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A STUDY TO DETERMINE IF
MULTIMEDIA TECHNOLOGIES IN A REGULAR
CLASSROOM ENHANCES LEARNING AND MOTIVATION

By
Carol Murphy

A Thesis

Submitted in partial fulfillment of the requirements of the
Master of Arts Degree
of
The Graduate School
at
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Approved by
Professor

Date Approved May, 2004

ABSTRACT

CAROL MURPHY

A STUDY TO DETERMINE IF
MULTIMEDIA TECHNOLOGIES IN A REGULAR
CLASSROOM ENHANCES LEARNING AND MOTIVATION

2003/2004

DR. LOUIS MOLINARI

EDUCATIONAL TECHNOLOGY

The purpose of this study was to demonstrate the effectiveness of infusing multimedia technologies in a regular classroom. The purpose of this study was also to demonstrate that with the use of technology, the students would better understand the important concepts covered in the social studies unit, as well as be motivated to learn.

Thirty sixth students conducted research using wireless laptops to find information about a prominent African-American who has made a positive contribution to our society. The control group created an oral presentation and constructed a replica in the form of a doll to represent their person. The experimental group created Microsoft Power Point presentations to present to the class.

Using a t-Test with an independent sample to assess the data there were no significant differences in correlations between and the experimental group, but with further studies and a larger group of students perhaps the difference would be significant.

If this study were conducted again, the students should be assessed for enthusiasm as well as content knowledge in the subject area.

Acknowledgements

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CHAPTER 1

Significance of the Study

Throughout American history, the purpose of public education is to transmit the culture from one generation to another and to change it according to the needs of the society (Dewey, 1916). This premise continues to drive public education even today.

For instance, in 1958, after the Soviet Union launched *Sputnik*, the American educational system was overhauled with the *National Defense Education Act* providing federal funds for mathematics and science education (Ornstein, 1998, p.156). The American educational system changed to assist the students to survive in the new technologically advanced society of the 1960's and 1970's. Mathematics and science became the focus in the public school curriculum to prepare students for the new technological age of space exploration. Reflecting the changes in society, American education changed its focus.

During the 1970's and 1980's the public school system was changed to assist the students to excel in the emerging technologically global society. In 1983, the research sponsored the by Commission on Excellence in Education, *A Nation at Risk*, found that American students' mediocre performance was making them fall behind their counterparts in the other industrialized countries. The schools were mandated to add core classes for high school students and suggested a minimum amount of time in the classroom for all high school graduates.

Suggestions were made that state and local high school graduation requirements be strengthened and that, at a minimum, all students seeking a diploma be required to lay the foundations in the Five New Basics by taking the following classes during their 4 years of high school:

4 years of English; 3 years of mathematics; 3 years of science; 3 years of social studies, and one-half year of computer science. For the college-bound, 2 years of foreign language in high school were strongly recommended (Ornstein, 1998, p. 271).

These changes in the curriculum were the first time that computer science was considered a requirement for high school graduation. These new guidelines reflected the changes in the American society from the industrial age to the service oriented global economy.

The federal government sponsored another study to change the American education system's focus. In 1983, the National Science Board Commission published *Educating Americans for the 21st Century*. This commission focused the educational goals on mathematics, science, computer literacy and technological literacy. Again, these school reforms reflect the ever-changing American society (National Science Board Commission, 1983).

In 1998, the federal government found that the American public school system was not keeping up with the technological growth of the American society. Schools were not connected to the Internet so students were unable to learn vital skills necessary to thrive in the emerging information rich culture. The Clinton Administration allocated funds to supply or update technology in all

public schools and to teach the teachers how to integrate the technology in their classrooms. Through the *Technology Literacy Challenge Fund Initiative*, federal funds became available for schools to create the infrastructure to upgrade the current technologies and to supply vital professional development for all the teachers (Technology Literacy Challenge Fund Grant, 1998).

As we become a more technologically advanced society, we need to once again change the focus of how we are educating our current and future populations of students. Historically, the public schools have changed their focus to reflect the changes in society. Now more than ever, schools must infuse the current technologies to keep up with the technologies used in everyday life.

Our culture is immersed in multimedia technologies through the use of digital video devices, compact disks, cellular telephones, as well as televisions and computers. We live in a multimedia world. Our schools, in contrast, are predominately text based. Therefore, as stated above, if the purpose of public education is to transmit the culture, the infusion of multimedia technologies in the classroom is paramount for our schools to fulfill this goal.

The International Society for Technology in Education (ISTE) has recommended standards for students that relate directly to the infusion of technology in the classroom. Creating a multimedia presentation gives the student the perfect opportunity to master all of these guidelines (http://cnets.iste.org/students/s_stands.html).

The goal of public schools is to transmit the culture from one generation to another and to be the agent of change when necessary. The American educational

system has changed throughout history to reflect the changes that occur in society. Changes occurred in mathematics and science in 1958 after the launching of *Sputnik*. Changes have occurred again when society was evolving from the industrial age to the global economy. The infusion of multimedia technologies into a regular classroom will assist public schools to transmit our multimedia culture to the current generation of students and the other generations that will follow.

Statement of the Problem

Could it be that if sixth grade students have the opportunity to create multimedia presentations for their social studies class, the students' understanding and depth of comprehension of the required social studies concepts will increase?

Could it be that if sixth grade students have the opportunity to create multimedia presentations for their social studies class, they will be motivated to participate in their own learning?

Hypothesis

There will be no differences in the understanding of social studies concepts and motivation between the sixth grade students who have the opportunity to have technological tools integrated into their social studies class and those sixth grade students who are receiving traditional learning activities.

Purpose of Study

The purpose of this study is to demonstrate the effectiveness of infusing multimedia technologies in a regular classroom. The purpose of this study is also to demonstrate that with the use of technology, the students will know how to use

the research tools to gather information about important people in United States history and be able to use multimedia software to present this information to their class (New Jersey Core Curriculum Content Standard in Social Studies, 1998).

This study will also focus on the technology literacy standards to help students become computer literate and learn how to use technology tools to successfully communicate in an increasingly technologically literate society. (New Jersey Core Curriculum Content Standard in Technology Literacy, 2003 draft).

Method of Study

The targeted school is located in a suburban town of approximately 2,317 residents. The adult residents are predominately upper middle class professionals (Municipal Data Book, 2001). The school is considered by the New Jersey Department of Education to be an “I” district and therefore gets very little state or federal funding. In 1999, the school was awarded \$65,000.00 through the Technology Literacy Challenge Fund Grant Initiative. With these funds, the school created a solid technological infrastructure, as well as placing two networked computers in every classroom and twenty computers in the computer lab. The school’s media center is also online and the students can access the patron catalogue from any computer in the school. Twenty percent of the grant funds was spent on professional development for all of the teachers. Since that time, the school has updated the computer lab to include new computer workstations as well as ten wireless laptop computers to be used by the students in the classrooms as needed. Though a small community, it values education and has

been very enthusiastic and supportive about the technology education of the students.

It is a kindergarten through sixth grade district with 206 students. The sixth grade students are taught in a departmentalized setting with 45-minute periods. The students meet with the social studies teacher five days a week and with the technology teacher twice a week. The students may use wireless laptop computers in their social studies class or computer workstations in the computer lab.

All the computers have the necessary software and Internet access. The computers are also connected to a local area network to allow the students to access their documents from any of the computers in the school. When the students show their multimedia presentations, they will use a laptop computer connected to a Liquid Crystal Display (LCD) projector so that the whole class can view the presentation.

The study will be conducted for two weeks. There are two sixth grade classes, a total of thirty students in the study. The control group and experimental group will receive traditional instruction as well as use the computers for research.

Both the control group and the experimental group will choose an African-American who has made a positive contribution to our society. Both groups will have the opportunity to use encyclopedias, both text and on-line, on-line databases, nonfiction text, biographies, as well as web sites, to gather information about their particular person.

The control group will be given instructions as to what is expected for their assignment. They will have class time to conduct their research and to create a doll to represent their person. They will be given a copy of the rubric that will be used to assess their assignment. They will also have all the necessary construction materials available when they create their model.

The experimental group will be given instructions and guidelines for their Microsoft Power Point presentation. They will also be given the rubric that will be used to assess their presentations. They will be instructed that this presentation is to inform the class about their particular person, that their presentation will be shared with the class using the LCD projector.

Though students in both the control group and the experimental group may ask their fellow students as well as the teacher for assistance, the total assignment will be assessed on an individual basis.

The social studies teacher will discuss with both the control group and the experimental group what their assignment will be. Students and teacher will decide what important information they need to know about the different people, including but not limited to when they lived, where they lived, as well as what were their contributions to society. Students will be choosing a person from a teacher-generated list. They can also choose someone else if they can show to their teacher some of the contributions that this person has made. By the end of the first period, the students will need to decide who they would like to research.

The next three class periods will be used to gather information about their particular person. The students will have the opportunity to use encyclopedias,

biographies, non-fiction books, on-line databases, as well as web sites. The students will take notes to help them remember the important information about their person.

The teacher will be available to answer questions, to guide the students' research, and to ask the students questions to keep them thinking about the information that they find.

The laptop computers will be used in the social studies class to access the Internet, as well as to use Microsoft Power Point to create their slideshows. Students are all aware of how to cite the source of their information.

During class five and six, the social studies teacher will meet with each student to see the progress that they are making, and to help them check their work for accuracy and mechanics.

During class seven and eight, all students will be encouraged to finish their assignments and to practice the oral presentation that they will give to the class. The experimental group will have the option of using the computer to record their oral presentation in Microsoft Power Point. Those who use this option will practice their presentation and play it back to check for accuracy.

The ninth class period will be utilized for presenting all assignments to the class. The control group will show their dolls and give their oral presentations. The experimental group will present their multimedia slideshows to the class.

The social studies teacher will be responsible for using the rubric to assess students' presentations and to give feedback to the students about their presentations.

The tenth day will be used for reflections and discussions. The students in the experimental group will discuss what went well with their presentations and what they would change.

Limitations of the Study

A major limitation of the study is the size of the population. Because it is such a small school, there are few students available for the study. It is recommended that there should be at least thirty participants to make a study worthwhile, the small population of students is a limitation. There are only thirty sixth grade students. Both classes will be used so that there are enough possible participants.

Another limitation of the study is the time element. When students have the opportunity to research and create multimedia presentations, they do take a lot of time creating their presentation because they become so involved in their work. Though this is a very good teaching and learning opportunity, to make the study worthwhile, the students will have to maintain deadlines that correlate with the other social studies class.

Definition of Terms

New Jersey Core Curriculum Content Standards – Benchmarks for student to attain by a certain grade level. The State of New Jersey has standards in language arts literacy, comprehensive health and physical education, world language, science, math, workplace readiness, visual and performing arts, social studies, and technology literacy.

Internet – A global network that connects local area networks, wide area networks, and regional networks from all over the world together into one accessible global network.

ISTE – International Society of Technology Educators – Introduced technology standards for students, teachers, and administrators – Technology Standards for the State of New Jersey are based on ISTE standards.

LCD projector – Liquid Crystal Display projector – Self contained data projection device that have its own light source, and do not require a separate overhead projector.

Microsoft PowerPoint – Software package created by Microsoft Corporation to create multimedia presentation.

Multimedia – The integration of several types of presentation techniques, including, but not limited to text, sound, video, graphics, and animation, on a computer.

CHAPTER 2

Review of the Literature

In 1904, John Dewey, the Father of American Education, wrote his book Democracy in American Education. In this book, Dewey wrote that public schools must transmit the culture from one generation to another and change the culture when necessary (Ornstein 1989, p. 138). Throughout the history of American education, whenever there is a crisis in society, the schools are held accountable to make the changes necessary to educate the next generation.

“In times of great change, society looks to its schools to help its citizens adjust. Society often demands that the schools modify their programs so that students will be able to function more effectively in current times” (Ornstein, 1998, p. 269). The current goal of public education is the same as it was at the turn of the 20th Century, to pass the culture to the next generation and make the necessary changes to accommodate the new generation.

In 1957 after the Soviet Union launched *Sputnik*, the American educational system changed its focus with the *National Defense Education Act* providing federal funds for mathematics, science, foreign language, and guidance to direct students to further their education (Ornstein, 1989, p. 156). This federal initiative was preparing the American youth to function in a society where the focus was toward better mathematicians and scientists. Using these federal funds, schools were able to update their science and mathematics programs. Large sums

of money became available to reconstruct the content that was being taught in secondary schools. Partnerships were being forged with university professors, scientists and curriculum specialists to create a national curriculum in science and mathematics (Ornstein, 1998 p. 156). This wave of curricular change focused on the content of science and mathematics and not on the students' interests or needs. The public school system was used to transmit the current culture and changed the focus so that our children would have stronger mathematics and science skills to thrive in the new technological age.

The Commission on Excellence in Education in 1983 conducted another research project focusing on changing American education so that it would transmit the changing culture of the 20th Century. The findings, entitled *A Nation at Risk*, concluded that schools were demonstrating mediocre performance and that students were not being prepared for success in the information age (Ornstein, 1998, p. 271). There were several recommendations made by the Commission:

State and local high school graduation requirements be strengthened and that, at a minimum, all students seeking a diploma be required to lay the foundations in the Five New Basics by taking the following curriculum during their 4 years of high school: a) 4 years of English; b) 3 years of mathematics; c) 3 years of science; d) 3 years of social studies, and e) one-half year of computer science. For the college-bound, 2 years of foreign language in high school are strongly recommended (Ornstein, 1998, p. 271).

To strengthen the educational system the Commission also recommended rigorous and measurable standards and higher academic expectations. To fulfill these recommendations the Commission suggested a longer school day and an extended school year. Finally, the Commission also urged that school leadership and government officials should be held accountable for these standards to be met by the students. The *Nation at Risk* report changed the goal of public education to strengthen science and mathematics requirements as well as social studies, English, and for the first time, computer science.

In 1996, the federal government undertook another educational initiative to transmit the society's technological culture to the new generation. To improve schools and to reflect the emerging technological culture, funding became available to schools throughout the country. In 1996, the Clinton Administration signed a bill that allocated federal funds for schools across the nation to have access to multimedia computers with Internet access. At this time, the E-Rate funding became available as well as the first round of the Technology Literacy Challenge Fund (TLCF). These monies could be used to create solid infrastructures for Local Area Networks (LANs) and Wide Area Networks (WANs). The monies from the TLCF could be used for hardware, software, and with twenty percent being exclusively for professional development for teachers. E-Rate monies could be used for Internet connections such as T1 lines and other means of communications. The Clinton administration also allocated monies to be used for distance learning equipment so that students would have up-to-date technologies available in their schools (<http://www.ed.gov/Technology/TLCF>).

Billions of tax dollars have been allocated to schools all across the country to create the infrastructure, implement the professional development opportunities, and pay for the upkeep and upgrading of the technologies.

The ratio of student to computer in the classroom has substantially decreased from 10:1 in 1995 to 5:4 in 2001. The percentage of schools with Internet access has increased from 3% in 1994 to 87% in 2001. With the increase of the availability of computers and computer technology in the classroom, infusion of the technology into the content areas should also increase. As the statistics above demonstrate, the technology is available in the schools. The study surveyed one of the largest school districts in the country and reported that 50% of the teachers who answered the survey use technology with their students as a communication tool (Barron, 2003, p. 489).

In the seven years since the Technology Literacy Challenge Fund grants, E-Rate monies, and Distance Learning Funds have been distributed, major steps have occurred, but schools are still failing to integrate technology in the regular classroom. It is through the concerted effort of teachers, parents, administration, and the community that we can prepare our students to use the current and ever evolving technologies of our society.

The New Jersey Department of Education approved *Working toward the Future with Our Children: the Education Technology Plan for New Jersey* on January 8, 2003. The goal of this technology education initiative is that “All students, no matter which district or school they attend, will be able to achieve the Core Curriculum Content Standards because they will have unlimited access to

people, to a vast array of curriculum and instruction, and to information and ideas – no matter where they exist.”

There are four technology goals addressed in The New Jersey Technology Plan. The first goal is that students will attain the technology skills to achieve the Core Curriculum Content Standards and to succeed in the workplace of the twenty-first century. The second goal is that teachers will attain the skills necessary to use the educational technology. The third goal is that students, teachers, and administrators will have access to the educational technologies throughout the school as well as other educational settings, such as community centers and public libraries. Finally, the fourth goal is for schools to establish and maintain the infrastructure so that students, teachers, and administrators can have access to all the emerging technologies.

The New Jersey Department of Education has drafted the Core Curriculum Content Standards for Technological Literacy that reflect the technology education needed in our ever-changing society. “Computer and information literacy, which supports skills in information-gathering, information-organizing, and problem solving, has become critical for every student whether college or work-place bound. The computer and information literacy standard are designed to be integrated and applied in all the content areas of the Core Curriculum Content Standards” (2003). These standards reflect the need for schools to change their focus to reflect the technological society in which our students live.

The first standard affirms that all students will use technological skills and tools to gather and organize information to solve problems. This standard stresses

the basic computer skills such as keyboarding, spreadsheets, database management, and creating an electronic presentation. It also stresses computer applications and the ethical implications of plagiarism of print, non-print, and software copyrights. (New Jersey Core Curriculum Content Standard for Technology Literacy, draft, 2003)

The implementation of these standards will prepare our students for the technologically enhanced society in which they live. As with the past initiatives mentioned throughout this study, the Core Curriculum Content Standards in Technological Literacy are how New Jersey schools are evolving to reflect the changes in our society.

Multimedia technologies are used in all walks of life. The cellular phones that are used can now transmit text, graphics, and videos. They can also transmit voice or music. The new laptop computers can access on-line services from many public areas that have a wireless access point. Our students have the opportunity to be connected to the real world at any time.

Many students have discovered the convenience of instant messenger. They have learned a whole new language of abbreviations so that they can chat in real time as fast as their fingers can fly across a keyboard. Students are using the computer for their educational, recreational, and social communications. The International Society for Educational Technology (ISTE) has developed National Educational Technology Standards to assist students to gain the expertise to thrive in our technological society (ISTE, 2003). "A combination of essential conditions is required to create learning environments conducive to powerful uses of

technology” (ISTE, 2003). One component listed by ISTE to assist in the integration of technology is for students to have access to contemporary technologies, software, and telecommunications networks. Students who are encouraged to use multimedia-authoring programs to create presentations have the opportunity to learn the contemporary software packages that integrate the subject matter and telecommunications networks, such as the Internet (ISTE, 2003).

Though the look of the American educational system has changed through the years, the focus remains constant. As Ornstein wrote, “In times of great change, society still looks to its schools to help its citizens adjust. Society often demands that the schools modify their program so that students will be able to function more effectively in current times” (1998, p. 269).

Since the American public school system must continue to transmit the technological culture to the next generation of citizens, then multimedia technologies must be infused into the everyday learning environment. Using these technologies will prepare the students to thrive in our multimedia society.

CHAPTER 3

Project Design

Introduction

The purpose of this study is to demonstrate the effectiveness of infusing multimedia technologies in a regular classroom. The purpose of this study will also demonstrate that with the use of technology, the students will better understand the necessary concepts covered in a social studies unit, as well as be motivated to learn.

Community Setting

The borough is located in Gloucester County, New Jersey. The it is primarily a residential community of 1.66 square miles surrounded by conservation areas. The borough has a public library as well as active child oriented civic organizations such as Little League, Girl and Boy Scouts, and an athletic organization.

The school is a small suburban school of 206 students servicing grades kindergarten through sixth. There are two classes of each grade level, and an average class size of 16. The population of students is 96% Caucasian, 2% Asian, and 2% African-American (New Jersey State Report Card 2002).

The school is committed to creating a curricular framework that integrates and utilizes technology as a tool to advance student learning and to empower students to become independent life-long learners in a rapidly changing,

information oriented age. The thorough integration of technology into each discipline in the curriculum becomes the unifying force that encourages interdisciplinary collaboration and enables the school district and its professionally-developed staff to serve as the center of learning for all citizens in the school community (Technology Plan 2004).

The school believes that students must function in the technology-rich environment of the modern workplace. Teachers will model the effective use of technology in order to foster student awareness of expected career proficiencies. Wenonah Public School believes that teachers will integrate technology in all curricular areas (Technology Plan 2004).

Classroom Setting

This study will be conducted with two sixth grade social studies classes. The focus of this study will demonstrate that students are more motivated to learn if they have the opportunity to create multimedia presentations.

Research Design

Using the causal-comparative method for research, two groups of students will be observed in order to collect data to test the null hypotheses that there will be no significant differences in the understanding of social studies concepts and motivation between the sixth grade students who have the opportunity to have technological tools integrated into their social studies class and those sixth grade students who are receiving traditional learning activities.

Prior to beginning this study, a teacher created motivation assessment was developed specifically for this study to determine if students prefer to do their

classroom assignments using the available technology. The original plan for this case study was to use both the fifth and sixth grade students. Due to extenuating circumstances, only the sixth grade class was used. Since there was no other class to determine reliability for the motivation assessment, the survey was given twice in a test, retest format to a fourth grade class. This class will not be in the study.

Giving the assessment to several elementary teachers tested the content validity. Since the teachers did think that it did ask the necessary questions to assess motivation, the tool was considered valid for this particular study.

A teacher created rubric was also used to assess the final Microsoft Power Point presentations. It was determined that the rubric had content validity because it assessed the content of the slide show as well as the mechanics and techniques, such as grammar, oral presentation, and special effects. All skills that were directly taught to the students.

All the sixth grade students will be studying notable African-Americans who have made major positive contributions to our culture and society. All the sixth grade students will be given the opportunity to choose a person that they would like to research. They will be given a list to guide them, but they could also choose someone who is not on the list if they can demonstrate to the teacher that the person has made a positive contribution to our society. All the students must submit their choice to their social studies teacher before starting their research.

All the students will use different research resources and materials to gather their information. The students will use resources including, but not

limited to encyclopedias, biographies, non-fiction text, as well as on-line encyclopedias, on-line databases, and web sites.

The control group will create a doll to represent the person that they researched. They will also be responsible for an oral presentation that will inform the class about the person, as well as discuss what major contributions that person has made to society. The control group will have the opportunity to use laptop computers connected to the school's wireless network to gather information about their particular person. They will also be able to use encyclopedias, both text and CD's, biographies, non-fiction texts, as well as on-line encyclopedias, on-line databases, and web sites to gather information about their particular person.

The evaluation tool that will be used to assess the students' presentations is a teacher created rubric. The rubric will be used to assess the creativity of the doll, as well as the student's oral presentation.

The experimental group will be responsible for creating a multimedia presentation about their particular person. They will use Microsoft Power Point to create the presentation. The students will use laptop computers connected to the school's wireless network in their regular social studies class to research the information and to make the presentation. The students will also have the opportunity to use encyclopedias, biographies, other non-fiction texts, on-line encyclopedias, on-line database, and web sites to gather information about their particular person. The presentations will be shared using the Liquid Crystal Display projector so that all the students can view the finished slideshows. All the

students are familiar with using the laptop computers, projection equipment, as well as Microsoft Power Point so they are comfortable using these tools.

The students in both the control group and the experimental group will be given the opportunity to use their computer technology class to research their person. The experimental group will also have the opportunity to use the computers in the technology lab to develop their Microsoft PowerPoint presentation.

Both the control group and the experimental group will be instructed on what is expected in their oral or computer generated presentation. They will also receive copies of the rubric that will be used so that they know what is expected in their presentations. All of the students are to become an expert on their person.

All the students will have a two-week period to complete their assignment. At the end of this period, one class period will be used to present their work to their social studies class.

The only different variable between the control group and the experimental group is the use of Microsoft Power Point to create a multimedia presentation as opposed to what the social studies teacher traditionally uses for this unit, the creation of dolls to represent the notable person.

CHAPTER 4

The Study

The purpose of this study is to demonstrate the effectiveness of infusing multimedia technologies in a regular classroom. The study will show that with the use of technology, the students will better understand the important concepts in a social studies class, as well as be motivated to learn.

All the students in this study have had experience using multimedia technologies in their technology class as well as other content area classes. All the students have had experience using computer workstations as well as laptops and projection equipment.

The causal-comparative method for research was used. Two groups of students were observed in order to collect data to test the null hypotheses that there will be no significant differences in the understanding of social studies concepts and motivation between the sixth grade students who have the opportunity to have technological tools integrated into their social studies class and those sixth grade students who have experience with traditional learning activities.

Prior to conducting this research project, a teacher created motivation assessment was developed specifically for this study to determine if the students prefer to do their classroom assignments using the available technologies. The original plan for this study was to use fifth and sixth grade students. Due to

extenuating circumstances, only two sixth grade classes were available. Consequently, to test for reliability, the motivation assessment was initially administered to a representative group of fourth grade students who were not participating in the study. After two weeks time, the assessment was administered again and the results of the test re-test were used to assess reliability of the teacher made assessment.

The content validity of the assessment was tested by giving the motivation assessment to several elementary teachers and asking them to tell what they thought was being assessed. Since the teachers did think that the assessment did ask necessary questions to assess motivation, the tool was considered valid for this particular study.

A teacher created rubric was also used to assess the final Microsoft Power Point presentations. It was determined that the rubric had content validity because it assessed the content of the slide show as well as the mechanics and techniques, such as grammar, oral presentation and special effects. All the students had direct instruction involving these particular skills, therefore, the rubric had content validity for this particular study.

At the beginning of the study, two sixth grade classes were given the motivation assessment to determine if they preferred using the available technology in their regular classroom. Next, both the control group and the experimental group were given the assignment of researching an African-American who had made a major contribution to our society. All the students used resources including, but not limited to encyclopedias, text and on-line,

biographies, non-fiction text, as well as on-line databases and web sites. Both groups had the opportunity to use laptop computers in their regular social studies class and the computer workstations in their technology class.

After researching their person, the control group was given instruction on how to create a replica in the form of a doll to represent their person and all the necessary supplies to complete the activity. The students were also responsible for giving an oral presentation to inform their classmates about their person. They were also given a copy of the rubric that would be used for their final assessment.

The experimental group was given the assignment to create a Microsoft Power Point presentation on the computers to share with their class. They were given the rubric that would be used to assess their presentations and they were instructed that this presentation was to inform the class about the particular person they investigated. They were also told that their presentations would be shared with the class using the LCD projector. Though students in both groups could ask their fellow students as well as the teacher for assistance, the total assignment was assessed on an individual basis.

The social studies teacher discussed with both groups what their assignment was to include. Students and teacher decided what important information was necessary about the different people researched, including but not limited to when they lived, where they lived, as well as what their contributions were to society. Students were given a list of prominent African-Americans to choose from, but some students chose someone that was not on the list. They demonstrated some of the contributions that this person has made to

society before they continued their research. By the end of the first period, the students decided who they would research.

The next three class periods were used to gather information about their subjects. The students had the opportunity to use encyclopedias, biographies, non-fiction books, on-line databases, as well as web sites. The students took notes to help them remember the important information about their person. The teacher was available to answer questions, to guide the students' research, and to ask the students questions to keep them thinking about the information that they found. The laptop computers were used in the social studies class to access the Internet to help with the research. During class five and six, the social studies teacher met with each student to see the progress that they made and to help them check their work for accuracy and mechanics.

During class seven and eight, all the students were encouraged to finish their assignments and to practice the presentation that they would give to the class. The experimental group had the option to use the computer to record their oral presentation in Microsoft Power Point. Those who used this option practiced their presentation and played it back to check for accuracy.

The ninth class period was utilized for presenting all assignments to the class. The control group showed their dolls and gave their oral presentations in their respective classroom. The experimental group presented their slide show to their class. Those who chose to pre-record their presentation were still responsible to control the equipment. Those who chose to give their oral presentation live were also responsible for the equipment. The social studies teacher was

responsible for using the rubric to assess the students' multimedia presentation and to give feedback to the students about their presentations.

Results of the Study

Prior to conducting this research project, a teacher created motivation assessment was developed specifically for this study to determine if the students prefer to do their classroom assignments using the available technologies. The original plan for this study was to use fifth and sixth grade students. Due to extenuating circumstances, only two sixth grade classes were available. Consequently, to test for reliability, the motivation assessment was initially administered to a representative group of fourth grade students who were not participating in the study. After two weeks time, the assessment was administered again and the results of the test re-test were used to assess reliability of the teacher made assessment.

It can also be seen in Table 1 that a t-Test for independent sample was used to test the teacher made motivation assessment for reliability. With a confidence level of .05 and the normal distribution of scores being from -2.160 to $+2.160$, there was no significant different between the scores from the fourth grade students taking the test and then the re-test. Therefore, this assessment was deemed reliable for this particular study.

Table 1
 Fourth Grade Test Re-test
 Motivation Assessment
 t-Test for Non-independent
 Sample
 Confidence Level .05

No. of pairs of scores	14
t-Value	-1.20
Degrees of Freedom	13

Before beginning the study, thirty sixth grade students took the teacher created motivation assessment. The tool asked students several questions that related to their general feelings about school and using technology in particular. Students were asked to answer each question by circling the answer that best suits them. For instance, the students were asked:

When I have an assignment to do in class, I would rather do it on a computer.

Very true Sort of true Not very true Not true at all

It can be seen in Table 2 that a t-Test for independent samples was used to assess motivation for all sixth grade students. The t-Value was 1.56 with a degree of freedom (df) of 28. With a confidence level of .05 and the normal distribution of scores being -2.048 through 2.048, there is no significant difference in the students' motivation concerning the use of technology in the classroom between the control group and the experimental group, demonstrating that both groups found the use of technology in their regular classroom motivating.

Table 2
 Sixth Grade
 Motivation Assessment
 t-Test for Independent Samples
 Confidence Level .05
 Control Group

Number of scores in control group	15
Number of scores in experimental group	15
t-Value	1.56
Degree of Freedom (<i>df</i>)	28

The Final Study

Thirty students participated in this study. Fifteen students participated as the control group and fifteen students participated as the experimental group. All the students participated while in the regular social studies class. All the students had the opportunity to research a notable African-American. The students used a variety of medium to conduct their research. They used encyclopedias, both text and online, non-fiction text, text and on-line journal articles, as well as on-line web sites.

The control group created replica in the form of a doll to represent their particular person. They used their social studies class to research their person and to make the doll. The students also used their technology periods, if necessary, to work on their project. The students had time to practice their oral presentation as well.

The experimental group created individual Microsoft Power Point presentations about their person. They also used their social studies class as well as their technology class to work on their project. The students in the

experimental group had the opportunity to record their voice on the computer to perform the oral component of their multimedia presentation, or they had the opportunity to practice the oral part of their presentation.

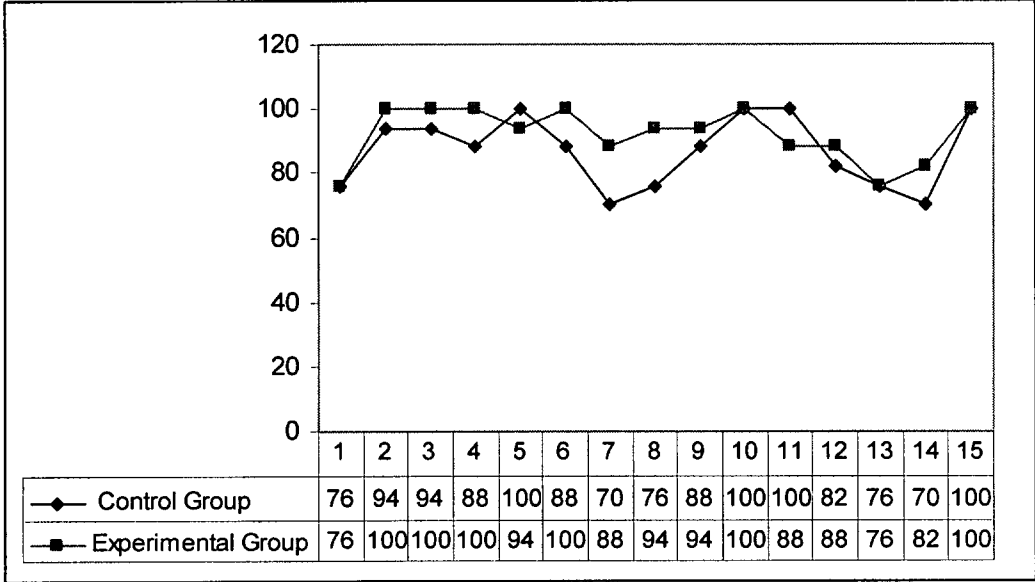
As shown in Table 3 - Sixth Grade Final Assessment for Independent Sample, the data collected using the teacher created rubric, there was no significant difference in the scores between the control group and the experimental group. Using the t-Test for Independent samples, the t-Value was 1.42 with a degree of freedom (*df*) of 28. With a normal distribution of scores being -2.048 through +2.048 and with a confidence level of .05, there is no significant difference between the scores of the two groups. The students in the control group scored just as well as the students in the experimental group.

<p>Table 3 Sixth Grade Final Assessment t-Test of independent sample Confidence Level .05</p>

No. of scores in control group	15
No of scores in experimental group	15
t-Value	-1.42
Degrees of Freedom (<i>df</i>)	28

The Chart 4 plots the actual results of the rubric scores of the control group and the experimental group. The majority of the students scored in the 80th percentile or better with this particular assessment.

Chart 1
 Rubric scores from control group ---◆---
 Rubric scores from experimental group ---■---



CHAPTER 5

Summary of Study

The purpose of this study was to demonstrate the effectiveness of integrating multimedia technologies in a regular classroom to enhance learning and motivation. The causal-comparative method for research was used. Two groups of students were observed in order to collect data to test the null hypotheses that there will be no significant differences in the understanding of social studies concepts and motivation to learn between the sixth grade students who had the opportunity to have technological tools integrated into their social studies class and those sixth grade students who had traditional learning activities.

Sixth grade students participated in this study. Fifteen students participated as the control group and fifteen students participated as the experimental group. All the students participated while in their regular social studies class. All the students had the opportunity to research a notable African-American. The students used a variety of media to conduct their research. They used encyclopedias, both text and on-line, non-fiction text, text and on-line journal articles, as well as web sites.

The control group created replicas in the form of dolls to represent their particular person. They used their social studies class to research their person and to make the doll. They also used their social studies class to write and practice

their oral presentation. The students were encouraged to use their technology periods to conduct their research.

The experimental group created individual Microsoft Power Point presentations about their person. They also used their social studies class and their technology class to work on their projects. The students in the experimental group had the opportunity to record their voice on the computer or to deliver their speech live. They also had the opportunity to practice their speech.

Summary of Findings

After reviewing the data collected using the teacher created rubric, there was no significant difference in the scores between the control group and the experimental group. As determined by the t-Test for independent samples and with a confidence level of .05, the students in the control group scored just as well as the students in the experimental group. The majority of the students in both groups scored in the 80th percentile or better with this particular assessment tool.

Observations

Though there were no significant differences between the two groups, the trend shows that using multimedia technology in the regular classroom both motivates students and enhances learning.

During the study it was observed that the students in both groups were excited about using the laptops in the regular classroom. Though they have used the computers for previous assignments, they still enjoyed the activity. All the students used their time on the computers to gather the information that they needed for this assignment. Because both groups were using technology to

conduct research, many from both groups asked for more time to gather the information that they thought was important. Students from both groups used their free time during lunch to continue their research. This is a very positive aspect of education when the students are enthusiastic about their assignments.

The quality of the multimedia presentations was also very impressive. The students took their time to create presentations that were not only informational, but also well presented. Another positive aspect of this study was the enthusiasm of the social studies teacher. This study gave her the opportunity to use multimedia technologies in her classroom. Using the guidelines of the study, she was able to observe the positive aspects of using the technologies to enhance student learning and motivation.

Recommendation for Further Study

For teachers to continue this field of study, valid and reliable assessments need to be field tested and readily available. Though there are many rubrics that target technology with young students, there is little documentation as to the validity and reliability of these tools. The trend toward using technology in the regular classroom can help teachers to create electronic portfolios for their students, which can be used in longitudinal studies.

If this study was performed again, more data should be collected to document the enthusiasm of the students. Students learn better if they have fun doing the activity. An assessment should also be used to document the depth of cognitive understanding and integration of particular concepts. For instance, a pretest should be given to document what the students already knew about the

subject and a post-test to document what new information was learned after they had the opportunity to gather their information and do their presentations.

Another difference between the two groups should be the way instruction is delivered. In this study, both groups received the same opportunity with the technology for researching their particular person. If this study were to be conducted again, the control group should have a traditional instructional experience, such as textbooks and teacher-directed lecture while the experimental groups would use the technology to research their person.

There are several other recommendations for further study. The study should be conducted on a larger group. Thirty students from a suburban school does not reflect the general population. Another suggestion would be to conduct the research over a longer period of time using perhaps two different multimedia presentations. A third proposal would be that the control group would not have the opportunity to use technology for this particular unit. This group should only have tradition learning opportunities such as encyclopedias, lecture, and non-fiction books. Another proposal would be to assess the students' multiple intelligences using Howard Gardner's *Frames of Mind*. For instance, would a student who has a strong linguistic intelligence work better with technology than a student who has a stronger mathematical/ logical intelligence? Finally, another recommendation would be to study groups of boys and girls separately to see if there are any gender differences in how students can use technology in the classroom.

Action research in the field of technology integration in education is a worthwhile field of study and further data should be collected in this area so that multimedia technologies will be infused into the regular classroom to enhance the teaching and learning environment of all the students.

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Appendix

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INSTITUTIONAL REVIEW BOARD
DISPOSITION FORM

Principal Investigator:
Carol Murphy

Address of Principal Investigator:
331 Middlesex Avenue

City, State and Zip Code
Thorofare, NJ 08086

Telephone #
(856)853-5140

e-mail address
cmurphy@wenonahschool.org

TITLE OF RESEARCH

Using Multimedia Technologies in a Social Studies Class Enhances the Students' Understanding and Increases Motivation.

ADMINISTRATIVE DISPOSITIVE - DO NOT WRITE BELOW THIS LINE

Your claim for exemption for the research study identified above has been reviewed. The action taken is indicated below:

APPROVED FOR EXEMPTION AS CLAIMED: CATEGORY #

Note: Anything that materially changes the exempt status of this study must be presented to the IRB for approval before the changes are implemented. Such modifications should be sent to the IRB Office at the address above.

APPROVED FOR EXEMPTION - BUT NOT AS CLAIMED.

Your claim for exemption does not fit the criteria for exemption designated in your proposal. However, the study does meet the criteria for exemption under CATEGORY #

A determination regarding the exempt status of this study cannot be made at this time. Additional information is required.

Your proposal does not meet the criteria for exemption, and a full review will be provided by the IRB.

EXPEDITED REVIEW: Approved Denied

FULL REVIEW: Approved Approved with modifications Denied

See attached Committee Action Letter for additional comments.

J. Guak
Chair, IRB

Date 3/2/04

G.M.
Co-Chair, IRB

Date _____

