



## Teaching with Technology: An Examination of Literacy Instruction and the Use of Technology with Teacher Candidates and Elementary School Students

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### ABSTRACT

The article describes teacher candidates' perceptions of the instructional effectiveness of integrating literacy and technology during the field experience component of a literacy methods course. An examination of the impact of the inclusion of technology with literacy instruction on student engagement was also conducted but no significant patterns of increased engagement were found.

### AUTHOR BIOGRAPHY

Keli Garas-York is an assistant professor in the department of Elementary Education and Reading at Buffalo State College. She is also the director of the Buffalo State College Literacy Center. Previously, she was a classroom teacher and a reading specialist.

Joelle Bennett and Chantal Wiedemann are currently seniors at Buffalo State College and are majoring in Exceptional Education and Childhood Education (Grades 1-6). Both would like to pursue advanced degrees in Literacy.

The purpose of this project was to take a closer look at the use of technology during literacy instruction. We sought to examine the teacher candidates' perceptions of the instructional effectiveness in integrating literacy and technology and the impact using technology during literacy instruction has on student engagement using qualitative methods such as observations, reflective journals, informal interviews and surveys.

We wrote this article from the perspectives of a literacy methods course instructor, Keli Garas-York (KGY), and two teacher candidates in the literacy methods course, Chantal Wiedemann (CW) and Joelle Bennett (JB). Chantal's and Joelle's experiences are highlighted in this piece, but multiple teacher candidates' perspectives on technology were examined via pre and post surveys and observations of various lessons where teacher candidates incorporated technology into literacy instruction. We also provide data on student engagement as it pertained to the literacy instruction involving



technology. This project was funded by a grant from our school's College and Community Partnerships Office.

As the instructor for a methods course relating to literacy (KGY), I wanted to expose the sixteen teacher candidates in my methods course to current technological devices used in schools and to provide opportunities for them to use technology with students as they planned and implemented their literacy lessons.

The grant money was used to purchase a personal response system (a class set of clickers for student response and the software to use them) and a notepad which served as somewhat of a portable Smart Board. These devices were introduced during the first few weeks of the semester while the teacher candidates attended class on campus. I modeled how they could be used and allowed the students to experiment with them on a few occasions. The teacher candidates were asked to work in groups to come up with a lesson using technology to review a book read by the entire class as preparation for their fieldwork. Then the devices were made available to the students when they began working in a local elementary school during the mornings twice a week for the rest of the semester.

The teacher candidates completed their fieldwork in a suburban (middle-class, predominantly Caucasian) elementary school in Western New York. They worked with mentor teachers in Kindergarten through grade three. The school made a computer lab, Smart Boards, and their own personal response system available to the teacher candidates. The teacher candidates were required, as part of the course, to incorporate technology into at least one of the literacy-related lessons they taught during their time at the school.

As we all became familiar with the various devices at our disposal (with no formal training due to time and monetary constraints), we realized that at times, it was challenging to incorporate this technology into literacy instruction. We address these challenges and other challenges that were faced by the teacher candidates as they used technology in their literacy lessons.

### **Project Overview**

Incorporating technology and instruction is nothing new, however; there will always be new technology and students with varied strengths and needs to challenge teachers. Lai, Chang, and Ye (2006) reviewed many studies that discussed the benefits of using computers in reading instruction and found that gains were dependent upon how the computers were used. It is therefore well-known that technology can help students with their reading. Discovering how to apply technology to literacy learning, however, can sometimes be a challenge.

Some of our specific successes and challenges are outlined below. But we also found that sometimes literacy instruction and technology was a less than perfect fit. When faced with developing lessons for both classmates and the elementary students, our teacher candidates struggled to come up with ways to integrate the technology to adapt to both their instructional needs and their students' needs. In informal interviews, the teacher candidates expressed that they felt they were just using the technology because it



was part of their course assignments. It didn't naturally flow with what their mentor teachers expected of them and what the students were currently doing in the classroom. Most of them didn't receive a lot of support from their mentor teachers because technology wasn't consistently used in the classrooms.

After being required to use the technology, many of the teacher candidates indicated in post surveys that they felt more comfortable using it in the classroom.

### **Successes and Challenges**

The teacher candidates used technology in a variety of ways as part of their literacy instruction in grades Kindergarten through three. Some teacher candidates used the school's Smart Boards to introduce their lessons, for instance to show the children what they would be doing on the individual desktop computers in the computer lab. The Smart Board was used to walk the students through the various steps of an activity so they were able to then work independently.

In addition, the Smart Boards were used to show video clips related to the lessons, such as information on a particular author the class was studying. Karchmar (2004) explained how beneficial the Internet can be to build background knowledge, especially for struggling readers. A few of the teacher candidates used websites to help first graders learn more about the authors Jan Brett and Aliki. For instance, the students were able to watch a video of Jan Brett's trip to Africa and how it helped her to develop a book.

Finally, the Smart Board was used to have the students practice a skill, such as identifying examples of onomatopoeia. The teacher candidates built sounds into a Power Point presentation for the students and had the students touch the Smart Board and write on the Smart Board during an introductory lesson on onomatopoeia.

### **J.B.'s Perspective:**

I found that the students were more cooperative and engaged during my lesson that involved technology. They were excited and interested while using the clickers for a sequencing lesson. There is a timer counting down when the answer will be revealed as part of the personal response system (clickers) and the students counted with it and became very involved. Some drawbacks to using the clickers were that the students at times became so excited that things got really noisy and I had to keep stopping to make sure the students were focused. As well it took a bit of time to prepare the Power Point presentation that went along with the lesson containing the questions to which the students responded. Despite the few challenges I faced using the technology it was a memorable event for the students who were not frequently exposed to these devices as part of their regular school day. After the lesson, many of the students would ask if they were going to use them again whenever I came into the classroom.

### **C.W.'s Perspective:**

I experienced similar results when incorporating technology into my lessons on character traits and fact and opinion. I had the students develop character trading cards



based on an idea I found on the International Reading Association's readwritethink website. It was a two part lesson. The students had some instruction regarding character traits and listened to a read aloud. Then they selected a character from the book about whom they wanted to create a trading card. An outline of the card was completed prior to going to the school's computer lab to actually make the card. The students were told they would have the opportunity to complete the trading card in the computer lab and this served as a motivator to complete the outline. The students were thrilled to be working on the computers.

During the time in the computer lab, the students were very engaged and worked hard to complete their character cards. The students' outlines already showed evidence of what they had learned about character traits. I did encounter some difficulties. First of all, because the students rarely used technology, their keyboarding skills were limited. Typing even the short phrases on the character cards proved to be time consuming. In addition, the site containing the template for the character cards did not allow the students to save their work. They had to finish and print within the session or all was lost. The class only had a limited amount of time in the computer lab, so I had to retype many of the character cards for the students who were unable to finish.

I also utilized the clickers as part of a lesson on fact and opinion. The class had used the clickers one time before my lesson, so they knew how to operate them. As far as the students were concerned, the lesson went well. They paid careful attention as I reinforced the concept I was teaching by providing guided practice. Each child had a chance to respond individually and receive immediate feedback. Unfortunately, there were technical difficulties and I was not able to receive the responses from each student (the students were not aware of this). I did not have access to important data that would have allowed me to assess the students and then provide further instruction to those who needed it. Typically, I would have been able to print a list of responses and look at students' scores. Although this was disappointing, the use of technology was still beneficial for student motivation and focusing their attention.

### **Student Engagement**

Student engagement appeared to improve during lessons when technology was being incorporated. We collected some specific data related to student engagement using rubrics previously developed by Lutz, Guthrie, and Davis (2006). The rubrics helped us to examine affective, behavioral, cognitive, and social engagement. Four focus students were selected by their classroom teacher for observation of engagement. She chose students with different ability levels in the area of reading (three boys and one girl). They were John, David, Bobby, and Monica. The students were observed on six occasions. Their affective, behavioral, cognitive, and social engagement was rated every minute during fifteen minute sessions. They were given ratings of one, two, three, or four using the criteria set forth by Lutz, Guthrie, and Davis. A rating of four denoted the highest level of engagement.

The students were first observed and rated on their engagement during a lesson taught by their own classroom teacher. The rest of sessions were taught by the teacher



candidates with three of the five lessons involving technology. I used the rubrics to rate the focus students' engagement while the teacher candidates provided instruction (KGY). The scores for each student during each session were averaged in the four areas of engagement. The scores do not vary much as far as the areas of engagement, but there is some difference in engagement among the lessons. Upon examination of this qualitative data, no specific patterns emerged. We cannot say that the use of technology does increase student engagement due to the nature of the data and sample size. Both teacher candidates who served as co-authors of this paper felt that the excitement the use of technology brought led to a need to refocus the students more frequently. However, our assessments determined that the students comprehended what was taught during the lessons using technology.

### What Now?

We have determined through our experiences during the semester that we, as well as practicing teachers, still have a lot to learn about integrating technology and literacy. We sought to examine the teacher candidates' perceptions of the instructional effectiveness in integrating literacy and technology. Through our observations, informal interviews and surveys, we learned that the teacher candidates (and many of their mentor teachers) were initially reluctant to use the technology in their literacy lessons. After some initial exposure to the technology available in schools and positive feedback from mentor teachers and students, teacher candidates felt more comfortable integrating technology into their literacy lessons by the end of the semester. The teacher candidates reflected that there were some challenges that came with the use of technology, such as time constraints and difficulty getting the technology to work, however; the consensus was that the benefits outweighed the challenges involved in using technology to teach literacy.

In addition, we sought to explore the impact using technology during literacy instruction has on student engagement. Although the teacher candidates reported higher levels of student engagement and excitement during technology-based literacy lessons, no significant findings emerged through the use of observations and an engagement rating scale that would indicate that the use of technology leads to higher levels of engagement during literacy lessons.

Further research on the integration of technology and literacy instruction is recommended. Future studies may yield more information pertaining to the impact of technology on student learning and engagement in the area of literacy while helping to iron out some of the initial challenges presently faced by teachers and teacher candidates as they implement technology-based literacy lessons with their students.

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