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Use of iPads in Sixth-Grade Geography Instruction

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Introduction

There is a tradition of inquiry in the social studies disciplines which can be applied in elementary classrooms to engage children in learning about civics, history, economics, and geography. However, many children have minimal social studies learning opportunities, as contemporary educational pressures have resulted in a reduction of social studies instruction. Minimal preparation in social studies teaching and learning for elementary teachers is evident in Pennsylvania teacher certification guidelines and in university teacher preparation programs bound by those guidelines. Cornbleth (2015) suggests the constraints of teaching social studies may follow from "stifling climates" induced by political, school, or environmental circumstances that limit the meaningful teaching of social studies. Levstick (2008) contends that elementary social studies has become more limited in classrooms across the United States, elementary teachers may not perceive themselves as content experts, and there is often limited institutional support for elementary teachers to integrate social studies teaching into the daily classroom.

Additionally, research into the preparation and professional development of social studies teachers is limited in scope. Adler (2008) calls for a more unified, longitudinal approach to research in social studies education: one that is oriented toward improving the teaching of social studies. Like Adler's review, van Hover (2008) suggests that there does not exist a comprehensive knowledge base about professional development of social studies teachers (p. 355). Social studies teachers engage in a variety of professional development experiences which range in quality, duration, and effect. Further, van Hover (2008) reports that the professional development of social studies teachers often uses topic-based workshops and short-term learning experiences, which we now see as outdated and less effective practices. This suggests that current professional development models are necessary for social studies teachers' professional growth.

Such circumstances validate the need for a greater focus on elementary social studies. They suggest the need for encouraging elementary teachers to reflect on their social studies teaching and enhancing teacher professional development. Teacher action research presents an opportunity to support teachers' understanding of social studies instruction.

We assert that engaging elementary teachers in social studies–focused action research can encourage teachers to enhance social studies in their classrooms. We expect that action research experiences can build teacher confidence and support teachers in developing renewed interest in social studies teaching. However, we see few published examples of classroom-based social studies action research. This may suggest that social studies is not often selected by teacher action researchers as a focus for their work, or that few teachers or researchers seek publication of their work. A review of journals publishing teacher research shows numerous studies focused in reading/language arts and mathematics disciplines as compared to the few examples of social studies–focused projects. This absence of social studies action research projects is confirmed by our university experience instructing teacher research within a master's of education program. Fewer than 1% of teachers have selected social studies–oriented research topics in our MEd programs, 2007–2018. However, the limited published examples of action research in social studies does not confirm an absence of inquiry into social studies teaching and learning. A review of presentations at national conferences and state social studies conferences as well as published articles in social studies journals provide evidence of general inquiry into social studies teaching and learning. Though it is unclear whether or not teachers follow a formal action research model in these instances, there is evidence of teachers' focus on improved teaching and learning in social studies.

This raises two questions for university faculty preparing elementary teachers and for school teachers and administrators: (a) How can we engage teachers in the investigation of their teaching practices to enhance their work with elementary children as learners of social studies? (b) How can we channel professional development or action research to enrich teachers' focus on their teaching of social studies?

We believe that encouraging teachers to select social studies instruction as a topic of inquiry in MEd programs or as part of teacher evaluation options will increase opportunities to enhance social studies teaching and learning in elementary classrooms. We believe that teacher action research can provide an effective professional development opportunity that can enhance elementary teachers' confidence, understanding, and focus on social studies teaching and student learning in the K–6 classroom.

Currently, Pennsylvania teacher evaluation requirements allow for differentiated supervision modes as alternatives to the clinical observation model used to evaluate classroom teaching (Pennsylvania Department of Education, 2013, p. 2). Options include teacher inquiry and reflection via portfolio construction, peer collaboration/observation, or action research. According to the Pennsylvania Department of Education, the Self-Directed Model/Action Research Mode suggests that teachers may "work individually or in small groups, dyads or triads, to complete the action research project" (p. 3). The guidelines also suggest that action research "meeting notes, resources, data collection tools, and the results of the reflective sessions

should be shared with the principal and used as evidence in the supervision and evaluation of the employee" (p. 3).

As schools in Pennsylvania use the differentiated supervision options that have been available to them since 2013, we hope that building leaders will encourage teachers to select action research and support their work. We see the option for teacher action research under differentiated supervision as an opportunity to examine best practices in elementary social studies. In this article, we present an example of teacher action research in social studies conducted by a sixth-grade teacher with previous teacher research experience. We hope to raise discussion among readers on the topic of action research in social studies teaching in K–6 classrooms and encourage inquiry into social studies.

The Teacher Action Research Model

Teacher action research, when conducted within our MEd program, includes the following common steps: (a) identification of a research topic or question; (b) review of the related literature; (c) development of a research methodology, including selecting the research sample and determining plans for data collection and analysis; (d) collecting and analyzing data; (e) drawing conclusions from the data; and (f) suggesting implications for changes in one's classroom teaching. We have used course texts from Falk and Blumenreich (2005), Hendricks (2013), Hubbard and Power (2006), and Mills (2014) to support teachers' work. Within our program, teacher research is completed with the following assumptions:

- the researcher is also the teacher of record and is investigating her/his own teaching and student learning;
- the sample or participants are drawn from the students in the classroom;
- the research follows university and school protocols related to ethical standards for research;
- data collection is compatible with the daily life of the classroom, not detracting from the "regular" learning environment;
- findings, conclusions, and implications are context-specific; and
- while findings may be useful for teachers in different contexts, they are intended to be used to improve teaching and learning within the teacher-researcher's classroom alone.

We work together with teachers in our MEd program as they design and implement their research projects. They have the support of a university faculty member as instructor and critical friend and the support of teacher colleagues for peer debriefing as they complete their research projects.

When conducted outside of the structure of a graduate course, however, teachers may have fewer supports and may be unfamiliar with the action research model. As reported anecdotally by current teachers in our MEd program, school districts encouraging action research as differentiated supervision are developing protocols for teachers' work. Opportunities to support these initiatives and teachers in completing action research in the school setting are worthy of additional exploration and conversation.

Teacher Research in Social Studies—An Example from the Field

We chose to work together as sixth-grade geography teacher and university critical friend to implement and reflect on the process of action research in social studies. Through this example, Rob, a sixth-grade teacher, now elementary principal, shares his learning and experiences in conducting action research in social studies in his classroom. Rob completed his first action research experience in his elementary classroom, spring 2012, as culminating assignment in his MEd program at our university. This second action research experience was completed during the 2014–2015 school year under the differentiated supervision option used in Rob's district. His experience serves as a beginning example of how practicing teachers can utilize an action research methodology to inquire and enhance their teaching and children's learning of social studies in the elementary classroom.

Rob's Experience—Integrating iPads in Sixth-Grade Social Studies

I chose action research in social studies as a focus for my teacher evaluation requirement during the 2014–2015 school year for several reasons. The structure within my Grade 5 and 6 upper elementary school building gave me the opportunity to examine social studies during one period per day. I was interested in increasing student engagement in social studies, an area where I observed less student engagement than when teaching science to the same group of students. Finally, examining the possibilities for collaboration and engagement in social studies via the use of iPads fit perfectly with the previous work I had done in my own classroom with an iPad pilot program. I could further develop my use of iPads with students, specifically within the social studies curriculum. I was interested in understanding the potential for technology to enhance my teaching of social studies.

The sixth-grade students in my district experienced social studies through a geography-focused curriculum. During 2014–2015, I taught geography one period per day and rotated to see four groups of students throughout the school year. I also taught four sections of science as the remainder of my teaching assignment, in addition to meeting with my homeroom group of sixth graders for a 30 minute study hall/support time. I had the opportunity to teach the same unit on South America consecutively to four different class sections. I knew I would be able to focus on one class at a time and have opportunities to improve instruction with each future class based on student feedback and data. This format provided the opportunity to use my action research findings to inform my teaching of the same content during the same school year.

At the time of the action research project, I was interested in examining my use of iPads within the social studies curriculum, since iPad use was a new focus for our district. I was able to reserve a class set of iPads for use during my social studies instructional period as well as during study hall, when students typically finish work from earlier in the day. This provided me the opportunity to investigate the use of iPads in social studies teaching and learning. Simultaneously, I used the action research project to fulfill my evaluation requirements for the year.

My action research project was designed to understand how the use of specific technologies requiring peer teamwork could be used to enhance to student-to-student and student-to-teacher

collaboration and cohesion. We used the Google Classroom platform and other "creation" apps as collaborative tools. I was interested to see if collaboration via Google Classroom and creation apps could support students' learning and preparation for our common unit assessment, which all students were required to take. The South America unit exam served as the common sixth-grade assessment as well as the curriculum coinciding with my action research project. Furthermore, I wanted to provide students with a structured opportunity to evaluate and apply the best application options for multiple instructional tasks. My professional goals for the school year included being able to evaluate various iPad apps for their use in summative and formative assessment. Finally, I wanted to find content-specific apps that would help bridge curriculum with Pennsylvania Core Standards in reading and writing in history and social studies. The action research project as a differentiated supervision option allowed me to systematically investigate each of these elements while integrating new technologies into sixth graders' social studies learning. Familiarity with the action research model from my MEd program also assisted me as I conducted a second action research project, this time without the university structure and teacher collaboration available in the graduate class setting.

The Action Research Design

During the 2014–2015 school year, I utilized an adapted action research methodology to frame my inquiry into the use of iPads and Google Classroom to promote peer collaboration and engagement in the sixth-grade social studies classroom. Part of my school district evaluation assignment included: (a) determining best practices in technology, (b) exploration and evaluation of iPad apps for best instructional practice, and (c) measuring student growth and comfort in the use of the selected technologies (iPads) for development and submission of social studies class work. School district requirements also included framing the action research assignment under Charlotte Danielson's model used for teacher evaluation in our state—planning/preparation, classroom environment, instruction, professional responsibilities—as per state evaluation requirements (Pennsylvania Department of Education, 2013). At the beginning of my research, I examined a limited selection of articles in the relevant literature and utilized three main articles to frame my inquiry, as per expectations under the differentiated supervision process.

During a period of 8 weeks, students were learning about South American geography. Classes met daily and students used the following iPad apps and programs for learning about South America: Shadow Puppet to present South American landforms, Tap Maps to learn political geography, Socrative as formative assessment to identify all required South American landforms, and PicCollage to categorize four Brazilian regions. Students also used Doceri to present the human geography of Pacific South America and Google Classroom for discussion throughout the unit. Finally, Kahoot! was used as a comprehensive review game prior to completing the unit exam. During the 8-week unit on South American geography, I collected data from: (a) student preliminary, intermediate and post-unit surveys; (b) teacher observations and reflections; (c) student work samples from Socrative, Shadow Puppet, and PicCollage assignments; (d) the unit exam; and (e) lesson plans. I met regularly with my coauthor as university partner and critical friend throughout the research period. Simultaneously, I identified, selected, and evaluated various available apps for integration during the South America unit and reported on the percentage of app use before and following the inquiry.

Action Research Findings

I was familiar with data analysis processes from my earlier work as action researcher in 2012. During the 8-week unit, I regularly evaluated lesson plans and reflections, conducting informal interim data analysis, suggested by Johnson and Christensen (as cited in Hendricks, 2013, p. 138). At the end of the 8-week period, I followed a similar process for organizing and coding data for emergent patterns and themes as suggested by Shank (as cited in Hendricks, 2013, p. 155). I organized and examined survey data, lesson plans from the current and previous year, lesson reflections, and student work samples for patterns and themes. In order to strengthen the validity of my work (Hendricks, 2013, p. 168), I reviewed data and findings with critical friend and university partner as a form of peer debriefing, engaged in continuous reflective planning, and corroborated my findings with multiple data sources. Findings were derived primarily from three sources of data, including: observational records, final reflections developed for my school district report, and student survey responses about app and program preferences. Findings suggested that my students were more engaged in learning as a result of technology-based collaborative opportunities, that familiar or easy-to-use apps may influence student engagement, and that collaborative tools allowed me to integrate opportunities for higher order questions and thinking.

Collaboration

Collaboration via iPads to explore social studies content increased student engagement. Flexible and frequent regrouping was important in stimulating student engagement, as evidenced by student survey responses, observations of students during group work time, and evaluation of student work samples as they utilized various technologies to complete group work assignments. In my observational notes and reflections, I referenced observations of student work during collaborative assignments. For instance, as students used threaded discussion via Google Classroom, I noted, "Using discussion thread in Google Classroom is very popular with the students. Classroom discussion is active. Students are participating. Students who don't typically participate in class are not shy during online conversations." I noted that "while collaborating with iPads on content, student engagement levels seem heightened. Students enjoy working in small groups." I also recorded that "students comment about their positive experiences with frequently changing groups." In my final reflections, I referenced observations about children's "growth in learning and understanding content as they were able to view peers' work added to shared documents." Additionally, student surveys were used to understand students' initial reactions and perceptions of use of iPads in learning. When asked to report positive and critical/negative experiences in using various apps, 21 of 31 students provided comments. Ten of the comments specifically referenced positive experiences using the iPad apps or programs as a result of partner or group work. Others noted enjoyment with apps that were used collaboratively without providing specific comments about group work.

Through the majority of the unit, students worked together to complete a task using the iPads. This required a change in instruction for me and an increase in the use of grouping and collaborative work in my class. Observations and student surveys as well as my overall reflections at the end of the unit supported the positive experiences for sixth graders as a result of greater collaboration with peers. I did not expect to learn that through collaborative structures, students who typically did not respond in class were more likely to engage in group discussion,

increasing each student's ability to participate and demonstrate their understanding of content while collaborating with peers. In end-of-unit surveys, several students noted the opportunity for learning as a result of group work, regardless of their comfort with speaking in front of classmates. One student noted, "Google classroom was a great way to see each other's thoughts without having to speak out loud." Two students noted the change in classroom environment, allowing quieter discussion via online collaboration and suggesting their ability to participate because of the quieter collaborative environment. Initial findings suggested benefits of continued, deliberate use of student collaboration as an important structure when using new technologies. In the future, I would like to conduct further research to study the impact iPads have on collaborative learning and group dynamics within the classroom. In my current role as building principal, though I will not have my own classroom, I can use my action research experience and findings about collaboration to encourage our elementary teachers to consider a similar investigation into the use of technology-based instructional strategies that facilitate collaboration.

Selection of Apps and Programs

Students responded differently to the use of various apps. Data from student surveys, post-lesson reflections, observations, and student work samples support the finding that iPad apps easily accessible to students (ease of use) and that allow variety in knowledge acquisition hold promise for continued use in social studies learning. Apps or programs that allow for conversation/discussion on a social studies topic via a format they enjoyed (handheld devices) were most engaging for students.

Students were asked to note apps that they most enjoyed using for learning during their South America unit. Of the seven apps introduced during the unit, students noted preferences for Google Classroom (12) and PicCollage (11). Additional understanding of student preferences is necessary; however, I can infer that previous experience with Google Classroom [20 of 21 students] may have created a sense of ease of access for students using Google Classroom and related components like Google Docs for discussion, research, and sharing.

In my reflections, I noted that "PicCollage is easy to use, save, and edit, while serving as a useful tool in acquiring new knowledge." One student noted the use of PicCollage when studying the regions of Brazil "because it made comparing and contrasting easier."

Conversely, students rated apps that were more challenging to utilize, less familiar to them, or used in whole-class or independent learning as less engaging than those used in small-group or partner settings. The lesser rated apps included Shadow Puppet, Kahoot!, Doceri, Socrative, and Tap Maps. Of all apps used during the South America unit, Shadow Puppet, Doceri, and Socrative were the most challenging to navigate and the least familiar to students. Kahoot!, Doceri, Tap Maps, and Socrative were used in whole-class learning, independently or for review work that did not require peer interaction. This suggests to me that the apps rated as least preferable did not allow for collaboration and that collaboration may have been hindered by difficulty navigating the apps.

In my examination of lesson plans and my use of PicCollage in the previous school year, I recognize that in 2013–2014, I used PicCollage in base groups or independently to represent

understanding of South American countries. However, in 2014–2015, I utilized flexible grouping strategies where students worked with a variety of group members via jigsaw grouping. This suggests that my action research focus encouraged me to adapt my teaching using technology for greater collaborative learning experiences. My initial findings suggest a need to pre-assess student skills and experiences in navigating each app in order to determine the need for initial instruction on the use of the app. A succinct period of instruction prior to use of unfamiliar or more challenging apps may yield stronger student confidence and result in greater engagement in learning.

Enhanced Opportunity for Higher Order Thinking

Using Google Classroom discussion threads can offer opportunities to engage students in rich, deep questions. Using Google Classroom helped me to further develop my questioning techniques with my sixth-grade students. In order to direct student learning, I needed to prepare questions for discussion threads in advance of the lesson. I found that this allowed me to examine the type of questions I used to extend student understanding of content presented. I noted in my final reflections that "creating strong questions to lead discussion threads was pivotal in facilitating meaningful, deeper conversations for my students." I also found that students far surpassed my expectations using Google Classroom (specifically Google Docs) for homework assignments. As evidenced in student work samples and confirmed by my postlesson reflections, observations of student work, and student survey responses, grouping students to answer questions posted on a Google Doc "allowed me to push them toward the upper levels of their zone of proximal development." I felt no student resistance with these challenging questions that may have otherwise led to less thoughtful responses if completed orally in class discussion, where only a few students share their responses. Additionally, as noted earlier, online discussion threads allowed for full-class student involvement and for inclusion of students who may not typically respond orally in class to full-group question/answer periods. This offers promise for engagement and collaboration within the classroom, as students demonstrated growth in understanding from seeing each other's work added to the shared document. I noted in my reflections that "students were eager to see my feedback" on their group discussions, an option that discussion threads provided where full-class oral discussion would not. Finally, I recorded in final project reflections that the use of online discussion "offered an opportunity to showcase strong student work, including students who would be less likely to participate in oral discussion." Initial findings suggested an opportunity for greater individual student involvement in responding to higher order questions than full-class oral discussion may provide.

Action Research Final Reflections

Ultimately, my action research into the use of various apps to improve student engagement and collaboration led me to explore my use of selected apps and encouraged me to make time for group work and peer discussion as related to social studies content. It encouraged me to increase my use of apps (59% increase over the previous year) and focus more on the types of questions I posed to students as they consider essential questions related to social studies content. It allowed me to focus on my instruction of social studies, a content area I taught less frequently than science (one class in social studies, four classes in science) and helped me to feel more confident in my ability to teach social studies. While I was not able to draw specific conclusions about the impact of the use of apps on students' final unit exam, I feel there was enough evidence through

student surveys, observations and reflections, informal work sample review, and lesson plan reflection to continue the use of collaborative group work through technology applications. I have shared my findings with others in my district who will be continuing to use the iPad technology and Google Classroom options in the future.

While I am not convinced that the iPads are the most manageable device to navigate Google Classroom, each school and classroom will be bounded by available technology and time. They may need to examine best devices (laptops vs. handheld devices) for student projects that require the use of word processing skills. As an action researcher and social studies teacher, I was able to identify through observations, reflections, examination of student work, and student surveys the specific experiences students enjoyed and where they felt most successful in learning social studies. Students valued having "mini-projects/assignments" no longer than one to two 43-minute periods and giving some input as to who they would be grouped with (done at the start of the unit), and they valued quality over quantity in terms of the apps and programs they would be using. These important reminders about student choice in groups, structuring assignments as mini-projects, and choosing apps and programs appropriate for social studies content were essential in reframing my teaching of social studies. Now as building principal, I can use the experience and findings from my action research project to assist teachers in conducting action research as professional development or as differentiated supervision, to encourage social studies inquiry, and to support teachers in the use of iPads or other technologies that can foster student collaboration.

Conclusion

Rob's experience illustrates the potential for teacher action research to reinforce effective teaching strategies, examine teaching materials, and understand student experiences in elementary social studies. We continue to discuss options to help teachers focus on improved social studies instruction in the PK–12 classroom, including the use of differentiated supervision to encourage action research in social studies. There remain few published action research projects in social studies teaching and learning in the elementary classroom, limiting the opportunity for teachers to learn from or be inspired by published works. We believe there is a need for teacher research in social studies to be considered in larger conversations about professional development. We would like to see additional and more extensive accounts of social studies classroom research, as we see in published accounts of reading/language arts–focused projects. We believe that publication of additional and more extensive teacher research in social studies can contribute to a culture of teacher research in social studies available for teachers' reference.

We stand by our belief that the teacher research process translated to teachers' professional development can bring powerful learning experiences to elementary classrooms for students and teachers. Encouraging action research in social studies, whether undertaken in graduate study as differentiated supervision or independently can help teachers to feel more committed to teaching social studies. There is potential to encourage teachers and administrators like Rob who have conducted teacher research to urge colleagues to select social studies–based inquiries. Minimally, it may refocus conversations on social studies learning, allow teachers to envision the integration of social studies and language arts, or reclaim time for the teaching of social studies.

A growing body of teacher research in the social studies may be used as examples for others and can initiate a conversation among teacher researchers to include social studies more prominently in their work.

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Robert Corcoran is the principal of Maple Glen Elementary School in the School District of Upper Dublin. Previously, he was an assistant principal and elementary principal in another Pennsylvania school district for three years as well as a sixth grade teacher for fourteen years.

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