1999

Examining how presentation technology affects communication of student ideas

Barbara Besch
University of Northern Iowa

Examining how presentation technology affects communication of student ideas

Abstract

This research examines the impact of presentation technology and the effect it has on the way students communicate their ideas. Students have traditionally stood at the front of the room and talked about their research and findings. Technology offers new means in presenting student research. The class that will be participating in this study will have access to presentation software and the tools to use it effectively to create dynamic presentations. Before the process begins, students will be asked to evaluate their attitudes and feelings on presenting the results of research. They will then evaluate the overall quality of their past presentations.

The students will be trained how to use the hypermedia presentation software, *mPower*. They will then receive training on the use and incorporation of digital cameras with the software. After the initial training has been completed, the students will be assigned to create a presentation for which they will need to compile information, organize it, and build slides using the software, *mPower*.

Upon completion of their information search, students will be expected to present their projects. Each student will have access to a computer, multimedia projector, and videoflex camera for their presentation so it can be viewed by the entire class. Students will have access to an evaluation rubric that is comprised of three essential parts: communication
of ideas, communication using a variety of media, and creating a quality product. These rubrics will serve as a quality reference guide for the students as they work on their presentation projects. The research will also reference technology standards published by the International Society for Technology in Education.

To culminate the investigation, an interview with students will be conducted by the researcher in order to gain a better understanding of the learning experience.

EXAMINING HOW PRESENTATION TECHNOLOGY AFFECTS COMMUNICATION OF STUDENT IDEAS

Barbara Besch

Research submitted to
Department of Curriculum and Instruction
Division of Library Science
University of Northern Iowa
In partial fulfillment
of the Requirements for the Degree
Master of Arts

Cedar Falls, Iowa

1999

This research paper by: Barbara Besch

Titled: Examining How Presentation Technology Affects Communication of Student Ideas

Has been approved as meeting the research paper requirements for the Degree Master of Arts.

9/15/99	Barbara R. Safford
Date approved	Graduate Faculty Reader
9/15/99	Leigh E. Zeitz
Date approved	Graduate Faculty Reader
9/15/99	Rick C. Traw
Date approved	Head of Department of Curriculum and Instruction

Abstract

This research examines the impact of presentation technology and the effect it has on the way students communicate their ideas. Students have traditionally stood at the front of the room and talked about their research and findings. Technology offers new means in presenting student research. The class that will be participating in this study will have access to presentation software and the tools to use it effectively to create dynamic presentations. Before the process begins, students will be asked to evaluate their attitudes and feelings on presenting the results of research. They will then evaluate the overall quality of their past presentations.

The students will be trained how to use the hypermedia presentation software, *mPower*. They will then receive training on the use and incorporation of digital cameras with the software. After the initial training has been completed, the students will be assigned to create a presentation for which they will need to compile information, organize it, and build slides using the software, *mPower*.

Upon completion of their information search, students will be expected to present their projects. Each student will have access to a computer, multimedia projector, and videoflex camera for their presentation so it can be viewed by the entire class. Students will have access to an evaluation rubric that is comprised of three essential parts: communication of ideas, communication using a variety of media, and creating a quality product. These rubrics will serve as a quality reference guide for the students as they work on their presentation projects. The research will also reference technology standards published by the International Society for Technology in Education.

To culminate the investigation, an interview with students will be conducted by the researcher in order to gain a better understanding of the learning experience.

Table of Contents

Chapter 1

Introduction

Education is in the midst of an evolutionary change and transformation which started taking form several years ago. The traditional classrooms of the past are giving way to more modern modes of teaching and learning. The influx of technology into the educational setting has brought about many new challenges and opportunities during this transitional period (Lee, 1997). School districts themselves, are challenged to change because of the explosive emergence of technology, thus, producing a dynamic impact on the use of multimedia for communication in the classroom. How these transformations are affecting student learning, performance, and achievement have yet to be determined and fully evaluated.

As school districts deal with the inevitable changes brought on by technology, the roles of teachers and students are also changing. The role of instructor is transforming from information disseminator to facilitator in student learning and discovery. Learning will move from the confines of time, text, and siloed offerings to flexible, learner-centered, integrated, project-based opportunities. Students will be more concerned with creating and sharing meaning. The learning environment will support high performance work teams involved in integrated learning, where "real world" connections will be constant. Schools will prepare learners; not process them (School to Work, 1997).

The Iowa Department of Education, in partnership with the Iowa Department of Economic Development and Iowa Department of Workforce, wanted to create effective practices for career exploration, tools for change, and curriculum integration for students. In its vision statement, Iowa's state-wide School to Work project endorses the concept of connecting the working world with education. The vision of this state-wide project is to connect learning to the world in which students will live so that equitable learning opportunities will be provided for all students (STW, 1997).

The use of presentation tools is one area of new computer technologies which have impacted both schools and the business world. Multimedia projectors, videoflex cameras, digital imaging devices, and computers with presentation software are the current tools prevalent and available for communicating information. These tools serve a variety of communication functions. Promotional sales presentations are more dynamic and persuasive, and training has become more interesting, all due to the availability of presentation software (Yudkowsk, 1997). Presentation technologies hold the same kind of potential in the educational setting. The availability of these types of technology tools help make the connection between the working world and the educational setting. By referencing Technology Standards for Students and Communications Standards, criteria have been established for skills transferred from the educational setting to the business world. Teaching students how to use the hardware and software in the school setting and providing them with the opportunity to demonstrate competence in their use, will help to ensure that students have a practical knowledge base of the function of presentation technologies.

There are multitudes of presentation software programs that are being used in schools and businesses. For this study, the presentation software, *mPower*, produced by Mindscape, (1994) will serve as the medium students will manipulate and use for their projects. *mPower* (Mindscape, 1994) allows the user to incorporate text, photos, graphics, audio, and video. Incorporation of digital images will also be a part of the training as students will learn to capture images by using Sony digital cameras. There will be no technological limitations set for the students as they learn the about the capabilities and potential of this software for presentations. Students will also demonstrate competence in using multimedia projectors as they share information. They will also have the option of using a videoflex camera to project enlarged images of visuals they use in their presentations.

Teachers who lead change incur certain risks. Much of the education and training that is provided for students in a curriculum is measured by formalized testing (Marzano,

1993). Using electronic tools in any given class may not increase scores on specific subject area tests, but will enhance student's abilities to obtain information, weigh evidence, solve problems, work collaboratively, and publish reports on their findings. Unless these areas are identified by measurable benchmarks in the curriculum, such successes may not be noted (Mehlinger, 1997).

Standardized tests cannot measure motivation, excitement, attitude, nor self-esteem. These attributes can only be measured by the student or presumed by an observer. Many references are made about how multimedia contributes in a positive way to these factors or the fact that motivation runs high as students prepare their presentations (Troutner, 1996). Technology will "help students interpret their world by becoming gatekeepers to visual information" (Weiser, 33, 18). The explosive emergence of technology and the accessibility of information for society today has created a need for people to be able to locate, evaluate, organize, and effectively communicate that information. With successful manipulation of presentation technology, students can learn to effectively communicate information that includes visuals that accentuate meaning and are aesthetically pleasing to the audience.

Problem Statement

Students in learning-centered classes are expected to expand their presentation skills beyond the traditional method. Presentation technologies have become accessible to a wide range of students since computers often come equipped with some sort of presentation software or districts have access to it. This has raised the expectation that students use more sophisticated technology driven presentations. It is unclear whether students can manipulate the various multimedia technologies and whether these technologies will enhance student motivation and learning.

The purpose of this research is to examine how presentation software affects the communication of student ideas. Factors that effect successful communication of student ideas may include attitude, self-esteem, motivation, and comprehension of the material being presented. These factors will be examined throughout the study.

Students in learning-centered classes are expected to expand their presentation skills beyond traditional methods. Typically students were limited to oral presentation of their research and findings with few visuals that were either handcrafted or difficult for an audience to see. Some students had the use of an overhead projector with transparencies for their presentation, or a slideshow was prepared and shared by students who took the time to prepare them and had the means to finance the option. Presentation technology is accessible to a wide range of students since computers often come equipped with some sort of presentation software or districts have access to it. This has raised the expectation for students to use more sophisticated technology driven presentations. Technology that is available for today's students can take them to a higher level of communicating ideas and research by incorporating audio, video, digitized pictures, music, and animation. These factors create a multisensory learning experience for students (Tuttle, 1995; Troutner, 1996)

It is unclear whether students can manipulate the various multimedia technologies and whether these technologies will enhance student motivation and learning.

The researcher will be referring to Using Effective Communication Standards from the Lifelong Learning Standards section of Assessing Student Outcomes: Performance Assessment Using the Dimensions of Learning Model (Marzano, 1993). Three of the five standards from this document will be referenced for this research. The first, third, and final standard * will be used in the primary focus of the study.

Communication Standards

- Expresses ideas clearly*
- Effectively communicates with diverse audiences
- Effectively communicates using a variety of media*
- Effectively communicates for a variety of purposes
- Creates quality products*

The researcher will also refer to the document National Educational Technology Standards for Students. Standards one, and three * of these six standards will be referenced during the study. Standards and benchmarks that will be addressed during the research are identified by an asterisk.

Technology Foundation Standards for Students

Basic operations and conceptions*

- Students demonstrate a sound understanding of the nature and operation of technology systems
- Students are proficient in the use of technology*

Social, ethical, and human issues

- Students understand the ethical, cultural, and societal issues related to technology
- Students practice responsible use of technology systems, information, and software

- Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity

Technology productivity tools*

- Students use technology productivity tools to enhance learning, increase productivity, and promote creativity
- Students use technology productivity tools to collaborate in constructing technology enhanced models, preparing publications, and producing other creative works*

Technology communication tools

- Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences
- Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences

Technology research tools

- Students use technology to locate, evaluate, and collect information from a variety of sources
- Students use technology tools to process data and report results
- Students evaluate and select new information resources and technological innovations based on the appropriateness to specific tasks

Technology problem-solving and decision-making tools

- Students use technology resources for solving problems and making informed decisions
- Students employ technology in the development of strategies for solving problems in the real world

This study will investigate these research questions:

Will students successfully be able to manipulate various forms of technology to create a multimedia presentation?

Will working with presentation technology enhance student motivation and learning?

How does presentation technology affect the communication of student ideas?

What factors effect successful communication of ideas when using presentation technologies?

Limitations of the study may be the familiarization with hardware that will be used with the presentation software, lack of a knowledge base of how presentation software works and its purpose, and skill in manipulating the software effectively to complete the assignment.

Assumptions by the researcher are that all students involved in this research project know how to use the computer hardware in their classroom, understand how to give an oral presentation, and that all students will complete their projects.

The significance of this study is to reveal the impact presentation technologies have on student presentations and to investigate whether or not presentation technologies enhance communication of student ideas through their oral presentations.

Terminology of Research

Digital Images – images which are stored or transmitted as a sequence of discrete symbols from a finite set of data that are represented using electronic or electromagnetic signals

Hardware – physical, touchable, materials parts of a computer system. The terms is used to distinguish the fixed parts of a system from the more changeable components which it executes, stores, or carries.

Hypermedia – an extension of hypertext to include graphics, sound, video, and other kinds of data.

Hypertext – term coined by Ted Nelson around 1965 for a collection of documents containing cross-references or "links" which allow the reader to move easily fom one document to another. A theoretical prototype of hypertext was described by Vannevar Bush in 1945 as he described a hypothetical information retrieval and annotation system for governmental scientific research.

Multimedia – human-computer interaction involving text, graphics, voice, video and hypertext.

Peripherals – any part of a computer other than the computer system hardware or working memory, i.e. disks, keyboard, monitor, mice, printer, scanner, tape drives, microphones, speakers, or cameras.

Presentation Software - computer program which organizes and stores information for user presentation

Software – changeable components of a computer which executes, carries, or stores data

Source of terminology:

Dictionary of Computing

http://www.onelook.com/about.shml

indexed May 10, 1999

Chapter 2

Review of the Literature

Computer technology integration has been a key phrase for more than ten years, but its interpretation depends on the user and the user's background. Skill stages of entry, adoption, adaptation, appropriation, and invention with using computer technology and technological resources, vary from district to district as well as person to person within each district. (Mehlinger, 1997) School districts find themselves trying to meet the demands of both students and teachers in various stages of computer technological growth and development as they participate in the planning continuum.

As districts develop technology plans and student achievement goals, guidelines are being established. One source that has developed criteria to assist those working to develop guidelines for students, is the Association for Supervision and Curriculum Development (ASCD). In 1991, the Association for Supervision and Curriculum Development (ASCD) developed the following guidelines for using technology in education:

- Students should be knowledge producers as well as consumers.
- They must access and use information from outside the classroom and the media center.

- Student learning should be problem-oriented and project-focused.
- These activities may require a variety of technological support tools.
- This process will develop social interactions such as collaborative learning and peer teaching.
- Learning activities must produce meaningful work intended for audiences beyond the teacher. (Tuttle, 2, 3, 38-39)

Stakeholders of education must think about the ways computer technology can be used to transform the process of schooling to improve teaching and learning. Computer technology has already taken its place in the educational setting. Visioning, continual planning, faculty development, support, and assessment are integral for computer technological success. (Mehlinger, 1997) Trying to evaluate what is new and innovative to enhance the curriculum and the learning experience is and will continually need to be a major focus in schools. In an analysis of forty-seven transcribed teacher interviews and questionnaires on computers as catalysts for change in classrooms, it was clear that the computer did not automatically cause more constructivist practices, but that school-wide initiatives or programs were catalysts of change. Rich professional development experiences and a professional culture that encourages teachers to try new approaches will produce the learning necessary for technology use to become a part of a teacher's decision making and practice in the classroom. (Dexter, 1999)

In a survey given by Fredrick Scheffler, five hundred ninety-six educators with computer expertise ranked sixty-seven computer competencies that teachers need to master before technology becomes an integral part of the curriculum for students. The results indicate the use of the computer as an instructional tool and the integration of computer technology into the curriculum are of the highest priority of all sixty-seven competency skills needed by teachers. (Scheffler, 1999) It would be logical to conclude that teachers need intensive and or consistent technology training before districts can expect to have technology become an infused part of the curriculum.

Technology enables more opportunities for more depth of understanding, but the breadth of the curriculum is still problematic. Teachers are able to build thematic, interdisciplinary explorations for their students with the presence of various technologies. If students perceive activities as more real-world and relevant, and students often take these activities more seriously. (McGrath, 25, 9, 58-61)

The computer technological influence in schools has multiple effects on teachers and students. "Disaffected students are curious about new areas of inquiry with the help of technology tools; and reticent students who have blossomed into eager, motivated members of a group investigate a common problem." (McGrath, 25, pg. 58)

It has been noted that several factors are imperative in order for technology to make a difference in education. In a ten year study by Stevens Institute of Technology, researchers observed the affects of technology integration in the classroom. They studied

changes in the dynamics between student and teacher with the introduction of technology. According to Beth McGrath, Deputy Director, Center for Improved Engineering and Science Education, Stevens Institute of Technology, twelve key themes were found to be consistent when teachers were interviewed about how technology affects their interaction with students.

Technology increases student motivation and the likelihood they will learn, it promotes cooperation and collaboration, as well as persistence in solving problems. Technology fosters increased and improved oral and written communication, and conversations between teachers and students and among students themselves becomes deeper and more probing. Despite challenges, it enables good teachers to work effectively with diverse students. The role of the teacher as facilitator emerges as it promotes a balance of power between the teacher and his or her students.

In support of several of the twelve key themes from Stevens Institute of Technology, the qualitative research paradigm of Sandra Turner documents factors that facilitate the development of a collaborative culture among middle school students learning to use hypermedia. She found that students and teachers alike valued the group as a community of learners, were sensitive to others' feelings, and shared a sense of responsibility to assist others. Students learned to value themselves as learners, teachers, and as thinkers. As students explored the hypermedia software, they found themselves thinking at deeper levels to analyze how the software and its components worked. Turner

concluded that learners can take charge of their own learning and that social factors were as important as cognitive factors as students work collaboratively. The teacher reported few discipline problems and had to deal with classroom management issues very little. Turner also notes that there are also some negative aspects of peer collaboration. For students, negative aspects include bad advice from uninformed peers, less opportunity to access the teacher's time and attention, peer experts not being able to complete their own projects, and negative self-esteem from students not asked to assist others. From the teacher's stand point, the collaborative environment means a greater commitment of time than traditional instruction, fewer topics covered but in more depth, and a need for extra class time to allow the collaborative culture to take root.

Hypermedia is one example of computer technology that is emerging in the educational setting. The findings of Michael Ruffini's study on using hypermedia indicate that hypermedia can provide an effective means of reviewing to improve student achievement. An analysis of the questionnaire responses indicated that more than ninety percent of the students felt positive about the clarity, ease of use, and control of pace using the hypermedia program. Participants in the hypermedia group were enthusiastic and motivated about using hypermedia to explore the instructor's lecture topics addressed in class. (Ruffini, 1999)

Hypermedia's ease of use and control of information by the user is also supported in the review of the quantitative research literature by Andrew Dillon. He states, "There

are grounds for believing that learner passivity/activity may interact significantly with successful learning from this type of technology." The conclusions drawn from Dillon's study of hypermedia supports increased learner control over access of information to be differentially useful to learners according to their abilities, it is advantageous in rapid searching through lengthy information resources, and passive learners may be more influenced by cueing of relevant information. Dillon also points out that successful manipulation of hypermedia also depends on the characteristics of the individual learner and other variables such as prior knowledge and experience with hypermedia. (Dillon, 1998)

The versatility of computer technology allows users to manipulate information and research in numerous ways. For innovative teachers and students, the educational potential of computer technology is limitless. Countless examples of how multimedia technology is being used in the schools can be found in any number of periodicals. Just as there are numerous examples, there are positive responses from teachers and students who are using and incorporating technology. (Lamb, 31, 4)

Using technology tools such as digital cameras for student projects, allow users to explore and share their findings. Capturing images and transferring them to presentation software, with text to enhance the photos, has become a new means to share information from research. The digital images allow the user to revisit experiences and findings and reflect on their research. Criteria are established to help students stay focused on their

research and to be aware of the quality of their final product. Quality indicators of aesthetics (color, design, and layout) are an expectation of multimedia presentations. In a study analyzing the effects of color, it was found that colored materials for teaching and presenting are preferred by students even though measurable effects on learning may be slight. Designers of instructional materials need to use color wisely; attention should be paid to the physiological and psychological effects of color and the effect of color on learning. (Pett, 1996) As students prepare multimedia projects, they become designers of instructional material and therefore should be aware of how those materials affect their audience.

Having and using multimedia does not ensure that learning will take place, nor does it ensure that a solid educational product will be produced. Some of the glitz of multimedia may dominate what is essential for it to be an effective learning medium. Both students and teachers must be trained and have an understanding of the potential of technology and what it has to offer education. (Tuttle, 1995) Adequate training should help ensure that technology's capabilities are utilized. It has also been suggested by Tuttle that in-service and peer training provide an automatic support system for those willing to integrate technology. Effective development of cooperative learning groups increases the interaction during the learning experience for students when they have developed goals for projects.

Findings in a case-based investigation of middle school students using collaborative multimedia technology suggest that technological developments have created an environment conducive to an active constructivist approach to learning. However, varying degrees of success the groups had in cooperating and collaborating were reflected in their final product. Learning needs to encompass both product and process. (Colangelo, W. 1998)

As schools work toward educational reform, the student remains the central focus. In an idealistic situation, empowering learning environments could give students choices in their learning so they can solve problems and construct personal meaning in ways that make them more competent, independent decision -makers in the future. (Hannafin, 1992) John Saye's research concluded by stating, "We who envision educational technology as a new tool for reforming schooling must broaden our focus. We know too little about student or teacher perceptions about technology and empowerment to presume that structural manipulations are sufficient for producing lasting programs of empowering reform."

A concern may be that students become more involved with the bells and whistles of a multimedia program than with the quality of their research. To deal with this concern, assessment tools are essential. Assessment tools would need to evaluate the presentation, knowledge content of the presentation, computer skills to manipulate software effectively, and show evidence of cooperative learning skills. (Troutner, 1996)

An analysis of 1994 standardized test scores at two hundred twenty-seven California schools, including twenty-five model technology schools, showed no strong link between technology and superior achievement in middle or upper income communities, although technology did make difference in lower-income settings. (Slonaker, 1997)

As students are able to incorporate computer technology into their daily lives, it emerges as more of a learning tool instead of a curricular focus. Technology should not be taught in isolation, but simultaneously with the curricular objectives. Education has arrived at the point where project-based learning and authentic learning opportunities can become realities for learners. (Sulla, 1996). Technology can facilitate transparent learning experiences as it becomes infused in the educational environment.

In this educational renaissance and transformational change, learning experiences are transforming in the classroom also. The existence of technology has created the opportunity for redesigning the structure of the school day and the curriculum. The confines of two, by four, by eight (two sides of the textbook, four walls of the classroom, and eight periods of the day) are slowly giving way to more productive and progressive ways of learning. (Glickman, 1996)

Technology advocates predict that the powerful possibilities that technology offers will spur incremental adoption of active student inquiry as the dominant schooling paradigm. With this as a prevailing thought, the march toward constructivist practice could become a reality in classrooms. There continues to be a cultural norm of teaching

and learning, and changing the teacher-learner paradigm is a formidable task. Those seeking educational innovation may find the greatest obstacle to be cultural inhibitions. (Saye, 1997)

The majority of the population has experienced education that prepared them for the industrialized world. Students in today's classrooms need to be prepared for the age of technology and information. "It is our job to prepare kids for *their future* rather than our past or present." (Jukes, p.34) As the featured speaker for 1999 North Iowa Technology Fair, Ian Jukes stated, "We must be the quarterbacks in the educational experience of our students and we must throw not to where the students are, but where they will be in the future." (Jukes, 1999)

Students in classrooms today have learned to live in a technological world. Most children have never lived not having technology around them such as VCRs, remote control devices, microwaves, or even computers. Examining the evolution of technological changes, classrooms too must adapt to change, evolve into environments that will serve the technological needs of children, and prepare them for their future in a technology driven world.

Living in the reality of a technologically driven world, many school districts are working to expose students to a variety of technologies. Providing students with a general knowledge base of practical technologies they will encounter will hopefully increase their confidence level in mastering some of the technologies of their future.

Chapter 3

Methodology

An examination of how presentation technology affects the communication of student ideas is the purpose of this research. Immeasurable factors such as attitude, self-esteem, and motivation are factors that will be examined throughout this study as well as comprehension of material being presented.

This research is a qualitative case study where data will be collected by means of questionnaires, interviews, evaluations and observations. Through these methods of data collection, a comprehensive view of the learning experience will be acquired. The researcher will be a nonparticipant observer. Training of the presentation software, *mPower*, and use of the digital cameras will be done by a third party so the observer can remain a nonparticipant.

The study will be conducted in coordination with a curricular assignment given by the teacher. Seventeen students will be involved in this study. The students will be seventh grade students from Emmetsburg Catholic School, Emmetsburg, Iowa. According to the teacher, the seventh grade students have an ability level that is considered to be above average based on the results of the Iowa Test of Basic Skills given in the fall of 1997.

A preliminary questionnaire (Appendix A) will be given to the students to determine their attitudes and feelings toward oral presentations and the preparation process with a self-assessment of past performances included. This portion of the case study will provide historical data that will be used for a comparison to current data.

Observations of student behaviors, during student project preparation, will be documented for later evaluation. The researcher will observe all student presentations so the researcher will be able to observe the quality of student work using the presentation software and the incorporation of digital images.

When students have completed their projects, and presentations have been given, the researcher will conduct interviews with the students. The interviews will enable the

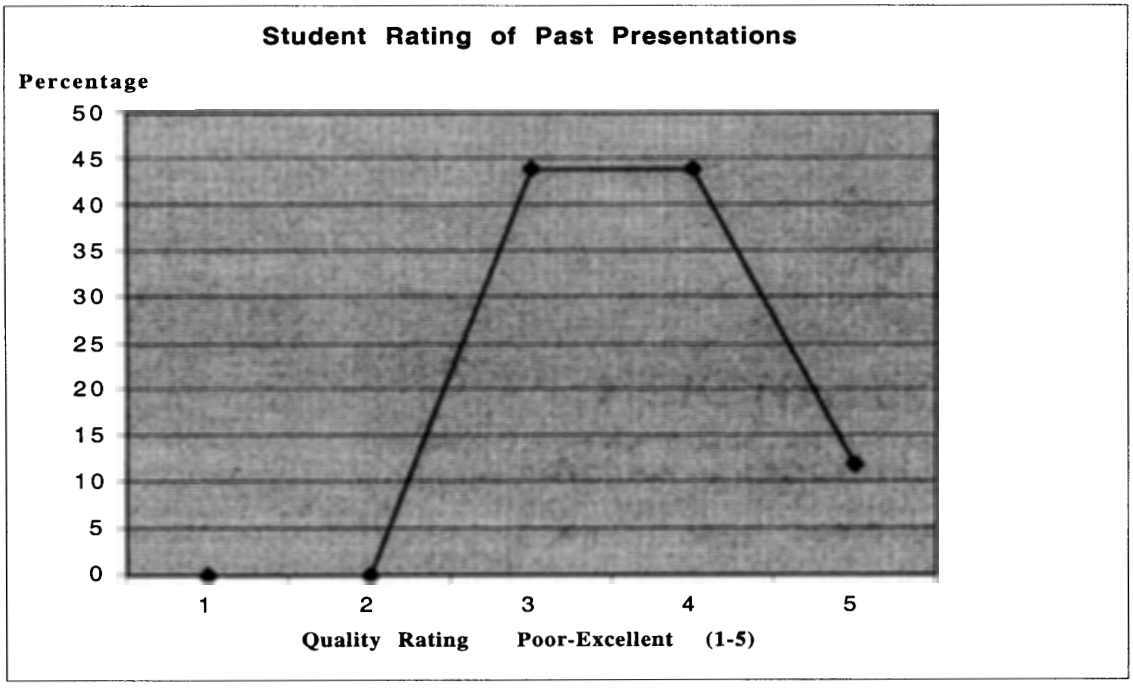
researcher to collect current data. The interview schedule is Appendix B. The new data will be used to compare historical data that was collected from a preliminary questionnaire completed by each student at the onset of the research study. The researcher will also evaluate self-assessment rubrics that will be completed by each student after their project has been completed and their presentation has been given. The rubric used by the students for self-assessment is Appendix C.

The final questionnaire (Appendix D) will be used to collect data from the students for comparison to baseline data, evaluation of software implementation, and evaluation of the effects of using *mPower* software for student presentation.

Chapter 4

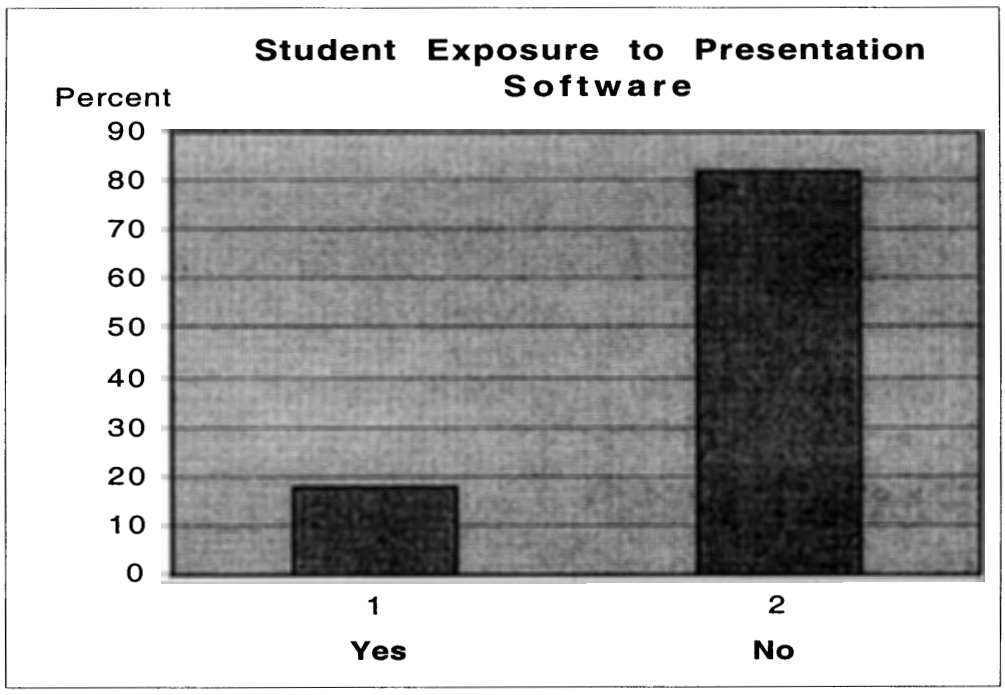
Findings of the Study

Before the software, digital camera, and peripheral training commenced, the students were asked to respond to a questionnaire regarding the quality of past presentations they had given. Their experience with presentations did not need to be limited to a school setting. The following graph represents how the students responded to question two of the student interview questions(Appendix B). A five point scale was used to rate past presentations ranging from poor to excellent (1-5).



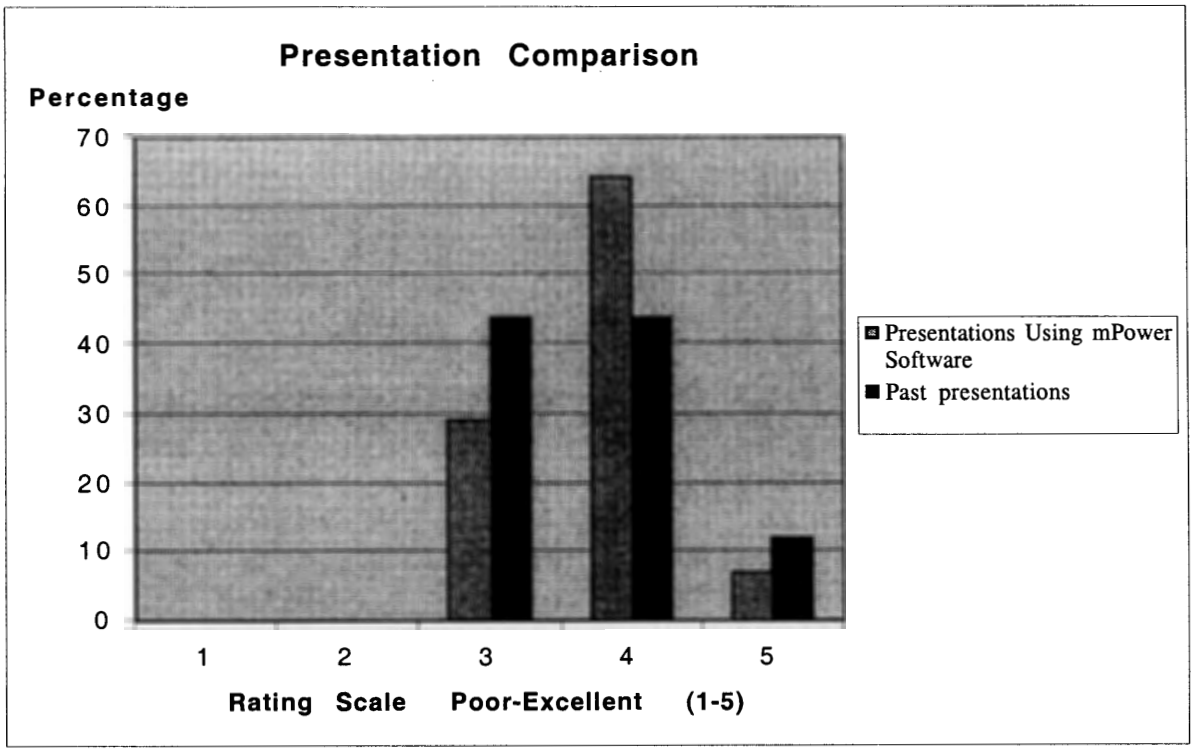
The responses indicate that this group of students felt good about presentations they had done in the past. Forty-four percent of the students felt their past presentations were good and gave themselves a rating of three, another forty-four percent gave themselves a rating of four, and twelve percent rated their past presentation as being excellent with a rating of five.

Eighteen percent of the students had some exposure to presentation software



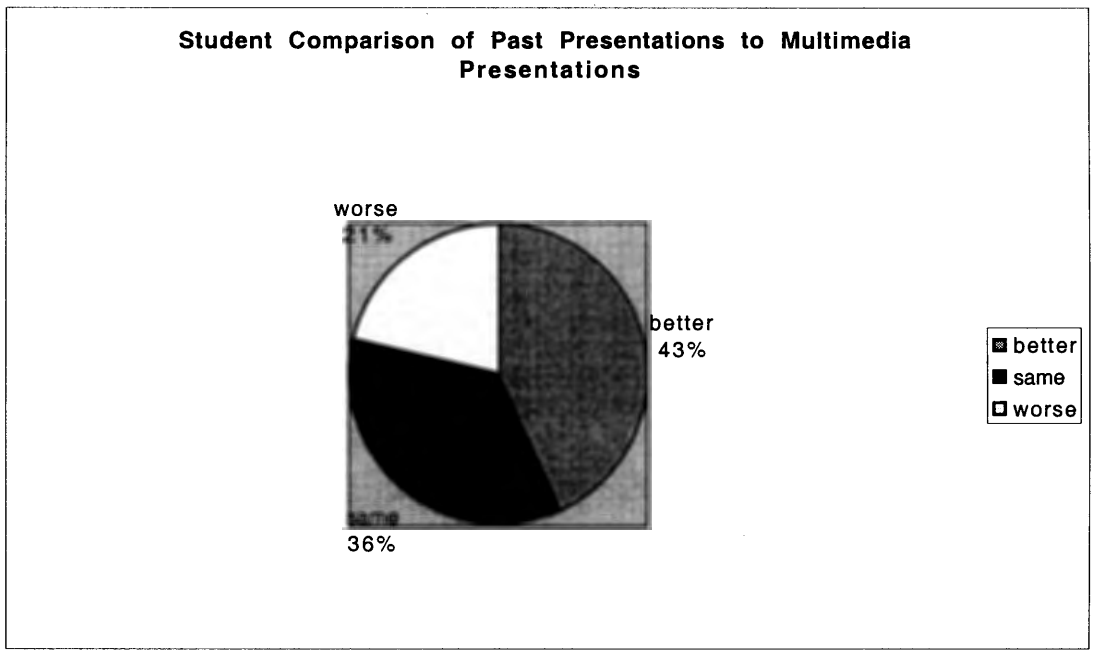
before the *mPower* training and eighty-two percent had never seen or used presentation software. Since the self-assessment of past presentations was positive in quality and motivation, it was unclear if ratings would increase with the use of presentation software.

After the students were trained to use the presentation software, they began to compile information, build slides, and present their information using *mPower*. Each student was then asked to compare their presentation using *mPower* with presentations they had done in the past. The chart on the following page reveals their responses.



The chart reveals that fewer students gave themselves an excellent rating of five and three rating of good when they incorporated *mPower* into their presentation. However, there were more students who rated their presentation as a four when they used *mPower*. No student rated either presentation with a poor rating of one or two.

The students assessed the general, overall quality of their presentation in order to arrive at their responses. The results on the chart below show that 43 percent of the students felt their presentation was better than past presentations, 36 percent responded that their presentation was about the same as past presentations, and 21 percent felt their presentation was worse than past presentations.



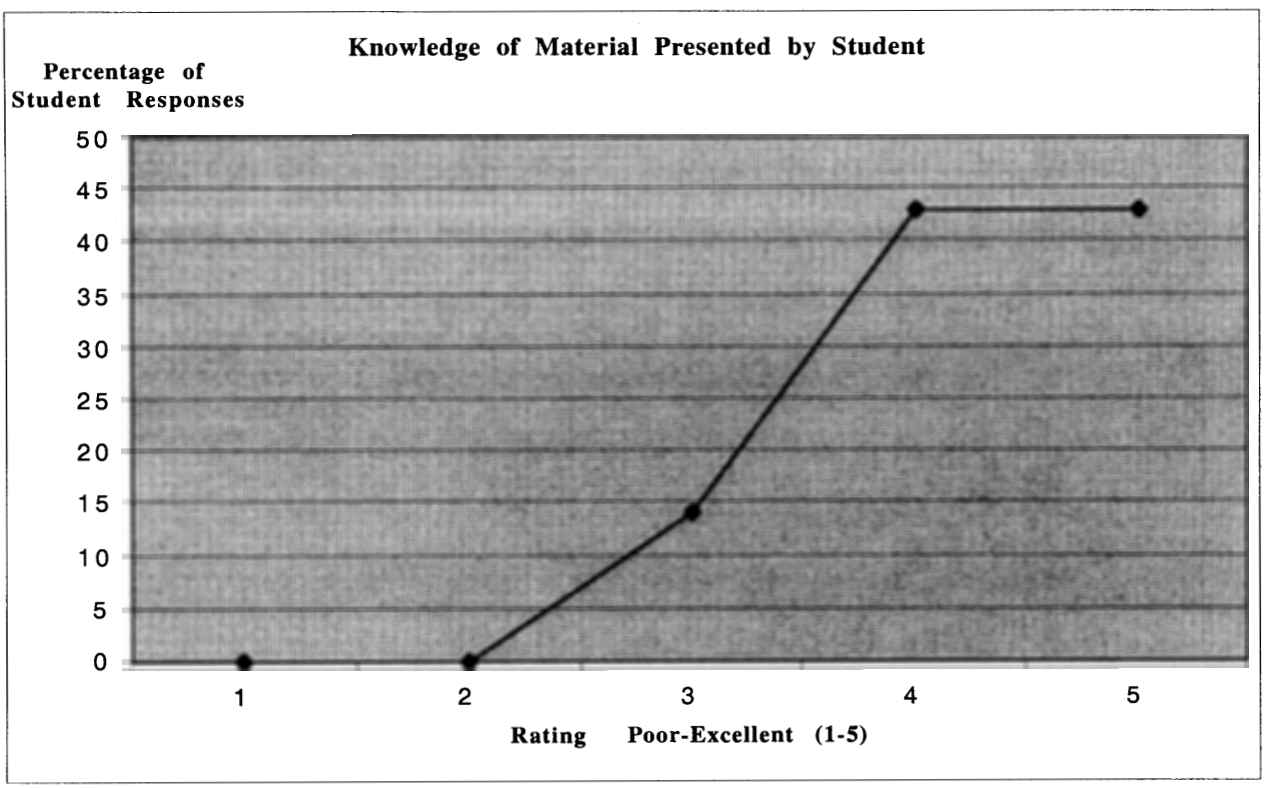
During interview sessions, students who responded that their presentation was better than past presentations attributed it to the software being easy, new, exciting, and adding life to their presentation. They also commented that the visual aspect helped the audience stay attentive and understand their information better. Responses indicating that a presentation was about the same quality as previous presentations came from students who were comfortable with and enjoyed making hand-crafted visuals. Others in this category felt they needed to be able to manipulate the software better in order for it to be of benefit. Those who responded that their presentation was worse than previous presentations experienced frustration in manipulating the software and in turn did not experience the satisfactory results they sought.

Regardless of the responses comparing past presentations, ninety-three percent of the students indicated that they would use *mPower* presentation software again for future presentations. In addition, eighty-six percent of the students claimed they would rather use presentation software than revert back to the traditional way they had been giving

presentations. Fourteen percent were unsure what they would choose to do. Students claimed that one important determining factor in continued use of the software would be adequate time allowance to satisfactorily complete projects with multiple components. Software compatibility with hardware throughout the school was another important criteria for continued use of the software.

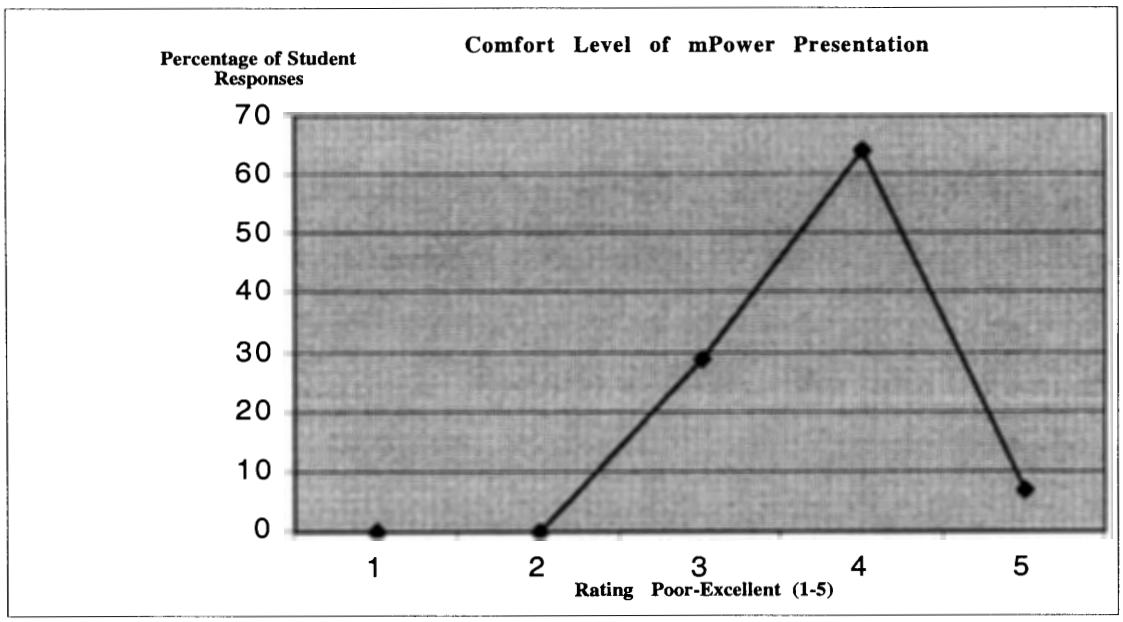
When questioned what would make a presentation more effective in communicating ideas, some of the responses were: more digital images, incorporating music and voice, spell check, more time to work with the software, and better information on their topic. All of the ideas are manageable with further training on any type presentation software as well as better research preparation by the student.

Student presenters were questioned about their knowledge base of the material they were presenting. (Appendix D, question 2) Their responses are indicated below:



The results from the student surveys revealed that all of the students felt they had a good to excellent understanding of the materials they presented. Forty-three percent felt they had an excellent understanding of their material, forty-three percent felt their understanding of their material was very good, and fourteen percent of the students felt they had a good understanding of their presentation material. None of the students rated the knowledge base of their materials poorly.

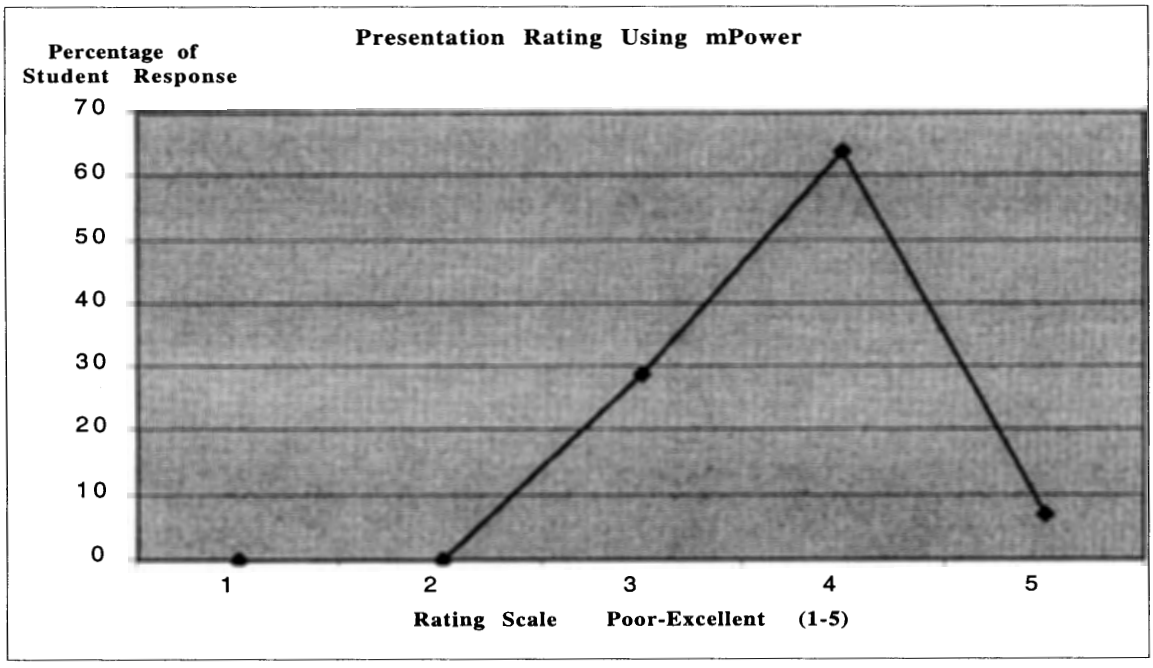
Overall, as the chart below indicates, the students felt comfortable using presentation software for giving presentations.



None of the students responded by ranking their comfort level with a one or two to indicate an uncomfortable experience using presentation software. Twenty-nine percent of the students felt they were generally comfortable, sixty-four percent felt very comfortable, and seven percent felt extremely comfortable and competent using the software.

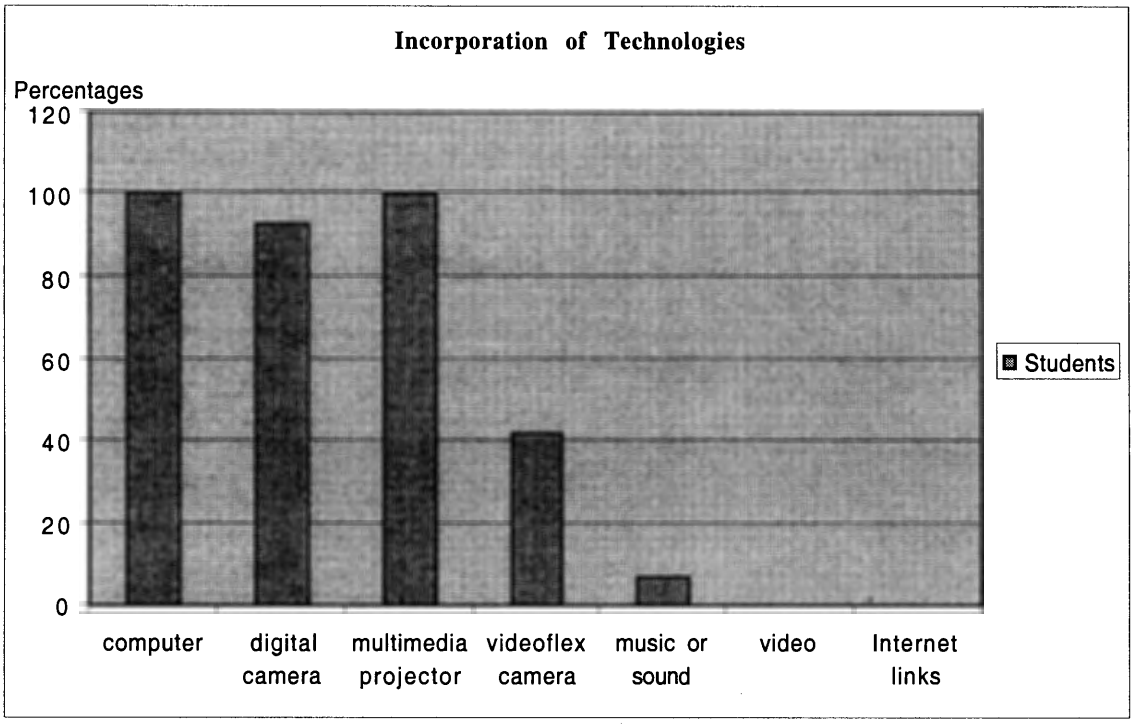
`Interviews with the students revealed that ninety-three percent of the students felt capable of teaching someone else how to prepare a slideshow. Student presentations and verbal responses indicate that students were uninhibited in utilizing this new media form in their classroom environment.

In a student self-assessment of individual multimedia presentations, students tended to realistically evaluate their work. Only seven percent of the students rated their presentation as a five on the rating scale. Sixty-nine percent gave their presentation a rating of four, and twenty-three percent gave themselves a three, regardless of positive input from their peers. No one rated their presentation poorly by giving themselves as a one or a two.



Presentation technology tools possess many possibilities for dynamic presentations to communicate student ideas. Computers, digital cameras, multimedia projectors, videoflex cameras, music and sound CDs, video segments, and Internet links can be used in combination or separately in relaying information by a presenter. The

following chart indicates the percentage of students that used various technologies in preparing and presenting their information.



One hundred percent used a computer, one hundred percent also used the multimedia projector to display their slides (as opposed to strictly using the computer screen) ninety-three percent used a digital camera to capture images that were transported onto their slides, thirty-six percent utilized the videoflex camera to show three dimensional objects or display additional photos or images from other sources. Only seven percent of the students attempted to incorporate music into their presentations. Interviews revealed that more time was needed to be able to bring the slideshow to that level. Time limitations did not allow training for incorporation of video and Internet links. However, students are aware of this capability and showed an interest for further training in these areas.

mPower software has been designed to incorporate all of these technologies as well as the ability to make use of hyperlinks to create a nonlinear presentation. All except one student chose to use hyperlinks for their slideshow presentation.

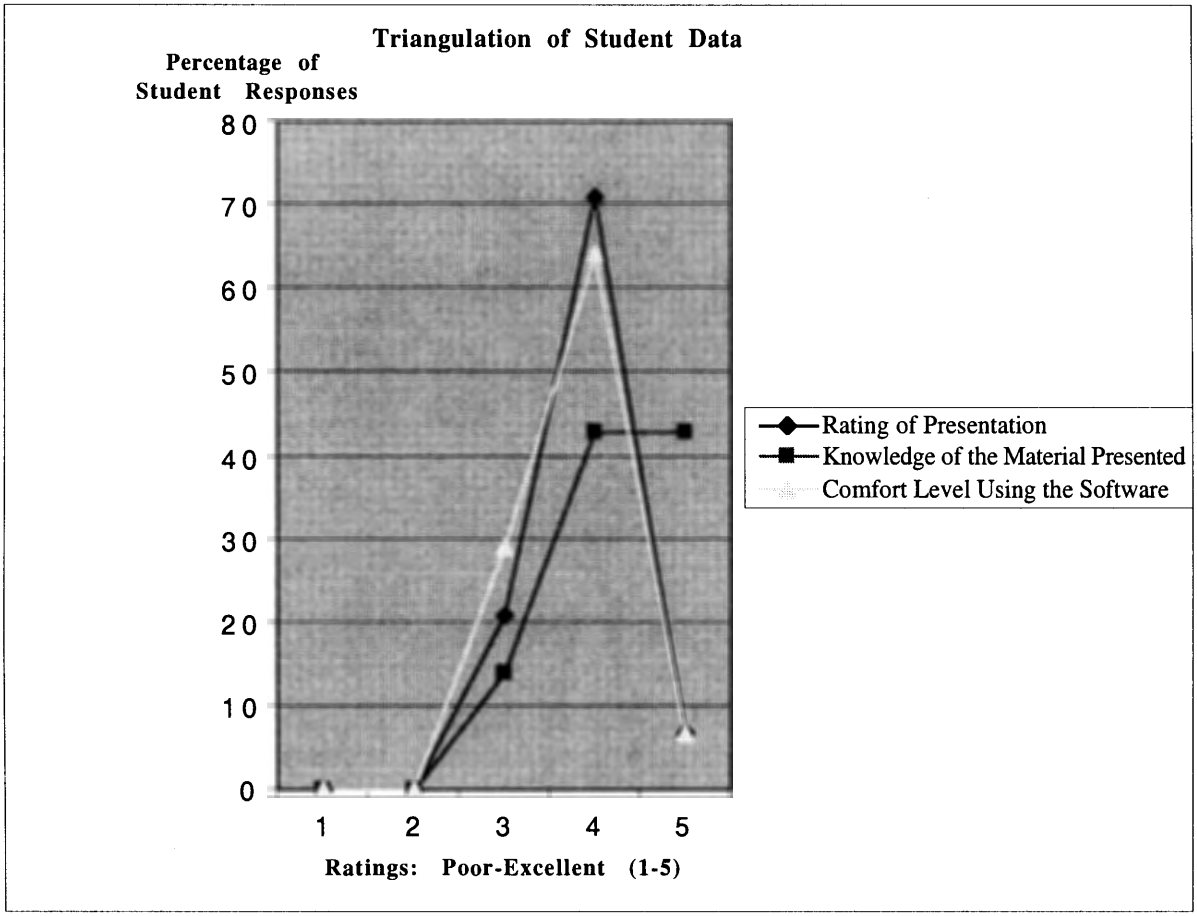
Observations of students using technology in the classroom revealed more than just their ability to learn about and infuse technology. The students demonstrated cooperation, collaboration, peer tutoring, problem solving, inductive and deductive reasoning, creative thinking, and trouble shooting abilities for technical problems. This was an empowering experience that gave them the opportunity to assist others in the classroom. All of these behaviors were found to be consistent with Beth McCrath's twelve key elements for successful technology implementation. (McGrath, 1998)

The findings also supported McGrath's observations on the effects of technology on disaffected and reticent learners. Motivation was a behavior that was demonstrated by the majority of the students as they worked toward completion of their projects. The guidelines for using technology in the classroom developed by ASCD were also realized in this project. The students became producers of knowledge through the development of their presentations, they used a variety of technological tools in this project-focused experience, and there was a tremendous amount of social interaction as collaborative learning and peer teaching emerged.

While interviewing presenters, student indicated frequent frustration using *mPower* presentation software. The students experienced difficulty saving and transferring files to floppy disc. These problems may have affected their presentations in a variety of ways. The confidence level of the presenters was lessened due to some of the problems. In turn, the ability to effectively communicate ideas could havebeen somewhat hampered.

In a triangulation of data, the following chart identifies three categories of data for comparison and evaluation: how students rated their presentation compared with their

knowledge base of the material they presented, and their comfort level using the software.



The rating levels in two of the three areas tended to be fair consistent. If a rating of three was considered to be average, then the presentation rating, knowledge of material, and comfort level using the software by the students was reported to be average for less than thirty percent of the class. A larger number of students considered their presentation to be better than average even when all categories were combined. The smallest percentage of students rated their projects in the highest category , with a given rating of five in all areas.

As indicated by the students in interviews, having the opportunity to build more presentations using *mPower* will enable them to be more successful in the future. Less time will need to be spent on learning how to manipulate the hardware, software and peripherals. This thought supports Technology Standard number three - using technology as a productivity tool, and standard one which has a focus of students understanding basic operations of technology and demonstrate its proficient use. In turn, more time should be devoted to researching and understanding the information to be presented. The researcher plans to monitor the progress and status of future presentations to extend this research.

Chapter 5

Conclusions

Presentation technology hardware and software use by students in the classroom has been explored in this research. The impact of this type of technology on student presentation skills showed to have a positive effect for the speaker. The presentation software was viewed as an advantageous communication tool in the classroom that has an authentic transfer to the business world.

Comprehensive research skills, locating and organizing information, and understanding how to create an aesthetically pleasing presentation are some critical factors that concern students and the success of their presentations. Delivery of information and vocal projection are two skills that must be present in order to achieve a successful speaking experiences. Strictly using presentation software does not guarantee successful presentations for student users. Without comprehensive research skills, organization and delivery skills, presentation of information can be fragmented and unclear. The skills necessary for presentations where students become disseminators of information are skills that must be constantly reviewed, practiced, and assessed. This is when infusion of this type of technology becomes a successful reality.

Purposeful and meaningful application of presentation technologies are inherent to successful presentation efforts by students. The teacher's comfort level and curricular application of technology also become critical factors. Teachers that are able to guide

and support students' innovative efforts in using technology in the classroom are those who see technological success and witness classroom transformations.

Students involved in project-based learning experiences can use presentation technologies to assist them in sharing information. Collaboration, problem solving, peer teaching, and persistence with technical glitches were spontaneous behaviors demonstrated by students on a consistent basis throughout the project. Some of these behaviors are specifically identified by business and industry according to the SCANS Report (Secretary of Labor's Commission on Achieving Necessary Skills). (U.S. Department of Labor, 1991) During this research project, it became evident that the studies by Johnson and Johnson on Cooperative Learning, studies on brain compatible learning by Dr. Wolfe, and learning environments conducive to the theory of multiple intelligences by Dr. Gardner could be supported.

As indicated by students in surveys, it is their desire to have consistent access to various technologies in order to complete projects in a reasonable amount of time and develop a proficient skill level utilizing this type of technology. This statement is indicative of student readiness for technological infusion.

Future areas of research might include some of the issues surrounding technology infusion; Time factors regarding technology infusion, hardware and software needs in schools, availability of current media resources to support research efforts of students,

copyright issues involving presentation technologies, and technologically infused authentic learning environments.

Bibliography

Betts, F. (1994). On the birth of the communication age: A conversation with David Thornburg. Educational Leadership, 51(7), 21-23

Chase, a. & Wolfe, P. (1989). Off to a good start in peer coaching. Educational Leadership, 46 (8), 37

Colangelo, W. and Shelton, S. (1998). A case-based investigation of issues arising from middle school use of collaborative multimedia technology. Journal of Research on Computing in Education 31, (1) 1-5

Dexter, S., Anderson, R, and Henry, J. (1999). Teacher's views of computers as catalysts for change in their teaching practices. Journal of Research on Computing in Education 31, (3), 221-227

Gardner, H. & Hatch, T. (1989). Multiple intelligences go to school: Educational implications of the theory of multiple intelligences. Educational Researcher, 18 (8), 4-9

Gates, W. (1993). Promise of multimedia. American School Board Journal, 180 (3), 35-37

Glickman, C. (1996). On renewal of America's schools. Nothwest Iowa Leadership Academy, Buena Vista College, Storm Lake, Iowa. September, 1996.

Hannafin, M. (1992). Emerging technologies, ISD, and learning environments: Critical perspectives. Educational Technology Research Development, 40 (1), 49-63

Johnson, D. & Johnson, R. (1994). Learning together and alone. Cooperative, competitive, and individualistic learning. Allyn and Bacon: Neeham Heights, MA

Jukes, I. (1999) Living on the future edge. Technology and Learning,19 (5), 30-34

Jukes, I. (1999, January). New schools for a millenium. North Iowa Technology Fair. Mason City, IA. Featured speaker from Thornburg Center for Professional Development, San Carlos, CA.

Lamb, J. (1999). Versatility of multimedia. Media & Methods, 31 (4), 12-14.

LeCrone, N.L. (1997). Integrating multimedia into the curriculum. Technology Connection, 14-15.

Lee, M. (1996). Multimedia presentation offers a good show and challenge. Business Journal Serving San Jose and Silicon Valley, 13 (43), 28

Marzano, R.J., Pickering, D., and McTighe. (1993). Assessment standards linked to the five dimensions of learning. In R. Brant. (Ed.) Assessing student outcomes: Performace assessment using the dimensions of learning model (pp 21-22). Alexandria, VA: Association for Supervision and Curriculum Development .

McConnell, T. (1996). Technology adds immediacy, excitement, and controversy to research projects. Technology Connection, 3 (1), 22-23.

McGrath, B. (1998). Partners in learning: Twelve ways technology changes the teacher-student relationship. T.H.E. Journal, 25 (9), 58-61

Mehlinger, H.D. (1997). Next step. Electronic Learning, pp A22-A24 (supplement to American School Board Journal). http://www.electronic-school.com

mPower [Computer software]. (1994-96). Novato, CA: Mindscape, Inc.

Nowakowski, J. (Executive Director). (1998). Captured wisdom: Speech with advanced technology. [Video]. (Available from NCREL, 1900 Spring Road, Suite 300, Oakbrook, IL 60523-1480)

Palagi, L. (1997). How to create a theatre of learning. Media & Methods, 33(3), 26

Pett, D. and Wilson, T. (1996). Color research and its application to the design of instructional materials. Educational Technology Research and Development, 44 (3), 19-35

Ruffini, M. (1999). Impact of undergraduate preservice teacher's use of hypermedia to review lecture notes. Journal of Research on Computing in Education, 31 (3), 292-297

Saye, J. (1997). Technology and student empowerment: student perspectives. Educational Technology Research and Development, 25 (2), 5-25

School to Work (STW). (1997). Vision. [three paragraphs]. Statewide School to Work Technical Assistance Center. [http://www.stw-tac.k12.ia.us/history/vision.html].

Scheffler, F. and Logan, J. (1999). Computer technology in schools: What teachers should know and be able to do. Journal of Research on Computing in Education, 31 (3), 305-310

Sealy, M. (1997). Multimedia authoring 1997. Technology and Learning, 18 (3), 12-17.

Slonaker, L. (1997). Computers in schools: Do students improve. San Jose Mercury News, January 14-15, 1997

Sulla, N. (Presenter), Linton Professional Development Corporation (Producer). (1996). Technology infused middle school classroom [Video]. (Available from Video Journal of Education, 8686 South 1300 East, Salt Lake City, Utah 84094`

Troutner, J. (1996). Yes, they put on quite a show, but what did they learn?. Technology Connection, 3 (1), 15-17

Tuttle, H.G. (1995). From productivity to collaboration. Multimedia Schools, 2 (3), 38-42.

U.S. Department of Labor. (1991). What work requires of schools: A SCANS report for America 2000. Washington, DC: U.S. Government Printing Office.

Weiser, C. (1997). Using cameras in the classroom. Media & Methods, 33 (3), 16-18

Whetzel, D. (1992). Secretary of labor's commission on achieving necessary skills. (Report No. EDO-TM-92-1). Washington, DC: Department of Labor. (ERIC Document No ED339749)

Yudkowsk, C. (1997). Talking up new presentation software. Triangle Business Journal, 12 (21), 17

Appendix A

Student Questionnaire

Presentation of Information

Please answer the following questions about past presentations you have had to give. They may be for school, 4-H, or any other opportunity for which you may have had to prepare a presentation. The rating scale will indicate 1 as the lowest and 5 as best.

1. Rate your feeling about giving presentations on information you have researched.

1 2 3 4 5

2. Rate the overall quality of your past presentations.

1 2 3 4 5

3. How frequently did you use visuals (pictures, maps, books, models, etc.) for your audience?

1 2 3 4 5

4. Circle the types of sources you used in the past for your research?

Encyclopedia Atlas Dictionary Nonfiction books Magazines Television

Newspapers Interviews with People Internet CD ROM Videos

5. Have you used presentation software before? (PowerPoint, Hyperstudio, or the like)

Yes No

6. Who trained you on how to find and use resources?

Teacher Media Specialist Public Librarian Parent

Appendix B

Student Interview Questions

1. How do you feel about giving presentations?
2. How did you feel after giving this presentation?
3. Is this presentation different than your last presentation?
4. If it is different, explain what you mean.
5. What do you think of presentation software?
6. Will you use this technology next time you give a presentation?
7. What did you think of the digital camera?
8. Did it benefit your presentation?
9. How do you feel about using the projector and or the videoflex camera for your presentation?
10. Will you use any of these devices again?
11. Did you assist anyone else as they create their presentation?
12. What did you think about the opportunity to help others work with the software?
13. How did you feel about yourself when you had completed the project and presentation?
14. What type of frustrations did you encounter?

Appendix C

Student Assessment Rubric

Effective Communication Standards

A. Communicating ideas clearly

4. I communicate ideas that have been carefully organized and include details that explain or support the idea or topic. A strong main idea or topic is evident.

3. I communicate ideas by making sure that I have stated my topic or idea clearly with enough details to support my idea or topic that the audience can understand what I am presenting.

2. I communicate important information, but the details are not very well organized around my topic or idea.

1. I communicate information that is unorganized and fragmented.

B. Communicating using a variety of media

4. I use several methods of communication and follow the correct processes of using those mediums.

3. I communicate using two mediums and follow the correct process and use of both mediums.

2. I try to communicate information using two mediums, but I make errors in the processes due to a lack of understanding of the proper procedure.

1. I do not try to communicate my information using more than one medium.

C. Creates quality products

4. My product is of exceptional quality, it is interesting and dynamic.

3. My product is well done.

2. My product is complete but I should spend little more time on it.

1. I have an unacceptable product that is incomplete.

Appendix D

Final Questionnaire

Rate the following questions on a scale of 1-5, with 5 being the best.

How would you rate your mPower presentation? 1 2 3 4 5

How well did you know the material you presented? 1 2 3 4 5

How comfortable were you giving the presentation? 1 2 3 4 5

Was this presentation better than past presentations, about the same, or worse?

Would you rather give a presentation using mPower or the way you did it last time?

What would have made your mPower presentation better?

List 3 words that would describe mPower software.

List 3 words that indicate how you felt about putting together a presentation using mPower.

Will you use mPower presentation software again? YES NO Why?

Could you teach someone else how to use mPower? YES NO

Were you able to share your presentation with anyone other than your classmates?
YES NO

Who did you show it to?

Circle other technology that you used for your presentation.

Digital camera	Multimedia projector	Videoflex camera
Video camera	Music or sound CDs	Other _____

Please write any other thoughts about the mPower software or your presentation.