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Blogging in Math and Science

Courtney Clayton, Ph.D.
Elizabeth Pringle, M.S.
University of Mary Washington

Abstract

In this action research, a pre-service teacher investigated the use of weblogs and their role in student science and mathematics writing in the classroom. The goal was to discover whether the use of blogging improved writing skills and how it affected student motivation for writing about math and science. Results suggested that students favored writing on the blog versus writing traditionally. Their preferences reflected findings from previous studies, especially regarding student perception of an authentic audience.

Introduction

In this study, a pre-service teacher-researcher investigated the use of weblogs (blogs) in student science and mathematics writing in the classroom. She had noticed during student-teaching that instructions to write in a science or math journal were often met with eye rolls and groans. The research related to writing in science and math showed that writing in traditional composition books without the aid of graphics and without an audience may cause students to view content area writing as boring and repetitive with little authentic purpose (Armstrong & Rettner, 2008). She wanted her students to see writing as a fun, yet purposeful activity so that they might become more intrinsically motivated to write (Lam & Law, 2007). She hoped that making use of blogs to write about science and math would be motivating for students because they incorporate technology, provide an authentic audience, and are relatable to the blog writing that students see from adults.

It was the goal of this action research to have her fourth-grade students become motivated to write meaningful, content-immersed blog entries in place of using the more traditional classroom math or science journal. With the use of a classroom science-math blog, students could post writings of their own choosing about math and science, answer teacher-generated prompts, and enter internet-based discussions on the content with their classmates. The question she wished to answer was: *How does the use of blogging affect students' enthusiasm and motivation for writing in math and science?*

Literature Review

The literature review for this action research project focused on three specific areas: (a) the use of blogging in classrooms, (b) the benefits of blogging, and (c) blogging versus traditional classroom written journals.

What Is a Blog?

A blog, short for weblog, is an interactive web page in which a user may post text entries as well as pictures, videos, and links to other web content (hyperlinks) (Ellison & Wu, 2008). Multiple users may interact and share ideas on a blog through comment sections that are made available for each individual blog entry (November, 2008). Blogs are becoming more common on the internet with more than one-fifth of students in the United States having their own personal blog (November, 2008). Blogs differ from traditional websites in several ways. Perhaps the feature that most distinguishes blogs from websites is that users directly engage their readers and encourage interaction through discussions in the comment section. Blogs are also not restricted to one static topic as websites often are and are updated much more frequently (Richardson, 2006). The interactive and reflective nature of blogs make them ideal tools for classroom use (Zawilinski, 2009).

There are a variety of blog types utilized in elementary classrooms. The most widely used blog in the school setting is a news blog in which the teacher posts updates about the classroom as well as homework assignments and important reminders (Richardson, 2006). Literature response blogs serve as an interactive discussion board and a place to post reflections while reading a certain text. Other types of blogs include showcase blogs that present student work to a wide audience and mirror blogs where students make entries that share their reflections on a variety of topics (Zawilinski, 2009).

Benefits of Blogging

Students use blogs to post reactions to class, write reflections, summarize topics, and annotate content area reading, among other things (Richardson, 2006). Student blogging in the classroom has shown to have several benefits related to student writing: (a) students being more likely to pay attention to and revise their writing, (b) students being exposed to multiple exemplary writing models, (c) students having the opportunity to reflect easily on their writing development, and (d) students having an authentic audience beyond the teacher to read their writing, which has been shown to be a motivation for writing (Nolan, 2007; November, 2008).

A study by Ferdig and Trammell (2004) showed that students paid more attention to the mechanics and correctness of their writing when posting to a blog than when writing a traditional paper and pencil composition. They also found that students were likely to analyze and revise their writing more than with traditional compositions. In a 2008 study, Ramaswami administered surveys to collect student opinions about blogging in the classroom. When comparing blogging to traditional writing, 74% of students felt that blogging helped them better organize their thoughts and further develop their ideas about a topic.

Blogs make it possible for students to have access to all their work in one place, like an online writing portfolio. This gives students the opportunity to reflect and revise previous writing compositions (Duplichan, 2009). The archival nature of blogs makes it possible for students to reflect on their learning over the school year as they look back at older examples of their work. Because the online portfolio is stored on a student's blog, it transfers the responsibility of the portfolio's management from teacher to student (Chambers & Wickersham, 2007). Also, having writing portfolios stored online makes them accessible to students, allowing them to view them more often than traditional writing portfolios (Ellison & Wu, 2008). Blogs also allow students to see various models of writing created by someone other than an adult (Pennay, 2009).

Another benefit of using blogs is the ability to put text, video, images, and sound all in one place (Warschauer, 2006). A student could write an entry on a topic and embed images to support his claims. He could also reference points he makes with hyperlinks that lead to outside sources (Ferdig & Trammell, 2004). The ability to use multimedia and outside sources in their entries helps students see how their writing relates to a bigger picture.

Blogs also give students an authentic audience for whom to write. Students can make their voices heard to their immediate community or to the world. The student is no longer accountable to just his teacher, as his or her classmates have the ability to view his work in a setting that mirrors a way in which adults showcase their writing in the real world. This may motivate the student to focus on the mechanics of his writing and on making his ideas clear and accessible (November, 2008). In addition, blogs that encourage communication among classmates expose students to many diverse ideas and viewpoints (Ferdig & Trammell, 2004).

A number of studies have examined what motivates students to write (Lam & Law, 2007; Nolen, 2007; November, 2008; Rettener, 2008). Findings indicate that students are motivated when (a) they feel what they are writing is of real significance, (b) they receive useful feedback, (c) the writing has some social component such as a means of communication, and (d) the students are able to have some choice about what they write. Blogging provides students with these motivational factors mainly due to the authenticity provided by having a genuine audience. Students see that their writing has an authentic purpose because they are posting information where a variety of people can constantly view it.

Blogging and Traditional Journaling

Blogging is a way to digitalize traditional math and science journals (Duplichan, 2009). A traditional math or science journal consists of a collection of written entries a student makes which document his or her learning. Usually, the only individual who reads a traditional journal is the teacher so the student writer lacks an authentic audience (Fingon & Fingon, 2008). However, with a blog, students can include videos and images that illustrate concepts learned in class (Fingon & Fingon, 2008). They can also hyperlink entries on a particular concept to examples of real world applicability (Richardson, 2006).

In a 2009 study by Bahce and Taslaci, students rated their experience with blog writing much more highly than they did their experiences with traditional writing. This was because they found blog writing more exciting since they could incorporate multimedia and felt their writing served a purpose because they had an authentic audience.

Most of the research on blogging in the classroom has focused on literature response blogs. However, writing is emphasized across all content areas. Both the National Council of Teachers of Mathematics (2000) and the National Science Teachers Association (1996) recognize the importance of writing in their content areas. For example, the *Principles and Standards for School Mathematics* states, "Students who have opportunities, encouragement, and support for writing . . . in mathematics classes reap dual benefits: they communicate to learn mathematics, and they learn to communicate mathematically" (National Council of Teachers of Mathematics, 2000, p. 59).

Method

This study took place in a preK-5 elementary school, Fawkes Elementary (pseudonym), serving 333 students in a primarily upper middle class community. In this school, grades 3-5 departmentalized their content area instruction, with one teacher instructing in the areas of language arts and social studies, and the other teaching math and science. This study took place in the teacher-researcher's fourth-grade math and science classroom.

Participants

Data were collected from a class of 28 students, 14 male and 14 female, three of whom had Individual Education Plans (IEP) and three had 504 plans. This fourth-grade class was computer-savvy, having worked with computers in the school multiple times during the school year as well as in previous grades. Students in fourth grade were required to keep both math and science journals in which they created entries at the discretion of their teacher.

Four students (two male, two female) with different ability levels and opinions toward math-science writing as determined by a questionnaire (see Appendix A) were interviewed (see Appendix B) regarding how they felt about math-science writing. The students were selected to represent a range of attitudes about writing in math-science, depending on their availability for interviews.

Lisa (all names are pseudonyms) was a white female student with a 504 plan who struggled in all academic areas. Kelsey, also a white female student, achieved a high level of academic success in all subject areas. Kevin, a white male student, performed at the average level academically. John, also a white male student, generally performed below grade level academically.

Procedure

The action research took place over six weeks in February and March, 2011. The blog hosting site Edublogs (http://edublogs.org/) was chosen because of its accessibility and focus on education. Edublogs makes it possible for several users to post entries under a single blog domain, which worked perfectly for the large number of students in the class. Edublogs also gave the teacher significant control of what was made visible on the blog and the ability to confirm all entries and comments before publishing them. The blog could also be password-protected so only individuals with the proper password were able to view the blog.

Before students created their first blog posts, a mini-lesson was taught on internet safety and etiquette. A mini-lesson focused explicitly on how to create and publish a blog post and how to create comments.

The students were required to create at least one blog post and comment on at least three of their classmates' blog posts per week. The students had scheduled time per week in the computer lab or with laptops from one of the school's laptop carts. There was also a classroom computer that students had the opportunity to use. At the conclusion of the study, students had created at least five individual blog entries each.

Students were able to create blog posts on chosen topics related to content being studied in math or science or to respond to prompts from the teacher. Prompts varied throughout the study and changed weekly. Some examples included having the student create or solve a word problem, discuss how to make use of a math or science concept in everyday life, discuss a classroom experiment, comment on a scientific phenomenon, and give an opinion on a debated scientific issue such as the effect of humans on ecosystems. Students were encouraged to ask questions of their classmates in their blog posts in order to facilitate active discussion in the comment sections.

Students maintained their written math and science notebooks during the study so that students' writing composed for the blog could be compared to their traditional writing. On the weeks when a paper-and-pencil composition was required, blog prompts were printed out and made available to the students. After the students had completed prompts on paper, they then turned in their responses to the teacher.

Data Collection

Data were collected from four different sources: (a) pre- and post-study student surveys, (b) student interviews, (c) observational field notes, and (d) comparison of students' blog posts to their entries in traditional math and science journals using a writing rubric.

Pre- and post-intervention surveys. At the beginning and end of the study, questionnaires were administered to all participating students. The questionnaires asked students about writing in math and science. They also asked students their least and most favorite things about math-science writing. The pre-questionnaire (see Appendix A) included questions specific to students' opinions of traditional journal writing, whereas the post-questionnaire (see Appendix C) asked about blog writing as compared to journal writing. The survey questions were presented in Likert scale format.

Student interviews. Four students were interviewed about how they felt about math-science writing (see Appendix B). The interviews were conducted at the beginning and the end of the study. These interviews were audio-recorded and then transcribed.

Observational field notes. Throughout the study, field notes were kept. The notes referred specifically to the students' experiences blogging and their attitudes toward blogging. These notes were kept in a notebook and written at the conclusion of each school day in which the students had created either blog posts or comments on blog posts.

Comparison of blog posts to journal entries. The math-science journal entries and blog postings of the four students who were interviewed were compared using a writing rubric (see Appendix D). A voluntary writing entry was presented as an option beyond the one entry per week required.

Results

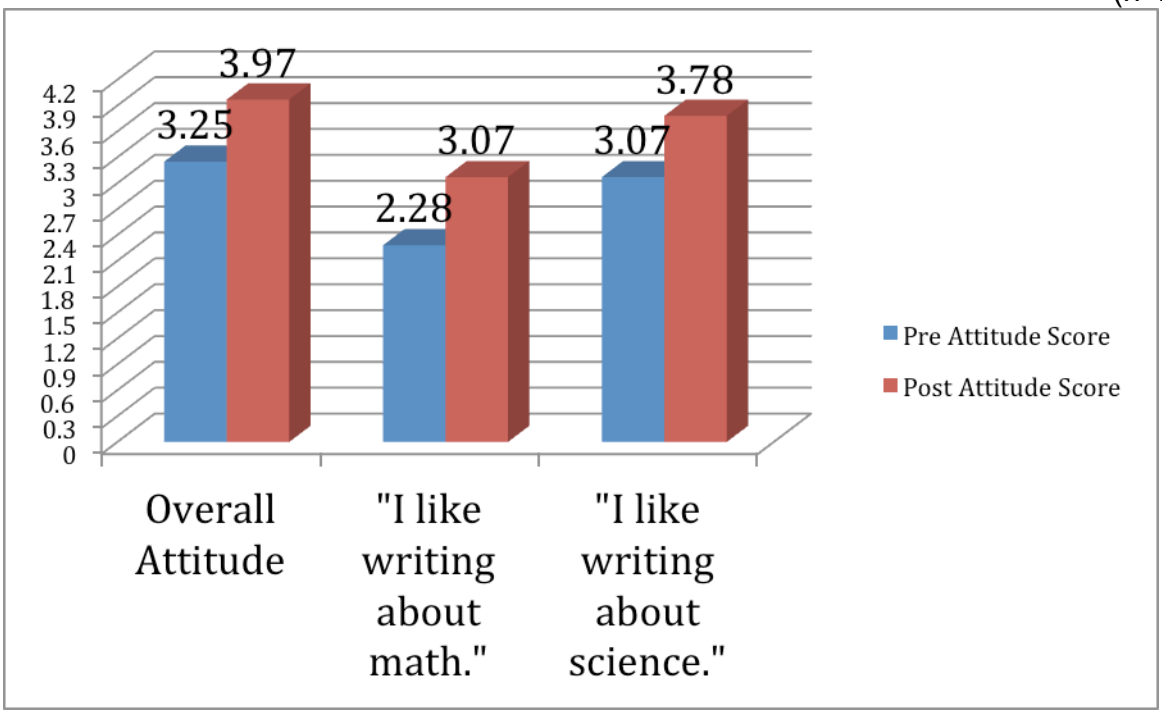
Surveys

Fourteen of the 28 participating students consented to participate in surveys about their opinions toward writing. To analyze survey responses, each possible answer was assigned a point value (i.e., strongly disagree= 1, disagree= 2, not sure= 3, agree= 4, strongly agree= 5). An average score was then calculated for each student, for the class as a whole, and for each survey item. Average scores above 3 were construed as a positive attitude toward writing, whereas scores below a 3 were taken as indicators of a negative attitude toward writing.

The average score of all fourteen students increased between the pre- and post-study surveys (see Figure 1). For the four focus students, Lisa's score increased by 10% (from 3.94 to 4.41), Kelsey's score increased by 25% (from 3.70 to 4.94), Kevin's score increased by 14% (from 3.05 to 3.58), and John's score increased by 5% (from 2.70 to 3.23). The class average increased 18% from the pre-survey (3.25) to the post-survey (3.97). At the end of the study, students showed a preference toward writing about science on the blog (4.07) compared to writing about science in their notebooks (3.50). The students' average score also showed this preference when comparing math blog writing (4.21) to writing about math in their notebooks (3.14).

The free-response portion of the questionnaire also reflected students' preferences for blog writing. Every student expressed enjoyment of writing on the blog. Students cited their main reasons as being able to leave comments on other students' writing and receiving comments on their own postings. Some students also were more open to the idea of writing about math and science outside of assigned class work at the end of the study as opposed to the beginning of the study. One student expressed an interest in writing independently about math or science "if it was fun" (Kelsey, post-study questionnaire). Another stated that independent writing would help him to "get smart," and a third student expressed that she would write about math or science outside of a school assignment as a way to teach her younger sister about the content.

Figure 1. Pre- and post-survey responses regarding attitudes toward writing (n=28.



Student Notebook Writing Compared to Student Blog Writing

The four focus students did not show any overall difference in comparing the quality of their blog writing and the quality of their notebook writing. Writing mechanics, length of entries, and thoughtfulness of responses stayed the same between the two media. The only real difference was that sometimes students would try to engage their blog readers with a question such as, “What do you think?” when writing on the blog. As a whole, however, there was a lot more enthusiasm in the class toward writing on the blog than writing on paper. For example, some students would answer multiple blog prompts per week. As a contrast, most students had to be reminded several times to turn in their writing notebooks, and most students did not complete the assignment. In fact, only the four focus students turned in the second paper-and-pencil writing assignment – after reminders. All students were excited when new writing prompts were posted on the blog each Monday, but notebook writing was met with groans and disapproval.

Interviews

The focus students were interviewed during the first week of the study and again at the conclusion of contributions to the blog. The opinions of all 28 students in the class were solicited informally throughout the study. Several ideas were expressed by multiple students, as summarized next with excerpts from formal interviews with the four focus students.

Students expressed a general fondness for typing, including Kevin, who said, “Typing helps me get my ideas out” (post-study interview). Several stated that they preferred typing to writing with a pencil because typing was a quicker process. One student mentioned that writing with a pencil became painful after awhile and that, as a left-hander, she often had smudges all over her papers. Others thought typing looked neater than their handwriting. In the formal interviews when asked about why they liked using the computer for assignments, all of the students mentioned being able to type as one of their reasons.

When asked their opinions on the differences between writing on the blog and writing with a pencil and paper, all the interviewed students mentioned having an audience while blogging. The students’ attitudes regarding their classmates' ability to read their postings was extremely positive. As John said, “On the Internet the whole class can see [your writing], but when you write on a piece of paper nobody really looks at that” (post-study interview).

Changes in the quality of student writing during the study or between blog and traditional writing was not evident. However, the students indicated in interviews and otherwise that knowing others could read their entries influenced them to try to be more careful with their writing: “If I know people are going to see [what I write], I will do my best that I can do” (Lisa, post-study interview). One student stated that she felt she needed to be “more persuasive on the computer because everybody [could] see it” (Kelsey, post-study interview), and that she needed to make sure her writing made sense to others. Another student stated that knowing people could read her posts made her want to “do as much typing and writing as possible” (Lisa, post-study interview).

During computer lab days, when all students were working on the blog at once, several students were concerned about their spelling and attempted to use the blog’s spell-check feature (which did not consistently work). There was no evidence that this supported better quality writing on the blog, but students were at least thinking about the fact that their writing needed to be better when others were going to read their posts.

“It feels like you’ve accomplished something when people are looking at what you wrote,” said Kevin (post-study interview), adding that it felt “more important” to write on the blog than to write in his notebook because he knew that others would have the ability to read his writing. Students liked the idea of being able to share their thoughts with others, even mentioning that they wanted to help others with the content they were writing about on the blog.

Every one of the 28 students who took part in this study expressed how much they enjoyed being able to receive comments from their classmates and to leave comments on the posts created by their classmates. Said Kelsey, "I like to comment because it makes other people feel good about what they wrote. . . . When people comment on my posts, it makes me feel really good” (post-study interview). Students talked about helping their friends toward a correct answer, one commenting during class, “I like to show other people how to do things, but I don’t really want them to do what I do. I’m just giving them ideas.” Expressions of appreciation for their classmates' feedback included these two comments during class: “I will take any comment that they say!”

"It's really fun seeing what other [people] think about my blog." After posting their entries, students would often check back multiple times on the blog to see if anyone had commented on their writing.

Discussion

Using Technology

Computers are everyday staples in the lives of students and valuable tools in the classroom (Richardson, 2006). The students in this study frequently used computers and other comparable electronic devices outside of school but had not spent comparable amount of time using these technologies in the classroom. Therefore, using the computers weekly for an assignment was exciting to them because it was something different. Blogs were new to most of the students. They were all fascinated with the classroom blog and the fact that they could all contribute. Students were not just passive viewers of the internet which added to their enthusiasm for writing on the blog.

Many students referred to typing when explaining why they liked to use the computer. They had received no formal typing instruction, but most could type fairly quickly and knew the layout of the keyboard due to their previous exposure. Students preferred typing because it was neater and did not present the discomfort that writing with a pencil did. It was easier for students to correct mistakes simply by hitting a backspace button than to erase with the potential to create smudges and holes.

Authentic Audience

Throughout the study, students' motivation for writing about math and science was largely related to having an authentic audience for their blog posts. Nolen (2007) has stated the knowledge of having an audience helps students find a purpose for their writing. In line with Armstrong and Rettener (2008), the students in this study were less motivated to complete paper and pencil compositions that no one but their teacher would see and more motivated to write when they knew their classmates would be able to read their work. Students frequently talked about the fact that others could see their writing as a reason why they enjoyed blogging.

At two points during this six-week study, students were asked to respond to a blog prompt using paper and pencil. Both times, it was extremely difficult to get students to complete the paper-and-pencil assignment, whereas there was never any resistance to writing on the blog. Students complained that the paper-and-pencil writing was "boring," and some even asked if they could later type up the paper and pencil writing and post it to the blog so that they could receive comments. The prompts for these two assignments were no different from the prompts posted on the blog for the week. The only difference was the medium in which the students were writing and whether or not they would have an audience.

With blogs, students were able to actively engage their readers through the use of comments. This encouraged students to think of blogging as engaging in a conversation with readers (Richardson, 2006). Students in this study widely cited the

ability to comment and receive comments as their favorite aspects of blogging. The anticipation of comments to their posts also helped motivate students to complete their writing. Being able to receive comments assured students that someone was reading their work. By the end of the study, some students were asking direct questions in their blog posts to encourage responses.

Writing Mechanics

Ferdig and Trammell (2004) found that students were more likely to pay attention to the grammarical correctness of their writing when posting to a blog because of their awareness of an audience. In the study reported here, there was little to no difference in how well students wrote when their paper-and-pencil compositions were compared to their blog entries. However, upon being interviewed, students often mentioned that knowing that others could read their writing motivated them to better their writing. So, if students were aware that they should improve the quality of their writing for their audience, then why didn't they do it?

One reason may lie in who exactly the authentic audience for the blog was. Although one benefit of blog writing was that students had readily available examples of other student writing, the blog was password-protected out of concern for internet safety such that only the teacher and the students were able to view and use the blog. Since only a couple of students during the study paid close attention to the mechanics of their writing (e.g., spelling, punctuation, grammar), students did not have many examples of grammarically correct writing on which to model their own writing.

Another reason students might have paid less attention to writing quality than found in other studies is that this blog was presented as a low-stakes situation. The students knew that they would not be graded on their writing, so there was no immediate academic need for them to worry about editing their writing. This low-stakes environment helped motivate students who usually did poorly on writing assignments and put content knowledge at the forefront. Students recognized the importance of making their writing understandable, but they continuously put their knowledge of the content first. Writing in this low-stakes situation allowed students to become comfortable writing informally and showed them that they did not have to be brilliant writers to have their voices heard.

Implications

Blogs as a Tool for Assessment

Blogs are an effective way to assess students informally in several areas such as the quality of their writing in terms of mechanics, their current level of knowledge about the content area, and their writing preferences. This blog was set up so that each individual student had a username, making it possible to show all the posts created by a particular student on a page. This allowed quick access to samples of a student's writing over a period of time and was used to assess whether new skills were being applied to a student's informal writing. Also, much was learned based on the prompts students chose to answer. For example, in this study, it was easy to see that a student

who was choosing to complete only science prompts might have felt uncomfortable with math content.

There was also opportunity to see a trend in the types of posts a student chose to answer, for example, creative or factual prompts. This type of knowledge promoted planning assignments and projects to cater to a student's strengths and interests. It was important knowledge for pushing a student outside of his or her comfort zone to explore further with writing.

Creating a Positive Classroom Community

Through modeling the use of the blog, students became positive and supportive in their comments to one another when they disagreed. Had students been rude and hurtful, they would have been less likely to take chances with their writing. Also, the effect that comments had as a motivator could have been lost. On day one, proper conduct for comments must be modeled and explained. It was useful to create a tab at the top of a blog which links to the class's guidelines for proper use of the blog, which included guidelines for posting acceptable comments. Furthermore, the blog hosting allowed approval of each comment before it was published on the blog, allowing monitoring for inappropriate comments. Students knew that respect for each other was expected when leaving comments on a blog post. They were aware that a classmate might disagree with them, but they knew they would not be criticized. This helped create an environment in which students felt comfortable sharing their thoughts.

Conclusion

Blogs are a technological tool for student writing that can be easily implemented across subject areas. The presence of an authentic audience helps motivate students to write because they wished to receive feedback from their readers. Presenting their thoughts on a topic in a public way and receiving feedback through comments showed students that their thoughts were valued and could be influential to others. Having the opportunity to leave comments on their peers' posts also showed students that they could interact in writing and express opinions about the writing of others. Finally, the blog was *fun*. The opinion heard over and over again from students during this study was just how much fun they were having. Any medium that allows students to view writing as fun, therefore motivating them to write, is a valuable asset to the classroom.

From an action researcher's perspective, students' learning needs became apparent and resulted in improved instruction. In addition, this pre-service teacher became familiar with current research literature and was able to understand the role of research in teaching. Finally, this pre-service teacher became a researcher in her own right, seeing the action research process as something she can utilize in the future in her own classroom.

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Appendix A
Pre-Study Questionnaire

Circle the opinion (disagree, agree, etc.. that best describes how you feel about the statement.

1. I like writing.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
2. I write for fun.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
3. I find writing easy.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
4. For assignments, I write more than what is required.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
5. I like to use the computer at school.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
6. I like to write on the computer at school.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
7. I like when other people can read my writing.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
8. I like writing about math.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
9. I write about math for fun.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
10. I like writing about math in my math notebook.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
11. I would like more assignments where I can write about math.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
12. I find writing about math easy.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
13. I like writing about science.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
14. I write about science for fun.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
15. I like writing about science in my science notebook.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
16. I would like more assignments where I can write about science.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
17. I find writing about science easy.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*

Please answer the following:

18. What do you like about writing in your math and science notebooks?

19. What don't you like about writing in your math and science notebooks?

20. Do you find writing about math and/or science difficult? If yes, why? If no, why not?

21. Would you write about math or science if you didn't have to for school? Why or why not?

22. Would you like to be able to publish your writing on the Internet? Why or why not?

23. Do you know what a blog is? If so, how do you feel about them?

Appendix B
Student Interview Protocol

Pre-Study Questions:

How do you feel about writing in general?

How do you feel about writing about science?

How do you feel about writing about math?

Do you feel confident when you write about science and math?

Do you like to write in your math and science notebooks? Why or why not?

Do you like using the computer for class assignments? Why or why not?

Would you like to use the computer to post what you write about math and science on the Internet? Why or why not?

Post-Study Questions:

How do you feel about writing in general?

How do you feel about writing about science?

How do you feel about writing about math?

Do you feel confident when you write about science and math?

How do you like writing about math and science on the class blog?

Do you think the writing you do on the blog is different from the writing you do in your notebook? Why or why not?

Do you like that other people can read and respond to your blog entries? Does it influence your writing?

What was your favorite blog entry to write? Why?

Would you rather write in your notebook about math and science or on the blog? Why?

Was creating entries for the blog fun? Why or why not?

Have you changed your opinion about math and science writing since you starting blogging? Why or why not?

Appendix C
Post-Questionnaire

Circle the opinion (disagree, agree, etc.) that best describes how you feel about the statement.

1. I like writing.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
2. I write for fun.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
3. I find writing easy.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
4. For assignments, I write more than what is required.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
5. I like to use the computer at school.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
6. I like to write on the computer at school.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
7. I like when other people can read my writing.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
8. I like writing about math.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
9. I write about math for fun.
   Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
10. I like writing about math in my math notebook.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
11. I like writing about math on the class blog.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
12. I would like more assignments where I can write about math.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
13. I find writing about math easy.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
14. I like writing about science.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
15. I write about science for fun.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
16. I like writing about science in my science notebook.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
17. I like writing about science on the class blog.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
18. I would like more assignments where I can write about science.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*
19. I find writing about science easy.
    Strongly disagree *Disagree* *Not Sure* *Agree* *Strongly Agree*

Please answer the following:

20. Do you find writing about math and/or science difficult? If yes, why? If no, why not?

21. Would you write about math or science if you didn't have to for school? Why or why not?

22. Do you like using the class blog to publish your writing about math and science? Why or why not?

23. Which do you like better, writing about math/science in a notebook or writing about math/science on a blog? Why?

24. Did you like that your classmates could read and post comments to your blog entries? Why or why not?

25. Did you like reading your classmates' entries and posting comments about them? Why or why not?

Appendix D
Writing Rubric

Student number:

Date entry completed:

Blog or Journal (circle one)

Prompt:

Quality	*1*	*2*	*3*	*4*	*Score*
Topic	Key words at beginning of entry	Main idea at beginning of entry	Good main idea/topic sentence	Well-stated main idea/topic sentence	
Organization	Ideas not in any discernable order	Some order of main ideas and details	Main ideas and details sequenced appropriately	Good presentation of ideas from main ideas to supporting details	
Sentences	Some fragments/ run-ons	Mostly complete sentences with few fragments/run-ons	All complete sentences, some variation in sentence length/type	All complete sentences, appropriate variety in length/type	
Punctuation /Case	Many punctuation/case errors	Few punctuation/case errors	Minor punctuation/case errors	Correct punctuation/case throughout	
Grammar	Many errors in number/tense /agreement	Some errors in number/tense /agreement/	Few errors in number/tense /agreement	No errors in Number/tense /agreement	
Spelling	Many spelling errors	Some spelling errors	Few spelling errors	No spelling errors	
Vocabulary	Limited vocabuAlary use	Attempts to use related vocabulary	Uses related vocabulary correctly	Uses related vocabulary correctly and with ease	
Support	No relevant details to support main idea	Few relevant details to support main idea	Some relevant details/examples to support main idea	Many relevant details/examples to support main idea	

Total score: