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Integrating Technology into Kindergarten Writing Program

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Abstract

The purpose of this action research project was to determine if incorporating technology into a kindergarten-writing program could increase their motivation and attitudes, and hence improve their writing abilities. Two types of technology were introduced to the writing program; one being an electronic portfolio to share their work and the second was a digital story writing software. Data was collected by use of attitude surveys, observational notes, and student writing samples. Analysis of the data suggests that students were more engaged during the writing time and were very motivated to write if they could publish it to their online portfolio.

Keywords: technology, motivation, kindergarten writing, digital story telling

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Children today are exposed to numerous forms of technology as early as the age of two years old. Smart phones, iPads, and other hand held devices are now a part of children's daily lives. Touch screens are found at tables in restaurants for diners to play games while they wait. Touch screen technology can also be found at the supermarkets and department stores to look up items or pay for orders. Bar codes can be scanned to find out more information on products. Technology is everywhere in our society. Schools must embrace this and move forward in realizing that students are already very knowledgeable and interested in technology and screens before entering kindergarten. Morgan (2015) argues that due to children's increased exposure to technology, students now respond to instruction differently than in the past and this leads to a need for teachers to integrate digital resources into their curriculum.

Technology can be used in so many ways and it advances and changes so quickly that educators must continue to stay up to date in its applicable uses. Flewitt, Messer, and Kucirkova (2015) express that research continues to show ambivalence and resistance by teachers to the incorporation of new technology, especially in early literacy. Teachers must be willing to explore ways to enhance student learning and give students new avenues to express what they know and can do. As expectations for young learners have increased with the adoption of the common core, some students appear frustrated trying to meet these new requirements. It would be valuable to change from the traditional approaches and practices and think outside the box when it comes to helping students meet these new standards.

Many kindergarten children are expected to participate in a thirty-minute writing workshop every day. This is not handwriting instruction in letter formation, but instruction in composition or story writing. Students are expected to be able to formulate a topic or idea and

write sentences to go with their idea. Students are expected to place spaces between their words, use correct punctuation and capitalization, and to use inventive spelling as best as they possibly can to write their words. Problems arise when some kindergarten children enter school not yet holding a pencil correctly. Young students struggle to form letters correctly and are not able to draw a recognizable person much less a picture that is detailed enough to encompass what they have formulated in their mind. This leads to much frustration when a teacher attempts to implement the writing period at the start of the school year. New technology is available that can help those students who lack the coordination skills feel more successful by giving them a way to compose a story digitally. Beam and Williams (2015) state many kindergarten writing programs only offer paper and pencil tasks, which does not capitalize on students previous knowledge or experiences with technology. Technology can give them the pictures they need to help them formulate ideas and writing with their finger on a touch screen could be easier if they have not yet mastered a pencil grip.

Many students do not recognize the purpose for writing stories. Some do not find it engaging and get off task. They lack any motivation even if they are quite capable in their skills. One student who was interviewed by a teacher was asked why she writes her stories every day. She responded, “I don’t know. To keep them in my writing folder.” This is evidence that students need to see a purpose for their work. It is not simply to practice and to improve their writing and only share it with a teacher. Students need to understand that the purpose is to share and express ideas with others. Sylvester and Greenidge (2009) point out the benefits of using digital technologies to expand the students’ audience beyond that of child and teacher. Many new technology platforms exist to provide a way for children to have an authentic audience outside their classroom and to give them more motivation to want to write.

This knowledge, combined with the proven interest that young children have in using technology and screens, makes this a needed topic for research. The overarching guiding question is can implementing a writing program that includes the optional use of a digital story-writing program, and a platform to share their work electronically, increase the student motivation and hence increase their writing abilities?

Review of Literature

Writing Instruction

Handwriting that includes more than just letter formation for kindergarten students emerged in the 1970's and early 1980's (Routman, 1995). At that time, many educators believed that the writing process should not be taught until students could recognize letters, sounds, and words (Johnson, 1988). Graves and Calkins (2013), however, believed that children were already technically 'writing' through pictures and symbols long before they entered school, and could be taught much earlier than this (Johnson, 1988; Routman, 1995). Many studies on emerging writing led to descriptions on the developmental stages of writing. Johnson (1988) took these works that included Atkins, Gentry, Kamii, Dyson, Hipple, and Wiseman, to create a teacher's digest of writing levels. The levels are identified as scribbling, curvy lines, arranging letters in different ways, tracing and copying letters and symbols, transitional spelling (applying some letter sounds), and conventional spelling (Johnson, 1988). Lucy Calkins (2013) went on to create curriculum books on how to introduce writing to young students using the writers' workshop. In her book, Launching the Writing Workshop, (2013) her detailed steps have formed the basis for many kindergarten teachers to develop students into emergent writers. Both Calkins and Graves firmly believed in not giving students formal writing assignments but just letting them write about their interests (Routman, 1995).

Other studies state the significance of young children receiving formal penmanship instruction before composition writing as it is vitally important to future school success (Vander Hart, Fitzpatrick, & Cortesa, 2009). These researchers would argue that students need the kinesthetic learning involved in repetitive letter writing to build neural pathways which assists in retrieving letters from memory much quicker when they do start composition writing. Handwriting difficulties that arise from no instruction can also hamper the young learner's ability to express themselves, causing much frustration for the child (Vander Hart et al., 2009).

Digital Story Telling

In recent years, as technology has saturated the scene, digital storytelling has become another way for students to creatively tell a story and demonstrate what they know. These new, technology infused methods, can help teachers to motivate students, promote learning, and encourage them to develop 21st century skills (Morgan, 2014). There are many ways to incorporate what has been coined as digital story telling. Some start by forming a story in a traditional method with paper and pencil, and then integrate it into a digitized form. It can also be considered a digital story by simply using photographs with text and narration, or they can be more elaborate with video, music, or sound effects (Morgan, 2014). The rapid increase in new technologies such as tablets and iPads have fueled the interest in digital composing even with elementary students (Dalton, 2012). The process is becoming more and more simplified with easy to use tools and apps (Dalton, 2012).

Advantages to Technology in Writing

Being literate in today's world has broadened to include many more skills than just reading printed text (Sylvester & Greenidge, 2009). Creating a digital story is a way for students to use old and new literacies together. When students create digital stories, they are more

motivated and thus remain engaged throughout the whole project (Sylvester & Greenidge, 2009). These stories also provide struggling students an alternative way to express themselves if traditional methods do not work for them. It can help them gain confidence and discover their voice (Sylvester & Greenidge, 2009). Digital storytelling has also been shown to improve reading fluency, vocabulary, and to get reluctant readers excited about literacy activities (Morgan, 2014).

Sylvester and Greenidge (2009) studied three types of struggling writers and what benefits could be found by adding digital storytelling for each. The first type of struggling writer promptly begins and completes a writing assignment, but does not put effort in to revising or polishing. Digital storytelling, where it can be viewed on a screen, makes them more aware of audience and hence increases their motivation to edit and polish their product. A second type of struggling writer is one whom is easily distracted and disengaged when given a blank sheet of paper. Digital story telling promotes active engagement and collaboration, which helps this type of student stay focused and engaged on a writing assignment for longer periods. The last type of struggling writer is one that has creative ideas, but often leaves out important details in pictures and text. Using a digital storyboard allows this writer a better way to view the sequence of events and to add more details using the images (Sylvester & Greenidge, 2009).

IPad apps were also shown to increase the writing skills of students in a fifth grade classroom when paired with supplemental teacher instruction (Sessions, Ok Kang, & Womack, 2016). Benefits found during this study were improved collaboration, motivation to persist at a writing task, stronger visualization skills, and more precise sequencing of their story events (Sessions et al., 2009). One of the strongest effects of using the iPad versus paper and pencil

methods was seen to be the students approach to writing and the decisions they made. Seeing their ideas on the screen made writing decisions easier (Sessions et al., 2009).

Flewitt, Messer, & Kucirkova (2015) found that when integrating iPads into early learning environments, practitioners changed their attitudes and concerns about using technology as they saw the benefits and possibilities emerge. The findings show, not only were children motivated to learn with a touch screen; they also had longer periods of concentration and engagement in literacy activities (Flewitt et. al, 2015). The study also cited that the adults developed a new interest and better attitudes in using the iPad with the students. It was noted that just the addition of an iPad alone would not have been enough to increase literacy skills or motivate the learners. In order to achieve the intended purpose, careful planning and support by confident adults was also needed (Flewitt et al., 2015).

Others have also studied the need for adult assistance when implementing technology with young students. Korat, Shamir, and Arbiv (2010) looked at the effects of eBooks on writing instruction with and without adult assistance. The results showed that just the addition of the eBook alone was not enough to boost children's writing abilities. The eBook when paired with assistance from a capable adult who could activate the student's prior knowledge, give immediate assistance or feedback, and make the learning process more efficient, is when the most writing growth occurred (Korat et al., 2010).

Preschool children typically learn to tell stories verbally and many are not able to recall a story from memory until much later (Kervin, 2016). They may need an object or picture clue to jog their memory when creating or re-telling a story (Kervin, 2016). Digital story telling is a great way to assist young children to overcome this issue as they may use pictures to tell or create a story.

Authentic Audience using Technology

Giving students an authentic audience has also been an effective way to encourage writing. Watson (2015) in her blog on how to motivate students to take ownership of their work points out that most students are not excited about writing if the only person who is going to see it is the teacher. She stresses the importance of giving students an authentic audience by finding a way to publish their work. Publishing or sharing their work with others gets them to work harder (Watson, 2015).

Beam and Williams (2015) observed a technology mediated writing instruction program with kindergarten students. The teacher used both a document camera and a whiteboard to share student work, which gave them the classroom as an audience. Students liked having their story under the camera for all to see and comment on. It was very motivational. Results showed technologies held a certain allure for the students. They were engaged and actively participated in all aspects of the writing program (Beam & Williams, 2015).

Publishing student work electronically is a great way to communicate with parents and get them more involved in their child's learning. Research has proven that increased parent involvement, has shown an increase in student achievement. Love (1996) stresses the importance of communication with parents, as it is the eighth item on the Goals 2000 Education America Act. This act points out it is the responsibility of the school to promote a partnership with parents to increase social, emotional, and academic growth of the child. Teachers must communicate to parents about what their child is learning in school (Love, 1996). With today's technology and adults' fascination with smartphones, electronic platforms can be a great way to get parents to pay attention to their child's work. This will open up more conversations with their child about what they are learning in school.

Current Issues in Technology Integration

There are still many pitfalls to technology integration in writing instruction. Beam and Williams (2015) mention the need for more teachers to receive training, to have extra adults in the room to assist with the technology, and to have supportive IT staff that help set up and maintain student devices and programs. Morgan (2014) also noted that teachers lack preparation and confidence in using digital storytelling and suggests that many teachers do not pursue using it simply because they are afraid of the unknown and of looking unprepared in front of students (Morgan, 2014).

Balancing the integration of technology and media in meaningful ways that matter for students and are manageable for teachers is not a simple task (Dalton, 2012). There is still much research that needs to be done. Educators must continue to investigate the multiple ways to integrate technology into our students learning environment. Knowing that instruction without digital resources increases the chance of student boredom (Morgan, 2014); teachers must not let our fear of the unknown stop progression.

Methods

Participants

The Midwestern School District in this study serves 4,453 total K-12 students. The specific elementary school within this district houses 497 of these students. Eighty-nine percent of the district's students are proficient in reading and ninety-four percent are proficient in math. The elementary in this study received a grade of A+ by Niche (2017), and ranked as number one for best elementary school in the state of Iowa.

The overall district student population consists of 70% white, 9% Asian, 9% African-American, 7% Hispanic, and 5% are a mix of two or more races. Each elementary has its own

unique demographics. The elementary in this study had a minority student population of 28%, which is higher than the state average of 21%. The minority population consists of 15% Asian, 6% African-American, 3% Hispanic, and 4% a mix of two or more races. There are only 19% on free and reduced lunch, which is significantly below the state average of 41%.

The classroom in this study consists of 23 students. There are eleven girls and twelve boys. Two students are on IEP's for reading, writing, and communication. One of these students has been identified on the autism spectrum and has an individual teacher associate. This associate spends time assisting with both IEP students. Eleven students in this class are minorities and eight of these have a second language spoken at home. Of the minorities, seven are of Asian descent, two are African-American, one is Hispanic, and one is of a mixed race.

In the fall, this classroom only had three students not passing the states universal screening for reading ability. Two more students were just barely meeting the states cut off score. Students who pass the cut off score by a small margin are sometimes noted to be significantly below their peers in their pre-reading skills.

The district in this study is in its first year of providing one to one devices for all students in kindergarten through fifth grade. Each kindergarten and first grade student were given an ASUS Chromebook Flip for classroom use, and the second through fifth grade students were given a Chromebook ACER. The ASUS Flips have a touch screen and can be folded and used like a tablet. All teachers were given one hour of basic training on how to use these devices before the school year started, and had one professional development day devoted to technology during the previous school year. Media specialists are available in each building to seek advice and to trouble shoot when there are questions. Students take the devices to the media center every four days for instruction from the media specialist. Classroom teachers are expected to

explore ways to enhance student learning by incorporating the devices into classroom instruction.

Data Collection

The purpose of this action research is to explore if the use of these new devices in a kindergarten-writing program can be used to increase motivation and thus enhance student learning. The implementation and data collection process took place in a kindergarten classroom, over a three-month period from October to December.

Writing instruction methods. The teacher in this study first used the traditional methods to introduce the writing process and the writing workshop to kindergarten students. Beginning in early September, the *Units of Study* by Lucy Calkins and Amanda Hartman formed the basis for the writing curriculum (Calkins & Hartman, 2013). The initial unit, Launching the Writing Workshop (2013), is designed to help students believe they are all writers. The students learned to put their ideas on paper with pictures and words, build stamina, work independently, form images in their mind, stretch out words, and write even hard to write ideas. In the next set of lessons, students began to put their work into small books and sequence their ideas page by page. They were encouraged to ask questions to add more details to their work and to make their writing the best it could be.

The format of the thirty-minute kindergarten-writing block included a ten-minute mini lesson in which the teacher modeled a specific piece of writing. The students then spent ten minutes on independent writing with the teacher conferencing and coaching students. During this time, students were also encouraged to read their work to a partner. The partner was encouraged to improve their work by giving ideas or suggestions. The workshop would end by sharing samples of student work to further analyze and celebrate each piece.

After four weeks of these traditional approaches to writing, the first attitude survey was distributed and initial writing samples collected. Observations were made on which students seemed engaged and enjoyed learning to write and those that would become off task and constantly ask if they could be done. There were students who could not draw anything more than a stick figure, which limited their topic for writing. Others could not make decisions about what to draw or write, so they sat and starred at their empty paper.

Integration of technology. The first way technology was integrated into this study was to add electronic portfolios. An electronic portfolio is a new way for parents to view students' work and stay up to date on what is happening at school. The purpose of using an electronic portfolio in this study was to determine if adding an authentic audience for the students would increase their motivation to write. Students were shown and assisted by a parent volunteer on how to publish their writing into an electronic portfolio called Seesaw. Parents could view their child's work in the portfolio and comment on it. There were many obstacles to overcome in using this software with a Chromebook due to the location of the camera, the background noise when students were recording their work, and trying to publish their work from electronic sites to Seesaw. The media specialist was consulted on the benefits of an iPad station for the purpose of recording video to students' electronic portfolios. These were then assembled and used as 'publishing stations' complete with a cardboard divider to buffer the noise. Students received more instruction on how to publish their work using the station. Observational notes were taken on students' enthusiasm in finishing a story so it could be published. Documentation in their portfolios shows how many pieces of work a student published.

The second way technology was integrated into this research project was to give the students a new way to create a piece of writing using their individual Chromebooks and a

software program called Wixie. Wixie allows a student to create a story digitally. The students had already been introduced to this program and had practice it with the media specialist. This class was currently studying fictional stories focusing on fairy tales. The teacher modeled how to retell a fairy tale using the software. Using a laptop connected to a projector and displayed on a large screen, the teacher demonstrated the systematic process of how to start a piece of digital story writing. First, the character ideas were explored by using the sticker folder in the software. The students were given a few days to discover how to look into the sticker folder and narrow down the type of animal or person they wanted to use as their story character. Students learned how to use the back button to navigate in and out of the sticker folder. Next, they explored the scenery folders to discover how to create a setting. They went back to the sticker folder to find images to add to the scenery. The students then had to decide what to say about the pictures they created. They learned how to use the drawing tools to select the color and size of their pencil. They were able to use their finger to write on the screen to either add labels to their picture or a sentence. Finding a space to write a sentence was difficult. As the teacher observed her inability to always find the students writing, she explored the templates available in Wixie and found one that allowed space for the images on top with two lines below for students to place their attempts at sentence writing. New instruction was given on how to open the template to begin a piece of writing. The teacher again used the projector connected to her own device to demonstrate how to open a new template for each piece of work.

After two weeks of creating their digital stories with Wixie, students were given the option to choose either Wixie or the traditional paper, pencil and crayon method. The teacher noted that it was almost an even split between the choices. Some would consistently choose the same method and others preferred to switch back and forth throughout the week. After two

weeks of being able to choose which method they preferred, the students were given their second attitude survey. The same multiple-choice questions were presented to the students, but this second survey included two more questions on the use of the new technology.

Data collection methods. Data collection methods included both quantitative and qualitative methods. Using a mixed method approach for this study was the best choice as the focus is on student attitudes and motivation, but also on the impact to their learning. One quantitative method was the use of a student questionnaire. The teacher read the ten questions to each participating student. Each question had three possible answers. Yes, sometimes, or no. These surveys showed the percent of students who chose to answer the question in a favorable way or a negative way, and if those perceptions changed over the course of integrating the new technology. The questions focused on student's attitudes and confidence about their writing ability. The questions included:

- I like to tell stories.
- I like to draw pictures.
- Writing my story is fun.
- I can write a short story all by myself.
- I am good at adding details to my pictures and my stories.
- I can write about my picture.
- I can read my writing to my audience.
- I can spell many of my own words.
- I use spaces correctly in my writing.
- I use capital letters in the right places.

Two additional questions were asked after implementing the new technology. Those questions were:

- I like to use Wixie to make stories more than paper and pencil.
- I like to put my items into Seesaw so my family could see them.

Quantitative data was also collected in the form of student writing samples. These were collected from each student before and after the addition of technology. The writing samples were scored on a thirty-two-point rubric, which focused on common core state standards for kindergarten (see Appendix A). This quantitative data provides a way to analyze the degree of change in student performance on the task of writing a narrative story.

Qualitative data was collected in the form of observational notes from the classroom teacher and from an informal parent survey. One purpose of the qualitative data was to see if relationships existed between students' use of technology and a change in their writing rubric score. Observations were made on which students preferred to continue to use the digital story-writing program after the two-week lesson, and on how frequently students were publishing written work into their electronic portfolio. The second purpose of the qualitative data was to observe the level of engagement and student endurance during the writing workshop. The final purpose was to analyze if the use of electronic portfolios for distribution of student writings gave the students more motivation to write, as they had a new audience. Parent surveys were distributed to see if they used the electronic portfolio to view student work and if they had noticed a change in their child's attitude about writing since the addition of the technology. The response to the initial survey was minimal, with only four parents responding. Questions were informally asked again during parent teacher conferences.

The information gained from both the attitude surveys and classroom observations will be valuable in analyzing the impact of adding technology to motivate kindergarten students to write. The writing rubric scores will help determine if students were learning more about the writing process and still increasing their scores when using the digital story creation method. The data analysis could reveal if one method over the other had a greater impact on their scores. Many students, who may not have preferred to use their device to create a digital story, were still using the electronic portfolio to share their work with a broader audience. The data collected about their use of the electronic portfolio can help determine if this was a motivating factor to improve their writing.

Findings

Data Analysis

When looking at the quantitative data collected, it is apparent that students did improve their writing ability (see table #1). The writing rubric had a possible score of 32 points. The base line scores collected in October showed a median score of 15 points with an average score of 10.8 points. The December writing rubrics showed a median score of 22 points and an average of 15.4 points. The median score increased by seven, with the average increase being 4.68 points. Whether the students were choosing to use the digital story writing software on a daily basis did not seem to make a large difference in their overall writing score increases. The ten students who consistently chose to use the digital story writing method, had an average rubric score increase of 6 points compared to the overall class average of 4.68 points. Of the seven students who published the highest number of items using the electronic portfolio, they had an average point increase of an eight on their writing rubrics. This would lead to a conclusion that the motivation

of having an authentic audience may have had a greater impact on student learning than the digital story writing software.

In analyzing the qualitative data, the researcher noted that in September, the students were mainly writing words and phrases that the teacher had modeled such as “I like ___.” The December samples showed growth in branching out on their own thoughts and ideas. For example, one student wrote a sequence of events about going on a trip to Minnesota, another wrote about the parts of a steam engine. The words for these stories were much more complicated to sound out and the students had to put much more thought into their work. The combination of rubric scores, with observational notes from the teacher, showed growth not only in the students writing ability but also in the content.

Table #1 Comparison of Student Writing Scores

Student #	October rubric score	December rubric score	Change in score
1 #	15	19	+4
2 P	14	20	+6
3 P	21	26	+5
4 #	8	15	+7
5 P	15	22	+7
6 #	19	28	+9
7	9	20	+11
8 # L	15	16	+1
9 P	20	28	+8
10 P	18	23	+5
11 #	11	15	+4
12 #	8	18	+10
13 #	22	32	+10
14 #	24	27	+3
15 * L	10	10	0
16 P	18	27	+9
17 #	15	23	+8
18	14	23	+9
19 # L	11	16	+5
20	23	30	+7
21 P	20	29	+9
22 L	9	16	+7
23 * L	8	10	+2

*****Student on an IEP for writing and communication.
Students observed choosing the computer vs. paper and pencil almost daily.
P-Students who published the highest number of items.
L –Student had a low score on state screener.

When looking at the data that was collected from the questionnaire (see Appendix B and table # 2), it is evident that student's attitudes and confidence about their writing ability did increase after the addition of the new technology. Scores show that in both October and December, many students already had favorable opinions in that they liked to draw, tell stories, and thought writing was fun. Scores in these categories did not change as much as in other areas. The most notable growth can be seen in the questions that focused on student's confidence in

their own writing abilities. In October 39% of the students did not feel confident they could write a short story by themselves, and only 26% felt they could write about their pictures. By comparison, in December, only 18% felt they still could not write a short story and only 4.5% thought they could not write about a picture. When asked if they could add details to their pictures and writings, 22% of the students did not feel they were capable of doing this in October, while in December, zero students had a negative attitude about their ability on this skill. In looking at their confidence in reading what they had written to an audience, the scores showed that in October only 48% felt capable of this task. By December, that number had grown to 77%. The questions about using correct mechanics in their writings such as: where to place the capital letters and using spaces between words, were the most difficult for the students to rate. In October, many did not even know what these questions meant so their answer was simply a guess. By December, many knew where their capital letters should go and where to use appropriate spaces, so they were more critical of their abilities when answering these questions. When looking at the data in table two, the student's overall confidence in their writing mechanics still increased but not as significantly as other scores.

Table # 2 Student Attitude Survey Results

Survey questions:	Oct. % yes	Oct. % sometimes	Oct. % not really	Dec. % yes	Dec.% sometimes	Dec. % not really
I like to tell stories.	82.6	4.3	13	90.9	4.5	4.5
I like to draw pictures.	95.7	0	4.3	90.9	0	9.1
Writing my story is fun.	87	4.3	8.7	90.9	0	9.1
I can write a short story by myself.	43.5	17.4	39.1	72.7	9.1	18.2
I am good about adding details..	69.6	8.7	21.7	86.4	13.6	0
I can write about pictures.	52.2	21.7	26.1	95.5	0	4.5
I can read my writing to an audience.	47.8	30.4	21.7	77.3	9.1	13.6
I can spell a lot of my words.	21.7	26.1	52.2	63.6	13.6	22.7
I know where to use spaces.	43.5	21.7	34.8	36.4	36.4	27.3
I know where to use capitals.	34.8	17.4	47.8	31.8	54.5	13.6
January survey technology questions:				Yes always	Sometime	No never
I like to use Wixie more than paper and pencil.				36.4	36.4	27.3
I like to put items into Seesaw.				86.4	9.1	4.4

Observational notes also support the attitude change found after the introduction of the new technology. In September and October notes show that during the writing workshop many students would ask, “Can I be done yet?” Some sat with blank papers throughout the entire ten to

fifteen minutes of independent writing time saying, "I don't know what to write about." Off task behaviors that were observed included: tipping chairs, tapping pencils, staring at others, wanting to use the bathroom, and talking about things other than their writing. After the technology pieces were introduced in November, students no longer asked if they could be done. The most often asked question was, "Can I publish this?" The room was quieter and students were on task even when they were talking to others. Conversations about how to find pictures for their story were overheard. The loudest noises the teacher typically heard were those of excitement over the types of pictures they created using the digital software. The students did not sit with blank paper. Those students were now using the digital story telling software. It was also noted that even though the writing rubric scores of the students on IEP's did not increase, the communication that was generated by creating digital stories was very beneficial to both the students. They could choose a picture and tell about it using the microphone on the computer.

After six weeks of using the new technology the two additional questions in the survey show that just slightly over one third really like to use digital software exclusively, another third like to use it sometimes. This left only 27% who did not like it at all. Of the students who did not like using this software, two of them (9%) also had poor attitudes about writing and scored low on the states screener. The other four (18%) who said they did not like the software were students who really liked to draw pictures and preferred to produce using traditional methods.

When asked about adding items to an electronic portfolio so their family could see them, 86% of the students said they always like to use it and another 9% said they sometimes like to use it. This left only 4% that did not enjoy sharing their work with an authentic audience electronically. Noting that there was about the same number of parents that never looked at their

child's portfolio, this data would leave me to assert that these students still did not truly have an audience to share it with, hence they did not like to use the electronic portfolio.

When parents were informally asked about the electronic portfolio during parent teacher conferences, they all had highly favorable comments on receiving student work through this platform. They said their child was always excited to see and share the video of them reading their writing to the electronic portfolio.

Discussion

Whether the same writing rubric point increases would have occurred without the incorporation of technology is not known, as there was no control group. Scoring a piece of writing is also a very subjective process. The researcher attempted to alleviate some of this bias by using a standard rubric and assigning student numbers so she was not aware of whose writing she was evaluating when assigning a score.

Student gains in their writing ability could also be attributed to other forms of writing instruction that was provided at other intervals through out the day. During phonics lessons, students were asked to write out the sounds of simple words and learned to memorize and write sight words. Writing mechanics were stressed during other portions of the day besides the writing period. Both of these factors could have contributed to the increase in rubric scores. Seeing that the scores did not decrease when technology was offered as an alternative method leaves the researcher to conclude that using technology can be a viable alternative to the kindergarten-writing program.

The student surveys were done one on one with the teacher researcher asking the questions. This might have led to students feeling pressured to answer the questions in a favorable manner to please the teacher. They were each told to answer honestly and that it was

acceptable not to like something or not be able to do it correctly. Knowing the young age of the students, it was thought that they would be more honest with the classroom teacher whom they trusted versus an outside observer. Overall, the researcher felt the students answered the questions accurately and true to their abilities that were observed during the writing period.

The integration of technology did get more of the students engaged and on task during their independent writing time than just using paper and pencil. They were very creative and excited to produce their own fairy tales with different characters. However, after the initial digital story-writing project of making a fairy tale was over, the students did not produce as many completed pieces using the new software. Searching for pictures seemed to occupy a lot of their writing time. This slowed down the process of finishing a short story. The researcher felt that the actual writing process became secondary to creating the illustrations. A few students also began to use the software for other purposes such as designing abstract paintings. It was soon discovered the Media specialist had different expectations and outcomes for the use of this software than the classroom teacher. The Media specialist gave them free time to explore the tools in any way they wished. This had created confusion for the students in what the intended purpose of the software was during the classroom-writing period.

Based on these factors, the researcher would recommend that when integrating digital story writing software into a kindergarten classroom, it be done with specific structures in place and an intended purpose of what the student is to produce. It is also recommended that with any software, the expected use and purpose should remain the same between both teachers integrating it into their classrooms. At this age, students are not able to understand why they can use a program one way in one setting and not in the other.

The other form of technology integration during this action research was to add an authentic audience for the students by use of an electronic portfolio. This was a highly motivating piece for the students as was shown in the survey. Parents also had favorable comments about seeing what was happening at school and being able to ask their child about their writing when they got home. An extra benefit that the researcher had not anticipated was that she now had better documentation of the student's ability to write and to read his or her own writing. Many other additional uses of this electronic portfolio were soon realized and incorporated as well. Noting the high number of students and parents that had favorable responses to using an electronic portfolio, it is the researcher's belief that is a great way to motivate students not only to write, but to demonstrate other skills as well.

Conclusion

The purpose of this action research was to see if adding a digital story telling software and an authentic audience to a kindergarten-writing program could increase their motivation to write and if this new motivation could improve their writing abilities. Based on the findings, it was observed that both technology pieces were highly motivating for the students and their ability to write showed significant improvements. This researcher would strongly encourage the use of integrating technology into kindergarten-writing programs especially in the use of an electronic portfolio. It is a highly motivating piece and very easy to use. She would also recommend integrating the digital story writing software into the writing program but only with intended purposes and specific projects in mind. Teacher knowledge of how to create an assignment for this age level will be key to utilizing this software to its maximum potential. It would also be beneficial to alternate between the two methods of writing described in this study. Students should be encouraged to learn and explore the traditional style using paper and pencil to

create stories as well as the new digital story telling way. This creates a well-rounded experience for them.

The next step for this study would be to use some comparison groups to see if the writing rubric scores would be the same regardless of the addition of a digital story writing software and the use of an electronic portfolio. This could give a more accurate picture of which piece of technology had a greater impact on student writing abilities. It may also give a better picture of student attitudes on classroom writing instruction with and without technology.

If this process were repeated, it would be recommended that the researcher allow more time to find and train adult volunteers to assist students in learning to use the software and programs. There were moments when the teacher was pulled away from direct writing instruction for long periods to assist with technology glitches or misunderstandings. It would also benefit students to have more time to explore the digital story writing software before beginning direct instruction. This may have alleviated some of the time they spent just looking at the interesting pictures.

Overall, both pieces of technology integration had positive impacts. The student writing scores improved and they showed improved attitudes and confidence in their abilities. It is hoped that the information that was gained from this project will assist and encourage other teachers to add technology into their writing programs. The benefits seen for students should be enough motivation for teachers to jump in and try it.

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Appendix A

Writing Rubric

Child's Name:

Kindergarten Narrative Writing Rubric-Fellows Elementary (Based on common core state standards)

Foundational Skills	1	Understands that words are separated by spaces in print. (FS.K.1.c)	1	2	3	4
Writing Standards	2	Writes about one single event or several loosely linked events. (W.K.3)	1	2	3	4
	3	With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed. (W.K.5)	1	2	3	4
Language Conventions	5	Writes many letters legibly. (L.K.1.a)	1	2	3	4
	6	Spells simple words phonetically, using alphabetic principle. (L.K.2.a)	1	2	3	4
	7	Writes a letter for most short vowel sounds. (L.K.2.a)	1	2	3	4
	8	Capitalizes the first word in a sentence and the pronoun I. (L.K.2)	1	2	3	4
	9	Begins to recognize, name, and use end punctuation. (L.K.2)	1	2	3	4

Key:

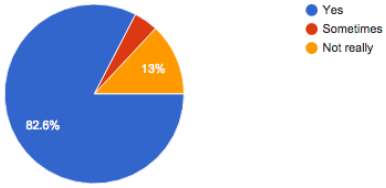
4	Child fully meets or exceeds the criteria for this standard.
3	Child is showing good progress towards meeting this standard.
2	Child is still inconsistent in showing progress towards meeting this standard.
1	Child is needing more assistance and time to be able to meet this standard.

Additional comments:

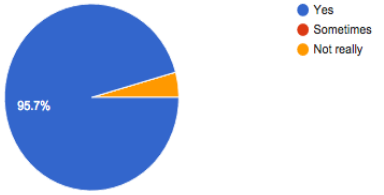
Appendix B

October Attitude Survey

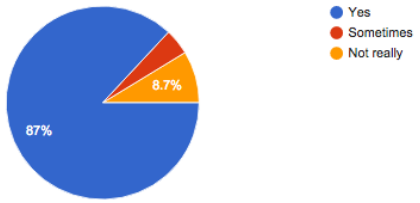
I like to tell stories. (23 responses)



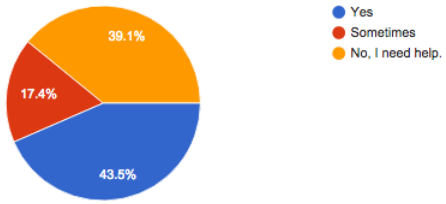
I like to draw pictures. (23 responses)



Writing my story is fun. (23 responses)

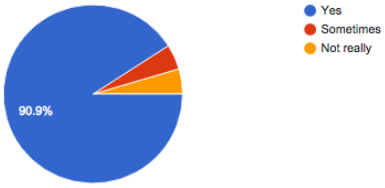


I can write a short story all by myself! (23 responses)

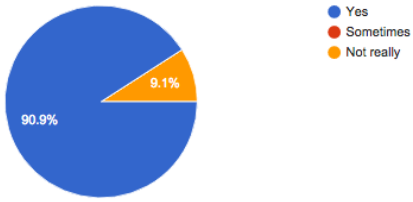


December Attitude Survey

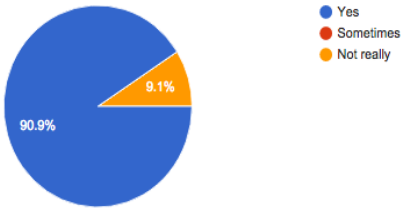
I like to tell stories. (22 responses)



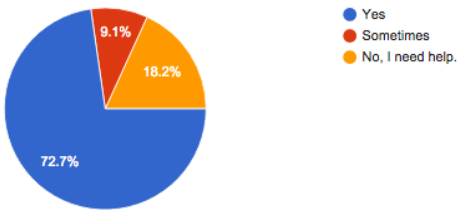
I like to draw pictures. (22 responses)



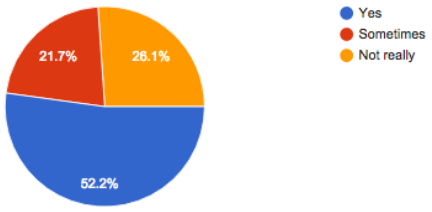
Writing my story is fun. (22 responses)



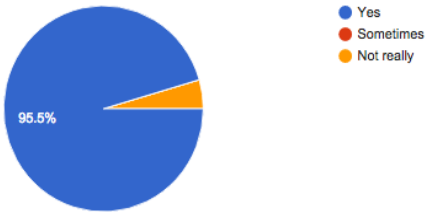
I can write a short story all by myself! (22 responses)



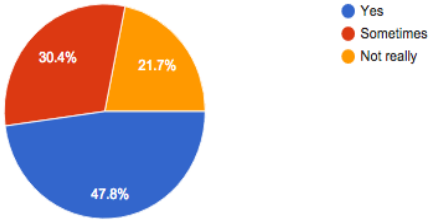
I can write about my picture. (23 responses)



I can write about my picture. (22 responses)



I can read my writing to my audience. (23 responses)



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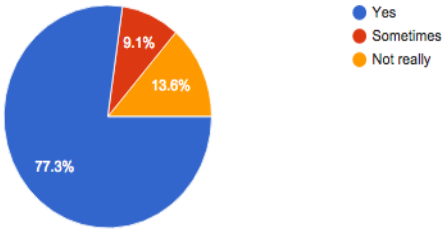
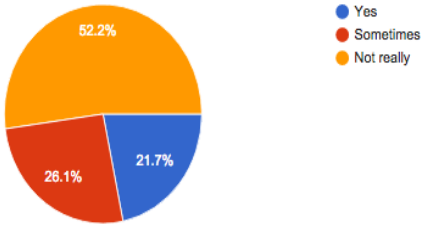


I can spell a lot of my own words. (23 responses)



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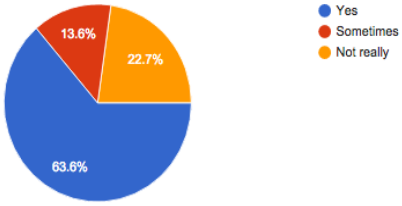
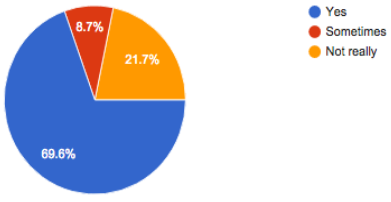


I am good at adding details to my pictures and my stories. (23 responses



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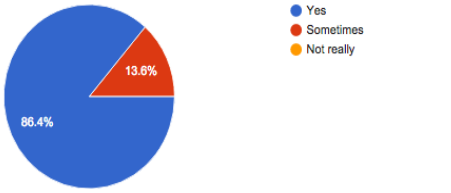
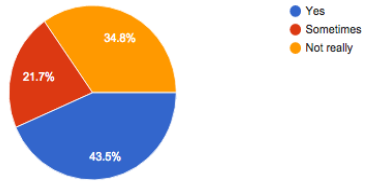
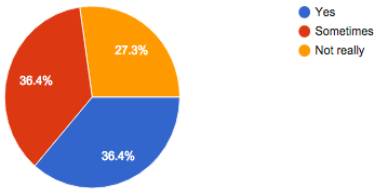


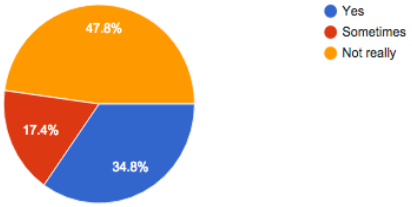
I know where to use spaces in my writing. (23 responses)



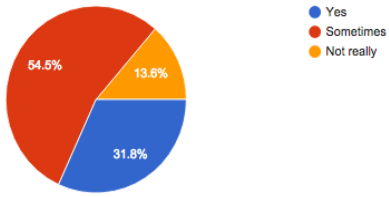
I use spaces correctly in my writing. (22 responses)



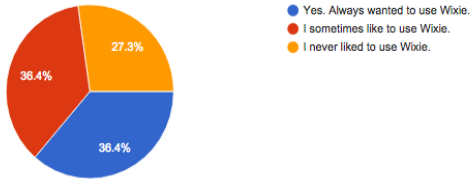
I know where to put my capital letters. (23 responses)



I use capital letters in the right places. (22 responses)



I like to use Wixie to make stories more than paper and pencil. (22 responses)



I like to put my items in Seesaw so my family could see them. (22 responses)