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To Type or Not to Type:
That is the Question

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Abstract

This qualitative research study documented reported and observed experiences of six, third grade students using Co:Writer in the classroom to complete writing assignments. This study was conducted in an elementary charter school with about 320 students from seventeen different school districts. The six students that participated in my research study all have Individualized Education Plans (IEPs) for reading. My students receive 30 minutes of pull out reading instruction four days per week. The students practiced increasing typing speeds through an application on the iPad called Car Typing Racers. Students created graphic organizers as well as completed writing assignments using an application on the iPad called Co:Writer. Co:Writer uses predictive text as well as text-to-speech options. Students created several opinion writing pieces. Students completed a graphic organizer with a topic sentence, three supporting details, and a conclusion sentence on Co:Writer. From the graphic organizers, students generated their opinion writing pieces. Throughout the study, the teacher collected data through participant observation, student work, surveys, and student interviews. The data collected through this study suggests that students writing achievement and motivation improved through the use of Co:Writer and graphic organizers.

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Researchers Stance

“Fair doesn’t mean giving every child the same thing, it means giving every child what they need.”

-Rick Lavoie

Like most children, I hated writing throughout elementary school and most of middle school because I found it too quarrelsome. I struggled a lot with spelling and using the correct letter orientation. When I was in kindergarten, I broke my right arm (my dominant arm), and therefore I needed to learn how to write with my left hand when I was just learning how to write my letters. After my arm healed, I went back to writing with my right hand, and I started to write all of my letters backwards and mirror-imaged. I was in third grade before I was able to distinguish between my written b’s and d’s. It was embarrassing to be eight years old and still mix up my letters. To this day, I get made fun of for writing my best friend’s name as “Redecka” instead of “Rebecka” on an invitation to my birthday party in third grade.

Spelling never got easier for me though, and to this day, I hate handwriting assignments because I am very self-conscious about my spelling. As a student, when I hand wrote essays and I didn’t know how to spell a word I wanted to use, I simply chose a synonym because I didn’t want to be embarrassed for spelling a word wrong. One of the worst feelings ever was getting a paper back from a teacher with red marks all over the place with all of the words that I

had spelled incorrectly. Things started to turn around in middle school and high school when I learned how to type efficiently. Typing made everything so much easier, and writing became less frustrating. The editing and revising stage could all be done in Microsoft Word. This meant no more writing, rewriting, and rewriting the same paper to correct all of my mistakes. The spell check function became my best friend, and I was able to use the words I wanted to use because the program helped me to correct my spelling mistakes. Using the computer also allowed me to write papers at a faster pace, which made the whole process easier for me.

Once I began teaching, I realized that a lot of students, especially special education students, despised writing. I started to hear the same complaints from students over and over again:

“My hand hurts.”

“How do you spell this?”

“My pencil’s not sharp enough.”

“I don’t have an eraser!”

“My handwriting is too messy.”

A lot of these complaints would diminish if students were able to use technology to write their papers instead of using pencil and paper. A lot of the special education students that I have worked with have just labeled themselves as bad writers, and they do whatever they can to get out of doing the assignment. I

have seen students cry, run out into the hallway, wander aimlessly around the classroom, or come up with any excuse to leave the classroom. They lack motivation and self-confidence to write using pencil and paper. I think that using technology will motivate these students to complete their assignments.

A few years ago, I was inspired to have my students use a computer to write after viewing a video called “Carly’s Café”. Carly is a teenaged girl who has been diagnosed with autism. She was considered non-verbal until the day she got her hands on the keyboard of a computer and typed “help.” After weeks of her parents working with her, she was able to articulate her thoughts through typing on the computer. I was in complete awe of what she typed because her words were so moving and eye-opening of what it is like to live with autism. Carly was able to find her voice.

All students are different, and teachers need to become aware of these differences. Differentiation of instruction allows students to meet their full potential. There are so many means for students to express their knowledge. For my mini-action research project I conducted during the 2013-2014 school year, I worked with two different special education students who hated writing with a passion. The one student was in third grade and the other student was in fourth grade. Both of these students became very defiant when presented with a writing assignment. Sometimes, they would just lie on the floor instead of working on their writing assignment. The fourth grader became easily fatigued because of his

low-muscle tone, so I understood why he didn't like to write with a pencil and paper. The third grader was just unmotivated to write using pencil and paper. I needed to find a way to support these students to complete their writing assignments. The third grader began to use iPad notes to complete his writing, and he enjoyed the idea of getting to use the iPad. Although some of his writing responses were quite brief, he started writing on his own. The fourth grader began to use a laptop to complete any assignment that required a written response. At first, he resisted the idea of using the computer, but after a couple weeks of trial and error, he started to write just for fun on the computer. Not only was he doing it by himself, he was motivated and confident enough to write for pleasure.

As time passes, technology is becoming more and more a part of everyone's lives including children. It seems that children are almost born with an innate sense on how to use tools such as iPads and iPhones. My cousin's two year old daughter knows how to use an iPhone better than my grandfather. She is able to unlock the phone, find her games, and play her games without a problem. So even though many of my students already have a couple years of experience using an iPad or computer, I want to provide these students with exposure to typing on the computer and iPad. Many of my students have only used these types of devices to play some type of game. Through my research, I have realized that providing these students with an iPad or a computer is not going to instantly make them a better writer. Students need to have explicit instruction on how to use the

tools as well as even how to type properly. When students are a “peck and find” typer, they can easily lose their train of thought by taking too long to type one word, which can lead to frustration.

Therefore, my action researcher question is: What are the observed behaviors and reported experiences of special education third grade students in writing when teaching and learning include the use of an iPad to increase students’ motivation and achievement in writing? I am interested in learning about Don Johnston Inc.’s iPad application, Co:Writer, and its effectiveness for my students to use in order to complete their writing assignments. My students from two years ago began to write by themselves, but they were just writing the bare minimum to get by on school assignments. I want to help these special education students become more successful in the classroom. My anticipated outcomes might not come true at the end of my study, and I need to be accepting of that idea. For some of my students, using word processing might not be the motivation they need as well as means for them to complete writing assignments. I am open to students’ opinions on the different features of word processing, such as which features they find helpful and which ones are more of a hindrance.

I want my students to reach their full potential and not be held back because of things like handwriting and spelling because those are arbitrary skills when it comes to writing. What really matters in writing is the content, focus, style, and organization. My school has implemented the Lucy Calkins’ writing

program for this school year with the help of the Lehigh Valley Writing Project. With the implementation of this program, I hope that there is a change in teachers' perceptions of what makes a student a bad writer versus a great writer. Writing is not all about correct spelling, grammar, and punctuation. Lucy Calkins' program emphasizes that all students are writers. I hope that once my students begin typing assignments on the iPad, as well as using Lucy Calkins' program in the regular education classroom, that they start to see themselves as writers and become proud of their work.

Review of the Literature

In 2003, an evaluation completed by the National Assessment of Education “suggests that only one out of every five high school seniors acquires the required writing knowledge and skills” (Santangelo, Harris, & Graham, 2008, p. 78). Writing is an area of difficulty for many students, especially those students who have been diagnosed with a learning disability (Ashburner, Ziviani, & Pennington, 2012). Mezei and Heller (2005), attribute students’ weaknesses in written expression to “poor phonological awareness, receptive and expressive language deficits, and deficits in short term memory (p. 94). Students with learning disabilities have low levels of writing productivity. They have weak mechanical skills such as spelling and handwriting as well as difficulties in planning, organizing, and editing their written pieces (Lewis, Graves, Ashton & Kieley, 1998). Often students with Individualized Education Plans (IEPs) become discouraged through the writing process because of sloppy handwriting and the lack of confidence to correctly spell words. These handwriting difficulties lead to a detrimental impact on the quality of students’ written work (Ashburner et al., 2012). When creating a writing piece with pencil and paper, students are required to use visual perception, finger function, and visual motor integration. On the other hand, using a keyboard requires a different subset of skills including

bilateral coordination, kinesthetic ability, visual and motor memory skills, and eye movement. (Ashburner et al., 2012).

The fact that keyboard requires a different set of subset of skills suggests there are two major approaches to teaching students with learning disabilities the writing process. The first approach is modifying and adapting the writing curriculum for students by teaching them specific writing strategies. The second major approach is using word processing to improve writing skills (Lewis et al., 1998). In the study by Lewis et al. (1998), they used a combination of word processing as well as a writing process strategy. Lewis et al. found that using a word prediction program is the most effective way to increase text entry speed for students with a learning disability. Roger and Case-Smith (2002) found that “75% of the 20 slowest handwriters in a group of 40 typically developing children achieved faster text production using keyboarding than handwriting” (Ashburner et al., 2012, p. 34). Therefore, using word processing has the potential to increase students’ written expression, especially because handwriting and typing require a different subset of skills (Ashburner et al., 2012). According to Evmenova, Graff, Jerome, & Behrmann (2010), “students may experience difficulties with a variety of aspects, including mechanics and written content expression; however, computer-related technologies can enable students to bypass their deficits and support them through all stages of the writing process” (p. 170).

Students also need to be involved in a well-designed writing program where students are writing about topics that are relevant and meaningful to them (MacArthur, 2009). Teachers clearly have an important role to play throughout the writing process. When students are using computers, teachers have a different role to play to support student learning from the prewriting stage all the way to the final product (Van Leeuwen & Gabriel, 2007).

Word Processing with Co:Writer

There are many advantages to using a word-processing program with students. Some of the advantages include editing, re-evaluation of work, and collaborative writing (Ashburner et al., 2012). Other features include text-to-speech, speech-to-text, and organizational software (Forgrave, 2002). Programs like word prediction and a thesaurus are also available to help students throughout the writing process (Montgomery & Marks, 2006). These features make editing papers less of a burden because students no longer need to go through the gruesome task of rewriting the entire paper (Montgomery & Marks, 2006). All of these functions are available to help the students become better writers (Forgrave, 2002). Programs like Co:Writer use word prediction, text-to-speech, and editing features similar to word processing (Lewis et al., 1998).

Writing Legibility. Students with learning disabilities become discouraged throughout the writing process because of illegible handwriting and their lack of confidence in spelling skills (Ashburner, Ziviani, & Pennington,

2012). While typing with Co:Writer, students with learning disabilities are able to look over their writing and find errors because their writing is legible compared to their illegible handwritten pieces (Lewis et al., 1998). Mirenda, Turolfo, & McAvoy (2006), examined the effects of using Co:Writer and word processing to increase the legibility of student writing. They defined illegible words as, “a group of letters that cannot be recognized as a single particular word outside of the context of the phrase or sentence” (p. 7). When handwriting, students produced 70.83 percent legible words. Using only word processing, students produced 92.14 percent legible words. When using word processing with Co:Writer, students had 96.94 percent legible words. Therefore, using Co:Writer resulted in more legible writing samples compared to when students hand wrote assignments (Mirenda et al, 2006).

Word Prediction Program. Based on a study conducted by Lewis et al. (1998), using a word prediction program is the most effective way to increase text entry speech for students with a learning disability. Word Prediction may have more positive effects on students with language and learning disabilities compared to a computerized spell checker, which has minimal effectiveness for these students (Mezei & Heller, 2005). Using a Word Prediction program decreases the number of keystrokes students need to make when writing. Students need to identify the first letter in the word and a set of words pop up on the screen. If one of those choices is the word the user wants, the user selects the

word and the program inputs the word into the writing. The user needs to continue to type the letters in the word until the word is displayed in the prediction window. It also reduces the number of keystrokes by automatically capitalizing the first word in a sentence, inserting spaces, and capitalizing most proper nouns (Mezei & Heller, 2005). Word Prediction provides students with various correctly spelled choices, which decreases the spelling demand on students during the writing process (Montgomery & Marks, 2006). In a study conducted by MacArthur (2009), students were able to increase their percentage of both correctly spelled words and legibility to over ninety percent when using word prediction. Some word prediction programs allow teachers to edit the size of the dictionary as well as add specialized vocabulary to assist students in selecting the correct words for their writing (MacArthur, 2009). Evmenova et al. (2010) found that students were able to increase their spelling accuracy from 58 percent to 96 percent when using a word prediction program. Originally when using word prediction programs, students needed to correctly identify the initial letter of a word. Word prediction technology has come a long way because now it presents the writer with possible words based on phonetic spelling as well as conventional spelling. Students with learning disabilities may have more success with the newer word prediction programs than found in previous studies (Evmenova et al., 2010). Co:Writer also learns words that the user frequently types; therefore, those words will appear in the top five choices on the screen (Lewis et al., 1998).

Voice Output and Voice Recognition. Voice Output or Text-to-Speech is a great tool for students with learning disabilities to utilize to create their writing pieces. Students that have learning disabilities struggle with decoding words, but the text-to-speech program reads the words back to the students. This program reduced the frustration students experienced when decoding text because students were able to hear what they are writing (Forgrave, 2002). Also, students are able to identify more errors in their writing compared to just reading it aloud to themselves (Montgomery & Marks, 2006). In a 1998 study conducted by Lewis, et al., the researchers found that using Co:Writer with speech output actually decreases students' typing speed. When students are using text-to-speech, they are able to have the program read any unfamiliar words. Therefore, this takes time and may slow down students' typing speeds. On the other hand, it improves students' writing in other aspects. For this study, students were administered a pretest as well as a posttest. Students that used word prediction with speech made an average of 13.7 nonreal-word spelling errors on the pretest per 100 words. On the posttest, this number decreased to 5.8 errors per 100 words (Lewis et al, 1998).

Voice recognition software or Speech-to-Text, allows students to get all of their ideas down before they are forgotten due to slow typing or handwriting speeds (Forgrave, 2002). Using the voice recognition software decreases the

number of errors in students' writing, which leads to higher quality essays (MacArthur, 2009).

Editing Features. Students need to learn how to use various revising and editing strategies to be able to utilize them effectively (MacArthur, 2009).

Students have access to spell checker while completing their writing on a word processor. Spell checker increases students' confidence as well as independence throughout the writing process (Montgomery & Marks, 2006).

Dave and Russell (2010) found that students that use a word-processor to create their writing pieces were making only local revisions rather than global revisions. Therefore, students were only using spell checker and making small grammar changes and not necessarily making their writing better by revising their sentences and moving text around. Students need to be taught the writing process as well as the different features that are available on the computer (Dave & Russell, 2010).

Co:Writer also provides students with assistance when typing. It will automatically capitalize the first letter in a sentence after a period (Lewis et al., 1998). Miranda et al. (2006), found that students that used Co:Writer had a higher percentage of correct word sequences, correctly spelled words, and percentage of legible words compared to handwriting. For the study, students wrote for ten minutes using pencil and paper, word-processing, and then word-processing with Co:Writer. There were differences in the correctly spelled words. When

handwriting, students correctly spelled 67.27 percent of words and when using Co:Writer that percentage jumped to 93.46 percent. When handwriting, students had only 50.45 percent correct word sequences, whereas when using Co:Writer, students had 85.57 percent correct word sequences. This data suggests that Co:Writer may be effective in improving students' spelling accuracy (Mirenda et al, 2006).

Student and Teacher Perceptions of Co:Writer. Lewis et al. (1998), studied the effects on students' motivation when writing by hand, writing using a word processor, and writing with Co:Writer. Teachers and students in the study were asked to look at the advantages and disadvantages of using the different technology tools. One group of students used only a word prediction program and a different group used word prediction with text-to-speech. Students in both groups liked the help of Co:Writer. One student commented that using Co:Writer made writing easier and faster. Mirenda et al. (2006) also looked at student and teacher perceptions of using Co:Writer in the classroom. More than two-thirds of students believed that using Co:Writer helped them to spell better, use a variety of words, write faster, write more grammatically correct sentences, and produce neater (easier to read) work. More than half of the adults agreed with all of the student answers except for producing more correct sentences. Students and teachers agreed on the benefits of Co:Writer 70 percent to 74 percent of the time except for students producing neater or easier to read text. More than half of the

students and more than two-thirds of the teachers believed that Co:Writer helped to write more before tiring, read what they have written, and experience less frustration. Students and teachers were also asked their opinion of using Co:Writer and their preferred method of writing. The majority of students (70.8%) stated that they liked or really liked to use Co:Writer. More than half of students (60.9%) replied that they favor using Co:Writer rather than just word processing alone. Some students (16.9%) stated that they prefer to write with word processing, and 20.8 percent student said they prefer to write by hand. Nearly all of the teachers in the study (95.5%), preferred students to use Co:Writer, 4.5 percent preferred students to use word processing, and no teacher (0%) favored students handwriting (Mirenda et al.,2006).

Explicit instruction

Mini-lessons. Simply providing students the opportunity to use word-processing will not necessarily improve their writing; students need to be explicitly taught how to use the many functions that are available on the computer (MacArthur, 2009). Through mini-lessons, students can be taught how to correctly use the different features. These mini-lessons do not need to be planned out in advance, but rather they can be taught when student questions arise or based on student needs (Van Leeuwen & Gabriel, 2007). When using the Speech-to-Text function, students need to realize that some of the words may not have translated correctly. Students need to learn to carefully reread their work to look

for errors. Most importantly, students need to be taught how to speak slowly and clearly into the microphone without using filler words such as “um” and “yeah” (Forgrave, 2002). Programs like Co:Writer also have a text-to-speech function where the predicted text may be read back to the students (Evmenova et al., 2010). So when using the word prediction program, students need to be taught how to identify the initial phonemes in words in order for the program to identify what word the student is trying to spell (Montgomery & Marks, 2006). When using spell checker, students need to be aware that the program is not one hundred percent perfect. The program sometimes does not identify the word the student is trying to type because of spelling or the word is a proper noun. Spell check might not pick up a word that a student has misspelled, or identifies a correctly spelled word as incorrect. Students need to be explicitly taught how to use the program through mini-lessons. An example mini-lesson is identifying errors in a document and practice reading the various word choices (Montgomery & Marks, 2006).

Mezei and Heller (2005) examined the effect of using Co:Writer with students. Before beginning the study, students were taught how to use the different features on Co:Writer. First, the teacher modeled and demonstrated to students how to use the program. Next, students were given one hour of guided practice. During guided practice, students were taught how to select a word from the word prediction selection menu. Students picked a word they wanted to type. Students needed to type the first letter in the word, then scan the word prediction

list to see if the word choice was offered. If the word was there, they selected the word to input it into their writing. If the word was not there, they were taught how to type the second letter and read the word prediction menu. This process continued until students typed a full sentence (Mezei & Heller, 2005).

Typing Fluency. The effects that word-processing has on students' writing also depends on their typing abilities; therefore, students should be exposed to a typing program to increase their skills beginning in elementary school (MacArthur, 2009). In Evmenova et al. study (2010), students utilized a typing program called TypetoLearn 3, which provides students with interactive typing lessons. At the beginning of the study, baselines were taken on students' correct words typed per minute with the spell checker function disabled. Students in this study also used a word prediction program while typing their compositions. Therefore, students only needed to identify the first couple of letters in a word. With this program, teachers are able to set the amount of words per minute that they want students to achieve (Evmenova et al., 2010). Lewis et al. (1998) studied the effects of different types of technology in their study. The different groups used traditional paper and pencil, word processing, keyboarding, alternative keyboarding, word prediction, and word prediction with text-to-speech. The one group focused solely on increasing students' keyboarding skills by receiving typing instruction from Mavis Beacon Teaches Typing (1991). The program provided students with feedback as well as structured instruction. At the

conclusion of the study, handwriting proved to be the fastest means of written communication. When students used a keyboarding program, students were able to achieve 74 percent of handwriting speed at the posttest. Students and teachers were asked about their views of the Mavis Beacon Teaches Typing (1991). Students liked the program, but thought that the activities were too lengthy. Teachers thought the program was easy to use and liked that the program kept track of students' work. However, teachers believed that the program required a lot of supervision to ensure that students were not using the "hunt and peck" method. Eighty-eight percent of teachers would recommend the program to other teachers.

Graphic Organizers. Students with learning disabilities struggle with organizing their ideas into a comprehensive paragraph (Forgrave, 2002). The use of the graphic organizer provides students with a visual representation to support them in planning and organizing their ideas (Evmenova et al., 2010). Graphic organizers are available for students to use on the computer. Often paper graphic organizers have a limited amount of space, but the programs on the computer accommodate for new information that is added to the organizer (Forgrave, 2002).

James, Abbott, and Greenwood (2001) explicitly taught students how to use graphic organizers to improve their writing quality. Students were divided into high-performing and low-performing groups. The low-performing group contained seven students who scored one or more years below grade level in their

writing abilities. Five of these seven students were identified as having a learning disability and had an IEP. Students in the low group used a simplified graphic organizer to write a one-paragraph essay. The graphic organizer was color-coded. The topic sentence was written in green, supporting sentences were written in yellow, and the concluding sentence was written in red. Using the graphic organizers, students created a first draft that focused on varying sentence length and using a variety of words. The second draft focused on spelling and editing. Students were graded using the Six-Traits Writing Assessment Rubric, which rates students on a scale from 0 to 5 on writing conventions, fluency, word choice, voice, organization, and ideas. Students' scores in the high group, as well as the low group improved over the nine weeks of instruction. Students in the low group made more gains compared to the high group across all six writing traits. From pretest to posttest, students gained at least one point in five out the six areas. Generally, students' average scores were 4 points or above with 5 being the highest score. For Ideas and Content, the low group scored 1.9 points higher on the posttest. Students scored 2.4 points higher in organization and 2.5 points higher in conventions on the posttest. At the end of the intervention, the low group's scores were similar to the students in the high group. By using graphic organizers with the low group, students were successful because the teacher provided explicit instruction, clearly defined what good writing looks like, and provided students with concrete steps (James, Abbott, & Greenwood, 2001).

Conclusion

With technology in schools today, “[computers] have the means to build on [students’] strengths and to compensate for their weaknesses in reading and writing” (Forgrave, 2002, p. 126). Forgrave (2002) stated that, “educators need to understand how the increased use of assistive technology in the educational environment can empower students with learning disabilities to work more independently and to complete assignments that verify their true strengths and abilities“ (p. 126). When students are using word-processors they are more likely to take risks in their writing as well as produce writing that is longer in length, better quality, and has fewer mechanical errors (Montgomery & Marks, 2006). Word-processing also allows students to publish their writing in a variety of formats in order to make the writing more meaningful to the students (MacArthur, 2009).

Using programs like Co:Writer with word prediction seem to be the best approach to helping students with learning disabilities. Co:Writer had positive outcomes on writing legibility, spelling accuracy, and writing quality (Mirenda et al., 2006). In the Lewis et al. study (1998), students and teachers both liked the help of Co:Writer during the writing process. Teachers liked Co:Writer’s word prediction feature because it provides students with word choices and models for students proper spelling, spacing and capitalization. One hundred percent of the teachers in the group that used word prediction with speech would recommend

other teachers and students to use Co:Writer. One teacher said, “Kids ask to use it. Only program I’ve seen that has really helped my kids” (Lewis et al, 1998, p. 105).

Research Design and Methodology

Setting and Participants

My study took place in my small group reading class with six third graders at a charter school in Eastern Pennsylvania. The school's mission and vision is to integrate science into the curriculum through project-based learning. This charter school is unique because it serves seventeen different school districts. The majority of the school's population is from East Penn and Allentown School District. The remaining population comes from other surrounding school districts such as Upper Perkiomen and Whitehall-Coplay. Therefore, the school's population is diverse in ethnicity, background knowledge, and socioeconomic status. Although the students in my school bring their lunch every day, 18% of the students in the school are eligible for free or reduced lunches.

The six students that participated in my research study all have Individualized Education Plans (IEPs) for reading. My students receive 30 minutes of pull out reading instruction four days per week. Four out of my six students receive speech and language support and two of those four also receive occupational therapy. The students were divided into two different groups. One group had two students (1 boy and 1 girl) and the other group had four students (4 boys). Four of my students are African American and the other two students are Caucasian. Fifty percent of my students live in an urban school district and fifty

percent live in a suburban school district. Five of my students are reading on a first grade reading level and one student is reading on a second grade reading level.

Data Gathering Methods

Participant Observation

Most of my data for this research study was collected through participant observations. My research study ran from the beginning of October through the end of December. I collected data through observations for eleven weeks.

Throughout the class period, I observed my students while using the iPads to type a writing assignment (Hendricks, 2013). At the conclusion of my small group session, I typed up notes in the form of a double entry journal. Study participants are enrolled in my last two classes of the day, therefore it allowed me to reflect upon what transpired and to type up notes immediately afterwards. On the left hand column, I included factual information of what I actually observed in the classroom. In the right hand column, I reflected on what I was observing and what I have learned through these observations. According to McNiff (2013), “critical self-reflection is central” to action research (p. 23). Using a field log also allowed me to code my data. When themes emerged in the observations, I was able to code the information with themes.

Student Interviews and Surveys

Another way I collected data for my study was through student surveys and interviews. The surveys and interviews were conducted at the beginning and end of my study. The survey questions related to students' motivation for writing and how they viewed themselves as writers. Some of the questions on the survey were open-ended questions to allow students to thoroughly answer the question and not be limited to the multiple choice items that I have provided them (Hendricks, 2013). Other statements on the survey were evaluated using a Likert scale for students to rate how the statement resonates with them. The choices for the Likert scale ranked from not at all, a little, some, a lot, and a whole lot. Individual interviews were conducted during the study. This allowed for students to express their feelings about using Co:Writer on the iPad verbally, instead of typing their responses. I also utilized member checks, where I discussed my interpretations of the data with my students. Through member checks, I was able to clarify that I was interpreting answers on their surveys and interviews accurately (Hendricks, 2013). Since my study included a small sample of students, I was able to individually communicate with all of the study's participants multiple times throughout the study.

Student Artifacts

The last piece of data is student artifacts. I collected pieces of students' writing throughout the course of the study to compare how each student's writing

has changed, or has not changed, as a result of explicit instruction on using word-processing. The Pennsylvania System of School Assessment (PSSA) writing rubric was utilized to determine the amount of growth in the participant's writing (Appendix A). All of the student's names were removed from the artifacts and replaced with pseudonyms. The artifacts were kept in a locked cabinet in the safety of my personal home.

Trustworthiness Statement

There are several methods that were used to increase the level of trustworthiness as well as validity of my study. First, I followed several ethical guidelines outlined by McNiff and Whitehead in 2010 prior to beginning my study (McNiff, 2013). I obtained approval and permission to conduct my research study from Moravian College's Human Subjects Internal Review Board (HSIRB)(Appendix B). Prior to beginning my study, a consent form was given and signed by my building principal about the intentions of my study (Appendix C). Consent forms were distributed to the parents of all of the participants as well as the participants themselves (Appendices D and E) (Hendricks, 2013). In the form, parents and students were informed that their participation in the study was completely optional, and students would receive the same instruction regardless if they participated in the study or not. The students could have withdrawn from the study at any time without penalty. Parents were aware that all participants are

referred to by their pseudonyms, and all research documents are kept in the strictest confidence, and destroyed at the conclusion of my study.

According to Hendricks, “credibility can be established through triangulation, a process which multiple forms of data are collected and analyzed” (2013, p. 89). When looking at my four sources of data, I searched for themes that emerged across my observations, student artifacts, interviews, and surveys (Hendricks, 2013). Data for this study was collected from the beginning of October through the end of December; therefore, it qualified as an extended fieldwork study. Extended fieldwork study allowed for my study to make an impact on the learning of my students. Also, eleven weeks allowed for themes to emerge and lowers the chances of themes being purely coincidental. Extended fieldwork permitted for enough data to be collected to see if the strategy was effective or not because “the longer [I] am able to collect data, the more likely [I] am able to see the true effects of [my] intervention” (Hendricks, 2013, p. 127). Analyzing negative cases, or data that does not support the majority of my other data, helped me to determine what worked in my study as well as what did not work. Therefore, I was able to explain the effectiveness of my study in further detail and under what conditions the study was less effective (Hendricks, 2013).

In telling my story, I used low-inference descriptors. Since my observations were recorded in a double entry journal, I was able to separate my reflections and the direct quotations and observations of students. This ensured

that the events that I was describing in my story were a close recall to the events that actually transpired. Thick descriptions of the setting, participants, and intervention were used (Hendricks, 2013). After developing a theme, I utilized member checks to assure that my interpretations of their responses and actions were correct (Hendricks, 2013). Students were an important component of this study; therefore, their opinions were critical to making sure that my study was accurate and trustworthy. These types of strategies ensured my study was valid through truth-value validity as well as process validity. Truth-value and process validity focus on correct conclusions being reached at the end of the study by ensuring the accuracy of my facts and correct interpretations of my data (Hendricks, 2013).

My Story

A Bad Start to a New Year

SCREECH! CRASH! In a blink of an eye, everything changed. Five days before beginning a new school year, I was in a severe head-on collision with another car. After five days of being in the hospital and a long surgery, I had a rod placed in my femur as well as plates and screws to hold my tibia and fibula in place. Thoughts went racing through my head. How I was going to possibly do this research study with a broken leg? I was tired and in pain all the time. I knew returning to work was going to be a struggle.

After missing the first three weeks of school, I was ready to return to work. I was excited to begin a new year in a new position as a third through fifth grade learning support teacher. My students were excited for my return to school. They had lots of questions about what happened to my leg and if I was okay. I thought finally, I could begin my research project with my students. I thought wrong. The first week back to school I had a lot of progress monitoring to complete with my students for their Individualized Education Plans (IEPs) goals.

During the last week of September, I was finally able to introduce my research study to my third graders. Students were told they will be using Co:Writer on the iPads to complete different writing assignments in my class. Five of my six students were so excited to use the iPads to write. These five students had used Co:Writer at the end of second grade. The other student was not

so thrilled at the idea of using the iPad. Miles actually started to cry when I first told him that we were going to use Co:Writer to write. I asked him, “Why don’t you want to write using the iPad?” His response was “I just want to write using pencil and paper.”

Time to get started

Now, I needed to find iPads that I could use with my students. During the summer, it was announced that each grade level team would receive eighteen iPads to be divided between the three classes. “Excellent”, I thought. This will be perfect for my study, and students will be able to use Co:Writer in their classroom as well. I was also told I could borrow the iPads from classroom teachers, since I only had one iPad for my room. Wrong again. Due to the budget cut, the iPads were put on the back-burner. They sat in a closet somewhere for months because of the budget freeze and the inability to purchase apps. “On to plan B”, I thought. Luckily, I was able to borrow an iPad from the other learning support teacher as well as bring in my own personal iPad for students to use. It was not ideal, but I made it work.

First, students needed to complete a survey about using the iPad to complete their writing. Students completed a survey (Appendix F) that was created on Google forms. Miles refused to take the survey on the computer. I was honestly surprised by some of the students’ responses. I assumed that because these students were not the best at writing that they did not enjoy writing. I was

wrong. All of my students responded positively to the question “how do you feel about writing?” Kelsey said, “I like writing. I think writing is the best”. Tim stated, “I love writing”.

Students were given sixteen questions that were ranked using a Likert scale (see Table 1). The answers choices for several questions were never, sometimes, always. Other questions had choices a whole lot, a lot, some, a little, not at all. At the end of the survey, there were 6 open-ended questions. After reading the responses to the open-ended questions, I realized that my students really struggled to answer the questions because they are not metacognitively thinking yet. For example, my one survey question said: “List three goals that you have for your writing.” One student responded, “I like it. It is awesome. I like writing.” Another student answered “Great. Cool. Awesome.” Based on the cognitive ability of my students, some of the answers that they provided on the survey were relevant, but most of student’s responses for the open-ended questions were disregarded.

Table 1: Initial Survey Response

	not at all	a little	some	a lot	a whole lot
Writing is boring	60%	0%	20%	20%	0%
My final version of writing might be very different from my first version	40%	0%	60%	0%	0%
I wish I had more time to write at school	0%	0%	40%	20%	40%
I think that I am a good writer	40%	20%	20%	0%	20%

Meet my Students

There were six students that participated in my study. All of my students are identified as having a learning disability in reading. In my first pull out reading group, I had Kelsey and Tim. Tim has a specific learning disability in reading. Throughout the whole study, Tim provided me with a lot of valuable insight. He always told me whatever was on his mind. At the conclusion of the study, he was reading on a DRA 16. Kelsey is low in both reading and math. She is diagnosed with Attention Deficit Hyperactive Disorder (ADHD). She also receives speech and language services and occupational therapy. Kelsey is reading on a DRA 12. She is able to decode the words with 95% accuracy or higher on a DRA 12, but she is unable to correctly answer the comprehension questions. Kelsey is very girly. She likes to talk about her hair and her family.

Tim loves to make jokes and is a hard worker. These students struggled with spelling words independently when using Co:Writer and frequently asked for help.

In my second group I had four students, Charlie, Vince, Miles, and Kurt. This group of four boys, who are on very different reading and writing levels, always made for an interesting day. Miles is diagnosed with autism. He is below grade level in reading and math. He also receives occupational therapy services. He is often absent from school due to seizures. Miles is very knowledgeable and always has great ideas. He is just unable to get the ideas from his head onto the paper. He is currently reading on a DRA 8. He struggles with vowel sounds as well as reading high frequency words. There is a strong correlation between his reading skills and his writing skills. Miles was the one student that refused to use the iPad to write. On the other hand, my other five students loved using Co:Writer and would actually become upset if they were not able to use the iPad to write. Kurt is my highest reader and he is reading on a DRA 18. He has a specific learning disability in reading and also receives speech and language services. He is also the fastest typer and is the most efficient at using the predictive text. Vince has a specific learning disability in reading and math. Vince is currently reading on a DRA 12. He is resilient and tries his best when completing his writing. He has a strong love for baseball and his family. The last student in my study is Charlie. Charlie always has a smile on his face and puts forth a lot of effort when

completing his work. Charlie is reading on a DRA 16. He uses different strategies to sound out words when he is writing and reading. Charlie has a specific learning disability in reading and also receives speech and language services.

In previous years, I was the building paraprofessional at my school. I had the privilege of working with all of these students during that time frame. I have worked with Vince, Kelsey, and Miles since they were in 1st grade. I started working with Kurt, Charlie, and Tim last year when they were in 2nd grade. When they were in 2nd grade, I worked with these students on their writing skills. Vince, Kurt, and Kelsey used Co:Writer last year, so they were familiar with the application at the beginning of my study.

Wait! Where is this Letter?

Before having students write using the iPad, I wanted to baseline how fast they could type using the iPad. To achieve this, students were given one minute to type the letters of the alphabet in alphabetical order (See Table 2). Since Miles refused to type using the iPad, I didn't baseline his typing speed. As I figured, my students were "slow" typers. Kurt was the only student that was able to type all 26 letters correctly in one minute. Next was Vince. He was able to type 22 letters correctly in one minute. Charlie and Tim were both able to type 16 letters correctly in one minute. Kelsey was only able to type 10 letters correctly in one minute.

Table 2: Student's Typing Speed Baseline

Name	Number of Letters Typed in One Minute
Kurt	26 letters
Vince	22 letters
Charlie	16 letters
Tim	16 letters
Kelsey	10 letters
Miles	Refused to type

An important component of my study was students being able to type efficiently on the iPad. This meant being able to type without becoming frustrated because they couldn't find a letter on the keyboard. To help increase student's typing speeds, students were given five minutes at the beginning of class to play a typing game on the iPad.

There were two different games that students had the choice of playing. The first game is called Car Typing Racer. In this game, students are racecar drivers, and they need to type the letters as they appear on the screen. They have three lives in the game to get the correct keystroke within a certain amount of time. If they were unable to type the correct letter in a set amount of time, they lost a life.

Student excitement filled the air after I announced that they would be playing a typing game on the iPad. The first couple of times that students played this game, they were frustrated. Vince shouted out, “Where’s the ‘h’ button? Where’s the ‘h’ button? Oh, there it is!” Tim made remarks such as, “Wow this game is really hard because the letters are going by so fast!” All the students were getting so frustrated at the game that at one point when playing the game, they just started to type random letters by pounding on the keyboard. They were not trying to type the correct letters when they were playing the game. Instead, they were touching the iPad screen keyboard at a random and quick pace because they were not yet aware of where different letters were located on the keyboard.

My students thought if they touched as many different keys as quickly as they could, that they would live longer in the game. This of course was not going to help them while playing the game. I tried to tell students that it takes time to become a better typer, and once you figure out where the letters are the game will be a lot more fun. They quickly realized that their method of pounding on the keyboard would not be very effective in living longer in the game. I demonstrated to students how to play the game by looking for the letters on the keyboard. Then, students decided to try to find the different letters on the keyboard instead. When they started to correctly type the letters, they began to live longer when playing the game.

The students persevered, and they continued to play the game. On the third day of playing Car Typing Racer game, Tim said, “Oh this letter game got easier.” I replied by saying, “It is because you are getting better at typing.”

By the middle of October, students were starting to grow bored of the Car Typing Racer game because they simply had gotten faster at typing. The game was no longer a challenge, and they were able to type the letters correctly within the time limit. Eventually, I needed to tell students it was time to stop playing the game because they were no longer losing lives and they were playing the game for over five minutes. Near the end of my research study, students continued to play the typing game on the iPad. Tim at one point said, “I could play this game forever. It is so easy.” By this, he meant that the typing game has gotten a lot easier for him to play. If he wanted, he would be able to play the game for a long time before he would die in the game.

This quote is important because he is no longer struggling to beat the clock on the game to type the correct letter. After playing the game for several minutes, I told Tim that he needed to read with me. He said, “Okay, after I die in this game.” The only reason that he “died” in the game that day was because I distracted him when he was playing the game. Otherwise, he would have been able to play the game for the whole thirty minutes he was with me with no problems.

I think it is amazing that students have improved immensely in their typing skills. They are spending less time “hunt and peck” typing when they are using the keyboard. They are by no means “fast typers”, but they are experiencing less frustration in typing their writing. This is important because students are able to put forth more concentration in spelling and creating their ideas.

Students were becoming frustrated when typing on Co:Writer because they were unable to spell the word correctly or use the predictive text, so I downloaded another typing game to help students “sound out words” when typing. The game was called AAA Typing Bee. Students were given a picture of an object. They needed to name the object using the highlighted letters that were shown on the keyboard. I showed students how to play the game. First, I started the name of the picture aloud. I repeated the first sound in the word and looked for the letter that creates that sound. This continued until I correctly spelled the word. At first, students weren’t too fond of the game. Tim said, “This whole letter game is too hard. I am going back to the letter game.”

Co:Writer Features

Before having students write using Co:Writer, I baselined student’s writing using pencil and paper. I gave students a writing prompt and let them respond to the prompt without any assistance (see Figures 1, 2, 3, 4, 5, and 6). Next, I gave students a writing prompt on the iPad and did not provide them with any assistance while writing (see Figure 7). The PSSA writing rubric was used to

assess student's writing. The PSSA writing rubric assesses students' writing in the areas of content, style, organization, focus, and conventions. Students were given scores for their writing on these five domains using pencil and paper as well as Co:Writer (see Table 3 and 4). Based on the PSSA writing rubric, Tim, Kelsey, and Charlie scored all ones in all domains when handwriting and using Co:Writer. Kurt and Vince on the other hand scored all zeros on the PSSA writing rubric when using pencil and paper. When using Co:Writer, Kurt and Vince's writing improved and they scored ones in all writing domains. Miles only completed the handwriting prompt baseline. He scored a zero in all domains because his writing was illegible.

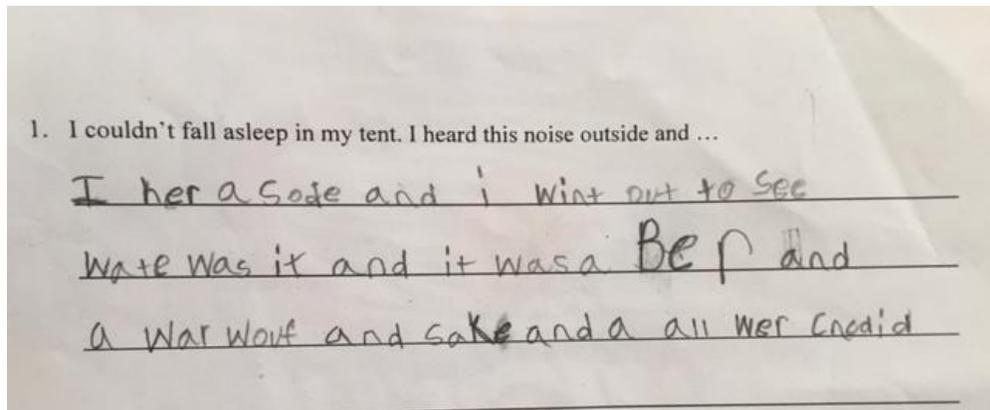


Figure 1. Sample Student Work: Tim's Writing Baseline

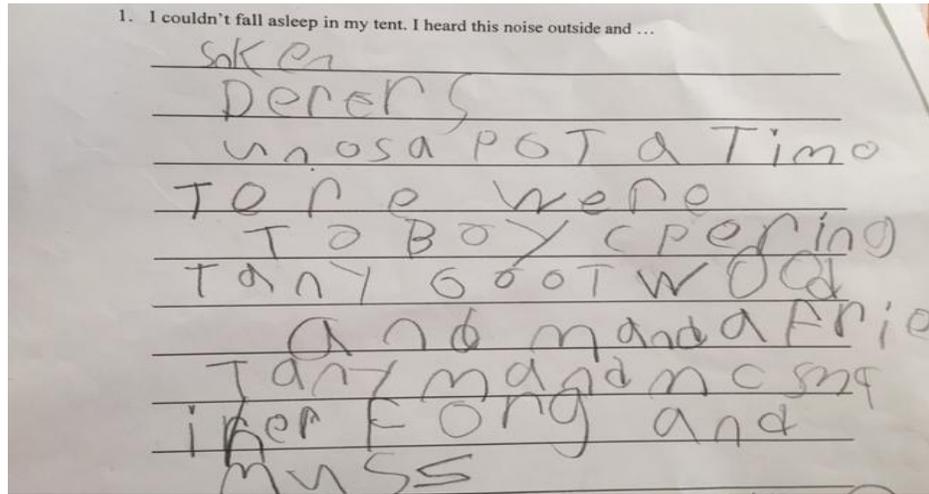


Figure 2. Sample Student Work: Kurt's Writing Baseline

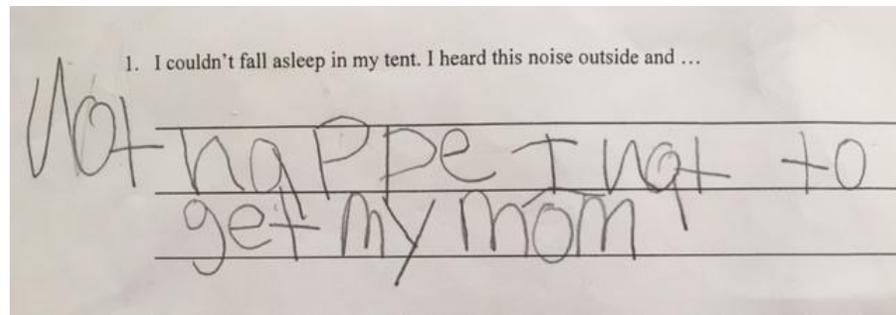


Figure 3. Sample Student Work: Kelsey's Writing Baseline

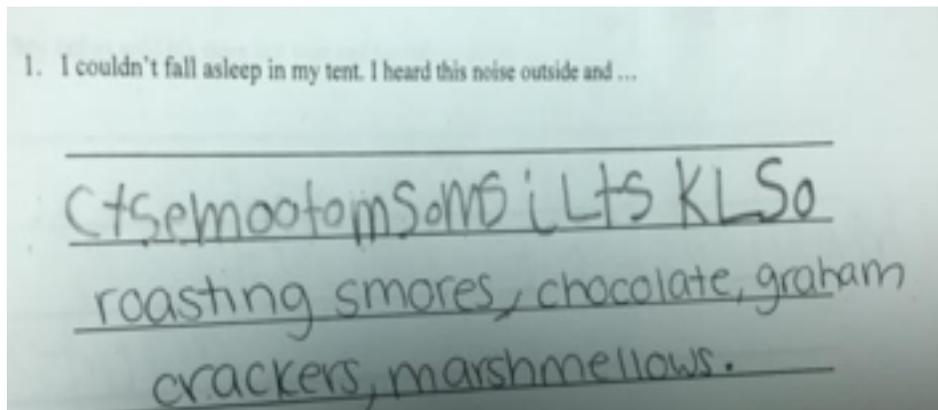


Figure 4. Sample Student Work: Mile's Writing Baseline

I couldn't fall asleep in my tent. I heard this noise outside and ...
I said what? + that my Brother
said it was as a leech
+ thru Kama + mit nice
~~was~~ it was free

Figure 5. Sample Student Work: Charlie's Writing Baseline

1. I couldn't fall asleep in my tent. I heard this noise outside and ...
~~Heard~~ I heard a noise
to a frog hop to Boys Noun
was Caden Davin (open) out.
in te

Figure 6. Sample Student Work: Vince's Writing Baseline

What did you do over the weekend?- Typing Baseline

Tim: I had a play dat watched TV and play a ps4 and the game is was name injustice it was fun.

Kurt: I play the Computer. At. Howe. I. Play. Roblox.
It time out
I play the iPad. It play. Mine craft!

Kelsey: I lost my tooth. My story is I find it in my room. I lots. In. My dad is in my room when I have my first time that I have got to try then we are up a fun time

Vince: I did a baseball it was a tournament. And I had another tournament. I hit the baseball in the outfield. And I got out.

Charlie: I went to blue and friends house.
I play on my i pad.

Figure 7. Sample Student Work: Typing Baseline

Table 3: Students' Baseline Handwriting Scores Using PSSA Rubric

Student Name	Handwriting Score using PSSA Rubric				
	Focus	Content	Style	Organization	Conventions
Tim	1	1	1	1	1
Kurt	0	0	0	0	0
Kelsey	1	1	1	1	1
Miles	0	0	0	0	0
Charlie	1	1	1	1	1
Vince	0	0	0	0	0

Table 4: Students' Baseline Typing Scores using PSSA Rubric

Student Name	Typing Scores Using PSSA Rubric				
	Focus	Content	Style	Organization	Conventions
Tim	1	1	1	1	1
Kurt	1	1	1	1	1
Kelsey	1	1	1	1	1
Miles	N/A	N/A	N/A	N/A	N/A
Charlie	1	1	1	1	1
Vince	1	1	1	1	1

Students practiced for the whole month of October just using Co:Writer to respond to various writing prompts. Students practiced their typing skills, as well as got accustomed to using the iPad to respond to writing. Co:Writer has different features on it that students need to be taught how to use through direct instruction. One feature of Co:Writer is using predictive text (see Figure 8). My students needed to know the first several letters of a word in order for the word to appear on the bottom of the screen. This feature is similar to word prediction on the iPhone. This feature was difficult for some of my students to use because their reading abilities are low. They were not able to decipher between the very similar looking words.

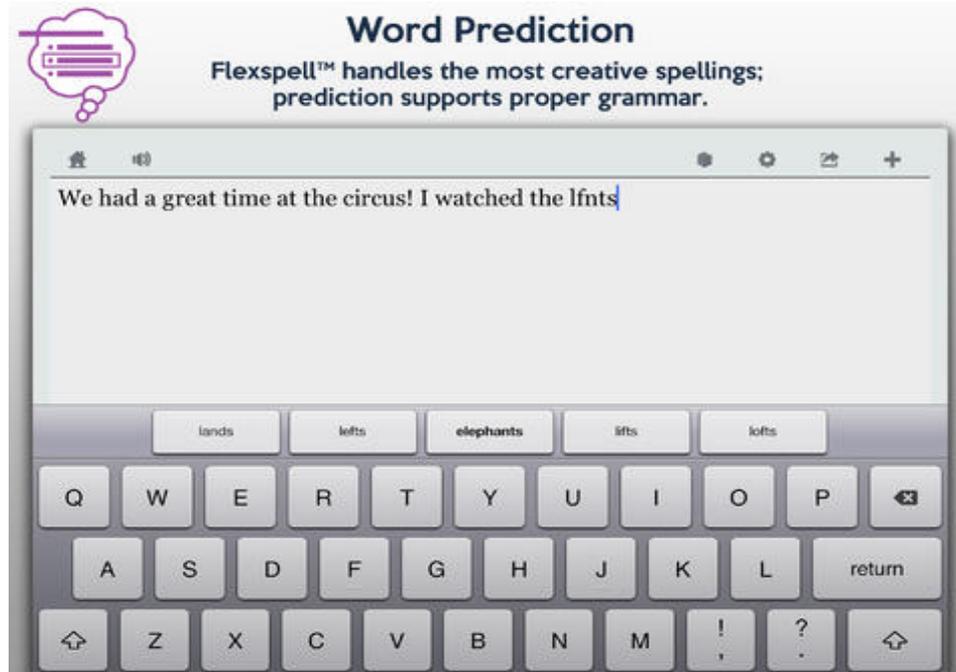


Figure 8. Predictive Text on Co:Writer

In the beginning of the study, I noticed that my students really struggled with being able to sound out enough sounds in the word to even use the predictive text function. Therefore, students needed direct instruction and practice with “hearing” more sounds in a word. When student’s got stuck on a word, I started dragging out all of the sounds in the word. I would provide students hints when there were tricky letter sounds such as “what two letters make the –er sound”. Vince really struggled with using the predictive text. He would type the first two to three letters in a word, and then pick one of the words that appeared on the screen. It was rarely the right word. He would become frustrated because Co:Writer would read the word aloud, and he realized it was not the right word.

Another feature of Co:Writer is it reads the words to students after they type the word. They are also able to hit the microphone button to listen to everything they have written. This was Kelsey's favorite function of Co:Writer. She pressed the microphone button every time she typed a new word. Then, the app would read what she had written back to her.

Students needed to be taught how to make capital letters as well as how to copy and paste text. This was taught later in the study when students were making graphic organizers and copy and pasting information from the graphic organizer. Charlie was very excited because he already knew how to make a capital letter. When I mentioned that we would learn how to make capital letters, Charlie responded by saying, "Oh I know how to make an uppercase letter on the computer. Can I show you?" I told Charlie, "Sure you can teach the other students too."

How do I spell?

My students at the beginning of the study were very dependent on me to help with spelling words. The goal of my study was to help students increase their written expression and motivation for writing. After the first week of the study, my new goal was to help my students become more independent writers. They all had learned helplessness. Students were stopping their writing to ask me how to spell a word. Everyday, I would give the same speech, "I don't care about your spelling, just try your best." Finally by mid-October things started to turn around,

my students were typing several words before stopping to ask how to spell something. Tim had a breakthrough on October 19th. Tim asked, “How do you spell costume?” At first, I ignored him because I was working with another student. Then, I heard Tim mutter, “Oh I got it.” When I looked over at his iPad, he only had the first letter of costume, but it was a step in the right direction. He was trying to spell the word independently. The following week Tim was responding to a prompt on Co:Writer, and he was trying to spell “12 hours”. At first, he asked, “How do you spell hours?” I encouraged him to try to spell it by himself. He typed “12ah”. After hitting the microphone button, he said, “It sounds like there should be an “h” in there.” So next, he typed “12ahwars”. When hitting the microphone button, “12ahwars” sounds the same as “12 hours”. Then, he says to me, “I know how to spell hours, I was just being lazy.” I was thrilled. Tim was trying to spell on his own. It might not have been spelled correctly, but he tried his best and phonetically it sounded correct.

Tim was not a fan of using the predictive text. He tried to spell out every word he was typing. On the other hand, Kurt loved to use predictive text. He was able to sound out a lot of the words he was typing. Therefore, he was able to write more than the other students. There were times that spelling stopped him dead in his tracks. In mid-October, Kurt was writing about “Walmart” and was not sure about the spelling, so he hit the speaker button. Kurt became very upset and

frustrated when the app was pronouncing “Walmart” incorrectly. It was pronouncing “Walmart” with a British accent.

This demonstrates some of the downsides of using Co:Writer. Computers are not always able to pronounce words correctly, especially the names of places. My student correctly spelled “Walmart”, but he was not able to continue with his writing because he thought that he spelled it wrong. He did not believe me when I assured him that it was spelled correctly. At that point, I think he was frustrated with the iPad for pronouncing it incorrectly. He eventually inserted a space in between “wal” and “mart” in order for Co:Writer to pronounce it correctly. This also demonstrates how important correct spelling is to this student. Kurt becomes very focused on spelling all of the words in his writing correctly.

Miles was writing using pencil and paper. In previous school years, Miles told the teacher what he wanted to write, and the teacher would scribe for him. Then, Miles would copy down what the teacher had written. Miles was not happy when I wanted him to write by himself. I was not able to help the other students in my class as well as scribe for him for every writing assignment. Since my new goal of the study was to encourage independence, I wanted Miles to try writing by himself. Early in the study, I tried using my phone to assist him with his writing. I used the speech-to-text function on my phone. I spoke his sentence into the phone rather than me writing out the text for him. He was not happy and almost started to cry because he did not want to use technology for writing. At this point, I did

not know what I could do to help Miles become an independent writer. He was aware that when he completed writing independently that he was not spelling words correctly.

Near the end of October, students were completing a writing prompt about their favorite holiday. In my field log, I had written, “I needed to drag out every sound in the word for Miles to write down the letter that corresponded to the word. It was like pulling teeth. Miles was getting frustrated with his writing, and I needed to scribe his writing for him to copy onto his paper”. He needed me to slowly enunciate every sound that was in the word Christmas. I began to become frustrated because I needed to repeat the sounds in the word several times before he would write something down. It took him several minutes to write one word.

This quote is important because it shows my frustration as well as the student’s frustration during the writing process. This process was very time consuming for Miles and me. It was taking too long for me to sound out the words, and then for Miles to try to write the words. He was not writing more independently, and he was forgetting his ideas by the time he finished writing one word. That day, it took Miles over fifteen minutes to write one sentence. He had more ideas for his writing. If I did not scribe the rest of his ideas, he would have just stopped after one sentence because his high level of frustration and concern about spelling. I needed to keep in mind that this was a new process for Miles, and he was never asked to do it independently for two years straight. I needed to

continue scaffolding the writing process for him. He would ask how to spell a word, and I would sound out the word for him. I focused on Miles getting the initial and final sounds of the words first. Then, I focused on Miles adding some medial sounds to the word.

Free Writes and Progress Monitoring

Three of my six of my students have a writing goal in their IEP. Every two weeks, students needed to complete a writing prompt independently. The prompts are from AIMSweb. The prompt provides students with a sentence starter. All of my students, except Miles, preferred to complete the writing prompt using Co:Writer rather than using pencil and paper.

Students also completed several free writes. The purpose of the free write was to encourage students to generate ideas for their writing, help students practice typing fluency, as well as provide students with practice using the features of Co:Writer. When my students were given the choice to writing about anything they wanted, they often got stuck and were unable to write. I began to provide students with open-ended responses such as “what did you do over the weekend?” I found that students needed to verbally discuss their ideas with a classmate or myself before beginning their writing. Kelsey benefited the most from this discussion. When I did not talk to her about her ideas first, her writing was often off-task, and she typed what seemed like a random selection of words from using predictive text.

Graphic Organizers for Opinion Writing

An effective strategy to help students with learning disabilities is the use of a graphic organizer. Students used graphic organizers to begin their opinion writing pieces. The graphic organizer was created on the iPad in Co:Writer for students to use. Students used a simplified graphic organizer to create opinion writing pieces. The first writing piece students created was about their favorite holiday (see Figure 9). Students stated their favorite holiday as their topic sentence. Next, students provided three supporting details stating why it was their favorite holiday. The last section of the graphic organizer was the concluding sentence. For this graphic organizer, I did a lot of modeling and provided students with an example graphic organizer. Since Miles refused to use the iPad, he completed his graphic organizer using pencil and paper.

What is your favorite holiday?

Charlie's favorite holiday

Holiday: my birthday

Reason 1: I can go some where an have a birthday and play.

Reason 2: I can go to dinner with my friends.

Reason 3: I get to go go carting.

Concluding Sentence: That is why I like my birthday.

Kurt's favorite holiday

Holiday: christmiss

Reason 1: you can get toy

Reason 2: My birthday is December 7 :)

Reason 3: I got to my mom computer and play roblox

Concluding Sentence: That is why I like Christmas :)

Kelsey's favorite holiday

Holiday: halloween

Reason 1: trick or treating is my favorite

Reason 2: I like the Halloween parade

Reason 3: I like to go trick or treating with friends.

Concluding Sentence: Halloween is my favorite time of years

Figure 9. Sample Student Work: Favorite Holiday Graphic Organizer

In the beginning of November, students had a lot of practice with determining the difference between fact and opinion. They completed a scavenger hunt of different facts and opinions about Halloween. Students read different cards around the room and needed to determine if it was a fact or an opinion. Kelsey struggled with determining the difference between fact and opinion. Miles, Kurt, Vince, Charlie, and Tim were more independent at determining which was a fact and which was an opinion. I was glad that my students were able to determine the difference between fact and opinion because then they were able to transfer that knowledge into creating their own facts and opinions.

The next day students created their own facts and opinions about Halloween. This did not go as smoothly as I had planned. During this activity, students were not able to independently create their own facts and opinions about Halloween. All of my students needed a lot of prompting and more examples to develop a Halloween fact and opinion. Students were becoming very frustrated. Several of my students copied the facts and opinions that were hanging around the room from the day before (see Figure 10).

Halloween Fact and Opinion

Kurt

Fact: a spider web is called a cobweb

Opinion: Halloween is cool because of people ~~cosumus~~.

Charlie

Fact: Me and my family and friends are going to make a big cake On Halloween

Opinion: my dog look funny with a costume on.

Figure 10. Sample Student Work: Halloween Fact and Opinion

The following week students created an opinion writing piece about “Hey Little Ant” by Phillip and Hannah Hoose. The story is about a boy and his interactions with an ant. The boy states several reasons why he believes that it is okay to squash the ant. On the other hand, the ant is pleading for his life. The ant has several reasons why the boy should not squash him. At the end of the story, the author leaves it up to the reader if the boy should let the ant go or squash him.

As a group, we developed reasons to support why to save the ant and why to squash the ant. Students used details from the story to support both sides. Students copied the reasons from the board into their opinion graphic organizer. On the iPad, students needed to type a topic sentence, three reasons to save the ant or three reasons to squash the ant, and a concluding sentence (see Figure 11).

Hey Little Ant

Opening sentence: I think the boy should save the ant.

Reason 1: Ants have family lives

Reason 2: Ants have feelings

Reason 3: Little crumbs feeds a lot of ants

Concluding Sentence: That is why the boy should save the ant.

Figure 11. Sample Student Work: Hey Little Ant Graphic Organizer

The next day, students used the information from their graphic organizers to create an opinion writing piece. Students picked a side to support and utilized the three reasons we created as a class to write their paragraph. At first, my students complained that they were going to need to retype all of the information that they had typed the day before until they realized that is not what we were going to do. Students were shown how to highlight, copy, and paste the information from one side of the argument. Students opened a new document in Co:Writer and pasted the information. Together, we created a list of transition words to add to the writing. Students needed a lot of help to think of different

transition words. Students needed to make sure that their writing was a complete sentence and add punctuation where needed (see Figure 12).

Hey Little Ant

**I think the boy should save the ant.
I believe this because Ants have family lives.
Second, ants have feelings.
Lastly, little crumb feeds a lot of ants.
That is why the boy should save the ant.**

Figure 12. Sample Student Work: Hey Little Ant Opinion Writing

Next, students created an opinion writing piece based on the book “I Wanna Iguana” by Karen Kaufman Orloff. In this story, a little boy named Alex is trying to convince his mother why he should get a pet iguana. Throughout the story, Alex writes letters to his mom stating why he should get a pet iguana. His mother replies to the letters with reasons why he should not get a pet iguana. After reading the story aloud, students needed to generate ideas to support why Alex should or should not get a pet iguana. All of my students thought that Alex should get a pet iguana. They typed three reasons to support their opinion into the graphic organizer in Co:Writer (see Figure 13). Miles hand wrote his three reasons on a paper graphic organizer. In the graphic organizer, students also needed to create an opening sentence and a concluding sentence. I scaffolded this assignment by providing students less support for this writing assignment. Everyone except for Kelsey was able type the three supporting details for their

opinion independently. Everyone struggled with creating an opening sentence, concluding sentence and adding transition words.

I Wanna Iguana

Opening sentence: Reasons that Alex should get an iguana..

Reason 1: He is going to clean the iguanas cage.

Reason 2: Because he is going to pay for the lettuce

Reason 3: It is so easy to pay for it.

Concluding Sentence: Alex should get the iguana.

Figure 13. Sample Student Work: I Wanna Iguana Graphic Organizer

Finally, students created an opinion writing piece independently about the book “Who Would Win? Tyrannosaurus Rex vs. Velociraptor” by Jerry Pallotta. Throughout the book, the author provides facts about the Velociraptor and the Tyrannosaurus Rex. At the end of the story, the author speculates about who would win in a fight based on the facts. Before reading the end of the story, I asked students who they thought would win in a fight. They needed to generate three facts to support their opinion. Students were split on their opinion this time. Miles, Vince, and Tim believed that a Velociraptor would win in a fight. Kelsey, Kurt, and Charlie believed that a Tyrannosaurus Rex would win in a fight. Students independently developed three reasons to support why they believed that that dinosaur would win in a fight (see Figure 14 and 15). Students were not able to generate transition words in their final writing pieces independently.

Who would win in a fight?

Opening sentence: the Tyrannosaurus rex will win.

Reason 1: he is fat.

Reason 2: his foot is big.

Reason 3: His tail is bigger than the velociraptor tail.

Concluding Sentence: The Tyrannosaurus rex would win.

Figure 14. Sample Student Work: Who Would Win? Tyrannosaurus Rex Graphic

Organizer

Who would win in a fight?

Opening sentence: velociraptor will win.

Reason 1: he have little foot.

Reason 2: He is fast.

Reason 3: His tail is skinny.

Concluding Sentence: he would win.

Figure 15. Sample Student Work: Who Would Win? Velociraptor Graphic

Organizer

Posttest Data

Student Interview Responses

Individual interviews were also conducted with students. During the interviews, students were asked ten open-ended questions. For most of the

questions, I needed to provide students with examples of appropriate answers to the questions because students were unable to provide relevant responses independently. Kurt and Miles both became too frustrated and were unable to complete the interview. They both keep saying, “I don’t know” to every answer. The only question Kurt answered was his preferred method of writing. He prefers to write using Co:Writer on the iPad.

Based on the four respondents, Kelsey, Charlie, and Vince believe they are good at writing, and Tim believes he is a horrible writer. When asked what they want to improve in their writing, all of the students responded with writing more. Students were also asked if they preferred writing on the iPad or writing with pencil. Kelsey, Charlie, and Vince stated that they preferred writing using the iPad. Kelsey thought that writing on the iPad was more fun. Charlie preferred the iPad because he enjoyed using the predictive text. Vince thought spelling on Co:Writer was easier than using pencil and paper. On the other hand, Tim said he preferred to write using pencil and paper. When asked why he said, “On paper, I get to do my own writing and not the predictive text.” Tim struggled to get enough correct phonemes in a word in order to make predictive text effective. Tim, Vince, and Charlie thought Car Typing Racer helped them become a better typer. Kelsey thought that the AAA Typing Bee game helped her become a better typer.

Typing Speeds

At the end of my study, my students were given one minute to type the letters of the alphabet in alphabetical order to determine typing speed (see Table 5). After practicing typing, Kurt was able to type 37 letters per minute. Vince actually typed fewer letters, but he was not able to find the letter “u” on the keyboard and ran out of time. Charlie made great gains in his typing. He went from 16 letters to 25 letters. Tim was able to type 13 more letters on the posttest by typing 29 letters. Kelsey made the most gains. She went from typing only 10 letters to typing the whole alphabet, or 26 letters in one minute. I was so proud of Miles because he chose to complete the typing speed posttest. Although he never completed any writing assignments on the iPad, he was still practicing his typing speed by playing Car Typing Racer.

Table 5: Student’s Typing Speed Baseline and Posttest

Name	Number of Letters Typed in One Minute Baseline	Number of Letters Typed in One Minute Posttest
Kurt	26 letters	37 letters
Vince	22 letters	20 letters
Charlie	16 letters	25 letters
Tim	16 letters	29 letters
Kelsey	10 letters	26 letters
Miles	Refused to type	11 letters

PSSA Scores Posttest

Students were also given a posttest writing prompt using Co:Writer as well as writing a prompt with pencil and paper. For the handwriting posttest, students were given the same writing prompt that they were given at the beginning of the study (see Table 6). The writing prompt for Co:Writer was an opinion writing piece (see Table 7). All students made gains in one or more domains on the rubric. On the baseline writing sample, all of the students scored ones, zeroes, or no score in every writing domains. For the final writing samples, students scored twos and ones in the different writing domain.

Table 6: Students' Posttest Handwriting Scores using PSSA Rubric

Student Name	Handwriting Scores using PSSA Rubric				
	Focus	Content	Style	Organization	Conventions
Tim	2	2	1	1	1
Kurt	2	1	1	1	1
Kelsey	1	1	1	1	1
Miles	1	1	1	1	1
Charlie	2	2	2	2	2
Vince	2	2	1	2	1

Table 7: Students' Posttest Typing Scores using PSSA Rubric

Student Name	Typing Scores using PSSA Rubric				
	Focus	Content	Style	Organization	Conventions
Tim	2	2	1	1	1
Kurt	2	2	1	2	1
Kelsey	1	1	1	1	1
Miles	n/a	n/a	n/a	n/a	n/a
Charlie	2	2	1	2	2
Vince	2	2	1	2	1

Student Survey Responses

Students were given the same survey at the conclusion of the study (see Table 8). For the final survey, students answered the survey with the teacher individually. Therefore, each question could be read to the students. Again, based on students' cognitive abilities only some survey answers were included in my study and other questions were discarded because of irrelevant answers. Due to frequent absences, post survey data for Kurt is not available. Miles refused to participate in the final survey.

Table 8: Final Survey Responses

	not at all	a little	some	a lot	a whole lot
Writing is boring	50%	25%	25%	0%	0%
My final version of writing might be very different from my first version	0%	0%	50%	0%	50%
I wish I had more time to write at school	0%	0%	25%	0%	75%
I think that I am a good writer	0%	0%	25%	25%	50%

Final Thoughts

At the conclusion of my study, I was proud of my students and the amount of effort they have started to put into writing. Using Co:Writer was definitely beneficial to some students more than other students. I wanted my students to become better writers as well as increase their writing motivation through the use of Co:Writer. One major focus of my study was for my students to become more independent writers.

Miles still refused to use the iPad to write at the end of the study, but he did make improvements in his writing by using the graphic organizer. His writing was illegible at the beginning of the year. To an outside reader, it looked like a continuous stream of letters. By winter break, Miles was adding spaces in between his words and trying to sound out the words independently.

With the use of the iPad, Kelsey's writing also became more legible. She enjoyed using Co:Writer, especially the predictive text. I often became frustrated with Kelsey because she would hit the speaker button after each word she typed. She is still in the beginning phases of using the iPad to improve her writing. She needed frequent reminders to stay on task. She benefited from talking about her ideas before beginning her writing assignment. At the end of study, Kelsey continued to need assistance when handwriting as well as using Co:Writer.

Kurt becomes a whole different writer when the iPad is placed in front of him. When he wrote with pencil and paper, he rushed through his work. He wrote incomplete sentences and made numerous spelling mistakes. When using the iPad, Kurt was able to efficiently type using predictive text. Kurt occasionally experienced frustration using the text-to-speech function because he could not figure out how to spell a word. Although he got frustrated, he stated in his interview that he does prefer to use Co:Writer to write. He enjoyed inserting emojis at the end of his writing.

Tim has become more independent in his writing as a result of using Co:Writer. He used to ask how to spell every unknown word. Before winter break, he was occasionally asking how to spell words, but he would try his best to sound out the word on Co:Writer first. Since Tim's reading ability improved, he was able to use the predictive text more effectively. He also became frustrated with the text-to-speech function when he was not able to figure out how to spell a

word. He used phonetic spellings of words, so that the program pronounced the word similar to correctly spelled pronunciation.

Vince has become a better writer using Co:Writer. He too would experience frustration when not knowing how to spell a word or how to use the predictive text. Now, Vince has more confidence in his writing abilities. When Vince was given the posttest writing prompt, he was excited to write and he wanted to fill up the whole paper. He did not stop to ask how to spell a word. Although some of his ideas were repetitive, his writing made sense and told a story. He was ecstatic to see the differences in his writing from the beginning of the year compared to the posttest writing sample. For Vince, I believe that Co:Writer is a great tool for him to continue using.

Charlie has grown so much as a writer over the course of my study. His reading skills have also developed, which made using the predictive text easier for him. In the beginning of the study, he asked how to spell different words often. When completing the posttest handwriting prompt, he asked a couple of times how to spell words, but he then would say, "Oh never mind, I got it!" Charlie would benefit using Co:Writer in the future to continue to help him grow as a writer and build his confidence in writing. He was so proud of his writing at the conclusion of the study. He enjoyed seeing his growth from the beginning of the year. He even asked if we could do the same prompt at the end of the year to see the growth from December to June.

Codes, Bins, and Themes Statements

Over the course of my action research study, I gathered a lot of qualitative data through student interviews, student surveys, and double-entry journal entries.

Through analyzing this data, a system of codes was developed for reoccurring thoughts and behaviors. Similar codes were organized into bins (see Figure 16).

From these bins, several theme statements and related findings were created.

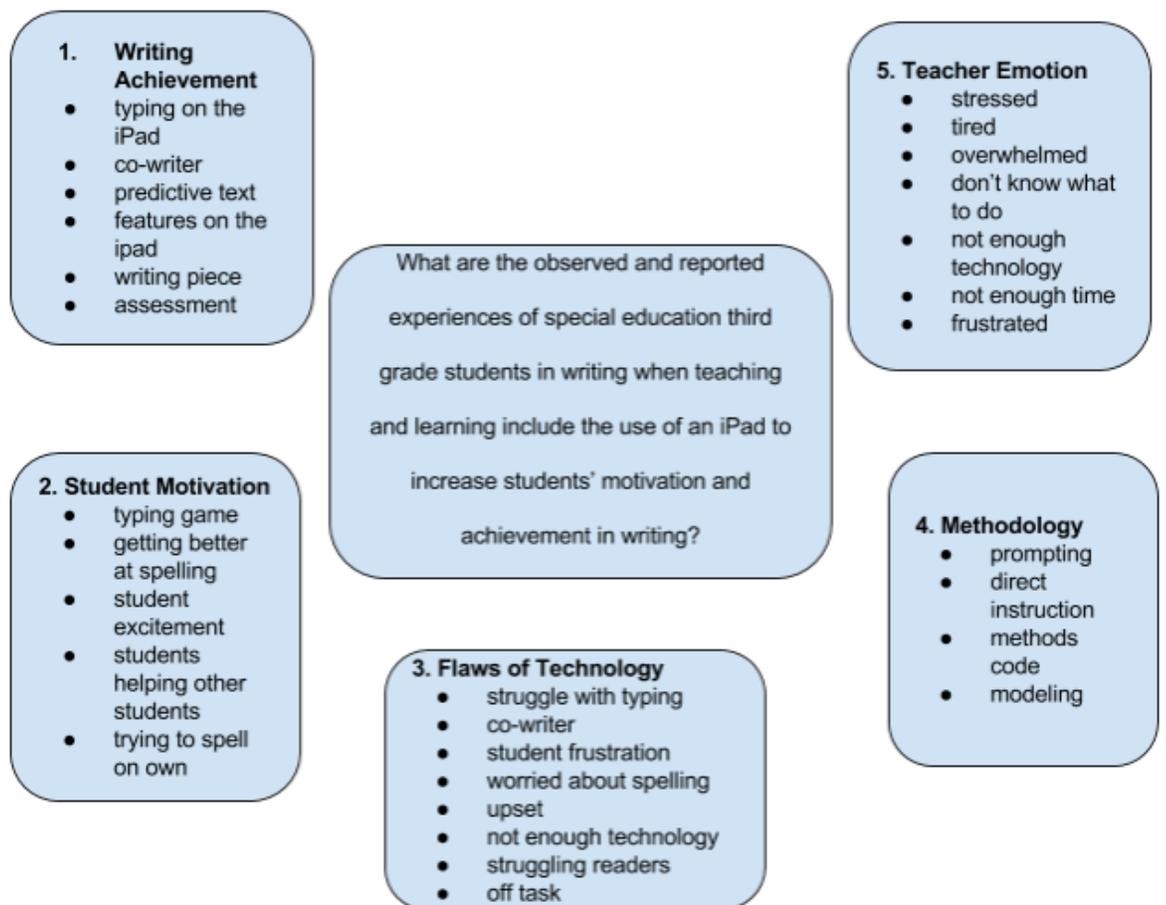


Figure 16. Coded Bins

Theme Statements

- i. *Writing Achievement:* Through the use of the features on Co:Writer such as predictive text and text-to-speech, students began to produce longer pieces of writing, as well as improve their writing scores on the PSSA writing rubric.
- ii. *Student Confidence and Motivation:* Students have gained more self-confidence in their writing abilities by using the iPad. Using a typing game, they started spelling independently and increased their typing speeds. With increases in self-confidence and the use of the iPad, students are more motivated to write.
- iii. *Flaws of Technology:* There are several downsides of using technology in the classroom including: slow typing speeds, low reading levels, and lacking enough technology, which may result in students becoming upset, frustrated, or off-task.
- iv. *Methodology:* In order to teach students the writing process, I used a lot of prompting, modeling, and direct instruction in order for students to learn how to write an opinion paragraph using Co:Writer.
- v. *Teacher Emotion:* There were many things that were outside of my control such as not enough time in the day and not enough technology, which led to occasional teacher frustration and becoming very overwhelmed.

Research Findings

The purpose of this action research study was to examine the effects of using Co:Writer with special education third graders to improve their motivation and achievement in writing. I designed this study knowing that I would be working with students who have low writing and reading achievement scores. I wanted to provide students with a different approach to writing instruction through the use of the iPad. Co:Writer provided students with different tools such as predictive text and text-to-speech.

***Writing Achievement:* Through the use of the features on Co:Writer such as predictive text and text-to-speech, students began to produce longer pieces of writing, as well as improve their writing scores on the PSSA writing rubric.**

Through using Co:Writer on the iPad, I wanted to improve students' writing achievement scores. Using the Pennsylvania System of School Assessment (PSSA) writing rubric, I assessed my students' writing in the five writing domains. The writing domains are: focus, content, style, organization, and conventions. Each area has five possible scores. Students can receive a score of a four, three, two, or one. A score of zero is given when a student's writing is illegible or too far off topic.

At the beginning of the study, students' writing was assessed using pencil and paper and using Co:Writer on the iPad (see Tables 9 and 10). When handwriting, Tim, Kelsey, and Charlie scored a one in all writing domains. Miles,

Vince, and Kurt received zeroes in all writing domains because their writing was illegible. When using Co:Writer, every student received a one in all writing domains. Kurt's writing improved from all zeroes to all ones just by using Co:Writer instead of handwriting. Miles refused to write using Co:Writer.

Table 9: Students' Baseline and Posttest Handwriting Scores using PSSA Rubric

Student Name	Handwriting Scores using PSSA Rubric				
	Focus	Content	Style	Organization	Conventions
Tim's Baseline	1	1	1	1	1
Tim's Posttest	2	2	1	1	1
Kurt's Baseline	0	0	0	0	0
Kurt's Posttest	2	1	1	1	1
Kelsey's Baseline	1	1	1	1	1
Kelsey's Posttest	1	1	1	1	1
Miles' Baseline	0	0	0	0	0
Miles' Posttest	1	1	1	1	1
Charlie's Baseline	1	1	1	1	1
Charlie's Posttest	2	2	2	2	2
Vince's Baseline	0	0	0	0	0
Vince's Posttest	2	2	1	2	1

Table 10: Students' Baseline and Posttest Typing Scores using PSSA Rubric

Student Name	Typing Scores using PSSA Rubric				
	Focus	Content	Style	Organization	Conventions
Tim's Baseline	1	1	1	1	1
Tim's Posttest	2	2	1	1	1
Kurt's Baseline	1	1	1	1	1
Kurt's Posttest	2	2	1	2	1
Kelsey's Baseline	1	1	1	1	1
Kelsey's Posttest	1	1	1	1	1
Miles' Baseline	N/A	N/A	N/A	N/A	N/A
Miles' Posttest	N/A	N/A	N/A	N/A	N/A
Charlie's Baseline	1	1	1	1	1
Charlie's Posttest	2	2	1	2	2
Vince's Baseline	1	1	1	1	1
Vince's Posttest	2	2	1	2	1

Through the use of graphic organizers and Co:Writer, most of my students' writing scores improved in several writing domains at the conclusion of my study (see Tables 9 and 10). Tim's scores increased in the areas of focus and content. In the areas of focus and content, Tim received a 2 when using Co:Writer

as well as handwriting posttests. Kurt's writing also improved in several writing domains. When handwriting, Kurt improved in every domain. On his handwriting posttest, he scored a one in the areas of content, style, organization, and conventions. He scored a two for focus. When using Co:Writer, Kurt scored a two for focus, content, and organization. He received a one in the areas of style and conventions. Kelsey's writing scores stayed the same from the baseline to the posttest when using Co:Writer and handwriting. Miles' writing scores increased in all writing domains on the handwriting posttest. His scores improved from zeroes in every domain to ones in all writing domains. He refused to type on the iPad for the posttest. Charlie showed the most improvement in his writing on the posttest. His scores improved when handwriting as well as typing. Charlie scored a two in all writing domains when handwriting. When using Co:Writer, Charlie scored a two for focus, content, organization, and conventions and scored one in the area of style. Vince also improved his writing scores in several writing domains. When handwriting and using Co:Writer, Vince scored a two in the areas of focus, content, organization. He scored a one in the domains style and conventions.

Using Co:Writer and graphic organizers, students were able to improve their writing scores in several of the writing domains. On the handwriting posttest, students wrote more sentences compared to their baselines. When using a graphic organizer to write on the iPad, students were able to write five sentences. Their

writing included an opening sentence, three supporting detail sentences, and a conclusion sentence.

When handwriting, students also produced much longer writing pieces. Miles went from writing one illegible sentence to writing two legible sentences for this posttest. Kelsey wrote one sentences for her baseline. For her posttest, Kelsey wrote three sentences. On the baseline writing, Tim wrote one long run-on sentence. For his posttest, Tim was able to write eight sentences. Tim tried to correctly use punctuation, but he did forget, or incorrectly placed some periods. His sentences used different transition words besides the word “and” in his posttest writing. Kurt’s baseline writing was not legible, but when he read it to me it equated to one sentence. For his posttest writing, Kurt did not insert any punctuation, but he wrote eight sentences. Charlie and Vince made the most improvements in the length of their writing pieces. On his baseline writing, Charlie wrote four sentences. Charlie on his posttest writing was able to write eight sentences. His sentences included connecting words such as “and” and “so”. His spelling also improved. Therefore, it was easier to read his writing and see his voice develop in his writing. On his baseline writing, Vince wrote one sentence. Vince was very determined to improve his writing throughout the research study. On the posttest, Vince wrote ten sentences. His spelling also improved. Even though he started every sentence with the word “and”, he did write in complete sentences.

MacArthur (2009), found that students were able to increase their percentage of both correctly spelled words and legibility to over 90 percent when using a word prediction program. James, Abbott, and Greenwood (2001), examined the effects of using graphic organizers to improve student's writing. The graphic organizer for the low-achieving writers had a topic sentence, three supporting details, and a conclusion sentence. Students were assessed on their writing using the Six-Traits Writing Assessment Rubric, which looks at conventions, fluency, word choice, voice, organization, and ideas. Students in the low performing group gained at least one point in five out of the six areas. In my research study, four out of my five students made gains in their writing through the use of the graphic organizer in two or more of the writing domains on the PSSA writing rubric.

Student Confidence and Motivation: Students have gained more self-confidence in their writing abilities by using the iPad. Using a typing game, they started spelling independently and increased their typing speeds. With increases in self-confidence and the use of the iPad, students are more motivated to write.

Through using the iPad, not only have my students increased their writing abilities, they have also increased their self-confidence and motivation to write. Students played AAA Typing Bee to improve their confidence in their spelling skills. The game encouraged students to slow down and try to spell the word by

listening to the different phonemes. The game has settings where only the letters that are in the word are lit up as a choice on the keyboard. Students at the beginning of the research study were asking how to spell different words four to five times when completing a writing assignment. At the conclusion of the study, students were trying to spell the word on their own first. After several unsuccessful attempts at spelling, students then would ask me how to spell the word.

In several research studies, researchers found that slow typing speeds may hinder students' writing. Forgrave (2002), found that students may forget their ideas when typing due to slow typing speeds. MacArthur (2009), found that providing students with a computer does not necessarily improve their writing.

Students need to be taught explicitly how to use the different features including how to type. In a study conducted by Lewis, Graves, Ashton, and Kieley (1998), they studied the effects of different types of writing instruction. The different groups used traditional pencil and paper, word processing, keyboarding, alternative keyboarding, word prediction, and word prediction with speech. The keyboarding group focused solely on using a typing program to increase student's typing speeds. Students utilized Mavis Beacon Teaches Typing (1991). At the conclusion of the study, they found that students who used pencil and paper had the fastest text production speed, but students who used the keyboarding program had the second fastest text production speed. Students responded positively to the

program, but thought that some of the lessons were too lengthy. Therefore when designing my research study, I looked into an application for the iPad that would provide students with typing practice. I looked for a game that would be short and entertaining for students to play.

Car Typing Racer Game helped students to increase their typing speeds. Students were shown random letters on the screen, and they needed to find the letters in a specific amount of time. Through playing this game, student's typing speeds increased (see Table 11). Vince was the only student's typing speed that went down, but he was unable to find the letter "u" on keyboard and ran out of time searching for the letter. Kurt improved his typing speed by 11 letters per minute. Charlie improved his typing speed by 9 letters per minute. Tim was able to type an additional 13 letters. Miles refused to type for the baseline but on the posttest, Miles was able to type 11 letters per minute. Kelsey had the most improvement by typing 16 more letters per minute on the posttest.

Table 11: Students' Typing Speeds Pretest and Posttest Differences

Student Name	Number of Letters Typed in One Minute Baseline	Number of Letters Typed in One Minute Posttest	Difference in Typing Speed
Kurt	26 letters	37 letters	+11 letters
Vince	22 letters	20 letters	-2 letters
Charlie	16 letters	25 letters	+9 letters
Tim	16 letters	29 letters	+13 letters
Kelsey	10 letters	26 letters	+16 letters
Miles	Refused to type	11 letters	+11 letters

Lewis et al. (1998) surveys students and teachers on their perceptions of Co:Writer. Teacher and students liked the help of Co:Writer during the writing process. Teachers liked Co:Writer's word prediction because it provides students with word choices and models for students proper spelling, spacing and capitalization. One hundred percent of the teachers in the group that used word prediction with speech would recommend that other teachers and students use Co:Writer. One teacher said, "Kids ask to use it. Only program I've seen that has really helped my kids" (Lewis et al, 1998, p. 105). At the conclusion of my study, students were asked if they preferred to write using pencil and paper or write on the iPad. Four of my six students preferred to write using the iPad. Charlie stated that using word prediction made writing on the iPad easier. Vince thinks that

spelling using Co:Writer is easier. Kelsey believes that using Co:Writer to write makes writing more fun.

When asked to write in the beginning of the study, students moaned and groaned. Students frequently stopped to ask how to spell words, which disrupted their writing flow. Towards the end of the study, students were still asking how to spell words, but not as frequently. Students were taking time to try to spell the word before asking for help. With the increased typing and spelling skills, students were motivated to write. Two of my students were very excited to see the progress that they made in their writing abilities from September to December.

Flaws of Technology: There are several downsides of using technology in the classroom including: slow typing speeds, low reading levels, and lacking enough technology, which may result in students becoming upset, frustrated, or off-task.

When I decided to work with my third graders for my research project, I knew that there would be a lot of obstacles due to these students' achievement levels in writing and reading. Another obstacle I was going to have to overcome was students' slow typing speeds. In order to help students with their typing, I downloaded several iPad apps for students to use.

Using predictive text was difficult for some of my students to use because of their low reading levels. My highest reader, Kurt, had the most success at using the predictive text because he was able to read the choices that were provided by

the app. There were other downsides to using predictive text and text-to-speech with some of my students. At first, my students really struggled with determining the correct letters to spell unknown words. This caused a lot of student frustration. They knew they were not spelling the word correctly because of the text-to-speech option. Also, they were not typing enough correct letters in order to use the predictive text option. When students got stuck on spelling a word, it led to a lot of student frustration and students becoming upset. Once students started to take their time to “sound out” the word they wanted to spell, students had more success at spelling the words correctly, or spelling it close enough in order to use the predictive text.

Another downside of Co:Writer’s predictive text was one student liked to just press the word suggestions in order to complete her writing. Therefore, her writing was a sequence of random words. Also, she liked to press the text-to-speech option after every word she typed. This behavior may have been related to work avoidance.

Another downside of technology was the inability to save student work. This issue occurred on only one of the iPads I was using with students. Since the Apple ID account was linked to several iPads, students’ work on Co:Writer rarely saved from day to day. Since students were sharing iPads, students also had the ability to delete other students’ work. Students and I solved this issue by taking screenshots of students’ work. The other iPads with Co:Writer did not have this

same issue and students were able to save their work from day to day. When student work was not saved from day to day, it made it difficult to create graphic organizers on the iPad to use the next day.

***Methodology:* In order to teach students the writing process, I used a lot of prompting, modeling, and direct instruction in order for students to learn how to write an opinion paragraph using Co:Writer.**

In a research study conducted by James, Abbott, and Greenwood (2001), students' writing improved with the use of graphic organizers. Miles utilized a paper graphic organizer, whereas the other students used a graphic organizer on the iPad. The graphic organizer on the iPad was copied and pasted into a new document in order for students to generate complete sentences and insert transition words. Students were taught how to use the graphic organizer through direct instruction and modeling. When generating supporting reasons, students and I conversed about the story. Before starting the graphic organizer, students discussed the different supporting facts they were going to use in their writing piece. Each story that I read with students, I provided less support through the writing process.

For the posttest, students were asked to create a graphic organizer and an opinion writing piece independently. Students were able to take supporting reasons from the text to support their opinion of "Who Would Win? Tyrannosaurus Rex vs. Velociraptor". At the conclusion of the study, students still

needed prompting to insert transition words. When first asked to use transition words, my students were unable to provide examples, or use the examples I provided on the board correctly. For the first opinion writing piece, one student used the transition words in the order “first, last, and next.”

Miles just refused to use the iPad in the classroom to write. At first, I was unsure of what to do. But, I realized I can utilize the same techniques with Miles that I used with other students to help them become better writers. After closely working with Miles, I realized that he was not ready to use Co:Writer to write. He is still in the beginning stages of writing and identifying letter sounds. Therefore, using Co:Writer would not be helpful for him because he is not able to spell the words close enough to the real spelling to use predictive text or read the words that are provided by predictive text. Through using the techniques used with other students, Miles has become more independent in his writing and is able to produce sentences without the teacher scribing for him.

Teacher Emotion: There were many things that were outside of my control such as not enough time in the day and not enough technology, which led to occasional teacher frustration and becoming very overwhelmed.

Throughout the action research project, I discovered there were several things that were out of my control that led to teacher frustration. It was very difficult to execute this research project with the lack of technology in my school.

Students were required to share iPads, which made it difficult for students to practice their typing fluency or type a writing assignment.

Like most schools in Pennsylvania for the 2015-2016 school year, the school budget was tight. Therefore, I was unable to purchase Co:Writer on the iPad initially. I eventually decided to just use my own money to purchase the application for my students to use. The budget also affected the classroom teachers' iPads because they were not able to get Co:Writer on their iPads until March 2016.

I also struggled finding enough time to complete this research project with my students. Students came to small group reading and writing instruction four days per week for thirty minutes. I needed to carefully balance my time with my students in order to complete writing, reading, and progress monitoring. I also lost a lot of instructional time with students due to class trips, hikes, holidays, assemblies, and student absences.

Next Steps

Throughout the course of my action research study, I learned so much about my students, as well as new things about myself as an educator.

I continue to use the methods from my research study to instruct my third grade students for writing instruction. I have also used the methods with my fourth and fifth grade students. Through this study, I have learned the importance of using graphic organizers with students with learning disabilities. It allows them to organize their thoughts, as well as create enough details for their writing. I will continue to have my students create graphic organizers on the iPad. My students were more willing to add more information into the graphic organizer because when they are typing they are not expected to retype all of the information into a draft. I will use the simplified graphic organizer with my students to create informational as well as narrative writing pieces in the future. I have learned to be patient with students as they learned to use the program. As my students' reading levels increase, their abilities to use predictive text will also increase. I feel that the goals of my research study were met over the course of the action research study. My students are now excited to write, and they are able to create writing pieces independently. In using Co:Writer and graphic organizers, they have also become better writers. My students need to continue to work on their typing skills in order for typing to be an effective means of writing.

I plan to share my results of my action research project with my fellow colleagues. I hope that general education teachers will see the positive effects that Co:Writer has on struggling writer. This program can be used to supplement pencil and paper writing, not replace. I continue to encourage the regular education teachers at my school to use the application with their students in the classroom. I need to educate my colleagues on how to effectively use the program with students.

There were several aspects of my study that I would change if I were to conduct the action research study again. I think this study would have been more beneficial to my students if I had them for small group reading/writing instruction for an hour instead of just thirty minutes. Due to progress monitoring, absences, field trips, and holidays, I felt that students were not receiving enough reading and writing instruction. Students would have benefited more from the study if there were enough iPads for each student.

Through the course of the study, I discovered that using Co:Writer does not work for all students. I will continue to look for ways to help struggling writers succeed. Co:Writer is more beneficial to students who are able to read on at least a first grade reading level, and are able to phonetically spell words.

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Appendix A: PSSA Writing Rubric

PSSA INFORMATIONAL SCORING GUIDELINE

4	FOCUS	Sharp, distinct controlling point made about a single topic with evident awareness of task and audience.
	CONTENT DEVELOPMENT	Substantial, relevant, and illustrative content that demonstrates a clear understanding of the purpose. Thorough elaboration with effectively presented information consistently supported with well-chosen details.
	ORGANIZATION	Effective organizational strategies and structures, such as logical order and transitions, which develop a controlling idea.
	STYLE	Precise control of language, stylistic techniques, and sentence structures that creates a consistent and effective tone.
3	FOCUS	Clear controlling point made about a single topic with general awareness of task and audience.
	CONTENT DEVELOPMENT	Adequate, specific, and/or illustrative content that demonstrates an understanding of the purpose. Sufficient elaboration with clearly presented information supported with well-chosen details.
	ORGANIZATION	Organizational strategies and structures, such as logical order and transitions, which develop a controlling idea.
	STYLE	Appropriate control of language, stylistic techniques, and sentence structures that creates a consistent tone.
2	FOCUS	Vague evidence of a controlling point made about a single topic with an inconsistent awareness of task and audience.
	CONTENT DEVELOPMENT	Inadequate, vague content that demonstrates a weak understanding of the purpose. Underdeveloped and/or repetitive elaboration with inconsistently supported information. May be an extended list.
	ORGANIZATION	Inconsistent organizational strategies and structures, such as logical order and transitions, which ineffectively develop a controlling idea.
	STYLE	Limited control of language and sentence structures that creates interference with tone.
1	FOCUS	Little or no evidence of a controlling point made about a single topic with a minimal awareness of task and audience.
	CONTENT DEVELOPMENT	Minimal evidence of content that demonstrates a lack of understanding of the purpose. Superficial, undeveloped writing with little or no support. May be a bare list.
	ORGANIZATION	Little or no evidence of organizational strategies and structures, such as logical order and transitions, which inadequately develop a controlling idea.
	STYLE	Minimal control of language and sentence structures that creates an inconsistent tone.

PSSA NARRATIVE SCORING GUIDELINE

4	FOCUS	Sharp, distinct controlling point or theme with evident awareness of the narrative.
	CONTENT DEVELOPMENT	Strong story line with illustrative details that addresses a complex idea or examines a complex experience. Thoroughly elaborated narrative sequence that employs narrative elements as appropriate.
	ORGANIZATION	Skillful narrative pattern with clear and consistent sequencing of events, employing a beginning, a middle, and an end. Minor interruptions to the sequence may occur.
	STYLE	Precise control of language, literary devices, and sentence structures that creates a consistent and effective point of view and tone.

3	FOCUS	Clear controlling point or theme with general awareness of the narrative.
	CONTENT DEVELOPMENT	Story line with details that addresses an idea or examines an experience. Sufficiently elaborated narrative sequence that employs narrative elements as appropriate.
	ORGANIZATION	Narrative pattern with generally consistent sequencing of events, employing a beginning, a middle, and an end. Interruptions to the sequence may occur.
	STYLE	Appropriate control of language, literary devices, and sentence structures that creates a consistent point of view and tone.

2	FOCUS	Vague evidence of a controlling point or theme with inconsistent awareness of the narrative.
	CONTENT DEVELOPMENT	Inconsistent story line that inadequately addresses an idea or examines an experience. Insufficiently elaborated narrative sequence that may employ narrative elements.
	ORGANIZATION	Narrative pattern with generally inconsistent sequencing of events that may employ a beginning, a middle, and an end. Interruptions to the sequence may interfere with meaning.
	STYLE	Limited control of language and sentence structures that creates interference with point of view and tone.

1	FOCUS	Little or no evidence of a controlling point or theme with minimal awareness of the narrative.
	CONTENT DEVELOPMENT	Insufficient story line that minimally addresses an idea or examines an experience. Unelaborated narrative that may employ narrative elements.
	ORGANIZATION	Narrative pattern with little or no sequencing of events. Interruptions to the sequence interfere with meaning.
	STYLE	Minimal control of language and sentence structures that creates an inconsistent point of view and tone.

Appendix B: HSIRB Approval

2014-2015 HUMAN SUBJECTS INTERNAL REVIEW BOARD (HSIRB) PROPOSAL FORM

This form must be completed for any research activity involving human participants. All researchers should review the Moravian College Human Subjects Research Policy found at **p:\hsirb\MoravianCollegeHSIRBPolicy.doc** before designing and submitting their proposals.

When you have provided all of the information required in the proposal form below, please follow the submission instructions below. ***Please be aware that incomplete proposals will be returned to the proposer until they are complete.*** Failure to submit all documentation will delay the Human Subjects Internal Review Board (HSIRB) review of your research proposal.

Proposal Review Timetable: Please note that during the standard academic year when the committee meets regularly, it typically takes a minimum of two weeks (14 days) for the committee to review and respond to completed proposals. Most proposals require some modifications before we grant full approval and the revision process typically adds an additional week to the review process.

Submit **all** of the following:

1. This completed Human Subjects Internal Review Board (HSIRB) Proposal Form. Please make sure all required information is complete. We encourage completion of this proposal form as a Word document.
2. A copy of your Informed Consent form and/or other evidence of Informed Consent to voluntary participation [See HSIRB proposed Policy #MC.116 & MC.117. The policy statement can be viewed at Public/hsirb/.] You can also find helpful informed consent guidelines at public/hsirb.
3. A copy of all of your instruments (surveys, tests, etc.). If you are showing pictures or videos, a copy of these need to be submitted as well. You may provide links if the material will be accessible online.

Submit **electronic copies** of complete proposals to:

hsirb@moravian.edu

You have the option of either combining the various documents in one file or submitting separate files as email attachments, but **please make sure that the file name clearly indicates the section of the overall proposal package and the author.** So, for example, please call your document something along the lines of “johnson.proposal.docx” and “johnson.informedconsent.docx.” The preferred format for all materials is Word (doc/docx) or PDF. We understand that some materials

may only be available in other formats, but please make every effort to send files in one of those two formats. At the end of the approval process, we will collect **electronic signatures** from proposers and their faculty sponsors (if applicable).

Questions: contact

Dr. Sarah Johnson, Chair HSIRB
 Department of Psychology
 skjohanson@moravian.edu
 (610) 625-7013

Part I: RESEARCHER

1. Proposer: Leigh Nevitt-Kulp	2. Department: Masters of Education
3. Mailing address: xxxxxxxx	4. Phone: xxx-xxx-xxxx
5. E-mail address: xxxxxxxx@gmail.com	
6. This is a (please check): <input type="checkbox"/> New Proposal <input checked="" type="checkbox"/> Resubmission of a rejected Proposal <input type="checkbox"/> Renewal <input type="checkbox"/> Request for modification	7. Research Start/End Dates: Make sure you clearly define the start and end dates. Format as month, day, year. Start: September 2015 End: December 2015
7. Title of Proposal: To Type or Not to Type: That is the Question	
8. Faculty Advisor: Dr. Elizabeth Conard, Dr. Richard Grove, Thesis Chair	

Part II: PROPOSAL TYPE

1. This research involves **ONLY** the use of **educational tests** (cognitive, diagnostic, aptitude or achievement).

Yes
 No

2. This research collects interviews or surveys **ONLY** of **elected or appointed public officials** or candidates for such.

Yes
 No

3. This research involves **ONLY** observations of **public behavior**.

Yes
 No

4. This research involves **ONLY** existing data, documents, records or specimens.

Yes
 No

5. List the **research funding sources**, if any.
Not applicable

6. The results of this research will be published.

Yes
 No
 Uncertain

If you marked “yes” or “uncertain”, please provide a brief description of the possible forum of publication (for example, peer-reviewed journal, conference presentation, etc.)

Description of publication forum:
Online Moravian Thesis Database

In this next section, you will provide extensive details about the research project. Please make sure that your explanations/descriptions are clearly written and grammatically correct so that the committee can accurately follow and assess your proposal.

Part III. DETAILS OF THE RESEARCH PROJECT

1. In this section, you have the option of either addressing each of the following subheadings individually or together (since there may be some overlap) in your proposal narrative. If providing a narrative, please make sure that each of the following topics is clearly identified in the narrative.

Objectives:

- The researcher will investigate the observed behaviors and reported experiences of fourth grade students when implementing word processing for written expression.

- Student participants will use word processing to create graphic organizers for their writing.
 - Student participants will utilize word processing to generate their writing pieces as well as edit and revise them.
- a. **Design:**
- Week 1:
 - Teacher administers pre-survey about students' attitudes about themselves as writers.
 - Teacher administers pre-test on students' typing speed as well as their handwriting speed. <http://typing-speed-test.aoeu.eu/?lang=en>
 - Teacher administers two writing tasks to students. They will complete one task by hand writing and the other assignment by typing it. Teacher will use PSSA writing rubric to assess writing.
 - Introduce the new writing curriculum written by Lucy Calkins.
 - Week 2:
 - Students will free write on the computer for five minutes at the beginning of each class session.
 - Mini-lesson from Lucy Calkins, "Imagining Stories from Ordinary Moments". Students think of one small moments in time and think of at least five details to add to that event.
 - Students create their list of writing ideas on the computer.
 - Students memorize the steps of the writing process and work on their self-statements.
 - Students practice typing automaticity on the computer using a typing game.
 - <http://www.typingtest.com/games.html>
 - <http://www.funtotype.com/>
 - Week 3:
 - Students will free write on the computer for five minutes at the beginning of each session.
 - Mini-lesson from Lucy Calkins "Imaging Stories We Wished Existed in Our World". Students recall events from different stories that they wish were true in their own lives. Students add to their idea list.
 - Teacher models how to use the different features such as spell check and typing a capital letter.
 - Teacher models how to use the predictive text and text-to-speech function.
 - Students practice how to use those features as the teacher monitors student's progress. Re-teaching as necessary.
 - Students practice typing automaticity on the computer using a typing game.
 - <http://www.typingtest.com/games.html>
 - <http://www.funtotype.com/>
 - Week 4:
 - Students will free write on the computer for five minutes at the beginning of each session.
 - Mini-lesson from Lucy Calkins, "Developing Believable Characters". Teacher reads a story and together the class creates a list of internal and external character traits of the main character. Students work at creating internal and external character traits of their characters.

- Mini-lesson from Lucy Calkins, “Giving Characters Struggles and Motivations”. Students develop a list of motivations and struggles for their characters. They also work at creating the setting of their story. Students create their setting using pictures from clipart.
 - Teacher models how to cut and paste part of the text to move it somewhere else in the story.
 - Students continue to practice using the predictive text and text-to-speech function as well as how to cut and paste.
 - Students practice typing automaticity on the computer using a typing game.
 - <http://www.typingtest.com/games.html>
 - <http://www.funtotype.com/>
- Week 5:
 - Students will free write on the computer for five minutes at the beginning of each session.
 - Mini-lesson from Lucy Calkins, “Plotting with a Story Arc”. Students work at creating their plot line for their story. The teacher models that the plot lines of stories normally follow the traditional story line.
 - Teacher models how to create a graphic organizer on the computer.
 - Students create their graphic organizer for their story. Students will use what they have created for their character traits, character struggles and motivation, setting, and details for their story.
 - Students practice typing automaticity on the computer using a typing game.
 - <http://www.typingtest.com/games.html>
 - <http://www.funtotype.com/>
 - Week 6:
 - Students will free write on the computer for five minutes at the beginning of each session.
 - Students practice typing automaticity on the computer using a typing game.
 - Students begin to draft their narrative story.
 - Teacher re-teaches computer editing skills as needed such as capital letters, quotation marks, spell check, and predictive text.
 - Mini-lesson from Lucy Calkins, “Show, Don’t Tell: Planning and Writing Scenes”. Students work towards letting the scenes in their story unfold and adding in specific details like they do in small moments in time writing.
 - Mini-lesson from Lucy Calkins, “Feeling and Drafting the Heart of Your Writing”. Teacher models how to add emotions into the characters as events unfold. Students add emotions into their characters as they are experiencing events.
 - Students practice typing automaticity on the computer using a typing game.
 - <http://www.typingtest.com/games.html>
 - <http://www.funtotype.com/>
 - Week 7:
 - Students will free write on the computer for five minutes at the beginning of each session.
 - Students practice typing automaticity on the computer using a typing game.
 - Mini-Lesson from Lucy Calkins, “Studying Published Texts to Write Leads and Orienting Readers with a Setting”. Students are reminded that good writers always go back to their writing to reread it. Students also need to stay in the scene with their dialogue relating to the characters actions and setting.

- Students will continue to use the computer to type their narrative. Students can also add pictures to their story as they are writing.

Week 8:

- Students will free write on the computer for five minutes at the beginning of each session.
- Students practice typing automaticity on the computer using a typing game.
- Mini-Lesson from Lucy Calkins, “Revision: Rereading with a Lens”. Teacher models that during the revision stage. The reader need to read the writing with a revision lens on. Students work towards making their writing pieces better.
- Mini-Lesson from Lucy Calkins, “Editing with Various Lens”. Teacher models how to read with an editing lens. Students work towards editing their pieces to make it correct. They will make grammar changes as well as spell check.
- Teacher re-teaches as necessary how to cut, and paste text as well as spell check.
- Students will continue to use the computer to revise their story.

Week 9:

- Students will free write on the computer for five minutes at the beginning of each session.
- Students practice typing automaticity on the computer using a typing game.
- Class celebration of students published work.
- Students will continue to use the computer to type their writing assignments.

Week 10:

- Post-survey about students’ attitudes about writing motivation.
- Teacher administers post-test on students’ typing skills as well as their handwriting abilities (how many words per minute).
- Teacher administers two writing task to students. They will complete one task by hand writing and the other assignment by typing it. Teacher will use PSSA rubric to assess the writing.

b. **Procedures (makes sure you clearly describe what is required of subjects):**

- Over the course of approximately ten weeks, the researcher embeds using word processing into the writing curriculum (Lucy Calkins).
- Research collects three forms of data and engages in an ongoing reflection of the data that is collected.
- Observations of students while using the computer to write in the form of field log entries.
- Likert scale and open-ended student surveys before, during, and after the study.
- Student artifacts including written work that students have produced on the computer.
- Researcher analyzes data using coding process and creates theme statements.

c. Outline procedures/steps to reduce risks to subjects:

- Subjects’ names will not appear on any written reports of my research, which includes student surveys. All subjects will be given a pseudonym.
- The pseudonym key will be stored on a password protected computer that only I have access to. Any hard copies of material will be stored in a locked filing cabinet.
- The pseudonym key, field notes, and all other research materials will be destroyed at the conclusion of my study.

- -Participants have the right to withdrawal from the study at any time without penalty. They will be made aware of this at the beginning of the study through a consent form.

2. This research involves the following GROUP(S) vulnerable to risk. Check all that apply.

- Subjects under the age of 18
- Prisoners
- Pregnant women
- People with mental, cognitive, intellectual, or physical disabilities
- Volunteer sample so vulnerable group membership may be unknown

Research Design Note: If you are asking for volunteer participants, you will not necessarily know whether or not your participants are under 18, pregnant and/or disabled. In fact, your volunteers may themselves not know whether they fall into one of these categories. Therefore, if you are asking for volunteer participants, you need to think carefully about whether or not your research project could adversely affect someone in any of these categories, and if so, how you might try to either screen out these individuals and/or design the project so that the risk to these individuals is minimized.

2a. If you checked any or all of the groups identified above, explain why you need to use the group and the methods you will use to minimize risk. If your research design proposes no special risks to these vulnerable individuals even if they happen to be included in your sample, please state why:

I need to include students in my study that are under the age of 18 because I will be working with students who are in fourth grade who are between nine and ten years old.

To minimize risk to these participants, pseudonyms will be used instead of student's real names. The key for the pseudonym names as well as my field notes and data will be stored on my password protected computer or in a locked filing cabinet at my house. At the conclusion of the study, all of the research materials will be destroyed. The subjects have the right to withdraw from the study at any time without penalty. Students and parents/guardians will be informed of this right through a consent letter.

3. This research might affect people with special vulnerabilities (for example, pregnant women, people with allergies, people taking some medications, people with cognitive impairments such as ADHD, etc.)

Research Design Note: Think carefully here again about whether or not your research design could negatively affect people with special vulnerabilities. For example, does your research design require so much concentration and/or computation that it might result in considerable stress for someone with a cognitive impairment? Are people completing your instrument in solitude or in a group setting? Might comparative performance result in excessive stress?

- Yes
- No

If you checked "Yes", explain the methods you will use to minimize risk to these people.

My research project will include student participants who have an IEP or a 504 plan. I will follow the student's accommodations in their plans to minimize risk as well as work closely with their special education case manager.

4. Describe your subject pool including:
- the intended number of subjects
 - subject characteristics/demographics

a. The number of students in my study will range between five and ten.

b. Characteristics of the subjects will include the following:

- Fourth grade students who have an IEP.
- Students have goals in their IEPs for math, reading, and writing.
- Most of the students have a specific learning disability in a specific content area such as reading, writing or math. Some of the students are also diagnosed with Attention Deficit Hyperactive Disorder.
- Most students are classified as itinerant support, meaning they are in the general education classroom for more than 80% of the school day.
- None of the students have physical disabilities, which would prevent them from using the computer or iPad.
- Some of the students also have it written in their IEPs that they are able to use computer, if desired, to complete written assignments. Due to lack of technology in previous years, students have chosen to just hand-write their assignments.
- All students are familiar with using technology to complete written assignments including computers and iPads.
- Ages ranging from nine to ten
- Mix of males and females
- Racially, ethnically, and/or socioeconomically diverse

5. Describe in detail the methods you will use to recruit your subjects.

The students are assigned to me based on their need for in-class support for the 2015-2016 school year.

6. This research involves **deception** of subjects.

<input type="checkbox"/>	Yes
<input checked="" type="checkbox"/>	No

If you checked "Yes", describe the nature of the deception and your debriefing procedure. You will need to provide the debriefing statement with the full proposal submission. Even if the debriefing will be done orally, you need to submit the text of the verbal statement that will be read to participants.

7. Explain by whom and how the subjects will be informed of the purposes of this research project. (*Remember to provide a copy of the informed consent form with this proposal form.*)

As their teacher, I will explain to the participants the purpose of my research study.

All of the students will be given an assent form that describes the purpose of my study as well as the procedures I have in place to protect their identity. Students will need to sign the form to give assent to participate in the study. An additional consent form that outlines the purpose of the study as well as procedures that I have put in place to protect their child's identity will be given to the subject's parents and/or guardians to grant permission to participate in the study.

I will receive my building Principal's permission before beginning the study. The building principal will also receive a copy of the consent letter explaining the purpose of my research study.

8. This research collects information, which (check all that apply)

- | | |
|-------------------------------------|--|
| <input type="checkbox"/> | deals with sensitive aspects from the participant's point of view. |
| <input checked="" type="checkbox"/> | identifies the subject by name or number codes . |
| <input type="checkbox"/> | might place the subject at risk of liability if made public. |
| <input type="checkbox"/> | might place the subject's financial standing or employability at risk if made public. |

Research Design Note: *Think carefully about whether or not your research deals with topics that may be sensitive from the participant's point of view. Sometimes it is not obvious to the researcher that the subject of their research may be a sensitive topic for others.*

If you checked any or all of the categories above, explain the methods you will use to

- a. safeguard the data you collect (you need to describe this safeguarding procedure in detail, including but not limited to a description of how the data will be protected (for example, in a locked cabinet), whom will have access to the data, and how and when the data will be destroyed)
- b. inform subjects of available support services (If your participants are drawn from the Moravian College community, please provide contact information for the Counseling Center, Campus Safety and the Health Center—contact information available on the HSIRB website. For participants drawn from other communities, please provide the comparable support service information.)
- c. minimize the risk of identification of subjects.

The data collected from this study will be safeguarded because all of the information will be either kept on my password-protected computer or locked in a filing cabinet at my house. This data is confidential and will not be shared with anyone except for my Moravian faculty sponsor.

The subjects will be informed about the available support services through the consent letter. They will be notified of my availability as well as my Moravian faculty sponsor's availability if they have any questions or concerns about the study.

To minimize risk, the subjects in my study will be referred to by pseudonyms in the written research report and the material will be stored in a secure location. At the conclusion of my study, all of the written material/ field notes will be destroyed.

Appendix C: Principal Consent Form

September 2015
Dear Mr. XXXXX,

In addition to being a special education paraprofessional, I am also currently a graduate student working towards my Master's degree in Curriculum and Instruction at Moravian College. This semester I am enrolled in a class called *Reflective Practice Seminar*. An important component of my coursework is to conduct a research study to reflect my own teaching practices and how I can better meet the needs of my students. My hope is to increase student's written expression and motivation in writing through the use of technology.

Students will be using the regular writing curriculum, but they will use iPads or computer to complete their writing assignments. Students will work on their typing automaticity by playing typing games. Also, students will be taught how to use the different features on the computer such as text-to-speech and predictive text function. Students will be taught how to edit on the computer to fix spelling errors as well as move text from one spot to another.

This study will take place from mid-September through December 1, 2015. I plan to gather data to support my study through observations, student writing, surveys, and interviews with students.

Any and all material that relates to the student's identity will be kept in the strictest confidence. All students will be given a pseudonym. Please be aware that the parents are under no obligation to have their child participate in this research, and if they opt to allow participation, they have the right to end participation at any time without penalty.

If you have any questions or concerns regarding my research study, please feel free to contact me. You may also contact my Moravian College sponsor, Dr. Joseph Shosh, at XXX-XXX-XXXX or by e-mail at shoshj@moravian.edu.

Sincerely,

Leigh Kulp

I attest that I am an Administrator of the teacher conducting this research study. I have read and understand the consent form and I have received a copy of it. Leigh Kulp has my permission to conduct this study from September through December 2015 at Seven Generations Charter School.

Signature

Date

Appendix D: Parent/ Guardian Consent Form

September 2015

Dear Parents and/or Guardians:

In addition to being a learning support teacher, I am also currently a graduate student working towards my Master's degree in Curriculum and Instruction at Moravian College. This fall I am enrolled in a class called *Reflective Practice Seminar*. An important part of my coursework is to conduct a research study to reflect my own teaching practices and how I can better meet the needs of my students. My hope is to increase student's written expression and motivation in writing through the use of technology. Students will be using the regular writing curriculum, but they will use iPads or computer to complete their writing assignments. Students will work on their typing automaticity by playing typing games. Also, students will be taught how to use the different features on the computer such as text-to-speech and predictive text function. Students will also be taught how to edit on the computer to fix spelling errors as well as move text from one spot to another.

This study will take place from mid-September through December 1, 2015. I plan to gather data to support my study through observations, student writing, surveys, and interviews with students.

I will only use information collected from students who have permission to participate in the study in my written research report. Any and all material that relates to your child's identity will be kept confidential. All students will also be given a pseudonym. I am asking for your permission to use the data gathered pertaining to your child's involvement. Any accommodations or SDI's (Specially Designed Instruction) in your child's IEP (Individualized Education Plan) will be utilized throughout the course of my study. Please be aware that you are under no obligation to agree to have your child participate in this research, and if you choose to participate, you have the right to end participation at any time without penalty by emailing me or calling the school at 610-XXX-XXXX.

If you have any questions or concerns regarding my research study, please feel free to contact me. The Principal, Mr. XXXXX has approved this study and is available to answer any questions you may have. His email is XXXXXXXXXX. Please feel free to also contact my Moravian College sponsor, Dr. Joseph Shosh, at XXX-XXX-XXXX or by e-mail at shoshj@moravian.edu

Please sign and check the appropriate response below. Please return the bottom portion of this letter as soon as possible. Thank you for your help!

Sincerely,

Mrs. Leigh Kulp

-
- I give permission for my child's data to be used in this study.
 - I do **not** give permission for my child's data to be used in this study.

Date

Student's Name (please print)

Signature of Parent/Guardian

Appendix E: Student Consent Form

Dear _____,

Mrs. Kulp needs your help! As part of a class that I am taking this fall at Moravian College, I need to observe my students and how they write using computers. All you need to do is do your writing using a computer. I will teach you how to use different things on the computer to help you become a better writer. You can stop being part of the study at any time by telling or letting one of your parents know. Your participation in my study will have no effect on your grades.

I want to participate in this study.



Name: _____ **Date:** _____

Appendix F: Student Writing Attitude Survey

 Edit this form

Student Writing Attitude Survey

* Required

I like to draw. *

- not at all
- a little
- some
- a lot
- a whole lot

I like writing stories *

- not at all
- a little
- some
- a lot
- a whole lot

Writing is boring *

- not at all
- a little
- some
- a lot
- a whole lot

I like to write stories in my spare time. *

- not at all
- a little
- some
- a lot
- a whole lot

I enjoy writing notes and letters to people. *

- not at all
- a little
- some
- a lot

a whole lot

I like writing at school. *

not at all

a little

some

a lot

a whole lot

I have trouble thinking about what to write *

not at all

a little

some

a lot

a whole lot

I think I am a bad speller. *

not at all

a little

some

a lot

a whole lot

I wish I had more time to write at school *

not at all

a little

some

a lot

a whole lot

I like to share my stories with other people *

not at all

a little

some

a lot

a whole lot

I think that I am a good writer. *

not at all

a little

some

- a lot
- a whole lot

I like to make a list of ideas before I write *

- never
- sometimes
- always

Drawing a picture helps me get ideas for writing *

- never
- sometimes
- always

My final version of writing might be very different from my first version *

- never
- sometimes
- always

How do you feel about writing? *

What kinds of things do you write at home? *

What do you think is important to be a good writer? *

How do you feel about yourself as a writer? *

What I like about my writing is.. *

List 3 goals that you will work towards in your writing. *

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6) What is one thing that you really like about your writing?

7) What are two things you want to improve in your writing?

8) Do you prefer writing on the iPad or using pencil and paper?

9) What typing game do you think is making you a better typer?