developing deepened knowledge of *specialized content knowledge*. In fact, much of the mentoring they received came from teachers in other content areas who focused their attention on issues of classroom management. In a neighboring district, the new teacher participated in regular collaboration with veteran department members, which allowed her to continue to develop her pedagogy for English Language Arts.

Together, these studies demonstrate the vast range of knowledge to teach writing that teachers working within secondary schools likely have. Those who attended institutions that provided little development beyond how to access resources (Hochstetler, 2007) and who then work in institutions that provide little if any subject-specific mentoring likely have little more than the *common content knowledge* of writing they developed as students. This means they have little content-specific instructional knowledge to draw on when negotiating their students' needs and mandated instructional policies and why professional development, such as the ISAW program, is so badly needed.

Models of Professional Development

Various professional development models exist, ranging from single-day workshops offered for teachers from multiple school sites to multi-year programs serving all teachers at a single school site. From a synthesis of previous research, Hawley and Valli (1999) provide eight design principles for effective professional development that will lead to changes in student learning. These include: (1) the need for the professional development to be “driven by analyses of the differences between goals and standards for student learning and student performance” (p. 139); (2) the inclusion of participants in identifying the specific content to be covered and, when possible, the format of the program; (3) ensuring the program is school-based, meaning it is

connected with the goals of the school; (4) the inclusion of collaborative problem-solving activities such as curriculum development; (5) the program should be continuous and on-going, offering opportunities for follow-up support; (6) the incorporation of multiple evaluation measures of student achievement and guidance for participants' review of the outcomes; (7) the inclusion of opportunities for participants to develop deep, theoretical understandings of the content; and (8) the integration of the program into a comprehensive change process.

The ISAW program builds on these design principles, first, by extending the program over two academic years to give participants ample opportunity to implement their new learning and then return to the program to share experiences and be further supported. Additionally, participants use data they collect when administering beginning of year writing assessments to their students to inform both their future instruction and their pedagogical needs to deliver this instruction. These needs become the content for future program sessions.

Collaborative Communities as Promising Model for Professional Development.

Additionally, the ISAW program aims to work with groups of teachers from specific schools. In this way, the teachers can provide a support network for one another as they try out their new understandings for teaching analytical writing. Specific activities within the ISAW program focus on developing a sense of community among the full group of participants as well, providing an additional network of support for participants.

Collaborative communities, or what Palincsar, Magnusson, Marano, Ford, and Brown (1998), adapting Lave and Wenger's term, call communities of practice, show promise as contexts for developing new knowledge among educators. Admitting that Lave and Wenger were referring to anything but communities in an educational setting, Palincsar et al. note its applicability to a collaborative community of learners who happen to be teachers. As they argue,

teachers need authentic opportunities to engage in collaborative activities that allow for interaction and the development of interdependence.

But numerous studies warn of oversimplifying what it means to be a professional teaching community (Palincsar et al., 1998; Grossman, Wineburg, & Woolworth, 2001; Lieberman & Miller, 2008). For a community to be a successful community of learners, certain characteristics must exist. Grossman et al. (1999) state there is a “related set of social practices in and through which learning takes place among people whose lives intersect in a particular activity” (p. 19). Palincsar et al. call for a common philosophical orientation among group members: The teachers must share common beliefs about the purposes and practice of teaching and about students in general. Establishing a set of collective beliefs in the beginning helps unify the group, fostering trust and interdependence among group members, Palincsar et al.’s second required characteristic. Additionally, intellectual diversity among members creates a larger resource pool from which members can draw as they negotiate their understandings. But trust and interdependence must first be established so members feel “safe” to test new ideas and understandings (p. 8).

Similarly, Grossman et al. (2001) identify four dimensions that must be present in a professional teaching community: (a) formation of a group identity and norms of interaction; (b) navigation of fault lines within the group; (c) negotiation of the central tension in professional development, between the desire to improve professional practice and the need to continue developing in the subject matter; and (d) acceptance of communal responsibility for individual participants’ growth. After working with 22 social science and English teachers at a single high school over 2½ years, Grossman et al. found that only after the group developed in each of these

areas did members truly engage with one another, negotiating understandings that could serve both individual and collective developments and improvement of their pedagogy.

The group first had to move beyond pseudocommunity, or interacting as if everyone agreed with all ideas presented, which kept participants from grappling with content. This required an acceptance of that central tension in a professional community of teachers (Grossman et al., 2001). Grappling with the central tension also requires moving from distributed cognition—accepting that the group’s collective wisdom and knowledge exceed that of any individual—to cognition distributed—the redistribution of this collective knowledge to individual group members, which points back to internalization of specialized content knowledge. Developing students’ knowledge of the content requires teachers to move from the common content knowledge—common to those outside teaching—to the specialized content knowledge (Ball et al., 2008).

Juxtaposing the dimensions set out by Grossman et al. (2001) with the requirements presented by Palincsar et al. (1998) creates a potential portrait of a professional teaching community that allows for the acquisition of the specialized content knowledge needed to teach analytical writing.

National Writing Project as model of professional community. The National Writing Project (NWP), founded in 1974 to honor teachers’ expertise in the teaching of writing, relies on professional teaching communities to develop specialized content knowledge of writing (Lieberman & Wood, 2003). Through case studies of NWP sites and Teacher Consultants, Lieberman and Wood revealed that NWP teacher communities engage in ten different social practices. Although they describe these practices as “interactive and mutually dependent” (p. 22), they can be grouped into four categories that, while all essential, build upon each other.

The first category, *Ownership of Knowledge*, incorporates three categories from Lieberman & Wood that demonstrate the NWP not only respects and honors teacher knowledge, but it treats that knowledge as potentially valuable to others. In contrast to many top-down professional development models, participants in NWP programs take control of their learning.

NWP allows for *Ownership of Knowledge by Creating Spaces for Learning*, the next primary category. Public forums allow for the interaction advocated by Grossman et al. (2001) by facilitating movement away from a pseudocommunity. Similarly, providing multiple entry points—such as monthly book study groups with varied topics or advanced institutes—guarantees that individuals with diverse perspectives (Palincsar et al., 1998) have access to the group's larger knowledge. Finally, the NWP places a priority on setting up learning situations so that participants learn in practice by participating in work together: Participants collaborate with one another and experience the instructional approaches as their students might. They learn firsthand the value of what is being taught.

Once *Spaces for Learning* have been created, NWP communities help participants *Become Reflective Practitioners* through the practices identified by Lieberman & Wood (2003). Throughout NWP activities, participants reflect upon their learning experiences and link new knowledge with previous knowledge. In addition, participants are encouraged to constantly question their instructional decisions in their quest to become better teachers of writing.

Working together, these social practices allow NWP participants to *Develop Professional Identities*. Contributing to this development are the final social practices described by Lieberman & Wood (2003). Within the NWP, leadership responsibilities rotate among participants and local NWP sites encourage participants to develop as leaders. Through this work, participants develop new identities as professionals with knowledge worth sharing.

However, Pennell and Firestone (1996) make the distinction between *delivered* NWP programs—utilizing the constructivist ideology associated with the NWP but relying on pre-planned agendas and scripts—and *constructed* programs—participants “construct” the content based on their own levels of need and expertise. These NWP constructed programs begin to fit the model of professional teaching community articulated by Grossman et al. (2001) and may offer promise for helping develop the specialized content knowledge of academic writing.

While the social practices identified by Lieberman & Wood (2003) capture the core elements of NWP programs, they do not highlight the phases of development through which NWP communities progress. This requires returning to the dimensions identified by Grossman et al. (2001). In a professional teaching community, members must develop a group identity and norms for interaction; negotiate existing or potential fault lines; negotiate the tension between developing their own knowledge and developing pedagogy; and accept communal responsibility for members’ growth.

A study of a previous ISAW program with a similar model to the proposed program demonstrated that, through their interactions around content, over time, the participants of the program did indeed exhibit the characteristics outlined by Grossman et al. (Marlink & Wahleithner, 2011). The proposed ISAW program, like the previous, will also include the practices Lieberman and Wood (2003) identified across NWP programs. Participants will be encouraged to take the information presented and make it applicable for students in their contexts. In this way, the existing knowledge teachers’ have of their contexts will be honored. Additionally, as participating teachers develop and try out instructional approaches based on the ISAW content, they will be encouraged to share these approaches with other participants.

Similarly, the program will provide space for participants to take the content provided and collaborate with one another to develop curriculum for their own use.

Throughout the two-year program, participants will be guided to reflect upon their instruction. This will begin with the beginning-of-year writing assessment which teachers will score using the Analytical Writing Improvement Continuum. Participating teachers will be encouraged to note their students' areas of strength and weakness and to then target their instruction for the year to the areas of weakness. These focal areas will guide teachers' inquiries into their practice as they develop as teachers of analytical writing.

Empirical Evidence of Promise

The discussion above provides a theoretical rationale for the content and model of the proposed ISAW program. The proposed program also draws on evidence collected during a two-year National Writing Project (NWP) Local Sites Research Initiative (LSRI) funded quasi-experimental study of the impact of a 60-hour ISAW program in three diverse California regions (Marlink & Wahleithner, 2011). The study took place across the 2007-2008 and 2008-2009 academic years. To evaluate the impact of the program on students' writing, pre and post writing assessments written in response to released University of California Analytical Writing Placement Exam prompts were collected from students in focus classrooms of program and comparison teachers each year. Prompts were administered in an A-B-B-A order, meaning that some students received prompt "A" as a pre-assessment and prompt "B" as a post-assessment, while other students received prompt "B" as a pre-assessment and prompt "A" as a post-assessment. Additionally, different sets of prompts were used each year.

A randomly selected sample of pairs of student essays were scored at a national scoring run by the National Writing Project, while all pairs were scored at a statewide scoring run by the

California Writing Project. At the national scoring, the writing was scored by NWP Teacher Consultants from throughout the country using the NWP's Analytic Writing Continuum. This rubric was designed to assess any genre of writing written by students at any level. Each essay received a score of one to six on each of six general features of writing, as well as an overall holistic score. At the California scoring, the writing was assessed by CWP Teacher Consultants on the ISAW Analytical Writing Improvement Continuum. This rubric features 18 sub-categories identified to align with the components of analytical writing. Within each sub-category, essays received a score of one to four.

Matched Comparison Group

Across both years of the program, 1168 students of 49 teachers in 13 schools were included in the program groups. Of those 49 teachers, 38 participated in year one and 41 participated in year two, while 27 participated in both years one and two. It is important to note that this population of students only reflects the students enrolled in a single study class selected by each participant. In most cases, teachers employed the approaches learned in the other classes they taught as well. Additionally, this total reflects only the students for whom beginning and end-of-year matched pairs of essays were available. This means the program likely impacted the instruction of nearly 12,000 students (79 teachers across years one and two, teaching an average of 150 students per year).

Beginning of year writing scores. In 2008, 461 pairs of essays written by participants' students were scored at the CWP scoring, and 288 pairs of essays written by comparison teachers' students were scored. At the NWP scoring, 198 pairs of essays written by participants' students and 121 pairs written by comparison students were scored. Tables 1 and 2 highlight the mean beginning-of-year writing scores for each group on each instrument.

In 2009, 702 pairs of essays written by participants' students were scored at the CWP scoring, while 143 pairs of essays written by comparison teachers' students were scored. At the NWP scoring, 155 pairs of essays written by participants' students were scored on the NWP Analytic Writing Continuum. Additionally, 144 pairs of essays written by comparison teachers' students were scored. Tables 3 and 4 provide mean beginning-of-year writing scores for each group of students in Year Two.

Demographic characteristics. Across Year One and Year Two of the program, participating teachers taught in a range of contexts throughout California that served students from diverse demographic backgrounds, ethnically, linguistically, and socioeconomically. Table 5 highlights the demographics of the schools of teachers included in the program and comparison groups in 2007-2008 and 2008-2009.

Method

To compare the differences between participants' students' pre and post assessment writing scores and comparison teachers' students' pre and post assessment writing scores on each rubric, analyses were conducted using a one-way repeated measures analysis of variance (ANOVA). For each analysis conducted, the student's observed writing scores on the selected trait served as the dependent variable. The between-subjects factor was group, as determined by students' teacher's status as either a program participant or a comparison teacher, while the within-subjects factor was test occasion, pre-assessment or post-assessment. Independent analyses were conducted for each trait of each rubric each year of the study. In total, 50 separate analyses were conducted.

The repeated measures ANOVA model requires testing the assumptions of a) the normality of distribution; b) the heterogeneity of variance; and c) the absence of outliers. The

normality of distribution was tested by calculating the z-score for skewness and kurtosis for each category of scores and then comparing the results to the z-score for one standard deviation, 1.96. Levene's Test of equality of error variance was used to determine the homogeneity of variance. Traits for which Levene's Test yielded statistically significant results ($p < 0.05$) violated the assumption of heterogeneity because the statistical significance on this test demonstrates that the variance of the dataset is actually homogeneous in nature.

2008 CWP Scores. The descriptive statistics of the 749 pairs of student essays from program and comparison classes assessed on the ISAW Analytical Writing Improvement Continuum at the CWP scoring session are listed in Table 1. As previously discussed, scorers use this rubric to assess students essays on 18 features of analytical writing.

Using z-scores to analyze score distributions revealed positive skewness in the comparison group's pre-assessment scores on the features of Understanding and Use of Text, Developing Examples, and Reasoning, and the program group's post-assessment scores of Using Punctuation. Additionally, using z-scores highlighted problems of kurtosis for a number of the comparison group's post-assessment score distributions: Responding to Identified Topic, Addressing Demands of the Essay Topic, Understanding and Use of Text, Making Own Claim or Assertion, Developing Examples, Choosing Words, Employing Sentence Structure to Convey Ideas, Employing Sentence Boundaries, and Using Grammatical Relationships. Kurtosis was also detected in the comparison group's pre-assessment score distribution for Making Own Claim or Assertion.

Table 6 demonstrates that, on some features, using Levene's Test for homogeneity of variance confirmed the homogeneity of variance of the data set. Consequently, on the features of Responding to Identified Topic and Addressing the Demands of the Essay Topic, the score

distributions violated two of the ANOVA assumptions. This suggests that results may be problematic in these areas as the assumption violations increase the likelihood of a Type I error occurring.

2008 NWP Scores. Table 2 provides an overview of the descriptive data for each group across all features of the NWP Analytic Writing Continuum. As previously discussed, this rubric addresses six traits and also provides a holistic score of the writing.

Using z-scores to analyze skewness and kurtosis reveals that, especially for post-assessment scores, a number of the data sets are skewed, meaning scores do not reflect a normal distribution and instead are clustered in the high range or the low range. Additionally, the score distributions reflect some kurtosis as well. In fact, across all features of the rubric, the scores violate the assumption of normality of distribution through skewness, kurtosis, or both. The z-score for the comparison group's post-assessment score sets for the holistic score and the feature of diction are both skewed positively, meaning the scores are clustered at the high range of rubric scores. Similarly, the post-assessment scores for the program group are also positively skewed for the features of sentence fluency and conventions. Finally, the comparison group's pre-assessment scores for stance are also positively skewed. On the rubric features of content, both the pre-assessment scores of the program group and the comparison group demonstrate negative kurtosis when analyzed with the z-score. Additionally, there was evidence of kurtosis for the comparison group's pre-assessment scores on the features of sentence fluency and diction. And lastly, on the feature of structure, the pre-assessment score set also demonstrated kurtosis.

However, Table 6 provides an overview of Levene's Test for homogeneity of variance. The results show that, across all features of the rubric, the assumption of heterogeneity of variance has been met. Looking at a scatterplot of the data revealed an absence of outliers.

Because two of the three assumptions have been met, we will assume the robustness of the ANOVA model will correct for the violations of assumptions of ANOVA.

2009 CWP Scores. Table 3 provides an overview of the descriptive statistics of the 847 pairs of student essays from focal program and comparison classrooms assessed at the 2009 CWP scoring conference. Examining the skewness and kurtosis of these scores for the assumption of the normal distribution across each data set reveals skewness in comparison group's post-assessment scores on the features of Responding to Identified Topic, Concluding the Essay, Choosing Words, and Anticipating Readers' Needs. Additionally, the distribution of both the program group's and the comparison group's post assessment scores on Using Grammatical Relationships were skewed, though in opposite directions. This means that the program group's score were clustered along the high end of the rubric while the comparison group's scores were clustered around the low end. The comparison group's post-assessment score distributions also revealed kurtosis on the features of Responding to Identified Topic, Addressing the Demands of the Essay Topic, Understanding and Use of Text, Introducing the Essay, and Anticipating Reader's Needs. The score distribution of the program group's pre-assessment scores on Introducing the Essay also demonstrated kurtosis.

As Table 6 shows, Levene's Test for homogeneity of variance revealed a number of violations of the assumption of heterogeneity of post-assessment score sets. These violations occurred for the traits of Summarizing and Recapitulating, Making Own Claims or Assertions, Developing Examples, Using Textual Support, Introducing the Essay, Concluding the Essay, Choosing Words, Using Grammatical Relationships, and Using Punctuation. These violations of the assumptions of ANOVA suggest that analyses of these score data sets may be problematic as this will increase the likelihood of a Type I error.

2009 NWP Scores. Table 4 displays descriptive statistics for the 299 pairs of student essays assessed at the 2009 NWP scoring. Using the z-test to analyze skewness and kurtosis revealed a number of violations of the assumptions of ANOVA. The distributions of post-assessment comparison scores on the features of holistic, stance and sentence fluency, according to the z-scores, are skewed. Both the program and comparison post-assessment score distributions for diction are also skewed. The pre-assessment score distributions for the program group on the features of content and structure, for the comparison group on diction, and for both groups on holistic and stance all demonstrate kurtosis. Thus, in all features except conventions, the assumption of a normal distribution of scores has been violated.

Table 6 shows the assumption of heterogeneity of variance is only violated for the post-assessment score distribution in the feature of diction. While the analysis of this feature may be problematic, the robustness of ANOVA will correct for the assumption violations in the score distributions for the other features.

Analysis of Student Scores

2008 CWP scores. As shown in Table 7, across all features of the CWP ISAW Analytical Writing Improvement Continuum, the interaction of group and testing occasion was statistically significant ($p < 0.05$). This means that, across each feature, when the gains made by the program teachers' students between the pre-assessment and the post-assessment were compared with those made by those of the comparison students, those gains were not only greater but the difference between the two was statistically significant ($p < 0.05$). The statistical significance of the interaction of group and occasion demonstrates that the difference between the gains made by the program group and the gains made by the comparison group can be attributed to the program students' teachers' participation in the ISAW program.

Additionally, in all traits except Choosing Words, Employing Sentence Structure to Convey Ideas, Employing Sentence Boundaries, Using Grammatical Relationships, Using Punctuation, and Anticipating Readers' Needs, there was a significant difference between group, occasion, and the interaction of the two ($p < 0.05$). This means that for the remaining 12 of the 18 features, the difference between the program group's pre and post-assessment scores was also statistically significant. The list of features for which these gains occurred includes Responding to the Identified Issue/Subject, Addressing the Demands of the Essay Topic, Understanding the Text, Summarizing and Recapitulating, Making Own Claims or Assertions, Developing Example(s), Reasoning, Using Textual Support, Structuring and Organizing, Introducing the Essay, Using Paragraphs and Transitions, and Concluding the Essay. In fact, as highlighted in the previous section, the areas in which program students made the most gains align with the areas explicitly addressed within the ISAW program.

Important to note, however, is the possibility of a Type I error on the results for the traits of Responding to the Identified Issue/Subject and Addressing the Demands of the Essay Topic does exist.

2008 NWP scores. Table 8 shows that, across all features of the NWP Analytic Writing Continuum except content, the interaction between group (program or comparison) and occasion (pre-assessment or post-assessment) was statistically significant ($p \leq 0.05$). This means that the difference between gains made by the students of the program participants and those made by the students of the comparison teachers were statistically significant on five of the six traits assessed on the rubric along with the holistic score for the writing. Additionally, there was a significant difference in gains made ($p \leq 0.05$) between the pre and post-assessments across all features by students in the program group.

2009 CWP scores. Like with the 2008 CWP scores, program students demonstrated statistically significant gains ($p < 0.01$) from pre-assessment to post-assessment across all domains of the rubric when compared to the comparison group of students as shown in Table 9. Once again, the statistical significance of this interaction demonstrates that improvements made by the program group students can be attributed to their teachers' participation in ISAW. Additionally, on all domains except Choosing Words and Anticipating Readers' Needs, the difference in scores was also statistically significant ($p < 0.05$) for the occasion, the group, and the interaction of the two.

As with the 2008 CWP scores, it is important to acknowledge the likelihood of a Type I error occurring due to the violation of ANOVA assumptions in the data sets for the rubric features of Summarizing and Recapitulating, Making Own Claims or Assertions, Developing Example(s), Using Textual Support, Introducing the Essay, Concluding the Essay, Choosing Words, Employing Sentence Boundaries, and Using Grammatical Relationships. However, given the fact that $p < 0.000$ for the interaction of group and occasion in each of these areas, it is likely that the difference between the gains made by each group is still statistically significant. This conclusion is supported by the descriptive statistics in Table 3, which show that the scores of the comparison students actually declined between the pre-assessment and post-assessment.

2009 NWP scores. Similar to the previous score discussions, Table 10 illustrates, the score results from the 2009 NWP scoring also demonstrated statistically significant interactions between the program and comparison groups and the pre-assessment and post-assessment writing across all features of the rubric ($p < 0.05$). This difference means gains observed in the students of program participants can be attributed to their teachers' participation in the ISAW program. But in fact, as the descriptive statistics of Table 4 reveal and as was seen in CWP scores, the scores of the comparison students fell in every area assessed on the rubric, including the holistic score.

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Table 1

Comparison of Descriptive Statistics for 2008 Student Writing as Assessed on California Writing Project Analytical Writing Improvement Continuum (Program N=461, Comparison N=288)

Feature	Pre/ Post	Mean	Standard Deviation	Range Statistic	Skewness		Kurtosis	
					Statistic	Standard Error	Statistic	Standard Error
Responding to Identified Topic								
Program	Pre	1.19	0.783	3.0	0.427	0.114	-0.338	0.227
	Post	1.45	0.853	4.0	0.367	0.114	-0.286	0.227
Comparison	Pre	1.53	0.872	4.0	0.219	0.144	-0.162	0.286
	Post	1.58	0.863	4.0	0.252	0.144	-0.052	0.286
Addressing the Demands of the Essay Topic								
Program	Pre	1.20	0.37	3.0	0.346	0.114	-0.542	0.227
	Post	1.47	0.857	4.0	0.299	0.114	-0.346	0.227
Comparison	Pre	1.50	0.872	4.0	0.150	0.144	-0.209	0.286
	Post	1.53	0.831	4.0	0.298	0.144	0.037	0.286
Understanding and Use of Text								
Program	Pre	1.12	0.842	3.0	0.372	0.114	-0.722	0.227
	Post	1.37	0.899	4.0	0.277	0.114	-0.478	0.227
Comparison	Pre	1.53	0.859	4.0	0.032	0.144	-0.331	0.286
	Post	1.56	0.848	4.0	0.117	0.144	-0.041	0.286
Summarizing & Recapitulating								
Program	Pre	0.87	0.884	4.0	0.860	0.114	-0.089	0.227
	Post	1.10	0.967	4.0	0.675	0.114	-0.242	0.227
Comparison	Pre	1.33	0.965	4.0	0.319	0.144	-0.521	0.286
	Post	1.34	0.960	4.0	0.485	0.144	-0.047	0.286
Making Own Claim or Assertion								
Program	Pre	1.22	0.827	3.0	0.259	0.114	-0.668	0.227
	Post	1.46	0.868	4.0	0.226	0.114	-0.318	0.227
Comparison	Pre	1.45	0.844	4.0	0.216	0.144	0.060	0.286
	Post	1.47	0.838	4.0	0.295	0.144	0.197	0.286
Developing Examples								
Program	Pre	1.07	0.815	3.0	0.434	0.114	-0.456	0.227
	Post	1.39	0.847	4.0	0.269	0.114	-0.311	0.227
Comparison	Pre	1.45	0.829	4.0	0.047	0.144	-0.290	0.286
	Post	1.48	0.810	4.0	0.143	0.144	0.045	0.286
Reasoning								
Program	Pre	1.15	0.793	3.0	0.452	0.114	-0.248	0.227
	Post	1.45	0.826	4.0	0.247	0.114	-0.250	0.227
Comparison	Pre	1.48	0.815	4.0	0.044	0.144	-0.284	0.286
	Post	1.50	0.800	4.0	0.053	0.144	-0.114	0.286
Using Textual Support								
Program	Pre	0.81	0.889	4.0	0.872	0.114	-0.212	0.227
	Post	1.02	0.965	4.0	0.648	0.114	-0.365	0.227
Comparison	Pre	1.28	0.901	4.0	0.311	0.144	-0.258	0.286
	Post	1.25	0.877	4.0	0.452	0.144	0.251	0.286
Structuring & Organizing								
Program	Pre	1.30	0.799	4.0	0.344	0.114	-0.319	0.227
	Post	1.57	0.836	4.0	0.172	0.114	-0.198	0.227
Comparison	Pre	1.57	0.850	4.0	0.178	0.144	-0.161	0.286
	Post	1.56	0.870	4.0	0.381	0.144	0.332	0.286

Feature	Pre/ Post	Mean	Standard Deviation	Range Statistic	Skewness		Kurtosis	
					Statistic	Standard Error	Statistic	Standard Error
Introducing the Essay								
Program	Pre	1.23	0.838	4.0	0.350	0.114	-0.456	0.227
	Post	1.51	0.892	4.0	0.271	0.114	-0.369	0.227
Comparison	Pre	1.53	0.878	4.0	0.206	0.144	-0.139	0.286
	Post	1.56	0.889	4.0	0.333	0.144	0.201	0.286
Using Paragraphs and Transitions								
Program	Pre	1.31	0.836	4.0	0.230	0.114	-0.574	0.227
	Post	1.59	0.890	4.0	0.099	0.114	-0.428	0.227
Comparison	Pre	1.58	0.866	4.0	0.117	0.144	-0.215	0.286
	Post	1.63	0.876	4.0	0.287	0.144	0.190	0.286
Concluding the Essay								
Program	Pre	1.02	0.784	3.0	0.454	0.114	-0.435	0.227
	Post	1.30	0.899	4.0	0.431	0.114	-0.316	0.227
Comparison	Pre	1.42	0.874	4.0	0.295	0.144	-0.135	0.286
	Post	1.41	0.929	4.0	0.395	0.144	-0.017	0.286
Choosing Words								
Program	Pre	1.47	0.871	4.0	0.253	0.114	-0.648	0.227
	Post	1.66	0.885	4.0	0.200	0.114	-0.487	0.227
Comparison	Pre	1.54	0.861	4.0	0.214	0.144	-0.310	0.286
	Post	1.54	0.863	4.0	0.461	0.144	0.004	0.286
Employing Sentence Structure to Convey Ideas								
Program	Pre	1.42	0.839	4.0	0.170	0.114	-0.560	0.227
	Post	1.62	0.826	4.0	0.207	0.114	-0.275	0.227
Comparison	Pre	1.58	0.862	4.0	0.162	0.144	-0.273	0.286
	Post	1.62	0.866	4.0	0.353	0.144	-0.025	0.286
Employing Sentence Boundaries								
Program	Pre	1.47	0.848	4.0	0.110	0.114	-0.446	0.227
	Post	1.65	0.835	4.0	0.113	0.114	-0.307	0.227
Comparison	Pre	1.59	0.856	4.0	0.153	0.144	-0.307	0.286
	Post	1.64	0.874	4.0	0.351	0.144	0.073	0.286
Using Grammatical Relationships								
Program	Pre	1.47	0.820	3.0	-0.039	0.114	-0.713	0.227
	Post	1.63	0.806	4.0	0.098	0.114	-0.266	0.227
Comparison	Pre	1.60	0.867	4.0	0.142	0.144	-0.348	0.114
	Post	1.61	0.851	4.0	0.324	0.144	-0.004	0.286
Using Punctuation								
Program	Pre	1.50	0.867	4.0	-0.013	0.114	-0.673	0.227
	Post	1.70	0.841	4.0	0.040	0.114	-0.180	0.227
Comparison	Pre	1.61	0.867	4.0	0.141	0.144	-0.319	0.286
	Post	1.63	0.883	4.0	0.227	0.144	-0.206	0.286
Anticipating Readers' Needs								
Program	Pre	1.34	0.812	4.0	0.321	0.114	-0.263	0.227
	Post	1.58	0.818	4.0	0.161	0.114	-0.143	0.227
Comparison	Pre	1.55	0.842	4.0	0.059	0.144	-0.331	0.286
	Post	1.56	0.828	4.0	0.140	0.144	-0.206	0.286

Table 2

Comparison of Descriptive Statistics for 2008 Student Writing as Assessed on National Writing Project Analytic Writing Continuum (Program N=198, Comparison N=121)

Feature	Pre/ Post	Mean	Standard Deviation	Range Statistic	Skewness		Kurtosis	
					Statistic	Standard Error	Statistic	Standard Error
Holistic								
Program	Pre	3.16	1.105	6.0	0.122	0.173	-0.182	0.344
	Post	3.73	1.092	5.0	0.188	0.173	-0.434	0.344
Comparison	Pre	2.95	1.233	6.0	0.278	0.220	0.243	0.437
	Post	3.19	1.192	5.0	0.077	0.220	-0.473	0.437
Content								
Program	Pre	3.27	1.101	6.0	0.176	0.173	-0.120	0.344
	Post	3.80	1.080	5.0	0.189	0.173	-0.387	0.344
Comparison	Pre	2.94	1.244	6.0	0.207	0.220	-0.089	0.437
	Post	3.22	1.233	5.0	0.157	0.220	-0.488	0.437
Structure								
Program	Pre	3.03	1.085	6.0	0.283	0.173	-0.067	0.358
	Post	3.54	1.156	5.0	0.224	0.173	-0.399	0.344
Comparison	Pre	2.86	1.234	6.0	0.353	0.220	0.447	0.437
	Post	3.05	1.267	5.0	0.243	0.220	-0.518	0.437
Stance								
Program	Pre	3.32	1.115	6.0	0.207	0.173	-0.040	0.344
	Post	3.98	1.077	5.0	0.090	0.173	-0.437	0.344
Comparison	Pre	3.12	1.192	6.0	0.013	0.220	0.259	0.437
	Post	3.31	1.177	5.0	-0.192	0.220	-0.539	0.437
Sentence Fluency								
Program	Pre	3.24	1.137	6.0	0.262	0.173	-0.242	0.344
	Post	3.82	1.151	5.0	0.031	0.173	-0.541	0.344
Comparison	Pre	2.94	1.271	6.0	0.327	0.220	-0.111	0.437
	Post	3.19	1.267	5.0	0.182	0.220	-0.648	0.437
Diction								
Program	Pre	3.22	0.985	6.0	0.232	0.173	0.228	0.344
	Post	3.73	1.080	5.0	0.325	0.173	-0.407	0.344
Comparison	Pre	3.05	1.249	6.0	0.296	0.220	0.041	0.437
	Post	3.27	1.190	5.0	0.091	0.220	-0.275	0.437
Conventions								
Program	Pre	3.22	1.139	6.0	0.166	0.173	-0.596	0.344
	Post	3.76	1.141	5.0	0.018	0.173	-0.636	0.344
Comparison	Pre	2.93	1.289	6.0	0.255	0.220	-0.365	0.437
	Post	3.15	1.286	5.0	0.153	0.220	-0.564	0.437

Table 3

Comparison of Descriptive Statistics for 2009 Student Writing as Assessed on California Writing Project Analytical Writing Improvement Continuum (Program N=702, Comparison N=143)

Feature	Pre/ Post	Mean	Standard Deviation	Range Statistic	Skewness		Kurtosis	
					Statistic	Standard Error	Statistic	Standard Error
Responding to Identified Topic								
Program	Pre	1.60	0.712	4.0	0.261	0.092	-0.058	0.184
	Post	1.98	0.726	4.0	0.162	0.092	-0.166	0.184
Comparison	Pre	1.49	0.747	3.0	-0.446	0.203	0.008	0.403
	Post	1.31	0.711	3.0	0.006	0.203	-0.072	0.403
Addressing the Demands of the Essay Topic								
Program	Pre	1.62	0.709	4.0	0.181	0.092	-0.336	0.184
	Post	1.99	0.721	4.0	0.052	0.092	-0.101	0.184
Comparison	Pre	1.53	0.823	3.0	-0.158	0.203	-0.307	0.403
	Post	1.33	0.759	3.0	0.264	0.203	-0.057	0.403
Understanding and Use of Text								
Program	Pre	1.51	0.703	3.75	0.218	0.092	-0.236	0.184
	Post	1.87	0.754	4.0	0.154	0.092	-0.199	0.184
Comparison	Pre	1.43	0.746	3.0	-0.269	0.203	-0.208	0.403
	Post	1.26	0.698	3.0	0.150	0.203	0.048	0.403
Summarizing & Recapitulating								
Program	Pre	1.31	0.735	3.75	0.535	0.092	0.229	0.184
	Post	1.67	0.829	4.0	0.429	0.092	-0.378	0.184
Comparison	Pre	1.27	0.665	2.75	-0.211	0.203	-0.274	0.403
	Post	1.12	0.625	3.0	0.332	0.203	0.630	0.403
Making Own Claim or Assertion								
Program	Pre	1.51	0.704	4.0	0.392	0.092	-0.103	0.184
	Post	1.86	0.732	4.0	0.193	0.092	-0.120	0.184
Comparison	Pre	1.34	0.687	2.75	-0.406	0.203	-0.394	0.403
	Post	1.17	0.610	2.25	-0.197	0.203	-0.420	0.403
Developing Examples								
Program	Pre	1.45	0.699	4.0	0.516	0.092	0.184	0.184
	Post	1.79	0.742	4.0	0.406	0.092	-0.247	0.184
Comparison	Pre	1.34	0.708	3.0	-0.213	0.203	-0.314	0.403
	Post	1.19	0.623	2.75	-0.165	0.203	-0.348	0.403
Reasoning								
Program	Pre	1.45	0.698	4.0	0.483	0.092	0.261	0.184
	Post	1.80	0.741	4.0	0.318	0.092	-0.238	0.184
Comparison	Pre	1.36	0.706	3.0	-0.310	0.203	-0.302	0.403
	Post	1.23	0.653	2.75	-0.143	0.203	-0.448	0.403
Using Textual Support								
Program	Pre	1.13	0.798	3.75	0.290	0.092	-0.415	0.184
	Post	1.58	0.905	4.0	-0.035	0.092	-0.471	0.403
Comparison	Pre	1.27	0.665	2.25	-0.407	0.203	-0.702	0.403
	Post	1.09	0.613	2.75	0.133	0.203	-0.284	0.403
Structuring & Organizing								
Program	Pre	1.51	0.680	4.0	0.363	0.092	0.052	0.184
	Post	1.85	0.717	4.0	0.158	0.092	-0.263	0.184
Comparison	Pre	1.46	0.750	3.0	-0.400	0.203	-0.217	0.403
	Post	1.26	0.665	2.75	-0.204	0.203	-0.509	0.403
Introducing the Essay								
Program	Pre	1.48	0.688	4.0	0.477	0.092	0.019	0.184

Feature	Pre/ Post	Mean	Standard Deviation	Range Statistic	Skewness		Kurtosis	
					Statistic	Standard Error	Statistic	Standard Error
Comparison	Post	1.84	0.736	4.0	0.229	0.092	-0.305	0.184
	Pre	1.31	0.676	3.0	-0.347	0.203	-0.337	0.403
	Post	1.17	0.634	3.0	0.134	0.203	0.115	0.403
Using Paragraphs and Transitions								
Program	Pre	1.52	0.686	4.0	0.297	0.092	-0.010	0.184
	Post	1.84	0.727	4.0	0.130	0.092	-0.244	0.184
Comparison	Pre	1.38	0.691	3.0	-0.543	0.203	-0.385	0.403
	Post	1.21	0.646	2.75	-0.113	0.203	-0.514	0.403
Concluding the Essay								
Program	Pre	1.40	0.695	3.75	0.400	0.092	0.018	0.184
	Post	1.76	0.780	4.0	0.238	0.092	-0.283	0.183
Comparison	Pre	1.31	0.694	3.0	-0.263	0.203	-0.380	0.403
	Post	1.13	0.600	2.25	-0.036	0.203	-0.332	0.403
Choosing Words								
Program	Pre	1.55	0.723	4.0	0.423	0.092	-0.120	0.184
	Post	1.79	0.746	4.0	0.330	0.092	-0.493	0.184
Comparison	Pre	1.40	0.747	3.0	-0.207	0.203	-0.278	0.403
	Post	1.20	0.654	3.0	-0.038	0.203	-0.460	0.403
Employing Sentence Structure to Convey Ideas								
Program	Pre	1.57	0.715	4.0	0.302	0.092	-0.186	0.184
	Post	1.83	0.715	4.0	0.231	0.092	-0.447	0.184
Comparison	Pre	1.47	0.748	3.0	-0.456	0.203	-0.168	0.403
	Post	1.33	0.735	3.0	-0.014	0.203	-0.443	0.403
Employing Sentence Boundaries								
Program	Pre	1.68	0.726	4.0	0.072	0.092	-0.228	0.184
	Post	1.90	0.722	4.0	0.168	0.092	-0.269	0.184
Comparison	Pre	1.43	0.718	3.0	-0.533	0.203	-0.248	0.403
	Post	1.33	0.749	3.0	0.087	0.203	-0.388	0.403
Using Grammatical Relationships								
Program	Pre	1.66	0.695	4.0	0.012	0.092	-0.158	0.184
	Post	1.89	0.696	4.0	0.018	0.092	-0.333	0.184
Comparison	Pre	1.44	0.714	3.0	-0.654	0.203	-0.285	0.403
	Post	1.34	0.736	3.0	-0.049	0.203	-0.450	0.403
Using Punctuation								
Program	Pre	1.68	0.706	4.0	-0.033	0.092	-0.173	0.184
	Post	1.90	0.687	4.0	0.058	0.092	-0.123	0.184
Comparison	Pre	1.43	0.705	3.0	-0.698	0.203	-0.348	0.403
	Post	1.34	0.702	3.0	-0.347	0.203	-0.667	0.403
Anticipating Readers' Needs								
Program	Pre	1.61	0.687	4.0	0.110	0.092	0.047	0.184
	Post	1.91	0.690	4.0	0.138	0.092	0.060	0.184
Comparison	Pre	1.49	0.774	3.0	-0.308	0.203	-0.180	0.403
	Post	1.27	0.697	3.0	0.072	0.203	-0.081	0.403

Table 4

Comparison of Descriptive Statistics for 2009 Student Writing as Assessed on National Writing Project Analytic Writing Continuum (Program N=155, Comparison N=144)

Feature	Pre/ Post	Mean	Standard Deviation	Range Statistic	Skewness		Kurtosis	
					Statistic	Standard Error	Statistic	Standard Error
Holistic								
Program	Pre	3.14	1.072	6.0	0.193	0.195	0.517	0.389
	Post	3.31	1.230	5.0	0.373	0.195	-0.463	0.389
Comparison	Pre	3.08	1.100	5.0	0.365	0.206	-0.233	0.408
	Post	2.93	1.136	6.0	0.081	0.206	0.160	0.408
Content								
Program	Pre	3.21	1.130	6.0	0.330	0.195	0.451	0.389
	Post	3.52	1.113	5.0	0.116	0.195	-0.366	0.389
Comparison	Pre	3.16	1.087	5.0	0.506	0.206	-0.210	0.408
	Post	2.99	1.151	6.0	0.092	0.206	0.332	0.408
Structure								
Program	Pre	3.10	1.092	6.0	0.165	0.195	0.205	0.389
	Post	3.60	1.142	5.0	-0.011	0.195	-0.359	0.389
Comparison	Pre	2.94	1.155	6.0	0.321	0.206	-0.145	0.408
	Post	2.88	1.153	6.0	0.275	0.206	0.086	0.408
Stance								
Program	Pre	3.30	1.175	6.0	-0.006	0.195	-0.146	0.389
	Post	3.46	1.085	5.0	0.207	0.195	-0.251	0.389
Comparison	Pre	3.23	1.136	5.0	0.265	0.206	-0.358	0.408
	Post	2.97	1.245	6.0	0.049	0.206	-0.108	0.408
Sentence Fluency								
Program	Pre	3.14	1.165	6.0	0.293	0.195	0.141	0.389
	Post	3.66	1.150	5.0	0.175	0.195	-0.283	0.389
Comparison	Pre	2.97	1.184	5.0	0.289	0.206	-0.282	0.408
	Post	2.99	1.226	6.0	-0.046	0.206	-0.160	0.408
Diction								
Program	Pre	3.22	1.136	6.0	0.282	0.195	0.577	0.389
	Post	3.47	1.263	5.0	0.042	0.195	-0.791	0.389
Comparison	Pre	3.12	1.114	5.0	0.578	0.206	0.318	0.408
	Post	3.04	1.136	6.0	-0.101	0.206	-0.081	0.408
Conventions								
Program	Pre	3.07	1.146	6.0	0.258	0.195	-0.057	0.389
	Post	3.48	1.186	6.0	0.090	0.195	-0.070	0.389
Comparison	Pre	2.92	1.165	6.0	0.537	0.206	0.224	0.408
	Post	2.82	1.178	6.0	0.196	0.206	-0.082	0.408

Table 5.
Demographics of program and comparison schools included in 2008 and 2009 CWP and NWP scorings

School	Teachers in CWP	Students in CWP	Teachers in NWP	Students in NWP	Total School Enrollment	Percent School ELL	Percent School Free/ Reduced Lunch	African- Amer	American Indian/ Native American	Asian	Filipino	Hispanic or Latino	Pacific Islander	White	Multiple/ No Response
2008															
Program 1	7	93	2	20	2158	33.8	71.9	28.5	0.5	25.9	0.4	30.6	3.3	7.2	3.6
Program 2	3	39	2	19	2077	45.4	78.1	19.7	0.6	42.2	1.3	26.8	3.7	5.1	0.7
Program 3	2	53	0	0	2402	1.7	5.6	2.7	1.5	10.8	1.9	7.6	0.4	75.1	0.0
Program 4	5	70	3	33	984	11.5	53.3	0.6	1.2	0.7	0.3	41.3	0.1	54.4	1.4
Program 5	4	62	4	73	1309	29.4	72.1	4.7	2.3	23.1	0.4	37.8	0.9	30.3	0.5
Program 6	5	39	2	18	722	3.3	65.5	1.8	6.9	1.5	0.1	10.2	1.0	78.3	0.1
Program 7	1	5	0	0	290	4.5	45.0	0.3	6.6	1.0	0.7	12.1	0.0	73.8	5.5
Program 8	3	21	0	0	324	6.8	27.2	0.6	0.0	0.9	0.0	56.8	0.0	38.6	3.1
Program 9	6	46	2	24	1898	18.5	66.4	56.6	0.3	0.2	0.1	41.8	0.2	0.3	0.7
Program 10	2	22	0	0	348	18.2	54.6	24.9	1.7	14.5	1.4	27.5	1.2	28.0	0.9
Comparison 1	8	146	96	146	3104	31.2	79.9	15.8	0.4	0.3	0.1	76.7	0.4	3.9	2.5
Comparison 2	5	116	1	22	683	11.0	46.3	0.9	0.4	1.2	0.3	40.4	0.4	55.3	1.0
Comparison 3	2	26	0	0	2613	29.1	60.6	34.5	0.0	0.0	0.1	64.6	0.0	0.3	0.5
2009															
Program 1	5	112	4	100	2032	30.1	69.4	27.1	0.7	26.8	0.4	31.2	3.2	8.2	2.3
Program 2	7	87	3	47	2064	44.3	100	20.3	0.7	42.4	0.8	28.5	3.1	4.0	0.2
Program 3	3	76	0	0	2096	2.3	6.6	2.4	1.4	12.7	2.1	8.3	0.6	72.5	0
Program 4	1	32	0	0	2185	8.6	23.9	5.0	0.6	3.5	1.8	24.5	0.5	53.7	10.3
Program 5	1	23	0	0	1667	1.7	15.0	4.9	1.1	7.7	2.2	11.0	0.5	72.4	0.1
Program 6	5	98	0	0	1013	13.6	68.1	0.6	2.2	0.8	0.1	46.5	0.0	49.6	0.3
Program 7	6	119	0	0	1367	24.1	75.9	4.6	2.6	21.1	0.7	39.1	0.7	29.5	1.8
Program 8	3	44	0	0	657	2.6	61.0	1.5	7.2	1.1	0.0	10.7	0.6	79.0	0.0
Program 9	1	12	0	0	283	4.2	44.1	0.4	8.1	1.8	0.7	15.2	0.0	70.0	3.9
Program 10	2	16	0	0	309	7.1	42.6	0.3	0.0	1.3	0.0	61.8	0.0	34.3	2.3
Program 11	5	42	0	0	1884	17.3	67.8	56.7	0.2	0.1	0.1	42.1	0.2	0.3	0.4
Comparison 1	8	143	7	122	3043	30.5	83.4	13.7	0.3	2.0	0.2	79.2	0.5	3.8	0.4
Comparison 2	2	46	0	0	3402	15.0	69.3	0.4	0.1	9.6	0.9	85.9	0.2	2.8	0.1

Table 6

Levene's Test for homogeneity of variance for Student Writing as Assessed on California Writing Project's Analytical Writing Improvement Continuum and National Writing Project's Analytic Writing Continuum

	F	df	df ₂	significance	F	df	df ₂	significance
CWP								
	2008				2009			
	<i>(Program N=461, Comparison N=288)</i>				<i>(Program N=704, Comparison N=143)</i>			
Responding to Identified Topic								
Pre	11.30	1	747	0.001	0.027	1	845	0.869
Post	0.032	1	747	0.858	0.228	1	845	0.633
Addressing the Demands of the Essay Topic								
Pre	6.602	1	747	0.010	2.797	1	845	0.095
Post	0.978	1	747	0.323	2.118	1	845	0.146
Understanding and Use of Text								
Pre	1.422	1	747	0.234	0.019	1	845	0.891
Post	1.970	1	747	0.161	1.271	1	845	0.260
Summarizing & Recapitulating								
Pre	7.929	1	747	0.005	3.564	1	846	0.059
Post	0.095	1	747	0.758	35.403	1	846	0.000
Making Own Claim or Assertion								
Pre	0.355	1	747	0.551	1.341	1	845	0.247
Post	1.123	1	747	0.290	4.748	1	845	0.030
Developing Examples								
Pre	3.092	1	747	0.079	0.196	1	846	0.658
Post	1.030	1	747	0.311	6.842	1	846	0.009
Reasoning								
Pre	4.227	1	747	0.040	0.179	1	844	0.672
Post	0.594	1	747	0.441	2.632	1	844	0.105
Using Textual Support								
Pre	0.044	1	747	0.835	4.322	1	845	0.038
Post	2.754	1	747	0.097	38.306	1	845	0.000
Structuring & Organizing								
Pre	2.727	1	747	0.099	1.648	1	846	0.200
Post	0.045	1	747	0.833	0.343	1	846	0.558
Introducing the Essay								
Pre	1.857	1	747	0.173	1.822	1	845	0.177
Post	0.542	1	747	0.462	6.033	1	845	0.014
Using Paragraphs and Transitions								
Pre	0.380	1	747	0.538	0.215	1	844	0.643
Post	0.952	1	747	0.330	1.561	1	844	0.212
Concluding the Essay								
Pre	15.73	1	747	0.000	0.240	1	840	0.624
Post	0.678	1	747	0.410	18.581	1	840	0.000
Choosing Words								
Pre	0.198	1	747	0.656	0.005	1	845	0.941
Post	0.471	1	747	0.493	4.752	1	845	0.030
Employing Sentence Structure to Convey Ideas								
Pre	0.058	1	747	0.810	0.049	1	846	0.826
Post	0.337	1	747	0.562	1.208	1	846	0.272
Employing Sentence Boundaries								
Pre	0.006	1	747	0.938	0.002	1	846	0.965

		F	df	df ₂	significance	F	df	df ₂	significance
	Post	0.168	1	747	0.682	2.960	1	846	0.086
Using Grammatical Relationships									
	Pre	0.424	1	747	0.515	0.321	1	845	0.571
	Post	0.613	1	747	0.434	4.504	1	845	0.034
Using Punctuation									
	Pre	0.080	1	747	0.777	0.191	1	845	0.662
	Post	1.376	1	747	0.241	5.017	1	845	0.025
Anticipating Readers' Needs									
	Pre	1.151	1	747	0.284	2.779	1	844	0.096
	Post	0.141	1	747	0.708	0.723	1	844	0.395
NWP									
		2008 (Program N=198, Comparison N=121)				2009 (Program N=155, Comparison N=144)			
Holistic									
	Pre	0.184	1	317	0.668	0.245	1	297	0.621
	Post	1.175	1	317	0.279	3.773	1	297	0.053
Content									
	Pre	0.797	1	317	0.373	0.053	1	297	0.819
	Post	2.887	1	317	0.090	1.416	1	297	0.235
Structure									
	Pre	1.241	1	317	0.266	0.381	1	296	0.538
	Post	0.543	1	317	0.462	0.235	1	296	0.628
Stance									
	Pre	0.036	1	317	0.849	0.348	1	295	0.556
	Post	4.052	1	317	0.045	0.404	1	295	0.525
Sentence Fluency									
	Pre	0.161	1	317	0.688	0.003	1	295	0.955
	Post	2.453	1	317	0.118	0.001	1	295	0.980
Diction									
	Pre	3.650	1	317	0.057	0.466	1	296	0.495
	Post	0.815	1	317	0.367	8.413	1	296	0.004
Conventions									
	Pre	0.959	1	317	0.328	0.000	1	295	0.984
	Post	0.850	1	317	0.357	0.221	1	295	0.639

Table 7

Results of Single Factor Repeated Measures Analysis of Variance for 2008 Pre- and Post-Assessment Student Writing Assessed on California Writing Project Analytical Writing Improvement Continuum (Program N=461, Comparison N=288)

Score	Variance Component	df	Mean Square	F Ratio	Test of Significance P (F)	Effect Size
Responding to Identified Issue/Subject	Between subjects	1	20.024	12.817	0.000	0.025
	Program group (pre/post)					
	Error (between)	747	1.064			
	Within subjects	1	8.664	25.454	0.000	0.033
	Occasion (pre, post)					
Addressing the Demands of the Essay Topic	Group x Occasion	1	3.612	10.613	0.001	0.014
	Error (within)	747	0.340			
	Between subjects	1	10.797	9.871	0.002	0.013
	Program group (pre/post)					
	Error (between)	747	1.094			
Understanding the Text	Within subjects	1	7.785	25.119	0.000	0.033
	Occasion (pre, post)					
	Group x Occasion	1	5.007	16.157	0.000	0.021
	Error (within)	747	0.310			
	Between subjects	1	31.531	28.711	0.000	0.037
Summarizing & Recapitulating	Program group (pre/post)					
	Error (between)	747	1.098			
	Within subjects	1	7.452	18.828	0.000	0.025
	Occasion (pre, post)					
	Group x Occasion	1	4.530	11.446	0.001	0.015
Making Own Claims or Assertions	Error (within)	747	0.396			
	Between subjects	1	42.725	32.053	0.000	0.041
	Program group (pre/post)					
	Error (between)	747	1.333			
	Within subjects	1	5.024	11.526	0.001	0.015
Developing Examples	Occasion (pre, post)					
	Group x Occasion	1	4.157	9.536	0.002	0.013
	Error (within)	747	0.436			
	Between subjects	1	5.122	4.688	0.031	0.006
	Program group (pre/post)					
Reasoning	Error (between)	747	1.093			
	Within subjects	1	6.575	19.585	0.000	0.026
	Occasion (pre, post)					
	Group x Occasion	1	4.274	12.731	0.000	0.017
	Error (within)	747	0.336			
Reasoning	Between subjects	1	19.130	19.390	0.000	0.025
	Program group (pre/post)					
	Error (between)	747	0.987			
	Within subjects	1	11.001	28.879	0.000	0.037
	Occasion (pre, post)					
Reasoning	Group x Occasion	1	7.588	19.918	0.000	0.026
	Error (within)	747	0.381			
	Between subjects	1	12.235	12.177	0.001	0.016
	Program group (pre/post)					
	Error (between)	747	1.005			

	Within subjects					
	Occasion (pre, post)	1	8.770	28.841	0.000	0.037
	Group x Occasion	1	6.992	22.995	0.000	0.030
	Error (within)	747	0.304			
	Between subjects					
	Program group (pre/post)	1	43.754	36.751	0.000	0.047
	Error (between)	747	1.191			
Using Textual Support	Within subjects					
	Occasion (pre, post)	1	3.231	6.788	0.009	0.009
	Group x Occasion	1	4.881	10.255	0.001	0.014
	Error (within)	747	0.476			
	Between subjects					
	Program group (pre/post)	1	6.472	5.961	0.015	0.008
	Error (between)	747	1.086			
Structuring & Organizing	Within subjects					
	Occasion (pre, post)	1	6.174	20.147	0.000	0.026
	Group x Occasion	1	6.943	22.660	0.000	0.029
	Error (within)	747	0.306			
	Between subjects					
	Program group (pre/post)	1	10.660	8.768	0.003	0.012
	Error (between)	747	1.216			
Introducing the Essay	Within subjects					
	Occasion (pre, post)	1	8.336	27.181	0.000	0.035
	Group x Occasion	1	5.383	17.551	0.000	0.023
	Error (within)	747	0.307			
	Between subjects					
	Program group (pre/post)	1	7.877	6.717	0.010	0.009
	Error (between)	747	1.173			
Using Paragraphs & Transitions	Within subjects					
	Occasion (pre, post)	1	9.933	30.245	0.000	0.039
	Group x Occasion	1	4.586	13.965	0.000	0.018
	Error (within)	747	0.328			
	Between subjects					
	Program group (pre/post)	1	22.796	20.024	0.000	0.026
	Error (between)	747	1.138			
Concluding the Essay	Within subjects					
	Occasion (pre, post)	1	6.439	17.753	0.000	0.023
	Group x Occasion	1	6.881	18.972	0.000	0.025
	Error (within)	747	0.363			
	Between subjects					
	Program group (pre/post)	1	0.279	0.221	0.639	0.000
	Error (between)	747	1.261			
Choosing Words	Within subjects					
	Occasion (pre, post)	1	3.177	12.234	0.000	0.016
	Group x Occasion	1	3.342	12.870	0.000	0.017
	Error (within)	747	0.260			
	Between subjects					
	Program group (pre/post)	1	2.116	1.807	0.179	0.002
	Error (between)	747	1.171			
Employing Sentence Structure to Convey Ideas	Within subjects					
	Occasion (pre, post)	1	5.040	19.573	0.000	0.026
	Group x Occasion	1	2.470	9.592	0.002	0.013

	Error (within)	747	0.258			
	Between subjects	1	1.042	0.880	0.348	0.001
	Program group (pre/post)					
Employing	Error (between)	747	1.183			
Sentence	Within subjects	1	4.936	18.775	0.000	0.025
Boundaries	Occasion (pre, post)					
	Group x Occasion	1	1.337	5.084	0.024	0.007
	Error (within)	747	0.263			
	Between subjects	1	1.155	1.023	0.312	0.001
	Program group (pre/post)					
Using	Error (between)	747	1.129			
Grammatical	Within subjects	1	2.651	10.486	0.001	0.014
Relationships	Occasion (pre, post)					
	Group x Occasion	1	2.233	8.831	0.003	0.012
	Error (within)	747	0.253			
	Between subjects	1	0.096	0.080	0.777	0.000
	Program group (pre/post)					
Using Punctuation	Error (between)	747	1.203			
	Within subjects	1	4.177	15.299	0.000	0.020
	Occasion (pre, post)					
	Group x Occasion	1	2.558	9.367	0.002	0.012
	Error (within)	747	0.273			
	Between subjects	1	2.901	2.697	0.101	0.004
	Program group (pre/post)					
	Error (between)	747	1.076			
Anticipating	Within subjects	1	5.624	20.183	0.000	0.026
Readers' Needs	Occasion (pre, post)					
	Group x Occasion	1	5.007	17.966	0.000	0.023
	Error (within)	747	0.279			

Table 8

Results of Single Factor Repeated Measures Analysis of Variance for 2008 Pre- and Post-Assessment Student Writing Assessed on National Writing Project Analytic Writing Continuum (Program N=198, Comparison N=121)

Score	Variance Component	df	Mean Square	F Ratio	Test of Significance P (F)	Effect Size
Holistic	Between subjects	1	21.643	12.320	0.001	0.037
	Program group (pre/post)					
	Error (between)	317	0.856			
	Within subjects	1	24.202	28.283	0.000	0.082
Content	Occasion (pre, post)					
	Group x Occasion	1	3.929	4.592	0.033	0.014
	Error (within)	317	0.856			
	Between subjects	1	31.239	17.935	0.000	0.054
Structure	Program group (pre/post)					
	Error (between)	317	1.742			
	Within subjects	1	24.313	26.944	0.000	0.078
	Occasion (pre, post)					
Stance	Group x Occasion	1	2.364	2.620	0.107	0.008
	Error (within)	317	0.902			
	Between subjects	1	16.724	9.304	0.002	0.029
	Program group (pre/post)					
Sentence Fluency	Error (between)	317	1.798			
	Within subjects	1	18.543	1	18.543	0.058
	Occasion (pre, post)					
	Group x Occasion	1	3.907	4.119	0.043	0.013
Stance	Error (within)	317	0.948			
	Between subjects	1	28.577	16.803	0.000	0.050
	Program group (pre/post)					
	Error (between)	317	1.701			
Sentence Fluency	Within subjects	1	27.505	32.202	0.000	0.092
	Occasion (pre, post)					
	Group x Occasion	1	8.204	9.605	0.002	0.029
	Error (within)	317	1.701			
Diction	Between subjects	1	32.590	16.811	0.000	0.050
	Program group (pre/post)					
	Error (between)	317	1.939			
	Within subjects	1	25.791	28.424	0.000	0.082
Conventions	Occasion (pre, post)					
	Group x Occasion	1	4.161	4.586	0.033	0.014
	Error (within)	317	1.939			
	Between subjects	1	15.086	9.329	0.002	0.029
Conventions	Program group (pre/post)					
	Error (between)	317	1.617			
	Within subjects	1	20.101	23.993	0.000	0.070
	Occasion (pre, post)					
Conventions	Group x Occasion	1	3.237	3.864	0.050	0.012
	Error (within)	317	1.617			
	Between subjects	1	29.609	14.709	0.000	0.044
	Program group (pre/post)					
Conventions	Error (between)	317	2.013			
	Within subjects	1	21.369	24.918	0.000	0.073
	Occasion (pre, post)					
	Group x Occasion	1	3.758	4.382	0.037	0.014
Conventions	Error (within)	317	2.013			

Table 9

Results of Single Factor Repeated Measures Analysis of Variance for 2009 Pre- and Post-Assessment Student Writing Assessed on California Writing Project Analytic Writing Continuum (Program N=706, Comparison N=143)

Feature	Variance Component	df	Mean Square	F Ratio	Test of Significance P (F)	Effect Size
Responding to Identified Issue/Subject	Between subjects					
	Program group (pre/post)	1	36.610	44.329	0.000	0.050
	Error (between)	847	0.826			
	Within subjects					
	Occasion (pre, post)	1	2.589	12.087	0.001	0.014
Addressing the Demands of the Essay Topic	Group x Occasion	1	18.534	86.527	0.000	0.094
	Error (within)	847	0.214			
	Between subjects					
	Program group (pre/post)	1	33.258	38.947	0.000	0.044
	Error (between)	846	0.854			
Understanding the Text	Within subjects					
	Occasion (pre, post)	1	1.591	7.676	0.006	0.009
	Group x Occasion	1	19.974	96.385	0.000	0.102
	Error (within)	846	0.207			
	Between subjects					
Summarizing & Recapitulating	Program group (pre/post)	1	27.921	33.234	0.000	0.038
	Error (between)	846	0.840			
	Within subjects					
	Occasion (pre, post)	1	2.192	9.974	0.002	0.012
	Group x Occasion	1	16.118	73.328	0.000	0.080
Making Own Claims or Assertions	Error (within)	846	0.220			
	Between subjects					
	Program group (pre/post)	1	21.035	23.393	0.000	0.027
	Error (between)	847	0.899			
	Within subjects					
Developing Examples	Occasion (pre, post)	1	2.557	9.679	0.002	0.011
	Group x Occasion	1	15.553	58.862	0.000	0.065
	Error (within)	847	0.264			
	Between subjects					
	Program group (pre/post)	1	42.891	56.892	0.000	0.063
Making Own Claims or Assertions	Error (between)	847	0.754			
	Within subjects					
	Occasion (pre, post)	1	2.032	8.244	0.004	0.010
	Group x Occasion	1	15.893	64.506	0.000	0.071
	Error (within)	847	0.246			
Developing Examples	Between subjects					
	Program group (pre/post)	1	30.181	40.774	0.000	0.046
	Error (between)	847	0.740			

	Within subjects	1	2.159	7.919	0.005	0.009
	Occasion (pre, post)					
	Group x Occasion	1	13.544	49.672	0.000	0.055
	Error (within)	847	0.273			
	Between subjects					
	Program group	1	26.187	34.323	0.000	0.039
	(pre/post)					
	Error (between)	846	0.763			
Reasoning	Within subjects					
	Occasion (pre, post)	1	3.055	11.966	0.001	0.014
	Group x Occasion	1	14.007	54.869	0.000	0.061
	Error (within)	846	0.255			
	Between subjects					
	Program group	1	7.321	7.362	0.007	0.009
	(pre/post)					
	Error (between)	847	0.994			
Using Textual	Within subjects					
Support	Occasion (pre, post)	1	4.157	11.736	0.001	0.014
	Group x Occasion	1	23.976	67.686	0.000	0.074
	Error (within)	847	0.354			
	Between subjects					
	Program group	1	24.833	32.503	0.000	0.037
	(pre/post)					
	Error (between)	847	0.764			
Structuring &	Within subjects					
Organizing	Occasion (pre, post)	1	1.194	5.451	0.020	0.006
	Group x Occasion	1	17.357	79.247	0.000	0.086
	Error (within)	847	0.219			
	Between subjects					
	Program group	1	41.256	54.308	0.000	0.060
	(pre/post)					
	Error (between)	847	0.760			
Introducing	Within subjects					
the Essay	Occasion (pre, post)	1	2.776	11.955	0.001	0.014
	Group x Occasion	1	15.030	64.736	0.000	0.071
	Error (within)	847	0.232			
	Between subjects					
	Program group	1	34.982	45.765	0.000	0.051
	(pre/post)					
	Error (between)	847	0.764			
Using	Within subjects					
Paragraphs &	Occasion (pre, post)	1	1.410	6.387	0.012	0.007
Transitions	Group x Occasion	1	13.852	62.738	0.000	0.069
	Error (within)	847	0.221			
	Between subjects					
	Program group	1	30.519	38.669	0.000	0.044
	(pre/post)					
	Error (between)	846	0.789			
Concluding	Within subjects					
the Essay	Occasion (pre, post)	1	1.768	6.798	0.009	0.008
	Group x Occasion	1	17.534	67.404	0.000	0.074

	Error (within)	846	0.260			
Choosing Words	Between subjects Program group (pre/post)	1	31.602	36.365	0.000	0.041
	Error (between)	847	0.869			
	Within subjects Occasion (pre, post)	1	0.104	0.532	0.466	0.001
	Group x Occasion	1	11.351	58.043	0.000	0.064
	Error (within)	847	0.196			
Employing Sentence Structure to Convey Ideas	Between subjects Program group (pre/post)	1	21.566	25.337	0.000	0.029
	Error (between)	847	0.851			
	Within subjects Occasion (pre, post)	1	0.798	4.325	0.038	0.005
	Group x Occasion	1	9.805	53.123	0.000	0.059
	Error (within)	847	0.185			
Employing Sentence Boundaries	Between subjects Program group (pre/post)	1	40.481	46.553	0.000	0.052
	Error (between)	847	0.870			
	Within subjects Occasion (pre, post)	1	0.938	5.070	0.025	0.006
	Group x Occasion	1	6.412	34.662	0.000	0.39
	Error (within)	847	0.185			
Using Grammatical Relationships	Between subjects Program group (pre/post)	1	34.517	42.433	0.000	0.048
	Error (between)	847	0.813			
	Within subjects Occasion (pre, post)	1	0.874	5.121	0.024	0.006
	Group x Occasion	1	6.640	38.904	0.000	0.044
	Error (within)	847	0.171			
Using Punctuation	Between subjects Program group (pre/post)	1	39.052	48.892	0.000	0.055
	Error (between)	847	0.799			
	Within subjects Occasion (pre, post)	1	1.124	6.429	0.011	0.008
	Group x Occasion	1	6.062	34.673	0.000	0.039
	Error (within)	847	0.175			
Anticipating Readers' Needs	Between subjects Program group (pre/post)	1	33.777	43.628	0.000	0.049
	Error (between)	847	0.774			
	Within subjects Occasion (pre, post)	1	0.461	2.338	0.127	0.003
	Group x Occasion	1	15.963	80.912	0.000	0.087
	Error (within)	847	0.197			

Table 10

Results of Single Factor Repeated Measures Analysis of Variance for 2009 Pre- and Post-Assessment Student Writing Assessed on National Writing Project Analytic Writing Continuum (Program N=155, Comparison N=142)

Score	Variance Component	df	Mean Square	F Ratio	Test of Significance <i>P (F)</i>	Effect Size
Holistic	Between subjects	1	8.454	4.773	0.030	0.016
	Program group (pre/post)					
	Error (between)	297	1.771			
	Within subjects	1	0.005	0.006	0.940	0.000
	Occasion (pre, post)					
	Error (within)	297	0.790	5.379	0.021	0.018
Content	Between subjects	1	14.092	8.080	0.005	0.026
	Program group (pre/post)					
	Error (between)	297	1.744			
	Within subjects	1	0.790	1.065	0.303	0.004
	Occasion (pre, post)					
	Error (within)	297	0.742	12.563	0.000	0.041
Structure	Between subjects	1	31.202	17.408	0.000	0.056
	Program group (pre/post)					
	Error (between)	296	1.792			
	Within subjects	1	6.430	8.518	0.004	0.028
	Occasion (pre, post)					
	Error (within)	296	0.755	17.186	0.000	0.055
Stance	Between subjects	1	12.037	6.843	0.009	0.023
	Program group (pre/post)					
	Error (between)	295	1.759			
	Within subjects	1	0.525	0.573	0.450	0.002
	Occasion (pre, post)					
	Error (within)	295	0.916	7.852	0.005	0.026
Sentence Fluency	Between subjects	1	26.746	14.635	0.000	0.047
	Program group (pre/post)					
	Error (between)	295	1.827			
	Within subjects	1	10.660	11.433	0.001	0.037
	Occasion (pre, post)					
	Error (within)	295	0.932	10.550	0.001	0.035
Diction	Between subjects	1	11.612	6.294	0.013	0.021
	Program group (pre/post)					
	Error (between)	296	1.845			
	Within subjects	1	1.083	1.253	0.264	0.004
	Occasion (pre, post)					
	Error (within)	1	4.439	5.134	0.024	0.017

	Error (within)	296	0.865			
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	Between subjects	1	24.442	12.684	0.000	0.041
	Program group (pre/post)					
	Error (between)	295	1.927			
Conventions	Within subjects	1	3.559	4.513	0.034	0.015
	Occasion (pre, post)					
	Group x Occasion	1	10.616	13.462	0.000	0.044
	Error (within)	295	0.789			
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