
Abstract:

This study discusses the effects of placing technology and internet access in the classroom and how students and instructors respond to it. Technology has the propensity to help broaden various teaching subjects and can serve as an educational supplement along with books, and other teaching techniques. The study includes research on how high school students use technology and some of the factors, including frequency of use, which plays a role in education. The study looks at 109 seniors at Person High School in Roxboro, North Carolina and their responses to technology in the school, including internet access particularly since the school has experienced advancements in technology within the last two years. After receiving government funds, Person High School has devoted a few programs that cater to students technologically giving them a competitive edge against peers in other local school systems. This plays a role in research sought to determine whether technology improves students’ grades and learning capabilities.

Headings:

Computer-assisted instruction -- relations with teachers and curriculum
Internet/teaching
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Educational technology
TWENTY-FIRST CENTURY TECHNOLOGY IN THE CLASSROOM:
A STUDY OF USAGE AND ACCESS

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Introduction

Internet access and technology have become seemingly necessary aspects of society professionally, socially, and academically. The internet serves as a portal that opens the door to the world, giving access to a myriad of information sources. In education, this portal, The World Wide Web, can create an optimal learning experience between teacher and student, allowing the teacher to step outside the parameters of using only text books only in the classroom. Due to globalization, students are not only competing with children in their own neighborhood but with children in neighborhoods across the world. Giving them a competitive education can be pivotal and vital in their educational development.

Providing internet access and technology in the classroom can be an effective method of delivering a curriculum while giving students a more competitive edge in society. Technology in the classroom can also create positive student-to-teacher interaction as both are learning new methods to optimize the education experience.

Some issues, however, prevail. When discussing technology-based learning in the classroom. Students with internet access at home or better knowledge of technology may have the upper hand, educationally, in comparison to their counterparts who lack both. Technology at school can
provide all students with a balanced playing field. With technology in the classroom, students are more prepared to keep up with a constantly evolving digital world as well as increase their opportunities for learning.

This research takes a look at the internet/technology usage and information gathering methods of high school seniors at Person High School in Roxboro, North Carolina. The Person County School Board has implemented a four-year technology plan that centers on diversifying the technology needs of students. Results will reveal if students are benefitting from the new technology that is available.

**Purpose of Study**

One of the most important goals of any school system is optimizing each student’s learning experience by ushering in funding for advanced programs, creating higher test scores, and preparing individuals for college. The Person County School System is taking an active role in digitizing several programs of school system, giving students a more competitive advantage. Within the next three years, Person County school administrators are making plans to make technological advancements throughout the schools in the school system. The main question is how does technology and internet access in the home and at school affect students’ productivity?

The participants in this study were high school juniors and seniors. The rationale behind this selection is to see if students did or did not have internet
access at home throughout their high school career and if they believe their grades were influenced by access to or lack of access to the internet. It will also be interesting to see the breakdown of those students and who plans to continue their education at a university. The study will render information about whether or not technology will help them in further studies after high school. The research will also include information including what the internet is most commonly used for including leisure and education-related information. The study is important because it will aid educators in realizing whether or not there is a need for technological resources and elements in the classroom.

Perhaps many of the students have never taken the time to realize in what area technology does or does not benefit them academically. In terms of benefits, students will be able to gain knowledge about their own internet usage and be afforded the chance to consider on the ways that technology may potentially benefit them and other students like them. On a larger scale, such information is important as there is much emphasis, particularly on a congressional level, as to how education is shifting for America’s students. Through proper technological planning, students will not have to worry about lagging behind in school work due to technology deficiencies in the home. With more technology in the classroom some benefits for students nationwide include more data being presented to students, more hands-on opportunities, heightened creativity allowing students to be more inclined to learn, and a decreased confinement to textbooks only in the classroom.
Overview of the Person High School Strategic Technology Plan

One of the most important goals of any school system is optimizing each student’s learning experience by ushering in funding for advanced programs, creating higher test scores, and preparing individuals for college. The Person County School System is taking an active role in making technological advancements in the school system, giving students a more competitive advantage. Within the next three years, Person County school administrators are making plans to digitize their entire school system.

There are almost 360 seniors currently enrolled at Person High School. Because of the small regional population, Person County has PHS as its only high school in its system. This creates socioeconomic diversity as students from the city combine with those from rural regions of the County, which has a total population of 39,464. In this situation, the participants are more prone to come from homes with varying household incomes and will provide useful information about how they use technology. Many factors played a role in how the questions were formed including understanding what means of technology are most popular to youth and teens in this era, their accessibility to internet or technology, and how often they use that form of technology or the internet. These were a few of the factors that I needed responses to. Thus I formed the questions in a way that would effectively give insight on how the students use technology, regardless of their backgrounds.
Debbie Smith has served as Director of Technology for the last two years in the Person County School System. Prior to that, she worked for seven years as the Director of Career and Technical Education. Within the last two years, the school system has been addressing an issue that she has classified as a real problem—transforming the classroom into a 21st century learning center.

Smith believes because the world is changing and more information is online-based, students should be taught and prepared for a technologically-evolving world. For starters, all classrooms throughout the school system will have overhead projectors and interactive whiteboards. Through the strategic technology plan, students will not have to worry about lagging behind in school work due to technology deficiencies in the home. This project costs $150,000 and will be completed with funds coming from stimulus money, Title I funds and institutional funding. The system operates on a $400,000 annual budget. The school system caters to 7 elementary schools, 2 middle schools and 1 high school with a total of 5600 students in the entire school system. A “sub-problem” is that they are a smaller school system and there is seemingly never enough money to completely bring a lot of their goals to fruition while at the same time trying to find other ways to develop technology in the system.

According to Smith, there are a few reasons why the school believes they need to advance in technology.

1.) More data will be presented to students
2.) Students will be more active and have more hands-on opportunities
3.) They are more engaged in creativity

4.) Students should be able to use more than textbooks

5.) There needs to be a common platform in all the schools in the system. All of the schools need to be on the same page, in terms of technology.

Smith believes that because of the digital divide among the students, they will never be able to get “completely” away from using textbooks. But she said that the road to making students and classroom competitive in the 21st century is going to be filled with trial and error and experimentation, but the first step, she said, is recognizing the problem in order to plan accordingly for a positive shift in technology.

**Technology programs at Person High School**

After an intensive analysis of the needs and requirements of the Person County School System, officials organized a series of programs that cater to the overall technological literacy of the students. Six of the most significant technology programs in place in Person County Schools to support student achievement are:

- *Learning First Learning Standards Program:* This program centers on elementary students while introducing them at an early age to technology and how it benefits them. The students produce a multimedia project that exhibits their skills with technology. The projects are based on skills taught throughout their elementary school experience and are based on the North Carolina Standard Course of Study competency goals. Schemas have been designed for grades K-5
with computer and technology goals advancing as students engage in expanded technology and vocabulary through their elementary grades.

• **Exceptional Children’s Program:** Students in this program partner with teachers to use tools including monitor touch screens, Smart board, and adaptive keyboards and pointing devices, computer controlled embroiderer, scanners, Intellitools with special switches, JAWs for Windows, Edmark Reading Program, and Kurzwiel. Laptop computers are available to students who have specific needs for portable devices or have a need for home bound instruction.

• **Career and Technical Education:** As the demand for technology-savvy students increases, the implementation of programs that cater to students’ overall technological growth was a necessity. This program focuses on students and their career paths. For those interested in pursuing a career in some technology-based field. Digital Media courses began for the 2009-2010 school year and opened up the doors to students interested in computer programming, gaming, and art design. Students use software to manipulate and design 3-D objects including humans, cars, and animals.

• **ESL (English as a Second Language):** In 2008, there were more than 300 international students who benefitted from ESL. To accommodate these students, funds were allocated to the purchasing of multimedia apparatus including electronic translators, writers, and laptops. Officials also used the ELLIS curriculum which has software to teach students in more than 60 languages. The software that is a part of the ELLIS system allows students to
utilize voice recording, digital sound, animation, and full-motion video. The ELLIS system optimizes the learning experience by allowing them to feel comfortable in any education environment and setting. Often students who do not speak English feel cut off from other students who do. But the enhanced learning capabilities give them a more competitive and comfortable advantage.

**Learn and Earn Online; North Carolina Virtual Public School:**
Students face a gamut of issues that may hinder them from experiencing education in a more traditional setting. Often students work or are engaged in other activities non-related to school that are a requirement for survival. But students at Person High School are now allowed to engage in programs that help them simultaneously receive a high school diploma while working on an associate’s degree. There are plans to begin offering such courses to middle school students.

**Computerized Instructional Software:** Instructors use these tools to better math, reading and writing skills. The schools in the system have laptops in most of the classrooms along with internet access that allow for better accessibility during instruction. Smart boards, Mimios, and interactive whiteboards are used as supplements in the classroom to better aide during instruction.
Literature Review

Educators are presented with the task of creating the optimal learning experience for their students. The call for advanced education far transcends the folds and pages of textbooks. Developing competitive students in a school system is a task that requires more involvement that goes beyond black words on white pages. Many educators are beginning to look toward the World Wide Web as a learning resource that will deliver a gamut of information to aid school faculty in teaching and benefit students in learning. But while creating various outlets for education is a must, creating internet accessibility for students is yet another important component.

The library and the community learning center have served as the central location for information gathering and internet accessibility for years. But many school systems are becoming more aware of the fact that students, perhaps, do not have the technological means at home to take their learning to the next level. Internet technology has the ability to create many more avenues on the road to learning. The school is now an additional place where students can access the World Wide Web.

Some scholars agree that access to the internet can better diversify a student’s learning experience. But scholarly conflict ensues over whether the style of learning is effective. The perception is that the emphasis of effectiveness is placed on instructional design as opposed to the outlet through which the student is learning.
Home Schooling and Alternative Education

For various reasons, some parents resort to a non-traditional method of educating their children with homeschooling as an option. With questions as to if home school can provide a quality, competitive education, parents are realizing the web access and use of technology can provide an additional educational resource. Parents are also able to partner in online forums to disseminate information about their curriculum and information about progress. According to Ronald Owston’s study (Owston 1997) published by the American Educational Research Association, one of the largest issues that bombarded some parents was being able to locate supplemental resources and creating an avenue for peer-to-peer communication between homeschooled students. The Web is “becoming a valuable tool for these parents and children to access educational resources and to maintain contact with other such parents and children.”

One interesting point that the above study raised is that it is difficult to find an easy answer as to whether technology, or more specifically the Web, can increase learning. The article suggests that methods of learning are so fluid and emphasis may not be placed solely on a tool that promotes it. It is implied that other factors, like consistency or frequency of use, play an even larger role in gauging a students’ academic progress than just the mere use of the medium, or tool, alone. What can possibly create a positive shift in student learning among secondary students is how well an instructor, for example, champions the new mode of learning. If emphasis is placed on the “tool” to be used as a supplemental educational resource, then perhaps a student is more prone to adopt that new tool.
How Students Communicate

In the Digital Age, many new outlets of communication have sprouted up particularly in the areas of information dissemination and social networking media. Youth, at even younger ages than previous decades, are engaging more with technology and the internet. According to a study by internet security company AVG (2010), children ages 2-5 are becoming more familiar with computers games and 63 percent of them know how to turn the computer on and off. Children of this current decade are surrounded by technology, and more schools are beginning to notice the computer savvy that many school-aged youth possess.

The Denver School of Science and Technology

With a mission to enhance and empower the minds of its students, the DSST implemented the Laptop Program giving every 9th and 10th grader a laptop computer and 11th and 12th graders a tablet computer. The school partnered with Dell to provide more than $1 million worth of computers and supplemental tools to bring this goal to fruition. As a part of the program, almost all the teachers were also provided with tablet computers.

Nearly 40 percent of the students at this culturally and racially diverse institution come from low-income households. The school says that its core mission was to increase the opportunity to take advantage of technology while increasing the number of students continuing their education after high school.
The study was conducted in the fall of 2007, the first school year in which all grades 9th-12th were represented. The school opened its doors with the 9th grade class in 2004 and subsequently added later grades.

The purpose of the study was to track the overall growth of the laptop program and gauge if both students and teachers alike are benefitting from the program. Students and teachers admitted that the laptops had positively changed their education experiences. More than 90% of the teachers gave favorable regards of the laptop program claiming that the new computers changed the way they taught their classes and interacted with students. The laptops, they said, afforded them the chance to step outside of just using textbooks for instruction. In addition, more than 85% of teachers said that they were more apt to teach students with varying learning abilities, as the laptops served as an additional resource. Again, 85% of teachers rated technology as “essential” or “extremely essential” to their teaching and the students’ learning experiences.

One portion of the study focused on the school’s physics course, in which rigorously uses technology, particularly computer devices, for the completion of many of its projects and assignments. In this class, students use special software, probeware, to gather and study data pertaining to their laboratory studies. Findings of the physics study came from more than 120 students taking the class. Surveys were used to gather the information. Many of the students answered that they use computers almost daily because of the class. Thirteen 9th graders were surveyed, over half of which said they most liked the results of projects that were done on the computers. The survey also revealed that 86% of the students in the
physics classes used the laptops for information gathering and 92% of students used the computers to study or analyze information. Seventy-three percent of students said they used the laptops to discuss physics at least once a week.

The Effect of Students’ Sense of Community

A portion of a young child’s development stems from peer-to-peer relationships, and predominantly those at school. Parents provide the fundamentals for a child to develop a sense of self and community. But to a child they look for other beings that share the same affinity of youth and that’s with peers. Mervyn Wighting of Regent University conducted research (Wighting 2006) to see if technology helps to build a sense of community learning through the use of technology in the classroom. The study focused on the responses of more than 180 high school students that mostly responded favorably saying that they believe technology does promote better community learning.

In order for one to understand how the students benefit, the article defined what “community” means in the context of the research. When discussing the students, Wighting defined “community” as a feeling or sense of affinity, belonging, and unity with peers and members of a group. Though most commonly the community exists in a learning environment (i.e. school), Wighting continues and states that all members of the “community” need to be loyal to the overall progress of the group.

For the “community” learning to actually work, students must feel like they are gaining from the group and the group has to feel like all individuals are
contributing to the group. If an individual appears fickle or is not contributing to meeting the same goal, the rest of the members lose trust in that individual and question the member’s loyalty to the group. Communal learning environments are effective based on a set of goals and affinities, established by the group, as well as a sense of belonging. Though it is just as important for students to individually progress academically, shared or “community” learning experiences can play a healthy and vital role as well.

**Does Technology Help?**

Based on previous research, proof exists that students have a significantly better learning experience in an environment where technology is used. Some opposing factors, however, to a student’s development through use of technology include how familiar the instructor is with the technology in order to deliver the optimal learning experience, frequency of use, and how familiar and comfortable the student is with technology being used as a conduit of learning.

Wighting pre-assessed the 181 subjects, which included students from Grades ninth through twelfth, to gain background about their information use. Most of the students had an average to above average experience level with computers and technology. The survey was not random and was intended for students with computer knowledge. Results proved that more than half of the surveyed students gave positive regards in saying that the computers helped them interacted with peers more and engage in academic behavior. But teachers and students alike claimed that they wanted to see more computers placed into the
schools. While students claimed that they believe the computers helped them, they said, all together, they enjoy using the computers as supplemental educational tools.

**Technology Use of Students from Low-income Households**

Within the last decade, federal agencies have developed a heightened interest in creating literacy initiatives across the nation. With programs like No Child Left Behind, students have a more competitive but fair opportunity at reaching an academic pinnacle and possibly furthering their education on the collegiate level. Though economical shifts occur in the government, affecting the citizens’ income, the educational standards should not diminish. According to a 2009 survey conducted by the National Telecommunications and Information Administration, about 66 percent of American households had internet access. Through community programs and technology initiatives, that number is on an incline as more citizens are beginning to realize the importance of internet technology in a Digital Age. For students, accessibility in the home affords them a better opportunity at being academically competitive among peers. Leveling the playing ground with technology gives students, regardless of their socio-economic standings, the same chance as any other student to learn in the most diversified way.

Technology today supplements an instructor’s lesson plans and gives an additional, but very necessary way of teaching. Particularly internet programs that promote interactivity with the Web and technology engage students while
introducing a new method of learning. The Christine Greenhow’s “Millennial Learners and Net-Savvy Teens?” study introduced two terms, “digital natives” and “digital immigrants” (Greenhow 2010). “Digital Natives”, for the sake of this topic, would most accurately define today’s school-aged students. The offspring of Generation X and Generation Next, the “digital natives” are growing in an era where technology is ubiquitous. The main factor is that “digital natives” become acclimated to technology at a very early age. They are born into technology. With technology playing a major role in life and existence, “digital natives” know technology like the back of their hands.

Within the last decade alone, social networking has become a prime source in communication. Web logging or “blogging” allows one to publish ideas and perspectives with ease. Web forums, create a board room for discussion for people that perhaps may not be able to meet face-to-face because of distance or other constraints. For communicating with someone in another country, technology transcends those borders, and our young, burgeoning “digital natives” recognize that. More students are able to discuss assignments, projects, and research outside the confines of a classroom.

On the other hand, “digital immigrants” can describe the teachers. They are older and were born into a generation that perhaps could not have fathomed the world as it is today, a world where email has replaced much of snail mail and job applications from almost all industries are required to be completed online. The “digital immigrants” are now compelled to adapt to this New World, as it can be described, of technology that oftentimes is not familiar. So now, technology is
creating a unique situation in which not only are the students in the classroom learning. The instructors, in many instances partner with the students to get a better understanding of how technology works. Students are learning their curriculum while instructors are learning how to deliver a quality education in a technologically-evolving world.

A 2010 Pew Institute report recently revealed that students from low-income households were not as apt to use computer technology. It further detailed that youth from households earning less than a $30,000 yearly income were least likely of any other income bracket to use the internet. Trends from the report showed a significant incline in internet usage based on the increase in annual household income. Ninety-three percent of the youth that fell in the $30,000-$50,000 income bracket used the internet and with a 3 percent increase for those in the $50,000-$75,000 bracket. In the $75,000 and above income level, the internet involvement goes to 97 percent.

**Teacher-Student Engagement through Technology in the Classroom**

Merritt V. Hemenway of the National Association of Secondary School Principals took a look at the internet and student-teacher interaction in his article, *What Effect Does Classroom Use of the Internet Have on the Teacher-Student Relationship?* (Hemenway 2000) To answer the question, Hemenway talked to a few teachers and got responses from students concerning the matter. The study centered on 150 California high schools and a selected 25 instructors from a broad
array of subjects including English and history. Hemenway interviewed one high school teacher who said this:

"Kids find using the Internet more fun, engaging in learning, and they are comfortable at it. They use it at home already ... They are more motivated, and have creative choices." A teacher of microbiology reported her enthusiasm about the ability of the Internet to enhance classroom spontaneity.

Many of the teachers that were interviewed agreed that the having internet resources to supplement in-class instruction was very beneficial. Students were learning more and having a better point of reference in gathering information for assignments by using the internet. The surveys revealed that students were taking a more “active” approach in learning by being more engaged. The teachers said the students were zealous in learning the new technologies that benefitted them in the classroom. Though the general consensus of the interviewed teachers expressed their joy of internet in the classroom, a few expressed some worries and qualms. One history teacher said:

High school kids foster better, quicker communication and sharing of information. Written stuff means processing information better than just orally, better and at a higher level. This gives students more confidence about their work. Quicker and easier
resources mean better learning performance. The downside is the ethical issue, it is easier to plagiarize. Our school won't accept a final product without steps, no final drafts alone. Students must show evidence of work. One other thing, our school requires more oral presentations to explain and make sure the students deliver their own work. Learning is much more independent from the teacher.

Not to imply that technology automatically leads to unethical behavior, Stacey Conradson of Santa Clara University in San Francisco, California produced an article that discusses the technology age and “cyberplagiarism” among students (Conradson 2004). Conradson said that studies have proven that students have increased cheating as the Digital Age progresses. She said instructors are using such tools as Essay Verification Engine, IntegriGuard, and Word Check Software to catch students cheating. The founder of the Center for Academic Integrity, Donald McCabe said in the article:

...cheating is starting younger—in elementary school in fact. And by the time students hit middle and high school, cheating is, for many, like gym class and lunch period, just part of the fabric of how things are....What’s changed is technology. It’s made cheating so easy. And the vast realms of information
on the truly, worldwide Web are so readily available.

Who could resist?

Learning Perceptions

Amy L. Baylor, Department of Educational Psychology and Learning Systems, Instructional Systems Program at Florida State University, and Donn Ritchie of the Department of Educational Technology at San Diego State University, conducted a study that centered on the receptiveness of teachers to implementing technology in the classroom (Baylor 2002). Centered on 94 classrooms across four states, the study took a look in to seven main constructs in school technology including planning, leadership, curriculum alignment, professional development, technology use, teacher openness to change, and teacher non-school computer use.

The study was designed to answer questions about how school staff members play a pivotal role in the process of incorporating technology into school instruction. Instructors and other school officials collaborate in order to put together what is known as a Technology Use Plan, or TUP. The Plan serves as a schematic in establishing what types of technology are to be implemented, the logistics, and how this will develop and benefit students in the long run. The Plan also addresses innovative ways in which teachers can instruct using technology.

Overall, the study was affective in helping one understand technology usage from the instructor’s perspective and it how serves as an impetus in promoting technological change in schools. In order to create a shift in technology
use, the instructors must be educated about the technology and how to use computer systems.

As stated earlier in this paper, a generational gap in technology use between teachers and students can be an impediment in implementing technology. Because many instructors may not be placed in environments where technology is heavily used, they have to first learn how to use the systems or technology before using it as a teaching tool. The instructor also has to figure out if the technology to be implemented fits in concordance with the curriculum. They must define the means through which the technology will be used and if a particular medium of technology is more effective than another.

In the study, surveys and interviews were utilized to collect the data needed. One aspect of the survey proved that the teacher morale was based on two factors: professional development and constructivist use of technology. The teacher morale was reported to have affected all areas of the teaching and learning experience at the school.

The study shed light on the fact that students will not be able to benefit from the technology if the teachers are not well-learned in how to use the technology. The primary way to become acclimated to a technological environment, according to the study, is by using the technology more whether it is at school or in a personal setting. Many of the school in the study focused on “professional development” in which teachers went to workshops and conferences to learn more about technology usage in the classroom.
Not only did the teachers become educated about the technology and how to benefit students in class but they gained a certain confidence. Instructors felt more prepared to teach after gaining a broadened knowledge about the technology that they would be potentially using in the classroom. Though the workshops were beneficial overall, factors including the teachers’ receptiveness to the technology and their understanding of how to use the technology played a role in how well students would benefit from the usage in the classroom.

Researchers discovered throughout the study that the instructors’ moods and “openness” to change was significant. Students benefitted more when instructors were more passionate about learning the new technology. Those teachers that engaged more in self-exploration were more prone to be open about learning new technology.

In essence, positive attitudes from the teachers proved to be more progressive in terms of implementing new technology in the classroom. Instructors and administrators alike have to take an aggressive approach in promoting technological change in the classroom. Faculty that is proactive in the process of making a school more tech-savvy will instill a confidence in students as they experience education through a new medium.

**Internet and the Student Experience**

Within the next two years, the System hopes to bring its computer to student ratio at 1:3. Currently all of the classrooms in the school system have internet access. But in addition to that, school system officials are working to provide wireless connectivity within the next two years. What this means for
students and staff is that there will be a better range in mobility in terms of accessing internet from various locations on school property. The instructors will not be constrained to just teaching inside the classroom. With the wireless connection, instructors are able to go outside and teach about germination while using internet resources on a laptop.

According to a 2004 Pew Internet and American Life survey more than 21 million 12-17 year olds in America utilize the internet for multiple purposes. Of that same 21 million, which is 87 per cent of the age range, 78 per cent of them claim to use the internet predominantly at schools. That is about 16 million youth. Furthermore, almost 86 percent of the surveyed teens said they believe that having internet access at school boosts their grades and comprehensive exam scores. Of the 21 million “online” teens, 71 per cent of them claimed that they used predominantly the internet to complete most of or all of their last major school assignment or project. A percentage of these students even said they use internet tools like instant messaging and such as an outlet for discussion about homework assignments and projects.

According to the National Center for Education Statistics, only 35 percent of all US public grade schools had internet access in 1994, which is just a miniscule amount in comparison to a current 99 percent of schools as of 2005. Furthermore the internet access in specialized instructional rooms jumped from 3 per cent in1994 to 93 per cent in 2003. As a result of increased technology, the students to computer ratio jumped from 1:12 to almost 1:5 between 1998 and 2003.
Researchers and scholars are beginning to understand how pervasive the cyber world and technology are in our society. Even things as simple as filling out a job application have an online requirement. Cell phones are no longer just for talking but for other media outlets, so much so that verbal communication, the original purpose of the cell phone, seems to be an afterthought.

**Methodology**

I wanted to know the frequency and means by which the students choose to use the internet and technology. To gather this information, I used a 15-question survey that asked questions about where the students use the internet the most, how often they use it, and if they believed that technology enhanced their learning experiences and improved their grades (See APPENDIX A). But before I could begin my research, I had to obtain a signed consent form from the principal, which briefly detailed my study and intentions with the student participants (See APPENDIX B). The survey was given to seniors in the English IV class at Person High School because this class, according to the principal, is more involved with technology-based learning and students have more of a propensity to use the internet and technology due to presentations, research papers, etc.

**Informing the Students**

The survey was given to students at the beginning of their class. Students had about 10 minutes to answer the questions. The survey was anonymous, and I had no relationship with or knew any of the participants. One hundred nine students were surveyed from the four English classes. Each class had between 15-
20 students. The participants were informed that their inclusion in the research was voluntary and that they could opt not to participate if they were not comfortable for any reason. The survey was rendered in a predominantly multiple choice format. I believed that this would make the information gathering process more time efficient and easy for the students to understand in order to answer the questions accurately.

Students were given a brief summary of the research study and pertinent information about the survey almost four days before they were issued the survey. On the day that the survey was given, I detailed the purpose of the study by using a pre-written script (See APPENDIX C), how it may potentially educate the students about their own information and technology usage, and the guidelines for completing the survey. Students were also informed that the survey was voluntary and that their participation is not mandatory; students were given an assent form which detailed the study and their role as a participant (See APPENDIX D). All of the students that were asked to participate in the survey process willfully obliged.

**Selecting the Questions**

I wanted to get the most information about the students’ internet and technology use without overburdening the students. The questions were based on elements from my research and were composed to get a broad knowledge of how students use the technology and to what extent. As stated before the survey contained 15 questions, including questions asking for demographic information.
The purpose was to arrange data statistically, but not to draw conclusions or generalizations about students based on their background. The demographic information helps readers to gain a perspective on which populations of the teens are doing what in terms of internet and technology usage. The majority of the participants were age 17 or 18.

Results

One Hundred nine students in four English IV classes at Person High School participated in the study by answering a 15-question survey. The survey purposed to answer questions about the students’ technology usage, in terms of frequency and the media in which they most commonly use internet technology. It also asked questions about where students access the internet or use computers the most. The English IV class is a top-level English course requirement for all PHS seniors.

The data from the surveys was analyzed using the IBM SPSS Statistics system. This program was effective because it allowed data to be cross tabulated based on multiple variables. Data was organized and studied based on three primary determining factors: Race, Gender, and Household Income. These factors were coupled with the remainder of the questions to see how students used the internet, what types of technology they used, and where students had consistent internet access.

Out of the 109 student participants, 60 were females and 49 were males. In addition, 63 participants were Caucasian-American; 33 were African-
American; 6 were Latino-American; 2 were Native American; 2 were Pacific Islanders; and 2 were listed as other. The racial breakdown is illustrated in Figure 1.1

The results revealed that 54 females and 45 males said that they believed the technology enhancements at PHS played a role in their academic success. Only 6 Females and 3 males said that it didn’t have any bearing on their academics. This is illustrated in Figure 1.2 with the racial breakdown detailed in Figure 1.3.

Figure 1.1
Racial breakdown

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African-Amer.</td>
<td>33</td>
<td>30.3</td>
<td>30.3</td>
<td>30.3</td>
</tr>
<tr>
<td>Caucasian</td>
<td>63</td>
<td>57.8</td>
<td>57.8</td>
<td>88.1</td>
</tr>
<tr>
<td>Latino</td>
<td>6</td>
<td>5.5</td>
<td>5.5</td>
<td>93.6</td>
</tr>
<tr>
<td>Native American</td>
<td>2</td>
<td>1.8</td>
<td>1.8</td>
<td>95.4</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2.8</td>
<td>2.8</td>
<td>98.2</td>
</tr>
<tr>
<td>Pacific Isl.</td>
<td>2</td>
<td>1.8</td>
<td>1.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1.2
Technology related to grades based on gender

<table>
<thead>
<tr>
<th>Technology related to grades?</th>
<th>N/A</th>
<th>No</th>
<th>Yes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>0</td>
<td>6</td>
<td>54</td>
<td>60</td>
</tr>
<tr>
<td>Male</td>
<td>1</td>
<td>3</td>
<td>45</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>9</td>
<td>99</td>
<td>109</td>
</tr>
</tbody>
</table>
Figure 1.3
Technology related to grades based on race

<table>
<thead>
<tr>
<th></th>
<th>Technology related to grades?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Race</td>
<td></td>
</tr>
<tr>
<td>African-American</td>
<td>1</td>
</tr>
<tr>
<td>Caucasian</td>
<td>0</td>
</tr>
<tr>
<td>Latino</td>
<td>0</td>
</tr>
<tr>
<td>Native American</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
</tr>
<tr>
<td>Pacific Isl.</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
</tr>
</tbody>
</table>

Below in figure 1.4, data is arranged by household income and is presented to reflect students’ responses to whether if the technology advancements at PHS had been beneficial and if the enhancements affected their grades.

Figure 1.5 answers the question of whether if students believed their grades would suffer without internet access. Seventeen of the 27 students with a household income under $40,000 said their grades would suffer.
Figure 1.4
Have grades improved with technology advancements?: Technology related to grades based on household income

<table>
<thead>
<tr>
<th>Grades improved?</th>
<th>Technology related to grades?</th>
<th>N/A</th>
<th>No</th>
<th>Yes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Household income $0-$19,000</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>$20,000-$40,000</td>
<td>1</td>
<td>6</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$41,000-$60,000</td>
<td>3</td>
<td>9</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$61,000-$80,000</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$81,000 or more</td>
<td>2</td>
<td>8</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>1</td>
<td>6</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>36</td>
<td>43</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Yes Household income $0-$19,000 | 0 | 0 | 3 | 3 |
| $20,000-$40,000 | 0 | 0 | 14 | 14 |
| $40,000-$60,000 | 0 | 0 | 1 | 1 |
| $41,000--$60,000 | 0 | 0 | 1 | 1 |
| $41,000-$60,000 | 0 | 1 | 18 | 19 |
| $61,000-$80,000 | 0 | 1 | 5 | 6 |
| $81,000 or more | 1 | 0 | 5 | 6 |
| N/A | 0 | 0 | 16 | 16 |
| Total | 1 | 2 | 63 | 66 |

| Total Household income $0-$19,000 | 0 | 0 | 6 | 6 |
| $20,000-$40,000 | 0 | 1 | 20 | 21 |
| $40,000-$60,000 | 0 | 0 | 1 | 1 |
| $41,000--$60,000 | 0 | 0 | 1 | 1 |
| $41,000-$60,000 | 0 | 4 | 27 | 31 |
| $61,000-$80,000 | 0 | 1 | 9 | 10 |
| $81,000 or more | 1 | 2 | 13 | 16 |
| N/A | 0 | 1 | 22 | 23 |
| Total | 1 | 9 | 99 | 109 |
Figure 1.5

Will grades suffer w/out internet? : Technology related to grades based on household income

<table>
<thead>
<tr>
<th>Will grades suffer w/out internet?</th>
<th>Technology related to grades?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Household income</td>
<td></td>
</tr>
<tr>
<td>$0-$19,000</td>
<td>0</td>
</tr>
<tr>
<td>$20,000-$40,000</td>
<td>0</td>
</tr>
<tr>
<td>$41,000--$60,000</td>
<td>0</td>
</tr>
<tr>
<td>$41,000-$60,000</td>
<td>3</td>
</tr>
<tr>
<td>$61,000-$80,000</td>
<td>1</td>
</tr>
<tr>
<td>$81,000 or more</td>
<td>0</td>
</tr>
<tr>
<td>N/A</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Household income</td>
<td></td>
</tr>
<tr>
<td>$0-$19,000</td>
<td>0</td>
</tr>
<tr>
<td>$20,000-$40,000</td>
<td>0</td>
</tr>
<tr>
<td>$40,000-$60,000</td>
<td>0</td>
</tr>
<tr>
<td>$41,000-$60,000</td>
<td>0</td>
</tr>
<tr>
<td>$61,000-$80,000</td>
<td>0</td>
</tr>
<tr>
<td>$81,000 or more</td>
<td>1</td>
</tr>
<tr>
<td>N/A</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Household income</td>
<td></td>
</tr>
<tr>
<td>$0-$19,000</td>
<td>0</td>
</tr>
<tr>
<td>$20,000-$40,000</td>
<td>0</td>
</tr>
<tr>
<td>$40,000-$60,000</td>
<td>0</td>
</tr>
<tr>
<td>$41,000--$60,000</td>
<td>0</td>
</tr>
<tr>
<td>$41,000-$60,000</td>
<td>0</td>
</tr>
<tr>
<td>$61,000-$80,000</td>
<td>0</td>
</tr>
<tr>
<td>$81,000 or more</td>
<td>1</td>
</tr>
<tr>
<td>N/A</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
</tr>
</tbody>
</table>
Figures 1.6-1.9 look at students who had gone without internet at any point throughout their high school matriculation and if the absence of internet access had a negative impact on their grades. The data is arranged by gender and race. Figure 1.10 shows that about 59 percent of the students intent on going to a four-year college or university, where they will most likely be exposed to more forms of technology and more frequently.

Figure 1.6
Students without internet in high school based on gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>W/out internet in high school</th>
<th></th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>45</td>
<td>15</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>Male</td>
<td>29</td>
<td>20</td>
<td></td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
<td>35</td>
<td></td>
<td>109</td>
</tr>
</tbody>
</table>

Figure 1.7
Students without internet based on gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>If yes to w/out internet</th>
<th>N/A</th>
<th>No</th>
<th>Yes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td></td>
<td>45</td>
<td>6</td>
<td>9</td>
<td>60</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>28</td>
<td>5</td>
<td>16</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>73</td>
<td>11</td>
<td>25</td>
<td>109</td>
</tr>
</tbody>
</table>
Figure 1.8

Students with internet at home based on race

<table>
<thead>
<tr>
<th>Race</th>
<th>Internet at home?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td>African-Amer.</td>
<td>4</td>
</tr>
<tr>
<td>Caucasian</td>
<td>1</td>
</tr>
<tr>
<td>Latino</td>
<td>0</td>
</tr>
<tr>
<td>Native American</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
</tr>
<tr>
<td>Pacific Isl.</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5</td>
</tr>
</tbody>
</table>

Figure 1.9

Internet usage in a week based on gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Internet use in a week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3-5 days per week</td>
</tr>
<tr>
<td></td>
<td>Daily</td>
</tr>
<tr>
<td>Female</td>
<td>4</td>
</tr>
<tr>
<td>Male</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14</td>
</tr>
</tbody>
</table>
Figure 1.10
Post-graduation plans

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four-year institution</td>
<td>64</td>
<td>58.7</td>
<td>58.7</td>
<td>58.7</td>
</tr>
<tr>
<td>Military</td>
<td>5</td>
<td>4.6</td>
<td>4.6</td>
<td>63.3</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>.9</td>
<td>.9</td>
<td>64.2</td>
</tr>
<tr>
<td>Trade school</td>
<td>12</td>
<td>11.0</td>
<td>11.0</td>
<td>75.2</td>
</tr>
<tr>
<td>Two-year institution</td>
<td>10</td>
<td>9.2</td>
<td>9.2</td>
<td>84.4</td>
</tr>
<tr>
<td>Working</td>
<td>8</td>
<td>7.3</td>
<td>7.3</td>
<td>91.7</td>
</tr>
<tr>
<td>Working, four-year institution</td>
<td>4</td>
<td>3.7</td>
<td>3.7</td>
<td>95.4</td>
</tr>
<tr>
<td>Working, trade school</td>
<td>3</td>
<td>2.8</td>
<td>2.8</td>
<td>98.2</td>
</tr>
<tr>
<td>Working, two-year institution</td>
<td>2</td>
<td>1.8</td>
<td>1.8</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>109</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Summary

The Person High School study proved that a large majority of the students that were surveyed, almost 59 percent, plan to attend four-year institutions. This is significant because the students will most likely increase their internet usage once they get to college due to the ubiquitous technology environment on many college campuses. Colleges have online educational resources and tools, such as Blackboard, that require a student to spend some time online in order to complete course assignments. Seventy-nine of the 109 student participants said that they currently use the internet daily.

For the most part, teachers and students at PHS believe that the technology enhancements at the school have been beneficial. Students have more options and outlets in the methods that they can use to complete their assignments with the new computer technologies.

Though many factors play a part in a students’ success in school, technology can serve as an impetus that opens many doors. From in-school instruction to making plans for college, the Digital Age is birthing an era of young tech-savvy individuals who learn about technology and its benefits at an early age. And instructors are forced to become more knowledgeable in ways to prepare their minds for the real, competitive world. Through technology, students have a chance to compete whether domestically or globally.

Youth are growing up in an era where technology is pervasive and affects many of the major aspects of daily living. Being knowledgeable about how to use technology whether for education or for leisure can make a student more
competitive and open up boundless ways in which to access information. The fact of the matter is that the world is changing rapidly, from a technological standpoint. Some schools, like Person High School, may have started with just a computer lab to increase the use of technology among students. But now that same campus may have advanced to technology programs and technological learning aids to promote and heighten knowledge in students.

According to the U.S. Department of Education website’s Education Reform Studies page (http://www2.ed.gov/pubs/SER/index.html) bringing technology to the classroom has the propensity to 1.) stimulate motivation and self-esteem, 2.) support thinking processes, 3.) promote equity, 4.) prepare students for the future, 5.) support changes in school structure and 6.) explore technology capabilities. Technology places students in situations that cause them to do more problem-solving, allows versatility in how they learn, and as a result create a sense of accomplishment in the students.
References


[APPENDIX A]

21st Century Technology in the Classroom: Technology Use Questionnaire

Details: This questionnaire will be used to gather data about the technology use of high school seniors. Information from the questionnaire will be included in a research paper on 21st century technology in the classroom and if school technology positively affects students’ grades. None of the information will be used to draw negative generalizations about any racial groups or genders.

Your participation in this survey is valued. Please answer the below questions honestly and to the best of your knowledge by circling the best response. Remember that this survey is anonymous, so please do not put your name or any identifying information on this questionnaire.

1.) Gender:
   a.) Male
   b.) Female

2.) Race
   a.) African-American
   b.) Caucasian-American
   c.) Latino-American
   d.) Pacific Islander
   e.) Other: _______________

3.) How old are you? ______________

4.) How often do you use the internet in a week?
   a.) Daily
   b.) 3-5 days per week
   c.) Less than 3 days per week
   d.) Not often

5.) Do you believe that more technology in the classroom could better your grades and enhance your learning experience?
   a.) Yes  b.) No

6.) What forms of technology do you most commonly use? (Answer all that apply)
   a.) Computers
   b.) E-Book readers
   c.) MP3 players
   d.) Cell phones
   e.) Other: _______________

This study is being conducted by Shelbia Brown, graduate student at the University of North Carolina School of Information and Library Science. She can be contacted at shelbiab@email.unc.edu.
7.) Do you use internet/technology for:
   a.) Leisure
   b.) Educational purposes
   c.) Research
   d.) Smaller Homework assignments

8.) Have your grades improved within the last year since technology advancements have been made in your school?
   a.) Yes  b.) No

9.) What are your plans upon graduating?
   a.) Attending a four-year college or university
   b.) Attending a trade or vocational school
   c.) Working
   d.) Extended travel
   e.) Other:________________

10.) Do you have internet at home?
    a.) Yes  b.) No

11.) Where do you most frequently have access to technology like computers and the internet
    a.) Home
    b.) School
    c.) The city library
    d.) With friends/relatives
    e.) Other:________________

12.) Do you believe that your grades would suffer if you did not have internet access?
    a.) Yes  b.) No

13.) Was there a time in high school or your senior year when you did not have internet access?
    a.) Yes  b.) No

14.) If you answered ‘Yes’ to question 13, did the lack of access harm your grades?
    a.) Yes  b.) No

15.) What is your median household income?
    a.) $0-$19,000
    b.) $20,000-$40,000
    c.) $41,000-$60,000
    d.) $61,000-$80,000
    e.) $81,000 and more

This study is being conducted by Shelbia Brown, graduate student at the University of North Carolina School of Information and Library Science. She can be contacted at shelbiab@email.unc.edu.
[APPENDIX B]

21st Century Technology Study

Principal Investigator Consent Form

Study Conducted By: Shelbia N. Brown, Principal Investigator  
Master’s Candidate, M.S.I.S.  
University of North Carolina at Chapel Hill  
School of Information and Library Science  
shelbiab@email.unc.edu / 919.408.4736

The purpose of this form is to give permission to the above identified principal investigator to gather information about the technology and internet usage of high school seniors at Person High School. This form also gives the above named principal investigator permission to be on the premises of Person High School solely for the collection of information only relating to the research and study. As a Person High School administrator, I believe that the study will help gage the necessity of 21st century technology in the classroom as a method to make students more competitive and to increase their learning capacities.

I have been informed that none of the information in the survey will be used to draw negative conclusions about students regarding race, gender, or socioeconomic status. As principal, Based on information pertaining to the research, no risks have been presented that will endanger the lives or wellbeing of the students who choose to participate. With this being an anonymous survey, I am comfortable in knowing that no information will reveal the identity, names, birthdates, or any other likeness of the students.

Please check the appropriate response:

☐ I am in agreement with the purpose and goals of the study and give permission to the principal investigator to begin the survey process by issuing the questionnaires.

☐ I am not in agreement with the purpose and goals of the study and do not give permission to the principal investigator to begin the survey process by issuing the questionnaires.

Signature Section: A signature indicates that all parties have thoroughly read this form and are in agreement.

Person High School Official/Principal                Date

Principal Investigator                Date
[APPENDIX C]

Shelbia Brown, Principal Investigator

Study number: 11-0130

Topic: 21st Century Technology in the Classroom

Script to present to research subjects:

Greetings students. My name is Shelbia Brown and I am a second-year information science graduate student at the University of North Carolina at Chapel Hill. As a part of my graduate studies, I have to write a final Master’s paper on a topic in technology. I selected to focus on the senior class here at Person High School because of the technology advancements that have been made here in recent years. My research topic is “21st Century Technology in the Classroom”. The center of my research revolves around a questionnaire that I am asking you seniors to complete. The questionnaire contains 14 questions about your internet use and how you use technology. It also includes information about race, gender, and age that you will be asked to complete. The questions will help me see how high school seniors use technology and the internet.

The completion of the questionnaire and involvement in the study is completely voluntary, meaning you can choose not to participate if you absolutely do not want to. None of the information from the survey will be used negatively, and the survey is anonymous and will not include your name or any other identifying information. I will be giving you these envelopes to complete at home. The envelops contain the questionnaire and information about the study. You will have no more than five days to complete the survey and return it here at PHS in a locked and secured drop box in your homeroom class.

If you have any questions, please contact me at 919.408.4736. You do not have to give your information when you call. Simply say “I am a PHS senior and I have a question.” Thank you for your time and consideration.
Assent to Participate in a Research Study
Adolescent Participants age 15-17
Social Behavioral Form

IRB Study # 11-0130
Consent Form Version Date: 2/2/11

Title of Study: 21st Century Technology in the Classroom

Principal Investigator: Shelbia Brown
UNC-Chapel Hill Department: School of Information and Library Science
UNC-Chapel Hill Phone number: 919.962.8366
Email Address: shelbiab@email.unc.edu
Faculty Advisor: Dr. Claudia Gollop /P. 919-962-8362 / E. gollop@ils.unc.edu
Funding Source and/or Sponsor: N/A

Study Contact telephone number: 919.408.4736
Study Contact email: shelbiab@email.unc.edu

What are some general things you should know about research studies?
You are being asked to take part in a research study. You do not have to be in this study if you don’t want to, even if your parent has already given permission. To join the study is voluntary. You may refuse to join, or you may withdraw your consent to be in the study, for any reason, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. You may not receive any direct benefit from being in the research study. There are no risks to being in research studies.

Details about this study are discussed below. It is important that you understand this information so that you can make an informed choice about being in this research study. You will be given a copy of this consent form. You should ask the researchers named above, or staff members who may assist them, any questions you have about this study at any time.

What is the purpose of this study?
The purpose of this research study is to learn about the internet/technology usage and information gathering methods of high school seniors at Person High School in Roxboro, North Carolina. The Person County School Board has implemented a four-year technology plan that centers on diversifying the technology needs of students. Results will purpose to produce information as to if students are benefitting from the new technology available.
**How many people will take part in this study?**
If you are in this study, you will be one of approximately 120 people in this research study.

**How long will you part in this study last?**
You will be asked to answer a questionnaire/survey of their internet use and how they believe technology in the classroom at perhaps at home as well has played a role in their lives educationally. Participants will be selected at random. One issuance of the survey will be conducted during the Spring 2011 semester. Once the questionnaires are issued, a verbal midweek reminder will be given to the students to turn in their questionnaires if they are participating. Students will be given five days total to turn in their questionnaires and consent forms. The total time that it takes to complete the questionnaire will be approximately 5-10 minutes. There is no need for a follow-up.

**What will happen if you take part in the study?**
After receiving permission from the principal and teachers, I will talk to the students in their homeroom class about the survey and the research. Because I am selecting seniors, I will open the survey for all seniors to participate equally. During the homeroom class, I will make a special announcement about the surveys and the purpose and content of the surveys. There is no need for any type of publications to be posted or emails to be sent out since direct contact is the method that I am using. I will then give students their questionnaire packets, which include the questionnaire and information for subjects to take home and complete. After the five-day period of completion, the students will return the packets back to me as I go around the class and collect them.

**What are the possible benefits from being in this study?**
Research is designed to benefit society by gaining new knowledge. You may also expect your child to benefit by being in this study by being able to gain knowledge about their own internet usage and be afforded the chance to muse on the ways that technology may potentially benefit them and other students like them. On a larger scale, such information is important as there is much emphasis, particularly on a congressional level, as to how education is shifting for America’s students.

**What are the possible risks or discomforts involved from being in this study?**
There are no impending risks associated with this study.

**How will your privacy be protected?**
Because students will be allowed to take the packets home, the participants will place the information back in the manila envelope and will seal it and latch it with the metal tab that comes on the envelope. No identifying information will be on the envelope that will give away the students’ identities. The entire study is anonymous, and students will be informed in the questionnaire instructions to maintain their anonymity. To ensure that the information is not tampered with, students will be given selected times in which I will be available to receive their completed packets.
Participants will not be identified in any report or publication about this study. Although every effort will be made to keep research records private, there may be times when federal or state law requires the disclosure of such records, including personal information. This is very unlikely, but if disclosure is ever required, UNC-Chapel Hill will take steps allowable by law to protect the privacy of personal information. In some cases, your information in this research study could be reviewed by representatives of the University, research sponsors, or government agencies (for example, the FDA) for purposes such as quality control or safety.

**Will you receive anything for being in this study?**
You will not receive anything for taking part in this study.

**Will it cost you anything for you to be in this study?**
There will be no costs for being in the study

**What if you or you have questions about this study?**
You have the right to ask, and have answered, any questions you may have about this research. If you have questions, complaints or concerns, you should contact the researchers listed on the first page of this form.

**What if you have questions about your rights as a research participant?**
All research on human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights as a research subject, or if you would like to obtain information or offer input, you may contact the Institutional Review Board at 919-966-3113 or by email to IRB_subjects@unc.edu.

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**Title of Study:** 21st Century Technology in the Classroom

**Principal Investigator:** Shelbia Brown