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The Effects of Information and Communication Technology on Student Achievement

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An Action Research Report

By Tom Johnson

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Advisor _____ Date _____

Abstract

The objective of this research was to explore the impact of information and communication technology (ICT) on student achievement in a secondary social studies classroom. The research was conducted in three sections of ninth-grade Geography in a rural public high school over the course of four weeks. A pre-test was completed by students to understand their background using ICT in the classroom. Data was collected through the completion of journal writing by students, and through the analysis of grades earned on assessments. A post-test was completed by students to measure their acceptance of ICT in the classroom. The data revealed students are reluctant to use ICT in the classroom, unless they have availability to the technology and teachers are well-organized with the application of ICT. Students accepted, over other modes of ICT, the use of cell-phones when in the act of communicating with the teacher, and were inconsistent with their acceptance of using computers to complete the coursework. Based on the data, some students benefited from using ICT while other students preferred traditional methods of learning. To fully understand the effects of ICT, more individualized research on specific modes of ICT needs to be conducted.

"When did you say that? I never knew that!" Too often students utter these statements to teachers and frustration is felt by both sides. Teachers react with disbelief that students did not hear the instructions and are quick to blame the student. The solution, by the teacher, is to tell the students to pay attention and to listen more carefully. Students will grow defensive and claim they were paying attention, but forgot the details. This conflict creates tension between the student and the teacher, and the result is a loss of trust between the two. With the loss of trust the teacher may lose faith in the student and the student may lose the inspiration to learn from that particular teacher. The question still looms, what can be done to solve this lack of communication between the teacher and the student?

As time moves on, and technology becomes more engrained in the lives of students, a teacher may consider the benefits of using Information and Communication Technology (ICT) in the classroom. Technology has become more widely used by students to communicate and the potential of using ICT in the classroom could help to solve the communication problems in education. If teachers can learn to apply ICT in the classroom, students may remember important details that could help to improve learning outcomes.

Starting my eighth year teaching in a classroom I have dealt with these issues with communication and I have questioned if I am doing enough to build strong lines of communication with my students. As I studied the use of ICT in the classroom I gained more of an interest in its use in education. My question is, "What effects will the implementation of information and communication technology (ICT) have on student achievement in a secondary social studies classroom?"

We are beginning to understand the role of email, but new modes of communication such as text messaging, social media websites (Facebook and Twitter), course management systems (Classroom Management Systems; Schoology and Edmodo), and online mobile photo and video sharing services (Skype and Instagram) have changed how teachers communicate with students and parents. A study conducted by Young, Berube, and Perry (2008) proves how fast ICTs change before we know their effects.

Young et al. (2008) reaffirmed the importance of being knowledgeable and skilled with communication for someone who is practicing leadership, as concluded in their study of administrators and ICTs. Their study was conducted by interviewing administrators about ICTs in 2005. The most widely used and accepted form of ICT at that time was email and their study found that most administrators preferred the use of email in obtaining and soliciting information. Other ICTs, such as video conferencing, were deemed not effective along with handheld computers. Even the use of websites did not receive strong support as many administrators labeled them to be only moderately effective (Young et al., 2008). Administrators preferred face-to-face communication, especially for difficult issues (Young et al., 2008). As Young et al. (2008) noted, communication is still a two-way process and the use of ICTs does not ensure communication has occurred. ICTs can hinder the levels of trust and the quality of communication, by the participants misconstruing or being offended by the communication without intention.

After reviewing Young et al.'s study I immediately understood the significant change we have seen in ICTs since 2008. To say a study completed in 2008 would be

outdated is a shock, and a reminder that ICTs are little known, constantly changing, but are necessary as we move into the future of education. A lot of studies focused more on technology being used as an instructional tool than being used for communication. Despite the challenges of finding information on ICTs the studies conducted on the uses of technology in the classroom could be applied to using them with communication.

Carlson, Philip, McNeill, Powell, and Witt (2012) conducted a study focusing on the use of technology with online instruction, with some consideration to the use of ICTs. Carlson et al. (2012) explained that when using technology in an online classroom a teacher must determine the effectiveness of the technology, the ease of each technology, how each technology has been used to date, and how each technology might be used in the future. A teacher can apply those thoughts to the type of technology they use to communicate with students. As Bagwell (2008) described students who are not proficient with using technology will be at a severe disadvantage in our highly technological society. Schools need to assist students in preparing for the future and develop skills that make them competitive in the workforce. If schools do not guarantee access to technology, which may include ICTs, or provide training to learn each form of technology the students' chances of learning these skills will be harmed (Bagwell, 2008). Chisalita (2013) agreed, mentioning schools need to prepare students for a society that requires everyone to think, act, adapt, and communicate creatively with technology. When schools promote technology and the use of ICTs students will gain the skills needed to be productive in a highly technological society.

Carvey (2008) hypothesizes the use of ICT can "improve student grades, raise standardized test scores, reduce days of school that students miss, and lead to better

student behavior." Many studies of ICT have supported Carvey's initial views on technology (Ghaznavi, 2011), but understanding the role of ICT in increasing student performance is still unsure because of the other variables that affect the use of ICT in schools. Usually highly trained and confident teachers have led the use of ICT, so it is hard to measure the use of ICT on its own. Carvey's results from his study denounced his previous views of the effects of technology on education (2008). Carvey did not see a "direct, significant effect" on student learning with the use of technology and puts more emphasis on other variables, such as money being spent on new instructional tools (Carvey). Georgiu (2012) takes a more critical view than Carvey on the negative effects that come with technology.

Georgiu (2012) noted excessive use of technology can diminish a student's learning capacity and lead to emotional and "volitional damage", while also decreasing their motivation. Georgiu accepts the positive effects of technology, but has a more pessimistic view on its use. Georgiu's view on technology conflicts with the other research supporting technology. Although Georgiu presents valid points that may be applied to ICT, there is evidence of the benefits of technology that cannot be ignored. One benefit of ICT is the involvement parents have with their child's education.

Parents are more apt to be involved and help their child with school through the use of ICT (Shayne, 2008). By allowing parents availability to their child's grades, students will become more accountable to their education and begin to develop time management and organizational skills. Parents become more knowledgeable of their child's performance in school and it allows for better discussion over academic issues with teachers. Parents still prefer traditional means of communication, such as notes sent

home or phone conversations, but accept the use of technology. Parents might accept the use of technology more if teachers keep online materials up-to-date. If teachers do not fulfill this duty, parents may be discouraged to use technology (Shayne, 2008).

Knight, Bruce, and Teghe (2006) argues for the need for new professional knowledge. Despite the timing of this assertion, it still reigns true today. Our educational system still follows the old model of disseminating information, even with the use of technology. This model is one that relies heavily on the use of paper as a means of instruction or transferring information. Under the new system that embraces ICT the teacher acts as a manager of learning instead of the expert. Teachers who struggle to change need to look at technology through the eyes of their young learners. Young learners do not see a computer screen, but the potential information, people, and opportunities available to them at the click of a button or a touch of the finger (Knight et al., 2006). Teachers must obtain ICT knowledge while earning their degrees, during their field experiences, and when training programs are available. Even though acquisition of the knowledge and skills with ICT can empower the classroom, the teacher is the catalyst when it comes to learning (Yang, Tzuo, Higgins & Yon Tan, 2012).

Our society is becoming more dependent on technology and it is the responsibility of teachers to integrate technology into their instruction. Teachers must also understand the benefits of using technology with communication on student learning and achievement. Even though there is little known about ICT and its impact on student learning, the use of ICT can strengthen the relationships teachers have with their students and their student's parents. The stronger relationships will allow for more of an impact on student learning (Shayne, 2008).

To answer this question I conducted action research for six weeks, using ICT to communicate with freshmen students enrolled in the fall semester of Geography. Several forms of ICT were used throughout the six weeks to exchange information and study its effect on student achievement. In the academic world little is known about the effect of ICT on student achievement.

Methodology

To begin, I decided to use freshmen students in my World Geography course as participants in this action research because this course offers me the highest number of students. There are eighty-seven students who participated in this study. Among the eighty-seven students there are twelve students on individual education plans (IEPs). With this group of participants I decided to use several modes of ICT to compare the use and effectiveness of each one. I used Schoology, Gmail, Google Drive, and Remind 101. I used a variety of ICT to give students experience with using ICT in the classroom, and to determine which mode they thought was the most effective. After selecting my participants, and modes of ICT, I completed the action research during a six-week time period.

A pre-test was administered through a Google form to students at the beginning of the action research to gather information about the students' experiences with ICT and their access to ICT outside of school (see Appendix B). The pre-test gathered information about how they have used ICT in classes with other teachers and their level of comfort using ICT to contact their teachers.

The purpose of the parent notification letter is to inform the student's parents of the action research and the purpose of the study (see Appendix A). Some parents may disagree with the study and may request the data of their child to be excluded. At the same time the pre-test was administered, and the action research was introduced to the students, the parent notification letter was given to each student to be brought home. If a parent did not want their child's data to be included in the results they were to provide a signature on the parent notification letter. A span of two weeks was given to the students to return the parent notification letter. Any students who did not return a signed parent notification letter had given their consent to participate in the study.

As proven on the pre-test, there were several students who were not familiar with some of the modes of ICT that were used in the study. To avoid any students from being unable to register for any of the modes of ICT, I devoted class time to guarantee all students have access to the ICT. This did not take much time, allowed students to feel comfortable with the ICT, and increased the accuracy of the results.

After students were set-up to use ICT I began my action research. To fully understand the effects of ICT on student achievement I gathered data for one unit of study. Students used Google Drive to complete assignments, and to receive important course updates. For one assignment students were responsible for obtaining information about United States culture through a PowerPoint I uploaded to our Google folder. To evaluate how effective it is to use Google Drive to gather information, I administered a quiz over the information covering United States culture. Students would also created an

assignment using Google Drive to complete an assignment about the culture of the United States.

To share information using Google Drive I created a Google DOC to record what we completed daily in class. This document was shared with students so they could review what we did in class every day. If they were absent they could review what we did the day they were gone. I also included course information on the Google DOC to provide reminders to students on when assignments were due and the date of the summative assessment.

Schoology was used to post assignments, such as the assignment covering United States culture. Students used Schoology to obtain the instructions and used Google Drive to complete the assignment. Throughout the action research I used Schoology to post course updates, including notifications of when assignments were due and the date of the summative assessment.

I used Remind 101 to send students course information and reminders of when assignments were due and the date of the summative assessment. Unlike Schoology, Remind 101 does not offer teachers the ability to post assignments. Remind 101 allow teachers to send a text message to their students, but each text message is limited to 140 characters. This is why Remind 101 was used like Schoology to disseminate course information and reminders to students.

During the unit of study I collected the following data:

1. Student Journals – To understand the effects of ICT students maintained a journal during the unit (see Appendix C). Students completed their

journal daily to provide feedback of how they used ICT, what worked well, and how they would improve the implementation and use of ICT. Students turned in their journal at the end of the unit anonymously. After collection, I categorized the responses into "positive", "neutral", and "negative" responses. By doing this I was able to analyze and compare the data more effectively.

2. Teacher Field Notes - Throughout the action research I kept field notes to note significant or noteworthy events that occurred during the use of ICT. By keeping a record of field notes and observations I better understood the strengths and weaknesses of using ICT in the classroom. I was able to note any surprises and I used the information to analyze the results.
3. Student Grades – During the action research I studied the grades of assignments, formative assessments, and the summative assessment. When I reviewed the grades I analyzed how the grades changed, or remained the same during the unit of study.

A post-test created through a Google form at the end of the action research was administered to students to gather feedback about the successes and failures of using ICT (See Appendix D). The post-test closely resembled the pre-test so I could evaluate how their ideas concerning ICT changed or stayed the same, during the study.

After the collection of the data I reviewed the data to understand how communication with students through the use of ICT could affect achievement in a secondary social studies classroom. The results convinced me the use of ICT in

education can be effective if the students were comfortable with the ICT and if it was properly used.

Analysis of Data

By reviewing the data of the pre-test and comparing the information to the data collected in the post-test I could see students preferred specific types of ICT when completing coursework for the class, and specific types of ICT when communicating with the teacher. The grades students earned during the action research reflected the feelings students had toward using ICT in the classroom.

The pre-test (see Appendix B) determined students were limited in experience with the forms of ICT they used with other teachers (see Figure 1). Students were familiar with using Google Drive and email. They were not as familiar with using Schoology or Remind 101, which were two modes of ICT that were going to be used in the action research. The unfamiliarity with Schoology might have affected their ability to use this tool and understand the educational benefits it provides to students.

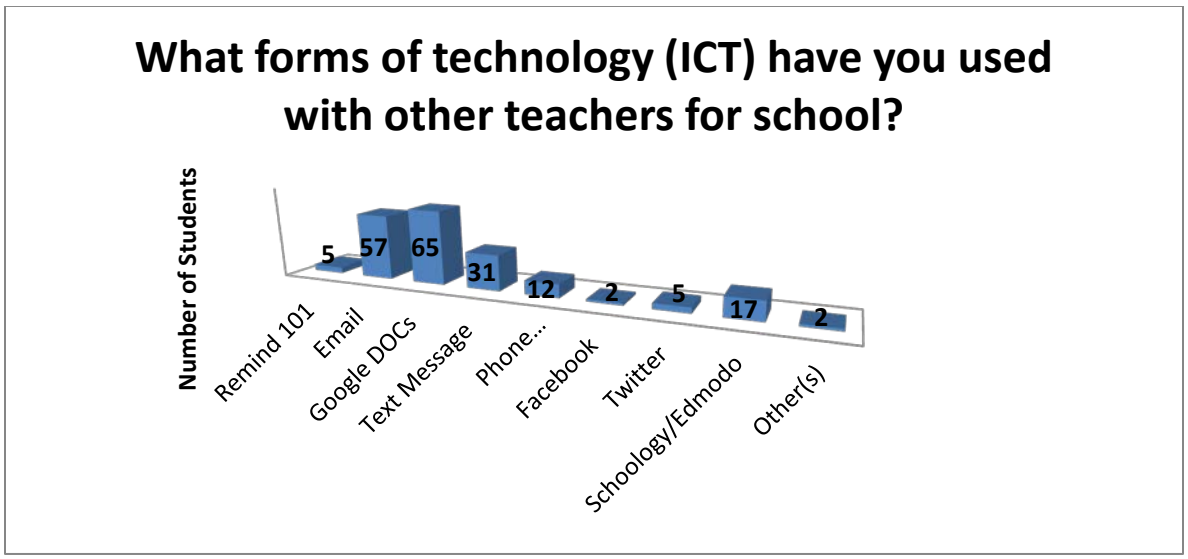

Figure 1. The modes of ICT students were familiar with as determined in the pre-test.

As students indicated in the pre-test, they were comfortable with communicating with their teachers outside of the classroom about matters dealing with homework and help with their tests. Their preferred method of communication was email, followed by text message. As the action research ended, the post-test revealed students supported the use of email as a valuable communication tool. The use of Remind 101 to communicate through text message gained more support and became the preferred mode of communication using ICT (see Figure 2). Google Drive would remain the preferred mode of ICT to be used in the classroom for completing coursework.

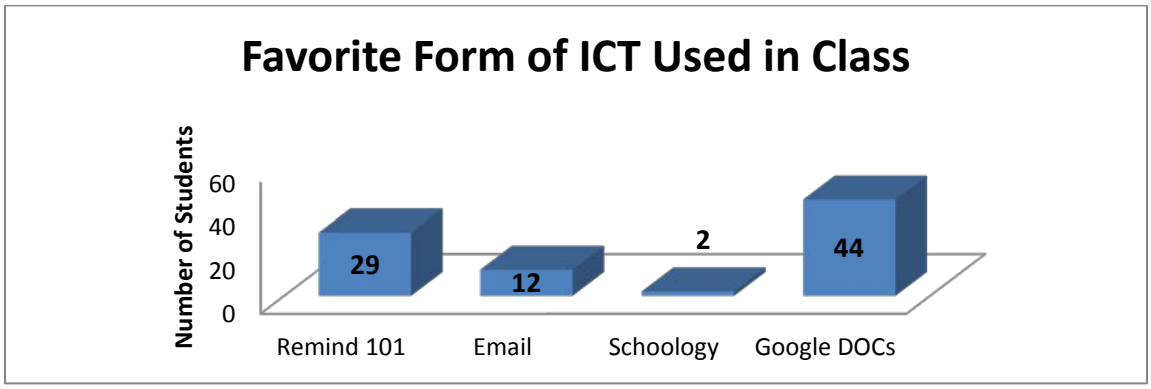

Figure 2. Post-test results of which form of ICT was preferred in the classroom.

The data which stood out in the results of the post-test was the rejection of Schoology. As proven in Figure 2, students did not see Schoology as being more valuable to the classroom than the other modes of ICT used during the action research. Students expressed their disapproval of using Schoology to complete the coursework as many students felt navigating through Schoology was difficult. Course information was also posted through Schoology and students did not prefer obtaining the information through this mode of ICT. As indicated in the post-test, students least favorite mode of ICT during the action research was Schoology (see Figure 3). Schoology was used extensively in the assignment covering the culture of the United States. Students were

responsible for using Schoology to obtain the instructions for the assignment. As students completed the assignment they provided feedback through their journals reaffirming the disapproval of using Schoology in this form. For example, a student expressed, "The Schoology is kind of a pain to get the assignment. I'd rather be texted or told the assignment." Although students did not approve of using Schoology to aid with the assignment, students accepted the assignment itself. This proves students find obtaining the instructions for an assignment to be important.

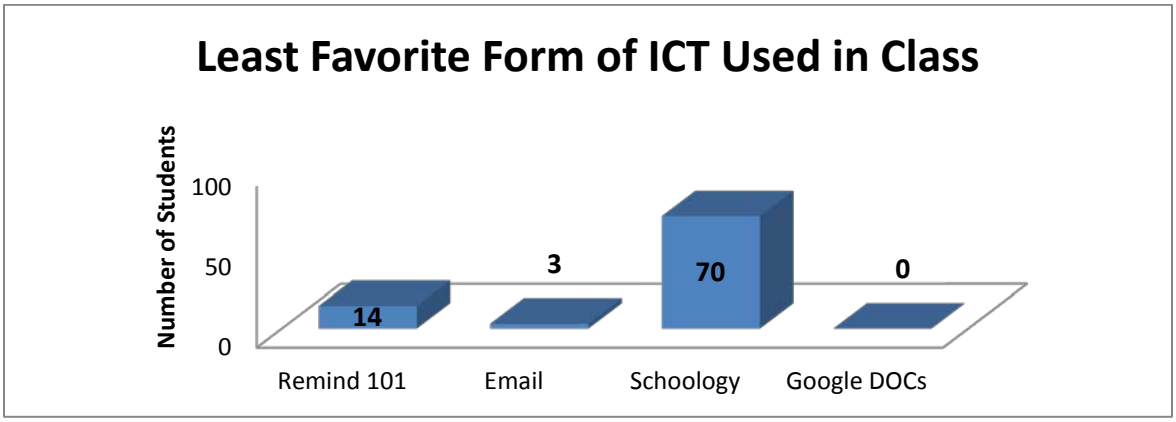

Figure 3. Post-test results indicating students' least favorite form of ICT.

When students were given the task to obtain the information on United States culture through our Google folder they were unsure of the process. This was the first time students had to use our Google folder to retrieve the notes and they struggled to understand this process despite seeing how to retrieve the notes. I explained to students they needed to review the notes and they would have an assessment to measure how much of the content they would retain by gathering the information on their own.

When the assessment was given to the students they did not perform well. A large number of students failed the assessment (see Figure 4). Only eleven of the eighty-seven students earned an "A" (90% or higher) on the assessment.

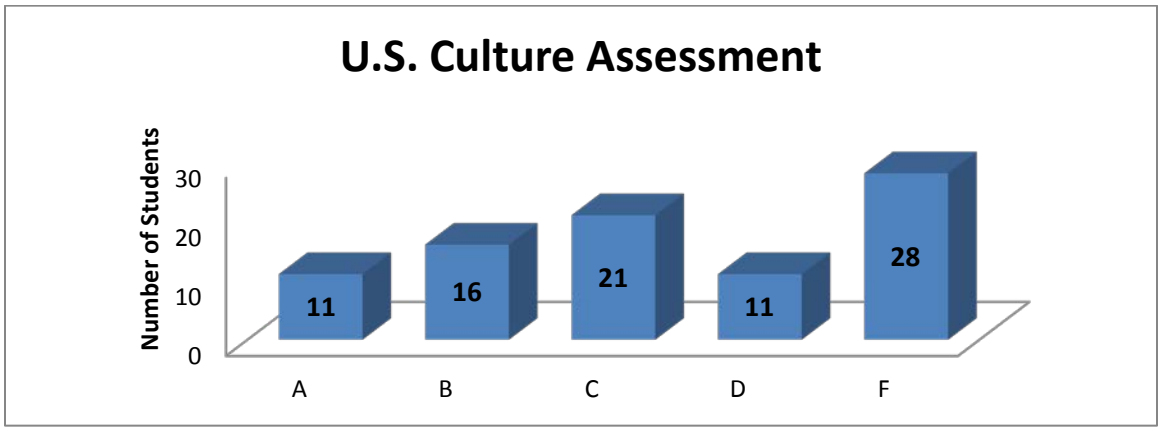

Figure 4. Results on the assessment given to students on U.S. Culture.

Students did not approve of gathering information on their own and they displayed these feelings in their journal. In the classroom, students expressed they wanted to learn the content through a lecture. Because of this many students' responses were neutral or negative (see Figure 5). To understand the feelings of the students further, it was important to recognize the feedback the students provided in their journal. A student expressed, "It [obtaining notes individually] didn't help much with my memorization of the material as compared to the way it sticks in a class lecture." The responses from students prove the involvement of the teacher is still vital in education. The use of ICT is not going to replace the role of the teacher in the classroom. Students will always need the presence and guidance of the teacher.

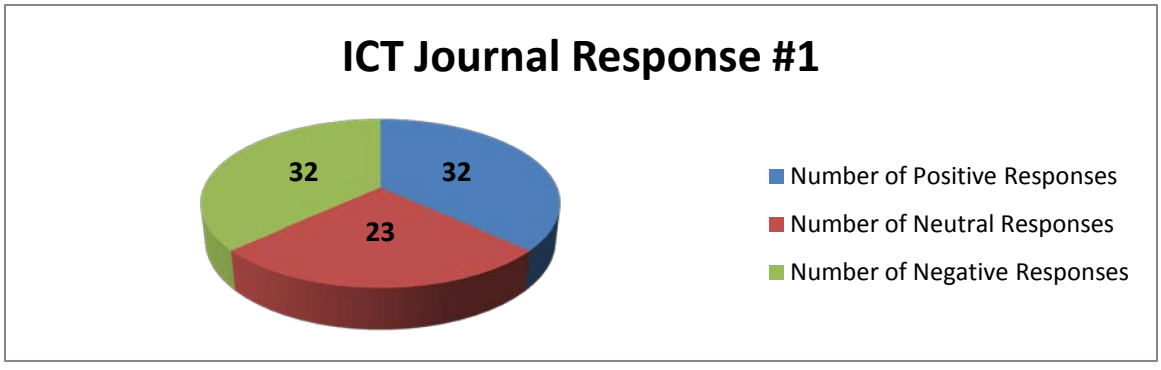

Figure 5. Summary of the journal responses on obtaining the U.S. culture notes.

An educational tool for students and the teacher to use in the classroom is Remind 101, which allows a teacher to send text messages on the internet to their students. As a communicational tool Remind 101, gives teachers the ability to share information using a technology students prefer most often. Students enjoyed using Remind 101 for class and they expressed this support through their journals and with the data collected in the post test (see Figure 6).

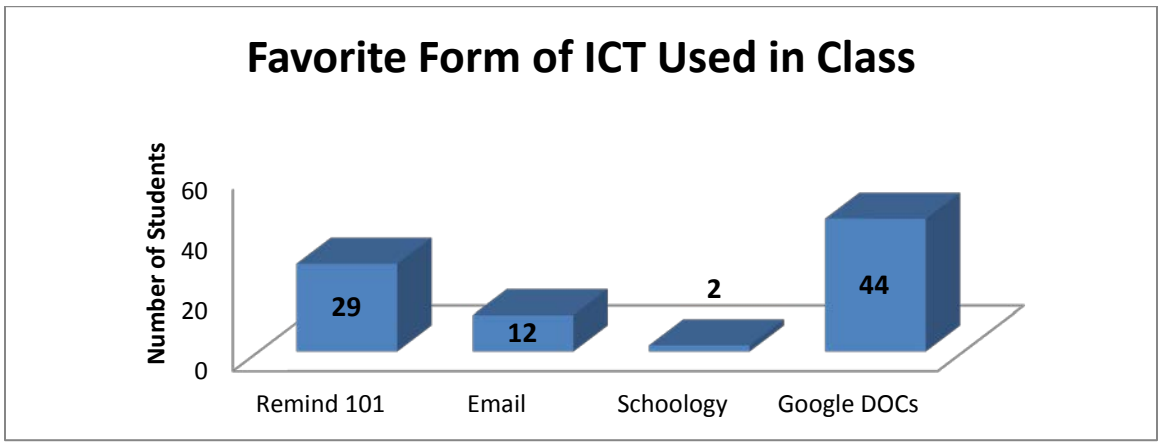

Figure 6. Post-test results of which form of ICT was preferred in the classroom.

Remind 101 gave me the ability to create a presence outside of the classroom that helped students to remember deadlines for assignments, and the dates for assessments. My results suggest Remind 101 needs to be utilized by teachers right now. Students are more dependent on using their cell-phone than a computer to acquire information. The journal responses students made on Remind 101 supports this conclusion. One student explained, “I think Remind 101 is the best because it sends us messages to our phones to remind us of anything.” Another student said, “Remind 101 was so helpful because it is easy, quick, and I always got it because I always have my phone on me.”

The final assessment given during the action research was a test on the U.S. Capitals. The results of this assessment were gratifying with the amount of time spent

with preparation. The use of ICT in preparation for this assessment had an effect with how students performed. I used Schoology, Gmail, and Remind 101 to remind students on the date of the assessment. Students responded well by earning high grades (see Figure 7). The majority of the students earned an "A" on the assessment, while a good number of other students earned passing grades. There were a number of students who failed the assessment, but with an assessment based on memorization there are going to be students who do not pass due to a lack of preparation.

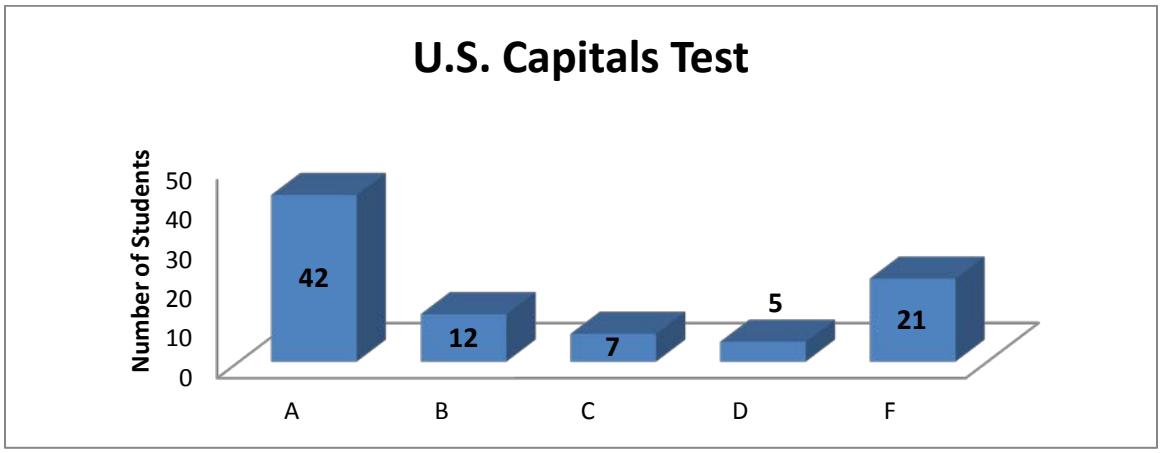

Figure 7. Results of the U.S. Capitals Test.

A respectable number of students explained the reminders helped them in studying for the assessment. Students mentioned my reminders, through the use of ICT, gave them the impression I was connected to them outside of the classroom. They specifically found useful the reminders given through Remind 101. By receiving the reminders through Remind 101 they received the messages over their cell-phone, which was a more immediate method in communicating directly to them. Students mentioned they do not always check their Gmail or Schoology, and if they did it was not until sometime later before they received the message. Remind 101 was useful in getting

students prepared for the assessment as indicated by the students' journal responses (see Figure 8).

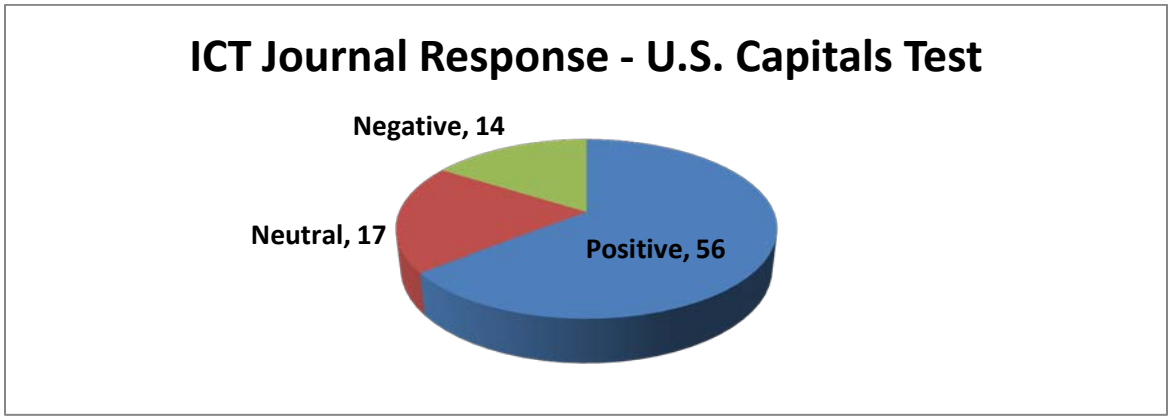

Figure 8. Summary of the journal responses on preparing for the U.S. Capitals Test.

My conclusions are that the use of ICT may improve student achievement, but the benefits of ICT need further research. To fully understand the effects of ICT, more individualized research on specific modes of ICT needs to be conducted. Students expressed there were too many modes of ICT being used. As the action research progressed I started to recognize the need to focus on an individual ICT to fully understand its capabilities in the classroom. Students could also have benefited from using the ICT for a longer period of time. Students would have gained the confidence needed to use ICT and the data would have been more valid. After analyzing the results of all the data, my next steps will be to continue using ICT within my instruction to study its effects on student achievement.

Action Plan

As a teacher, I love using ICT in the classroom. The presence of ICT will only become stronger in education as we grow more dependent of the technology in our daily lives. Moving forward I understand there are benefits to using ICT in the classroom and

I will continue to explore how to use each mode of ICT to see how each one can aid in learning.

I am excited to continue using Remind 101 to disseminate course information to students. Students responded well to the use of Remind 101 and it improved scores during my time using the technology. At the conclusion of the action research, I pondered how else I can use Remind 101 to help students. As I thought about it further I decided Remind 101 should not only be limited to contacting students. What a great tool Remind 101 is that it should be used to contact parents. If parents set up to use Remind 101 I could contact them about what we did in class, send reminders of due dates on assignments or the date of an assessment, and recognize the accomplishments of students. Parents would appreciate the added involvement in their child's education.

Parents would be able to remind their child to complete work for my class, and to study when they have an assessment. They would also enjoy what they are doing in class and it may improve communication with their child. To have parents be an extension of myself outside of the classroom would improve student achievement. Students would be more prepared and organized with their work. As I continue to use Remind 101 I will make certain to contact parents through this technology.

I will look to use other modes of ICT in the future to understand the full capabilities of how they impact student achievement. One mode of ICT I am going to use more is Schoology. I strongly feel Schoology is a valuable tool and it would help students with learning. Schoology can help students with staying organized and turning

in course work. Students would receive their grades faster and they would also be able to get feedback that would aid in their learning.

I would like to use Schoology to initiate online discussions over the content. This would be beneficial to all students in improving their writing skills, and in learning the material. Schoology would allow the students who lack confidence to speak in the classroom to have a way to express their ideas and beliefs. These students may gain confidence through using Schoology and this may transfer over to the classroom.

Parents would also be able to gain access to Schoology and monitor their child's work for class. Parents could see the important information posted on Schoology and this would help to keep the parents involved. By getting the parents involved through Schoology the parents would help to increase student achievement.

The students preferred to use Google Drive to complete the coursework and this could be due to them being more familiar with its use in the classroom. I enjoy using Google Drive and I see how valuable it is in improving student learning. Google Drive offers a variety of programs that would allow for differentiated instruction. I intend to use Google Drive more in the future, but I fear of using too many forms of ICT at one time. Students expressed their feelings toward using too many modes of ICT during the action research and I gained an understanding of their concerns. I would rather focus on using a couple modes of ICT and directing my energy toward how they can be fully exploited in the classroom.

There is further need for research on using ICT in the classroom. I am intending on using Remind 101, Schoology, and Google Drive until I can decide which mode of ICT compliments my teaching methods. I will use Remind 101 from now on, despite what other modes of ICT I use in the classroom. The best method of deciding to use Schoology or Google Drive is to use each one individually for an extended period of time. Students would be able to focus on each mode of ICT and they would be able to provide a better evaluation of their effects on learning. This would also give me the time I need to evaluate each mode of technology and to decide which one promotes my strengths as a teacher.

The frustrations experienced between teachers and students concerning communication may never be solved, but the use of ICT will help. Technology is changing our world and our classrooms. Avoiding the use of ICT in the classroom is denying students the ability to see how ICT can be useful in learning. Through the use of ICT teachers can eliminate some of the communication barriers with today's students. By overcoming these barriers with the assistance of ICT stronger bonds can be formed and learning can be improved.

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Appendix A

Using Information and Communication Technology to Increase Student Achievement in a Secondary Classroom

Notification Form

Dear Parents,

As you may know, I am a St. Catherine University student pursuing a Masters of Education degree. An important part of my program is the Action Research project.

As the teacher of your child in 9th grade Geography, I have chosen to learn about the uses of information and communication technology (ICT) in the classroom because I want to study its effects on student achievement. I am working with a faculty member at St. Kate's and an advisor to complete this particular project.

I will be writing about the results that I get from this research, however none of the writing that I do will include the name of this school, the names of any students, or any references that would make it possible to identify outcomes connected to a particular student. Other people will not know if your child is in my study.

When I am done, my work will be electronically available online at the St. Kate's library in a system called Sophia, which holds published reports written by faculty and graduate students at St. Kate's. The goal of sharing my final research study report is to help other teachers who are also trying to improve the effectiveness of their teaching.

If you decide you want your child's data (pre and post-test and student journal during a unit of study) to be in my study, you don't need to do anything at this point.

If you decide you do NOT want your child's data included in my study, please note that on this form and return it by Monday, September 22nd. There is no penalty for not having your child involved in the study, I will simply delete his or her responses from my data set. All children will receive the same treatment in my class, regardless of your decision on this matter. If at any time you decide you do not what your child's data to be included in the study, I will remove included data to the best of my ability.

If you have any questions, please feel free to contact me, (218) 847-4491 ext. 2137 or tjohnson@detlakes.k12.mn.us. You may ask questions now, or if you have any additional questions later, you can ask me or my advisor [Amy Adams; aeadams@stkate.edu] who will be happy to answer them. If you have other questions or concerns regarding the study and would like to talk to someone other than the researcher(s), you may also contact Dr. John Schmitt, Chair of the St. Catherine University Institutional Review Board, at (651) 690-7739.

You may keep a copy of this form for your records.

Opt Out

I do NOT want my child's data to be included in this study. Please respond by Monday, September 22nd.

_____ _____

Name of Child

Date_____ _____

Signature of Parent Date

_____ _____

Signature of Researcher Date

Appendix B

Student Pre-Test

Participation will be anonymous and the results will be kept confidential. Please answer each question honestly.

1. What forms of technology (ICT) have you used with other teachers for school? (check all that apply)

___ Remind 101 ___ Email ___ Google Drive

___ Text Message ___ Phone Conversation ___ Facebook

___ Twitter ___ Schoology/Edmodo

___ Other(s) _____

2. Using the following scale (1 = very uncomfortable; 5= very comfortable) rate how likely are you to communicate with your teacher outside of the classroom?

1 2 3 4 5

Please explain your answer
_____

3. What reasons would you communicate with your teacher outside of the classroom?

___ Homework Deadlines ____ Homework Questions

___ Help for Tests ____ Personal Issues

___ Other(s) _____

4. What form(s) of technology would you prefer to use when communicating with your teacher? (Please explain)

___ Email ___ Text Message ___ Phone Conversation

___ Facebook ___ Twitter ___ Schoology/Edmodo

___ Other(s) _____

5. Using the following scale (1=Not very likely; 5=Very likely) rate how effective it is to learn using ICT to communicate with your teacher?

1 **2** **3** **4** **5**

Please explain your answer
_____

6. Do you have internet access at home?

Yes No Sometimes

Please explain _____

7. What internet-connected devices are you able to use for school?

___ Computer ___ Tablet ___ Cell-phone

Appendix C

Student Journal Prompts

1. How did you use ICT today for Mr. Johnson's class?
2. Did using ICT help you with what you accomplished for class? Why or why not?
3. What improvements could Mr. Johnson have made to how ICT was used today?

Appendix D

Student Post-Test

Participation will be anonymous and the results will be kept confidential. Please answer each question honestly.

1. Which forms of technology (ICT) did you use in class? (check all that apply)

___ Remind 101 ___ Email ___ Google Drive

___ Text Message ___ Phone Conversation ___ Twitter

___ Schoology ___ Other(s) _____

2. Please rank the forms of technology (ICT) you preferred using in class?

___ Remind 101 ___ Email ___ Google Drive

___ Text Message ___ Phone Conversation ___ Twitter

___ Schoology ___ Other(s) _____

3. Please identify which form of technology (ICT) you preferred to use in class and why that form of technology was the most useful.

4. Please identify which form of technology (ICT) you did not prefer to use in class and why that form of technology was the least useful.

5. Were you able to keep up-to-date and organized with your classwork easier using ICT?

Yes No Sometimes

Please explain _____

6. Do you believe using ICT to communicate with Mr. Johnson helped you to learn more effectively?

Yes No Sometimes

Please explain _____

7. What changes to using ICT would you advise me to make in the future?

8. Did you have any problems accessing and using the different forms of technology (ICT)?

   Yes No Sometimes

   Please explain _____