

Using Digital Writing Tools to Improve Student Writing

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Abstract

The following study examined the use of digital writing tools, specifically wikispaces.com, as a means to improve student writing and self-efficacy. Participants were grade eleven students enrolled in a traditional level United States History class. PSAT data indicated that students in these classes scored substantially lower on the PSAT writing portion than their peers. Students in the study engaged in a pre-intervention survey that measured student perceptions of their writing, self-efficacy related to writing and two writing and peer editing interventions on wikispaces.com. The results of the research showed that students reduced the number of spelling mistakes and improved the clarity of their writing, but failed to reduce the number of grammatical errors. Students also claimed that the use of the digital writing tool positively impacted their efficacy, while also altering their perspective on their writing.

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Introduction

Rationale

The 21st century student is surrounded by technology. Whether using tools such as word processing software, web-site creators or smart phones, today's students are ensconced in technology. Students are well versed in technology and have even mastered, to some extent, a "new" language, referred to by students as "text-speak." In some instances, they have incorporated text speak into academic writing. Such disregard for the basic conventions of writing is alarming and should be addressed.

The ability to write at a high level is an important skill as student transition through secondary education and into post-secondary schools. Over the start of the year it was noticed that the current group of students exhibited lower writing ability than students of previous years. Through the examination of prior assessments, including PSAT scores and essays, it was determined there was sufficient reason to examine various issues related to student writing.

Technology is clearly invading education and making its way into the classroom. Since technology is becoming commonplace, it was determined that the integration of digital writing tools as a part of instruction might be a viable approach to help address the issue of poor student writing. The following pages show how digital writing tools were used to address various issues in student writing.

Statement of the Problem

Writing scores at La Salle academy indicate that there is disparity between various placement levels among students. La Salle Academy places students into classes according to their academic ability. PSAT scores are the main consideration for appropriate

placement of students as they are assorted into one of three levels. The three levels are .1+, commonly known as “Advanced Placement” (AP), which contains the strongest students. The next group is designated as .1, commonly known as “honors.” The final group is designated as .2, commonly described as a “traditional” or “instructional” level class. A .2 class contains a wide variety of academic ability and various levels of student motivation.

Upon investigation of PSAT scores it was determined that .2 classes exhibited significantly lower scores on the writing portion of the PSAT, when compared to AP and .1 students. For example, students in a section of AP United States history class averaged an individual score of 54 out of a possible 80 points on the writing portion of the PSAT. Students in .1 sections averaged a score of 47.8 out of a possible 80 points. However, students in .2 sections averaged a score of 38.5. The data collected from the PSAT indicated that .2 students are significantly weaker writers than students in AP and .1 classes.

Research Questions

The nature of the problem presents several interesting research questions that will guide the action research. Through the use of digital writing tools, the instructor will address several research questions. First, the instructor will examine how students perceive their current writing ability. Next, the research will examine whether digital writing tools improve student writing in areas of grammar and clarity. Also to be researched is whether or not digital writing tools reduce the amount of errors in student writing. Finally, the research will also determine an answer to whether or not digital writing tools improve self-efficacy of student writing.

Hypothesis

If students engage in the use of digital writing and publishing tools, then they will reduce the number of grammatical and spelling errors and, improve the clarity of their writing and subsequently increase self-efficacy as it relates to student writing.

Ethical Concerns

The principal and social studies department head were made aware of the research project. The plan was presented and both approved of the research. Support was in the form of technology and resources if needed. The only caveat was that principal requested each student receive parental consent for participation and approval of their child's name in the written report. Consent was received from all students and the research commenced.

Review of the Literature

With the advent of web 2.0 tools, educators are faced with the need to integrating technology into the classroom and within all content areas. Some educators debate the effectiveness of technology and writing (Gardner & Goldstein, 2005). Goldstein in particular argued that the use of technology for writing, even in simple forms such as e-mail, is too informal and students tend to ignore the rules of grammar in informal communication. Goldstein cited student communication that lacked the proper capitalization and punctuation as examples that supported his argument. Ultimately technology is leading to the erosion of proper and effective writing skills among students (Gardner & Goldstein, 2005).

Opposed to Goldstein's argument, Gardner claimed that technology helped students writing skills. Gardner's (2005) argument is based on his claim that the combination of

technology and student writing has led to improved writing among his students. Although there were still flaws in grammar, Gardner cited student writing student writing as well developed with clear ideas, due mainly to the fact students are sharing their work more than ever before, leading them greater awareness of the audience (Gardner and Goldstein, 2005). Beach et al., (2009) supported Gardner (2005) in that the use of digital writing tools made students more aware of their audience and engages them in writing, which in turn led to improved writing.

Gardner and Goldstein (2005) presented opposing sides of the argument about technology and writing; however, there were flaws in their work. The article is essentially a commentary that lacked the necessary data to validate their arguments. Although, both claim that examples of their students' work is the foundation and their arguments are based on student work. However, their claims of lackluster writing are not uncommon. Jenkins (2008) found that more than half of the teens surveyed admitted to using "informal writing and grammar in their school writing..." which was attributed mainly to their use of communication technology (email, text messaging), which is significantly less formal than academic writing.

Common Themes Within the Literature

Several common themes exist among teachers and researchers. Among the most common themes in the literature is that peer feedback on provided through digital writing tools prodded students to take more pride in their work and produce a better product. Lin and Yang (2011) found that some post-secondary students were appreciative of peer feedback and were able to easily make changes to their work through the collaborative tools found in a wiki. Lin and Yang (2011) also claimed that students were quick to make

changes to their writing, once an error was spotted or, if someone needed a point of clarification. Over the course of their engagement in the wiki, the students began to appreciate peer feedback, when at first they were a bit apprehensive of critiquing others work. Tharp's (2010) claims are similar to Lin and Yang (2011) in that the high school students involved in a wiki writing project also claimed they were apprehensive about giving feedback via a wiki, mainly because they were concerned about who could see it and, could they be identified by others.? Secondary and post-secondary students provided feedback that noted the wiki helped improve their writing, mainly because they knew their work was open and available to a wide variety of people, leading them to take more pride in their work.

Teachers and researchers also noted that wikis, as well as other forms of digital writing tools, helped increase the amount of engagement among their students. Grout (2010) found that students became actively engaged in writing when encouraged to use a classroom blog. Student's actively engaged in writing and commenting on each other's blog, and eventually began to correct each other's mistakes. Grout (2010) claimed that students became more active in writing and cognizant of their grammar when they realized two important parts of the writing process. First, when the students realized there was an audience that was reading their work, they took more pride in their work. Once students realized it was not only a teacher reading their work, they placed a greater value on other parts of the writing process. Second, when the students were given freedom of choice for their writing, they became more engaged. Tharp (2010) also demonstrated through student feedback that the use of digital writing tools, specifically a wiki, led to greater engagement and a better overall piece of writing on the part of the students. Grout (2010)

and Tharp (2010) echoed each other's work in that both claim the use of technology for writing combined with student ownership of their work produced better results. Gibbons (2010) also supported others' claims of a correlation between student ownership of work and better writing. Students will put more effort into their writing if it relevant and connected to their lives (Gibbons, 2010).

A sense of ownership in a student's education was also tied to another common theme among much of the literature. Perhaps the most common feedback from researchers and teachers was that students likened the use of wikis and other digital writing tools to social media sites, such as Facebook. Corrigan (2010), Gibbons (2010), Lin and Yang (2011), Tharp (2010), all demonstrated that through student feedback of secondary and post-secondary students, that digital/collaborative writing tools, such as wikis, create a social aspect for their writing that does not exist when using traditional writing and editing methods.

Common Drawbacks of Wikis and Other Digital Writing Tools

The literature revealed findings that raise concerns for future research and teachers contemplating the use of similar tools in the future. Although easily remedied, the following topics appeared in several areas of research.

Some post-secondary students gave negative feedback about wikis and were reluctant to use them the future (Allwardt, 2011). Student feedback showed significant issues with coordination among group members and major concerns, along with unclear expectations, of what to do with their assignment and the wiki. Allwardt's (2011) research contradicts Lin and Yang (2011) in the fact that the students in Lin and Yang's (2011) research felt that the wiki allowed for easier time management and coordination within

their groups. This development may potentially support the fact that student's in Allwardt's (2011) research were unsure about their tasks and how to use the wiki. Beach et al., (2009) also claimed that digital writing tools present obstacles. From time to time students are unclear of their role and who should be contributing at a particular time. Students may also be critical of others from time to time, leading to a break down in the collaborative aspect of wikis (Beach et al., 2009).

Clearly noted in the research was students' lack of familiarity with their respective wiki sites. Allwardt (2011), Lin and Yang (2011), and Tharp (2010) claimed that students in their classes/research were unfamiliar with wikis. However, by the end of their tasks, students became comfortable with the technology. Those planning on using a wiki or other collaborative writing tool should consider a period of time in which students will be trained on how to use the software.

Methodology

Research Design

Previously, students had written two essays of about 700 words (1-2 pages). The results of the essays were mixed. Scores and data from the essays later provided data for action research. PSAT data also helped to provide baseline data.

Students were made aware of the research and asked to provide consent to be in the study. Although all students and parents gave consent to participate, not all parents consented to the use of names in the written report. This was not a factor in the research. Once consent was received, student participated in an online survey, via survey monkey, which helped establish more data (Appendix A).

After surveys were completed, a lesson was given on wikispaces.com to ensure that all students were familiar with the tool. Students were introduced to the wikispaces site that was created for their class and they were allowed time to familiarize themselves with the tools and gadgets embedded in the software. In particular, students were instructed to become familiar with the embedded discussion tool, as this is where they made comments on others work. Once it was established that they were comfortable, they were asked to create their own “wiki page” within the class’ page. Students were responsible for making entries in their own “wiki page.” When all were comfortable, the lessons commenced.

On two occasions, students were taught a lesson, one on the Boston Massacre and a second on the Constitutional Convention. Following each lesson, students had to respond to writing prompts on their “wiki page” and publish their work when completed. Students were asked to write and publish about 700 words in order to have a comparable writing sample as previous essays. Next, students engaged in proofreading each other’s work. They were instructed to highlight spelling mistakes and grammatical errors and comment, via the embedded discussion board, on lack of clarity. Students were then allowed to edit their work and republish it to the site. The instructor then used the writing rubric to score the writing and provided feedback within 48 hours.

At the culmination of the interventions, students were then asked to engage in exit surveys (Appendix B). Surveys were completed and submitted to the instructor. Surveys offered the opportunity to give open-ended answers and reflective feedback.

Data Collection Plan

In order to validate the problem of student writing, determine baseline data, and measure student progress, the following data matrix was constructed. Table 1 shows the triangulation of data, which helped to validate much of the findings.

**Table 1
Data Matrix**

Question	Data Source 1	Data Source 2	Data Source 3
Pre Assessment of Student Perspective, Self Efficacy and Knowledge of Digital writing tools	Student Surveys	Comparison to Literature Review.	X
Pre Action Research Self Efficacy	Student Surveys	X	X
Knowledge of Digital Writing Tools	Student Surveys	Training on Tools	Compare to Literature Review Findings
Poor Writing Scores	PSAT Scores	Previous Writing Assessments	X
Improved Writing (clarity)	Rubric	Previous Writing Assessments	Action research Assessment
Grammatical and Spelling mistakes (increase/decrease)	Rubric	Previous Writing Assessments	Action Research Assessment
Post Action Research self-efficacy	Student Surveys	Compare to First Survey Set	Acton Research Assessment
Post Action Research student perspectives	Student Surveys	Compare to first Survey Set	X

Participants

Forty-three grade eleven students took part in the study. Among the participants 23 were female, while the remaining 20 were males. All the participants were enrolled in .2 United States history at La Salle Academy in Providence, RI; a private, Catholic, co-educational college preparatory school.

Instruments

Each student was provided with a school issued electronic device with Internet access. Those that did not have access to a device at home were provided with a device. Participants were surveyed on two occasions via surveymonkey.com, a free web based survey tool. Writing interventions were carried out on wikispaces.com, a collaborative web based writing tool. Writing scores were determined via a rubric (Appendix C) that was made available to students at the time of the first writing assignment earlier in the semester. The introduction of the writing rubric was introduced well before the commencement of the research project.

Results

Pre-Intervention Survey Results

Data collection began with student surveys that provided baseline data. Surveys were used to indicate self-efficacy about their writing, student perspectives on what their biggest challenges (spelling, grammar, clarity) were in their writing, as well as student awareness of digital writing tools. Student awareness of digital writing tools was included in the initial survey in order to direct the instructor as to where he could begin the implementation of wikispaces.com.

Surveys provided a great deal of data related to student perspectives of their writing ability and self-efficacy. Students were asked to identify the level of their English class, Figure One shows that of the 43 participants, 37 (86%) are currently enrolled in .2 English, six students,(14%) are in honors English. Of the six students in honors, three described themselves as “exceptional writers” while the other three honors students described themselves as “above average”.

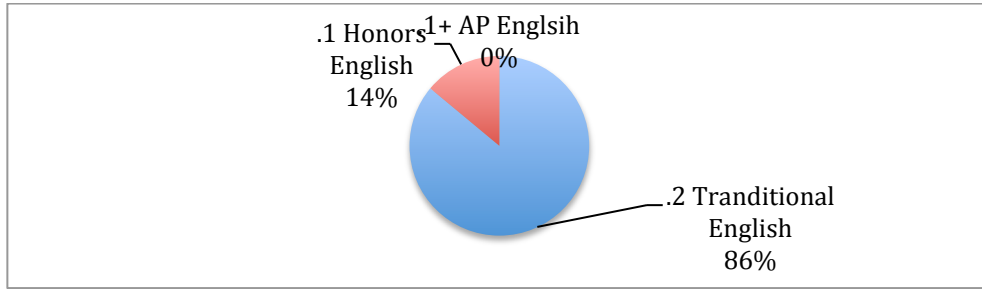


Figure One: Distribution of Participants and Their English Level. An overwhelming number of participants are enrolled in .2 English classes.

The survey also asked students to identify their current perception of writing ability. Figure two shows that 20 described themselves as “above average” or better. Five described themselves as below average or worse. The data collected seemingly indicates that before the interventions take place, a majority of them already view themselves as an “above average writer” or better.

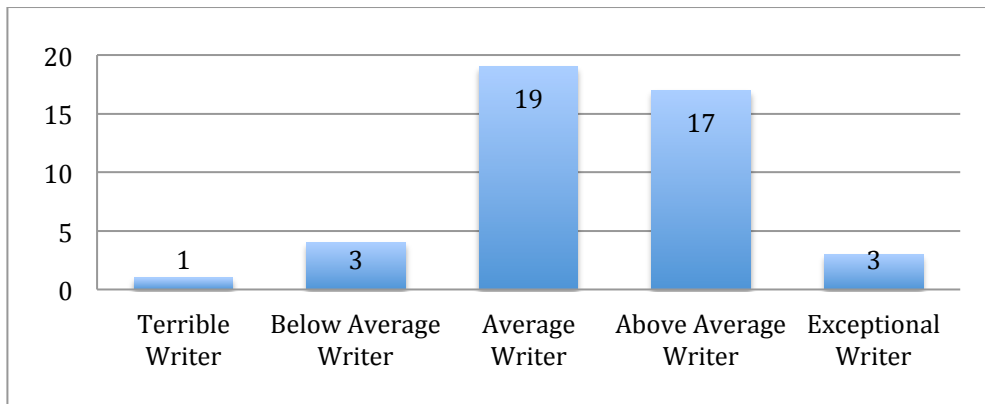


Figure 2: Student Perspective on Current Writing Ability. Almost half of the Participants describe themselves as “Above Average” or better.

Students were also surveyed on which areas of writing they have the most difficult time with. Within the survey, students were asked, “When you write which of the following areas do you struggle with the most?” As seen in Figure Three, most indicated that spelling is their most troublesome area of writing, followed by “grammar.” (Figure 2.)

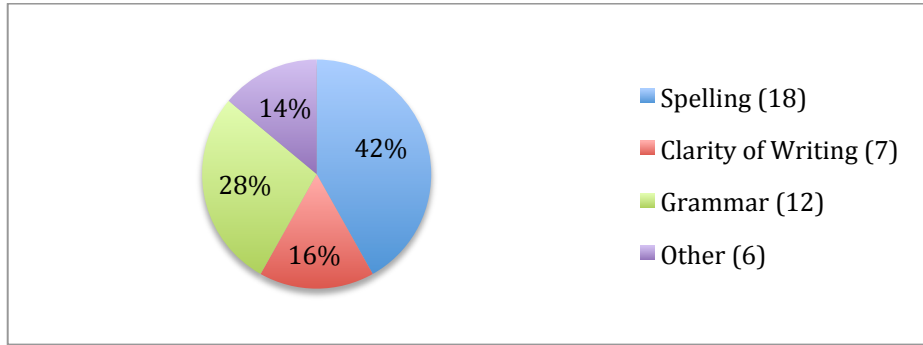


Figure 3: Student Perceptions of Greatest Weakness. Students indicated that spelling and grammar were identified as the greatest weakness in their writing.

The fact that student surveys identify “spelling” and “grammar” as the major trouble areas for student writing seemingly support the lower PSAT scores among .2 students. The College Board PSAT uses questions that determine if students can identify spelling, grammar and structural mistakes in sentences. Therefore, there is a direct correlation between the results of PSAT data, and the students’ identification of spelling and grammar as major trouble spot in their writing.

Students were also asked to identify their audience when authoring a piece for school. Students were asked, “When you write for school, whom do you perceive as the intended audience?” Figure four shows that most of the 29 students identified the teacher as their intended audience, while 11 identified both students and the teacher as the audience. Three students claimed that “anyone” is the audience for their writing.

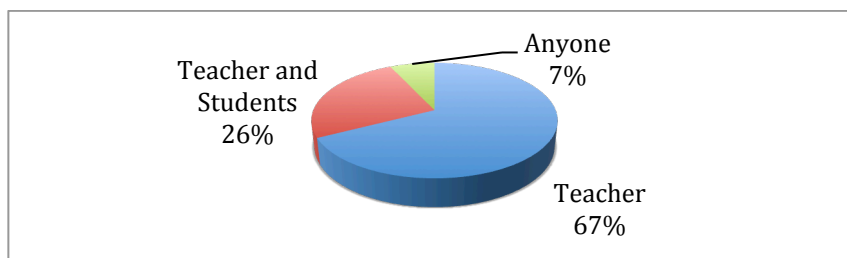


Figure 4: Who Is The Audience You Are Writing For? An overwhelming majority of student acknowledged that they perceive their audience as the teacher only.

Finally, students were asked about their awareness of digital writing tools. When asked if they knew of or had used the program wikispaces.com, 42 of the 43 students surveyed claimed that they had never heard of the program. In a follow up question, those who had heard of wikispaces.com were asked to explain how they had heard of the program, or how they had used the program. The one student that claimed to hear of the program claimed “I know of the program because I use it to look up answers for homework.” The feedback indicated that a training session was needed in order to ensure students were familiar with the software.

Pre-Intervention Writing Assignment Data

In order to accurately measure if interventions was successful, previous writing assignments were examined for the amount of errors in areas such as spelling, grammar and clarity of writing. Two sets of essays (1-2 pages samples) from previous writing exercises were examined. The amount of spelling and grammar mistakes was tabulated and recorded. The rubrics were also examined in order to the average score on the “clarity of writing” portion of the essays.

All the mistakes were tabulated and a simple average was created in order to show how many spelling and grammar errors were made per essay. The same method was also used to determine averages scores on “clarity of writing.” Figure Five shows the results of data collected. After a review of the 43 essays revealed that students made an average of 4.3 spelling mistakes, 6.3 grammatical errors on the first set of essays. The second set of 43 essays revealed and average of 4.2 spelling mistakes and 6.5 grammatical errors. In terms of clarity of writing, the same set of essays were examined again and the instructor tabulated the average score students received on the area of “clarity of writing” as it is

found in their writing rubric (Appendix C). On a scale of 1-5, with a score of five being the best score, students averaged a 2.1 in clarity of writing on assignments. (Figure 5).

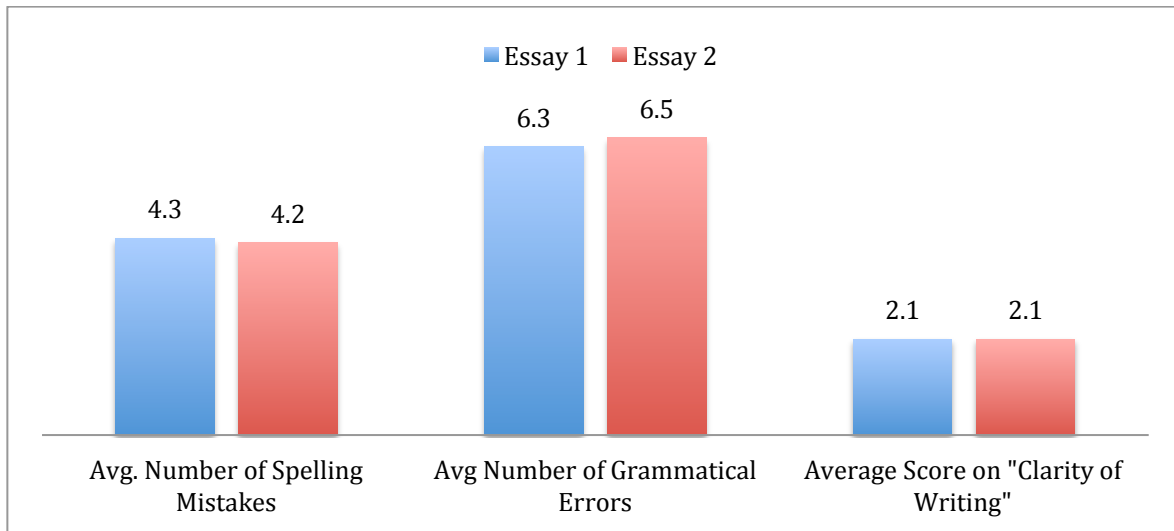


Figure 5: Average Amount of Errors and Scores on Previous Essays. Scores showed that students had issues with spelling, grammar and lack clarity in their writing.

In general, spelling did not substantially improve, and there was a slight increase in the amount of grammatical errors on the second essay. The simple average helped to establish more baseline data that can measure the amount of progress.

Findings of Wikispaces Intervention One

The first intervention of wikispaces produced results that fell in line with the two essays that were used as baseline data. Students showed a slight reduction in spelling errors and reduced the average number to 4.1 per student on the first wikispaces.com intervention. This represents a slight improvement from the first two essays that were scored, when students’ averaged 4.3 mistakes on essay one, and 4.2 on essay two.

Participants also showed a slight improvement in the number of grammatical errors by the end of the first intervention of wikispaces. Essay one revealed an average of 6.4 grammatical errors, while essay two revealed a slight

increase in errors to average of 6.5 grammatical errors. However, by the completion of the first intervention of wikispaces, the average number of grammatical errors had decreased to an average of 6.2 errors across the 43 students.

Clarity of writing also seemed to improve as a result of the first intervention. Previous essays revealed a score of 2.1 out of 5 on both of pre-intervention essays rubrics. However, as a result of the intervention, there was a slight increase in the score to a 2.4. The end of the first intervention marked the first occasion in which student writing has improved in the area of clarity of writing. It is equally important to note that at the end of the first intervention, students had shown slight improvement in their writing. The first intervention was a mild success. Students demonstrated minor improvements in the areas of spelling, grammar and clarity, yet failed to make significant progress in a reduction of grammatical errors.

Findings of Wikispaces Intervention Number Two

By the time the second intervention was completed, students had shown greater improvement. Using the same method of tabulating errors and determining a simple average across the 43 students, it was determined that the number of spelling errors had decreased by a fairly substantial amount. By the end of the second intervention, the amount of spelling errors had decreased to an average of 3.2 across the 43 students in the study. The average amount of spelling errors dropped from an average of 4.1 errors on the first intervention to 3.2 at the conclusion of the second intervention.

Although there was a substantial reduction in the number of spelling errors, the amount of grammatical errors was not commensurate with the reduction in spelling errors. By the completion of the second intervention, the average number of grammatical errors

had decreased to 6.0. This figure represents in improvement from an average of 6.2 grammatical errors to 6.0 grammatical errors.

Perhaps the most encouraging gain came in the area of clarity of writing. The average score on the writing rubric section rose from a 2.4 to a 3.3, a rather modest gain among the students in the study.

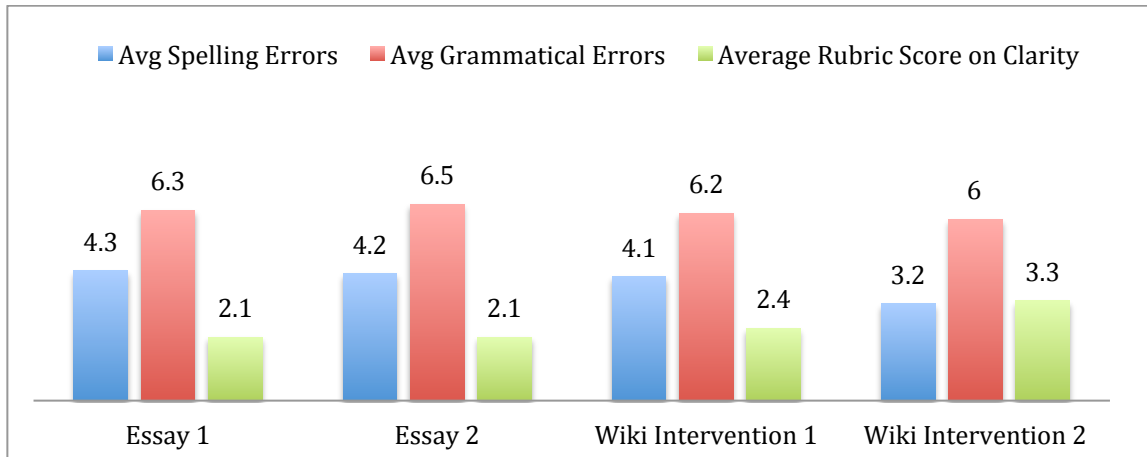


Figure 6: Student Progress Through Interventions: The figure indicates that by the end of the intervention, students showed improvement, particularly in clarity of writing.

Exit Survey Results

At the end of the second intervention, students were asked to engage in another survey. The exit survey measured in what area, if any, they felt they had improved and; whether or not the use of wikispaces.com helped to improve their self-efficacy. Students revealed some surprising results in the exit surveys.

Students were first asked to identify the area in which you improved their writing skills. Figure 7 reveals that most of the students felt that as a result of the two interventions, they had improved in at least one of the three areas measured. Surprisingly, just over 1/3 of the participants felt that they had improved in all areas measured, while

nine of the participants felt that there was no improvement. It is important to note that two students did not take the survey due to absence.

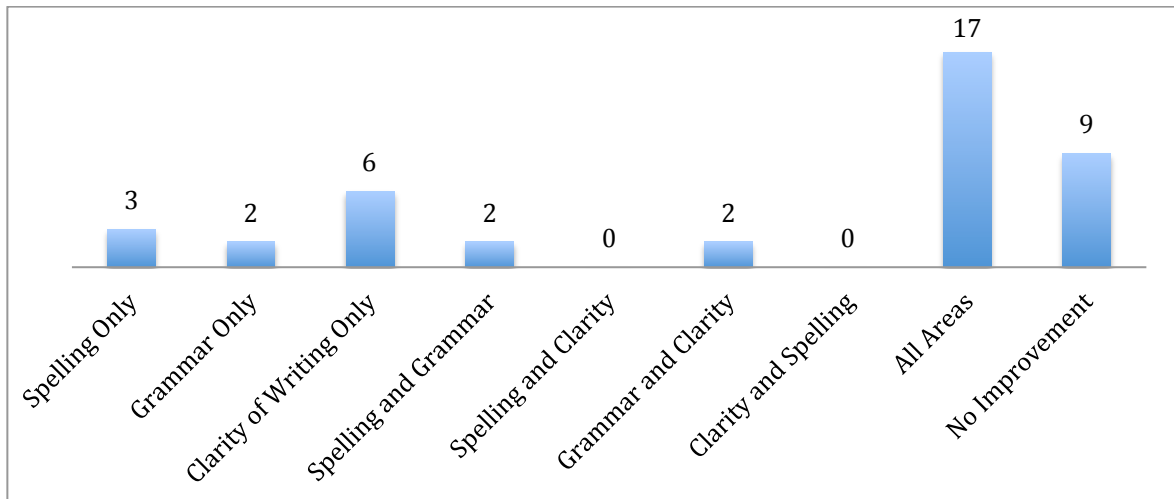


Figure 7: Student Feedback on Areas of Improvement. Many students felt that as a result of the wikispaces.com intervention, their writing improved in all three areas measured.

Exit surveys revealed interesting thoughts about self-efficacy and student writing as a result of the interventions. Students were asked about the impact of interventions on self-efficacy related to their writing ability. Figure Eight revealed that most of the students felt as though the interventions improved their self-efficacy in some way. Although the impact was slight for most, there was still a positive influence on the students.

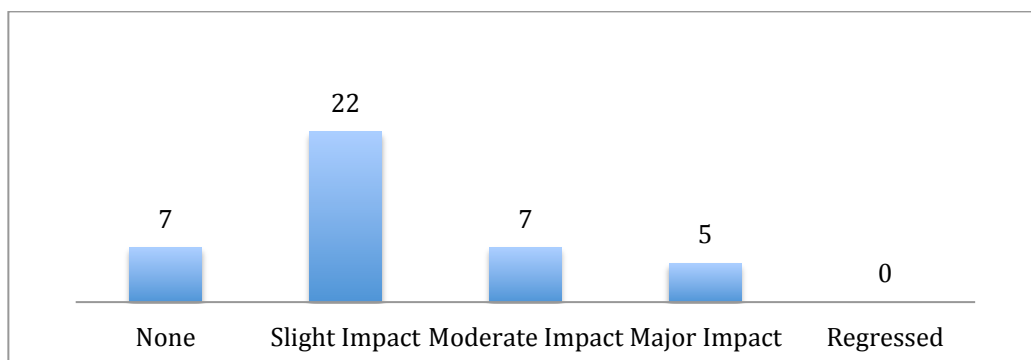


Figure 8: Impact of Interventions on Self-Efficacy. Students showed a positive response to the interventions and generally feel better about their writing ability.

However, exit surveys also revealed interesting data about student perspectives on their writing ability. Whereas 20 of the students identified themselves as an “above average” writer before the intervention, there were some changes in student perspectives of writing ability. Students were asked to compare their pre-intervention perspective of writing ability and their post-intervention perspective of their writing ability. Figure 9 shows that more students changed their perspectives and viewed themselves as an “average writer.” While this seems to be in conflict with the increase in self-efficacy, students followed up in reflective writing. Student comments and reasons for this contradiction are addressed in the “Discussion of the Results” section.

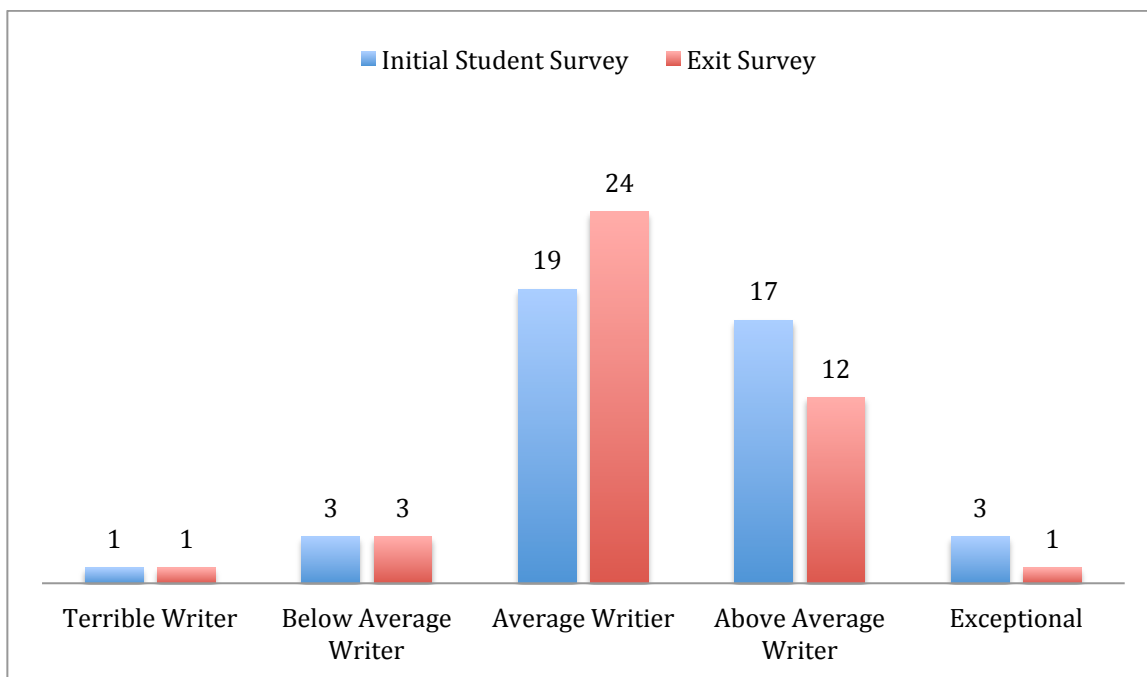


Figure 9: Post-Intervention Perspectives on Writing Ability. Although students claimed an increase in self-efficacy, there was a slight drop when it came to their perception on writing ability.

Overall, the data revealed several bits of relevant information. First, students struggled with simple conventions of writing. Spelling, grammar and clarity are major issues among the students. Writing samples and PSAT scores support these claims. It

should be noted that the data indicates that students improved in spelling and clarity of writing during the interventions, yet failed to make notable gains in the area of grammar.

Discussion of the Findings

The data collected through PSAT scores, previous writing assignments, student surveys and interventions provided interesting insight. Baseline data clearly shows that .2 students when compared to honors and AP students, exhibit lower writing scores on the PSAT. Across the three levels of students there are clear differences in writing ability.

Student surveys demonstrate some interesting data when it comes to student perspectives of writing and how students engage in the writing process. Most students indicated through surveys that the biggest challenge in their writing was correct spelling. However, when scores were tabulated on previous writing assignments, it was determined that most of the errors were grammatical errors, not spelling. There are several reasons as to why students do not recognize that grammar is a bigger issue than. One could research for reasons why this is the case. Such a finding is not relevant to the research, but is worthy of consideration in future research.

Perhaps the most interesting developments in data collection came from the reflective feedback by students. As mentioned earlier, most students claimed that there was a greater feeling of self-efficacy in regard to their writing after the writing interventions. However, when asked about their perspectives of their writing after the interventions, there was a noticeable drop student perspective on writing. This is easily explained in student responses in reflective feedback.

Many students offered key responses about student perspectives. One male student, who identified himself as a .2 student claimed "At the start of the exercise I felt pretty good

about my writing. When someone else started proofreading my work I found more errors and realized that I am not as good as I thought.” A female student, also a .2 student noted “I thought I was a good writer until my proofreading partner pointed out my mistakes and made fun of my writing. She really changed my mind.” Similar feedback came from honors students. One unidentified student wrote “As an honors student I was somewhat ashamed when I saw the mistakes I was making. When someone else read my work they easily pointed out my mistakes.”

Although the aforementioned feedback explains why some students changed their perspectives, not all felt as though their perspectives changed. A student claimed, “The person proofreading didn’t know what they were doing. He made it a personal attack on me, that’s why my scores were what they were.” Although there may be some validity to the student’s claims, ultimately the scores were not tabulated by students, thereby weakening the claims of the student. Essentially, students came to realize that their perception of their writing was inflated. Numerous students claimed that they had a false sense of how good they were and their responses validate the data. There are multiple reasons why this may be and is also deserving of future research.

Reflective responses also offered the opportunity to explain why their writing improved, remained the same, or got worse. Most of the responses were centered on one idea; student work was visible to others, so they took more care in their writing. Hakeem, a .2 student noted, “Once I knew people could see what I was writing, I was more careful about spelling and other stuff. I didn’t want to look bad in front of others.” Christina wrote, “It was weird to see how my work was on the computer screen of the person next to me. I made a lot of mistakes and didn’t want to do that again. I was kind of embarrassed. The

next time I was way more careful of what I was doing.” Finally, a student wrote, “When I realized all the kids in Mr. McVey’s class could read what I did on the wikispaces, I decided that I had to really be careful and make sure my spelling was correct and my writing made sense.”

The results of the exit surveys tie closely with previous literature. Gardner (2005) claimed that as students used digital writing and publishing tools, they were sharing their writing more and more. As a result, he noticed that the overall clarity and quality of student work had improved. Student feedback also echoed the sentiment of Lin and Yang (2011) and Tharp (2010) in that once students realized their work was published, they were more aware of their audience and took more pride in their work. The interventions in this research project yielded similar results to much of the literature, as evidenced by student feedback and improved scores.

While the statistical data supports that students improved, reflection is perhaps the most telling as to why it worked. Through their responses, it is clear that students improved their writing because other people could see their work, almost immediately after it was written. Perhaps this is why there were substantial gains between intervention one and two. Once they realized they were being published, they took greater care in their work. Essentially, the data supports the hypothesis that “If students engage in the use digital writing and publishing tools, then they will reduce the number of grammatical and spelling errors, and improve the clarity of their writing and subsequently increase self-efficacy as it relates to writing.”

Limitations of the Research

Although the data supports the hypothesis, there are some limitations with the research. Perhaps the greatest limitation was the amount of interventions. Initially, there was a minimum of three interventions planned. Unfortunately a serious hurricane disrupted the school schedule and cancelled several days of school and left students without power at home. Several professional days were also planned and disrupted the school schedule as well. Due to time constraints, the number of interventions had to be reduced to two.

A possible limitation could be the use of the writing rubric. Students have used the rubric from the first writing assignment of the year. It could be argued that improvements in writing could be linked to students' familiarity with the rubric. While it is possible that students adjusted to the rubric, student feedback did not indicate anything that would support such a claim.

Another minor limitation was the student sample. Ideally, the research would take place with a greater number of students over a longer period of time. Doing so would lend greater validity to the data and further support the findings.

Future Research

While the wiki interventions yielded some positive results, specifically in clarity of writing and a reduced number of spelling mistakes, it is unclear why students failed to make progress in the area of grammar. It is clear that the grade eleven students that participated in the study are unaware of the basic conventions of grammar. Future research should examine why students are unaware of the basic conventions of grammar.

Results also indicated that students had an inflated perspective of their writing ability. It is reasonable to question why so many students had an inflated sense of writing ability. Future research can also examine why student perspectives on writing ability were inflated.

Action Plan

The use of digital writing tools, specifically wikispaces, produced positive results among the students. Data shows clear improvements in the areas of spelling and clarity of writing, as well as increased self-efficacy among the participants. However, students did not make substantial gains in the area of grammar. Based on the results of two essays written and assessed before the writing interventions, as well as the findings of the two wikispaces.com interventions; students failed to show significant improvement in the area of grammar. Based on the trends in the research, it can be assumed that if the interventions continued, there would have been substantial improvement over time. However, the results should be used to implement wider change over the school curriculum.

In order to make gains in student writing, particularly grammar, the following actions will take place. The results of the research will be presented to the head of the English Department, the Vice-Principal of Academics and, the La Salle Academy Academic Council. By presenting the findings to the appropriate people, there is a chance to make an immediate impact on student writing. The rationale for this is that if there is a greater emphasis on grammar as a part of the writing and proofreading process, students might make immediate improvements in the area of grammar.

The presentation of results might make an immediate impact, however, there are issues that run beyond the control of teachers and administrators at La Salle academy.

Somewhere along the line there is a gap in how students are taught about the writing process. It is not clear whether the gap comes in the elementary or middle years, but it is apparent that the grade eleven students in this research project are unaware of some of the rules of grammar. The major issue that presents a problem is that La Salle Academy is private Catholic school that receives students from all school districts in Rhode Island, as well as some from Massachusetts and Connecticut. La Salle has to deal with students coming from districts that have various curricula; there is no continuity among incoming students. Therefore, it is virtually impossible for La Salle to implement comprehensive changes to the curricula of other school districts.

Changes can be made within the La Salle Academy curriculum that may address issues revealed through Action Research. In conjunction with the Vice-Principal of Academics, the English department chairperson and the Academic Council, the freshman curriculum can be changed from a strictly literature-based program, into a combination of writing and literature. It should not be construed to mean that La Salle's English department does not include writing as part of their program. The Action Plan simply calls for a greater focus on the conventions of writing in the ninth grade curriculum, along with subsequent changes and adaptations to be made to the curriculum as students make their way through the La Salle. Changes should begin in the English department curriculum and expand into other content areas over time. The goal is to improve and develop writing skills of the student, across the entire curriculum. Writing is not and should be restricted to English classes. As the new curriculum is adapted and changes, writing skills should be evident in all content areas.

In order to address issue in writing and assess student progress, new rubrics and benchmarks should be developed. In conjunction with the English department and Academic Council, and with the approval of the Vice Principal of Academics, standard rubrics will be created to address the issues that were highlighted in the results of the research. Rubrics and benchmarks should be changed as students progress through the curriculum over the years.

The plans will be implemented in phases. Immediate action can take place if teachers are aware of the results and focus on the conventions of grammar when assessing student writing. The remainder of the plan will take several months to implement. Planning a new curriculum can commence during the current school year and over the summer. Implementation of the plan can begin with the next group of grade nine students. Based on the results of student scores on writing samples and teacher feedback, the curriculum can be adapted for subsequent grade nine students. The curriculum for grade ten, eleven and twelve should also change as the initial group of ninth grade students transition through La Salle. Evaluation of student progress within curriculum should take place each semester in order to reflect and adapt along the way.

The resources needed for implementation of the Action Plan are minimal. Time is essential as the changes proposed are monumental and will take a substantial amount of time and energy. Monetary resources are minimal as well, as there are several people with expertise in curriculum development employed at La Salle; therefore there is no need to hire an outside consultant when rewriting the curriculum.

Overall, there is a solid plan in place to address the results of the research. Through the development of a new curriculum and standard writing rubrics that will assess student

progress and learning, La Salle can effectively teach students about the conventions of grammar and improve student writing as a whole. Although the process is lengthy and will take time to implement, it can lead to better results.

Conclusion

The results of action research yielded fairly positive results. Through exit surveys, an overwhelming majority of students showed that the two writing interventions had a positive impact on their self-efficacy as it relates to their writing. During the course of two interventions, students successfully lowered the amount of spelling errors and also made significant progress in the area of clarity of writing. However, students failed to make a marked improvement in the area of grammar. It is unclear exactly why students failed to reduce the number of grammatical errors during the wikispaces.com interventions. Future research could be conducted on student awareness of the conventions of grammar, possibly producing an answer as to why student failed to reduce the number of grammatical errors. The Action Plan mentioned in this written report will address the issue of poor grammar skills, but takes a great deal of time, effort and several changes to the English/Language Arts curriculum at La Salle Academy. Since La Salle Academy is a private school that falls outside of the jurisdiction of the Rhode Island Department of Education, it is impossible to rely on public school districts to make changes to their curriculum. Therefore, it is imperative that La Salle Academy takes the necessary steps to improve how it teaches the conventions of grammar and the writing process to all students in all grades and levels.

Overall, the implementation of digital writing tools was a success. Students improved their writing in several areas. However, grammar is still an issue that needs to

be addressed. Through collaboration among departments and with the support of administration and fellow colleagues, a comprehensive curriculum can be created in order to address the issues revealed in this research and report.

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Appendix A
Pre-Intervention Survey Questions

1. What sex are you?
 - Male
 - Female

2. Please identify the point level of your English class.
 - AP (.1+)
 - Honors (.1)
 - Traditional (.2)

3. Which of the following describes how you perceive yourself as a writer?
 - I am a terrible writer
 - I am a below average writer
 - I am an average writer
 - I am an above average writer
 - I am an exceptional writer

4. When you write, which of the following areas do you struggle with the most?
 - Spelling
 - Grammar
 - Clarity of writing
 - Other

5. When you write for school, whom do you perceive as the intended audience?
 - The teacher only
 - Fellow students only
 - Teachers and Students
 - Anyone is the audience

6. Have you ever heard of a program called “wikispaces.com?”
 - Yes
 - No

7. In the space provided please explain your knowledge (if any) of “wikispaces.com.”

Appendix B Exit Survey Questions

1. As a result of using wikispaces.com as a digital writing tool, please identify the areas in which you improved your writing skills. Check all that apply.
 - Spelling
 - Grammar
 - Clarity of writing
 - No improvement
2. To what extent did the use of wikispaces.com impact your level of self-efficacy, as it relates to your writing ability?
 - None
 - Slight impact
 - Moderate impact
 - Major impact
 - Regressed
3. Before we began using wikispace.com., you were asked to identify how you perceived yourself as a writer. Please identify how you perceived yourself as a writer before the intervention of wikispaces.com.
 - Terrible writer
 - Below average writer
 - Average writer
 - Above average writer
 - Exceptional writer
4. Now that we have completed two interventions using wikispaces.com, how would you now describe your perception of your writing ability?
 - I am a terrible writer
 - I am a below average writer
 - I am an average writer
 - I am an above average writer
 - I am an exceptional writer
5. In the space below, please offer some reflective feedback about why you might have changed your perception of your writing ability.
6. Please provide feedback on the use of wikispaces.com as a digital writing tool.
7. In the space below, please take the time to offer any reflective feedback on the use of wikispaces.com, the writing process, issues of self-efficacy, or any other feedback you would like to provide.

**Appendix C
Writing Rubric**

Category	Exceptional 4.6-5 points	Strong 3-4.5 points	Satisfactory 1.6 -3 points	Needs Improvement 0-1.5 points
Spelling	No spelling mistakes	1-2 spelling errors	3-5 spelling errors	More than 5 spelling errors
Grammar	Students uses proper grammar throughout the composition	1-2 errors in grammar.	3-5 grammatical errors	More than five errors in grammar.
Structure	Excellent structure, clearly organized, Clear and logical flow to composition.	Above average organization, some issues with flow of composition, Partially developed elements (intro, support conclusions) of a complete composition	Average organization, lacks flow, Minimal evidence or scattered evidence of major elements.	No organization, no flow to writing, no evidence or attempt at structured essay.
Clarity	Clear Thesis and direction of writing. Well organized. Points are emphasized and backed up or supported accordingly.	Thesis is evident and fairly clear. Clarity in writing throughout a majority of the composition. Point of author is seen in writing and backed up with some evidence.	Thesis is present but lacks clarity. Points are vague and not properly supported. Author's points are also vague and open to interpretation and criticism. Arguments may be easily deconstructed.	No thesis, lacks clarity. No evidence to back up points. Point of author is unclear and arguments are nonexistent and/or easily deconstructed.

