Technology in Education

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ABSTRACT

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The proposed purpose of this study is to find out what the general public's perceptions are concerning technology utilization by both teachers and students in an educational setting. More specifically, the study will attempt to address the following research questions:

1. What is the public perception of technology as it relates to teachers?
2. What is the public perception of technology as it relates to students?
3. What is the public perception of technological improvements that need to take place to increase technology utilization in an educational environment?

This study assumes that a random sampling of individuals from the Oakwood Mall in Eau Claire, Wisconsin is representative of the general public and will conclude this study valid in that

people, in general, possess a basic understanding of technology and what role(s) it plays in education.

A questionnaire will be used to solicit information from a random sample. This questionnaire will feature demographic items that will address the respondent's gender and age. It will include open-ended questions that ask the respondents to include their views on technology education.

Individuals throughout the Oakwood Mall in Eau Claire, WI will be invited to volunteer their time to participate in this activity. Respondents will be given a statement of consent and will be informed that participation is voluntary and results will be kept completely confidential.

The respondent's data will be organized into four broad categories for the purpose of analysis. These categories are as follows:

1. Competencies – teacher/education professional
2. Competencies – student/learner
3. Improvements – teacher/education professional
4. Improvements – student/learner

After this data has been organized and analyzed, the researcher will use this data to form conclusions and recommendations based on the collected data for the public to view.

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Chapter One

Introduction

In the past decade, that there have been significant technological advancements, such as the Internet, distance education and video teleconferencing, and telecommunications, (Markert, 1993) available to the field of Education. Technology plays an essential role in the everyday aspects of life in today's society. It provides the means by which people obtain food, clothing and shelter, as well as communication, the movement of people and products, medical care and entertainment (Galloy, 1997).

Today, there seem to be many educational systems that are not utilizing technology to its fullest extent in the education of its students. There have been many studies conducted on this topic, yet the lack of technology being used in the learning environment seems to be phenomenal. Some schools have done major revisions or updates in their programs, while many have made a commitment to change, and still others have done nothing.

The synergism between technology and teaching/learning will take place when restructuring occurs in the areas of the workplace, roles, relationships and active collaboration of students and their learning. The student will be empowered to take responsibility and ownership for their learning and will then see the promise of technology to enhance and reform education (Bagley & Hunter, 1992). Fontana, Dede, and Cates (1993) note that the successful integration of technology requires changes in educators' instructional behaviors. Over time, these behavioral changes occur as these educators reflect their own beliefs about learning and instruction.

In a study by Tucker, Dempsey and Strange (1990) which involved training university faculty to integrate hypermedia in the curriculum, they found that the most active early adopters tended to have prior experiences with technology. In subsequent evaluations of their project, the biggest need cited for skills training was time to practice. Looms (1993) reported that his colleagues only began to use a particular multimedia solution when they had seen it demonstrated and had successfully tried it out for themselves. Looms stressed the value of conducting introductory presentation and courses followed by the loan of equipment and titles to teachers who wanted to experience multimedia themselves before committing their organization. Marsh (1993) also believed that it is critical that educators first use technology to make present teaching practices easier and more efficient but they themselves must initiate or see the need for the use of technology. It cannot be imposed on them. Marsh offered that this is because technology threatens teacher's status, changes the way work is accomplished, and strikes the teacher's basic autonomy. With some experience in technology, however, educators will then become enthusiastic, and may shift to instruction delivered by technology.

Since there are potential causal links among knowledge, experience, values, attitudes and beliefs, these factors must be explored in order for Education professionals to successfully meet the expectations of their fields (McKenna, 1996). It appears potentially beneficial to document and delineate the knowledge, experience, attitudes, values and beliefs of Education professionals, which might have effects on the services they provide (Weisbord, 1987). Such information may be useful to the education administrators, educators and researchers if there are indications that these professionals lack the necessary knowledge, values, and service expectations of their clients, whether

students or colleagues. This information may also lead to additional or in-service training curriculum development or improvement of educational programs (Noonan, 1995). With such information, the knowledge of these professionals about their students may be increased and the attitudes and beliefs held by education professionals toward their students may be changed, resulting in better educational services being provided. Findings in the literature researched may also indicate that characteristics of Education professionals tend to be related to technology needs. Such information may also be useful in selecting and hiring Education professionals.

Statement of the Problem

Students, at all levels carry a broad range of views concerning technology. Education professionals need to be dedicated to helping these students develop a rich understanding of technology and all of its sub-components. To fulfill this mission, educators must build on concepts of technology that students have developed for themselves through informal interaction with technology in their lives.

Purpose of Study

The purpose of this study is to find out the general public's perception of what concepts of technology these students and education professionals need to bring into the classroom. More specifically, the study attempted to address the following research questions:

1. What is the public's perception of the technical competencies education professionals need?
2. What is the public's perception of the technical competencies the student needs?

3. What is the public's perception of the improvements that need to take place to increase the technological competencies of both the education professional and the student?

Definition of Terms

The following definitions of terms were used to operationalize this study:

1. Education Professional: an educator/instructor with the know-how to teach students effectively in a given topic.
2. Client: "A person who engages the professional services of another." (Mish, 1989) whether students/learners or professional colleagues.
3. Student: a.) A person engaged in study; one who is devoted to learning; a learner; a pupil; a scholar; especially, one who attends a school, or who seeks knowledge from professional teachers or from books; as, the students of an academy, a college, or a university; a medical student; a hard student. b.) One who studies or examines in any manner; an attentive and systematic observer; as a student of human nature, or of physical nature. (Webster)
4. Technology: Industrial science; the science of systematic knowledge of the industrial arts, especially of the more important manufactures, as spinning, weaving, metallurgy, etc. Note: Technology is not an independent science, having a set of doctrines of it's own, but consists of applications of the principles established in the various physical sciences (chemistry, mechanics, mineralogy, etc.) to manufacturing processes. (Webster)

5. Competency: “The specific skills, knowledge, abilities and other attributes, such as values and attitudes necessary for effective role performance.” (Guralnik, 1987)
6. Education: The formal process of teaching found in the public and private institutions such as high schools, technical schools and colleges.

Assumptions

A random sampling of individuals from the Oakwood Mall in Eau Claire, WI, is representative of the general public and will conclude this study valid, in that people in general, possess a basic understanding or knowledge of technology and what role(s) it plays in education.

Limitations

The researchers gathered, analyzed and reported the statements, or at best several sentences. Therefore, the findings, conclusions, and recommendations of this study are based on relatively instinctive data. The use of in-depth interviews to obtain richer and more comprehensive definitions was beyond the scope of the study.

The public may not fully understand the concept of technology as applied to an educational environment.

Chapter Two

Review of Literature

The purpose of this study was to find out what concepts of technology students, their families, and education professionals bring into the classroom. The following narrative will provide an overview of the views/competencies necessary for students, their families, and education professionals to help create successful education technology programs. It will also look at how these parties view technology in the curriculum at present and what improvements need to take place in order to increase the technological views/competencies of these programs.

Technology in Education

Since technology affects such a majority of our daily activities, students, their families, and education professionals need exposure to activities that will teach them how to react to and deal with these events. Students, their families, and education professionals must be given the opportunity to learn about how technology affects them and the society they live in. “The development of technology has been one of the prime agents of change throughout civilization” (Bensen, 1984). “The United States workforce is being affected by rapid technological change. In fact, technology seems to leave little untouched. Biblical scholars use computers, professors teach on television, sales people use the automated telephone and robots weld and paint our cars. Each of us has experienced the personal impact of technological change” (Baldwin, 1986). People who are not made aware of technology and its implications do not have a complete perspective needed to live in an advanced information age (Allram, 1991).

Information technologies are increasingly being used by teachers in educating students in the K-12 arena as evidenced by the wealth of information exchange in areas of curriculum, resources, policy and teaching philosophies among teachers. Teachers themselves are reporting increased use of the Internet in their classrooms in professional publications (Quinlan, 1996, Carlson, 1996, Edinger, 1994, McGlinn, 1995, Graves, 1995, Somers, 1995). In the past, adoption of technology into the daily practices of teaching and learning has been relatively slow; in contrast, information technologies are being adopted and actively embraced at an unprecedented rate by teachers and students, causing quite a revolution in the field of K-12 education. These technologies, with easy-to-use interfaces, allow teachers and students to access, consume and contribute to a wealth of information, communicate with peers, collaborate with colleagues worldwide and break away from the previously isolating and physically contained experience of a classroom. These technologies empower the teacher to create a "global classroom", a virtual educational setting that electronically transcends traditional boundaries (Kumari, 1998). Teachers now have a treasure chest of information tools, experiences and resources with which to reinvigorate the educational process for themselves and their students. They can now use contemporary resources and technologies and engage the students in the learning process by making them active partners.

Recently, there has been a push to improve math, science and technology curriculums to provide students with the skills necessary to compete with their foreign counterparts. The Technology Education Act of 1985, defined technology education as “a study of the application of scientific and mathematical principles to solve problems, produce and service products, make correct decisions, and the past, present, and future

impacts of technology on our society and on the environment". The Carnegie Foundation for the Advancement of Teachers' study on the needs of American education recommends "that all students study technology: the history of man's use of tools, how science and technology have been joined, and the ethical and social issues technology has raised" (p.28). Do not to equate technology with computers and teach technology literacy, not computer literacy. Students need not necessarily learn how to use the latest piece of hardware, but more importantly, learn when and why it should be used. As a result of studying technology education, students will make responsible judgements about the use of technology in the future.

Educators of technology must show leadership in our schools to introduce changes and updates in technology education programs that support and enhance the goals of the current technology education philosophy. School administrators, the school board, and the public are beginning to realize that traditional programs are unimportant compared to the mandate to teach technological literacy. There must be realization that course content must change to reflect the needs of society today. "There must be change or we will not survive" (Tobin, 1984).

One of the goals of technology education is to promote technological literacy of a broad and encompassing nature (Technology for All Americans Project (TAAP), 1996; International Technology Education Association (ITEA), 1993). To achieve this goal, technology education must prepare students to understand, control, and use technology. Students need to learn how to adapt to technological change and how to deal with forces that influence their lives and potentially control their future (Waetjen, 1985). Placing technology into schools without emphasizing associated changes in methodology and

curriculum is a futile venture that will not propel schools into the 21st century, but freeze them in current practices. Staff development programs need to be comprehensive and effective to cause the social and knowledge changes needed to produce creative adoption of information technologies in the schools of tomorrow.

The paradigms for teaching technology education are changing. Technology education teachers and curriculum experts recommend a variety of differing instructional approaches such as self-paced modules, interdisciplinary methodology, and problem solving to inform students about technology and its affects on society. These instructional approaches all have their advantages and disadvantages. Gloeckner (1990), Thode (1989), and others argued that self-paced modular instruction is an appropriate method that best accommodates diversity in both learning styles and learning levels. Others (Illinois State Board of Education, 1992; Wicklein, Hammer, Balistreri, DeVore, Scherr, Boudreau & Wright, 1991) suggested that technology is interrelated to other disciplines and that students need to see the connection between math, science, technology, social studies, and English; therefore, teachers should use interdisciplinary instruction. Other educators, DeLuca (1992) and James (1991), pleaded the case for problem-centered instruction as an authentic way to focus on the development of students' higher-level cognitive skills.

There are many reasons why education professionals do not change and update their traditional programs to reflect recent developments in the profession. Drugger's (1991) study showed that sixty-four percent of technology teachers have ten to fifteen years teaching experience, and less than two percent of teachers with zero to three years of experience. Some education professionals believe that the concept of teaching

technology is temporary, and will soon pass. Other education professionals may admit that their programs need to change, but feel that there is not time, or they lack the knowledge and/or resources to make changes on their own. Many education professionals, especially those, who have taught for some time, simply do not want to change. Some are near retirement and think that it will not make a difference to change. Some of these teachers are ignorant of the needs for new programs or are just plain stubborn enough not to want to change. This attitude has resulted in ineffective programs that fail to attract students, costing some less tenured teachers their jobs, teachers that may have been interested in improving their particular courses (Drugger, 1991).

Measuring Technological Literacy

Regardless of the instructional approach utilized, the purpose of technology education is to prepare students to become technologically literate citizens (TAAP, 1996). The recent TAAP rationale and structure document stated that technological literacy "…involves a vision where each citizen has a degree of knowledge about the nature, behavior, power, and consequence of technology from a broad perspective" (p.1). Although technological literacy is a frequently used term, its broad and encompassing nature makes it difficult to define operationally or to attempt to measure. Technological literacy has been difficult to define because of a lack of consensus as to what makes up "technological literacy." TAAP defined technological literacy simply as "the ability to use, manage, and understand technology" (p.6). Dyrenfurth, Hatch, Jones, and Kozak (1991) noted that technological literacy is a multi-dimensional concept that includes the ability to use technology (practical dimension), the ability to understand the issues raised by the use of technology (civic dimension), and the appreciation for the significance of

technology (cultural dimension). Both of these definitions suggest the scope of technological literacy may be measured.

The Training Philosophy

More often than not, technology training emphasizes and concentrates on discrete skill development, vastly ignoring application or practices that enable users to gain an understanding of the relation between the training and use in the classroom. Kinnaman (1993) advocated new avenues in teacher training: "Teachers don't need to be 'trained'. They need activities that engage them with the process of teaching - activities that encourage them to explore, create and reflect upon the benefits and limitations of teaching with technology" (p.258). Training is often in the form of providing information that may or may not have relevance to the end user. Gorry (1996) challenged teachers and schools to rethink current practices:

> Schools and universities need to view information technology both as an aid to current practice and as a new conception of the world - to balance concern for today's business with invention of the future. In its expressive use of technology, the system-after-next complements planning with envisionment - trying to see, 'not from the present to the future, but from the future to the present. Without envisioning, information technology in schools and universities will only rigidify the past.

Professional Development

Teachers within many training programs are brought into a professional environment within which they are challenged to think of new ways of teaching and

learning with information technologies. Through a multi-dimensional and multi-modal approach, teachers are introduced to professional literature from practitioners, from revolutionary thinkers in the field of education and information technology. They are asked to conduct group discussion of articles and state opinions. Discussions of the pros and cons of teaching with technology provide a venue for teachers to vent fears, participate in a learning and experimenting community and lifts the group to a higher level of thinking within which to formulate their opinions and situate their experimentation. These discussions also allow teachers across disciplines to communicate problems and practices unique to their content, understand other subject areas, modify practices to suit their peers' needs and more importantly, modify student activities to encourage conceptual connections across the different disciplines.

Chapter Three

Methodology

The purpose of this study was to find out what concepts of technology students, their families, and education professionals bring into the classroom. The following narrative will provide an overview of the competencies necessary for students, their families, and education professionals to help create successful education technology programs. It will also look at how these parties view technology in the curriculum at present, and what improvements need to take place in order to increase the technological competencies of these programs.

Technology is a part of everything humans do. It extends our capabilities and aids people in all aspects of everyday life. It is used to solve problems and satisfy human wants and needs (Galloy, 1997). In the broadest sense of the term, technology is as old as people are. Technology has existed through and influenced many eras. It brought humans through the agricultural age and industrial age, and now pulls humankind through the information age (DeVore, 1980). “Many factors have had an influence on the way we have evolved as a global society. Possibly none has had as great an influence as technology” (Hendricks, 1996).

To be an influence on contemporary society, one must be able to recognize the existence of technology and it’s impacts (Sterry, 1997). It has only recently been organized and recognized as a discipline. However, it has been characterized as “the latest growing era of human knowledge” (Hendricks, 1996). As a discipline, the term technology indicates a field of studies the same way that geology, biology or anthropology is used (Blankerbaker, 1987; DeVore, 1987). Roy (1985) argued that

technology is “a major domain or class of knowledge” (p.34). White (1987) noted that technology could be defined in its broadest sense as “practical arts and skills in human society” (p. 115).

Population and Sample

The population for the study included a random sampling of individuals from the Oakwood Mall in Eau Claire, WI. The sample used in this study consisted of individuals ranged from 18-55 years of age. This population is representative of the general public and has a consistent male/female ratio.

Instrumentation

A questionnaire was used to solicit information from a random sample. This questionnaire featured demographic items that addressed the respondent’s gender and age. It included an open-ended question that asked the respondents’ to include their views on technology in education. More specifically, it stated the following: “Technology has many different roles in different peoples lives. In your own words, please describe how technology plays a role in your own life.”

Administration

Individuals throughout the Oakwood Mall in Eau Claire, WI were invited to volunteer their time to participate in the activity. The researcher stated there was an interest in their views on technology in education and asked them to complete a simple questionnaire. They were informed that their responses would be kept confidential and would be used for the purposes of this study only.

Data Analysis

The respondent's questionnaires were first separated by demographic information, such as gender, age and occupation. The data was reviewed and organized into the following broad categories for purposes of analysis:

1. Competencies – education professional/teacher
2. Competencies – student/learner
3. Improvements – education professional/teacher
4. Improvements – student/learner

Two coders were used to analyze each set of data. One independent coder reviewed each data set. All discrepancies in coding were reviewed by the researcher and the coders until a consensus was reached.

Once the data was coded, the responses were counted. The researcher then assembled the broad categories into tables.

To determine the degree of richness of the information gathered, a range was devised. The extent to which the sample used these words and phrases were defined as frequencies. Responses that included only one theme were categorized and given a score of one. Responses that included all themes were considered rich, and were given a score of four. Responses that fell between one and four were scored accordingly.

Chapter Four

Information Presentation and Analysis

The Subjects

There were 48 subjects, 28 were female and 20 were male. All subjects completed the questionnaire in full. There were 5 females and 3 males in the 12-18 years of age group. The 19-35 age group consisted of 15 females and 6 males. The next age group, 36-50, contained 13 females and 4 males. Two female respondents were 50 years or older. Of these respondents, within these age categories, there were 18 females and 10 males classified as students, 11 females and 5 males classified as family, and 3 females and 1 male classified as education professionals. Therefore, making the sample a good representation of the general public as exposed in this study.

Data Analysis

After coding and organizing the data obtained from the volunteer subjects, the researcher completed an analysis of this data in order to form a conclusion on the subjects' opinions. The findings of the research conducted is summarized as follows:

Research question one asked, "What types of technical views/competencies do education professionals need?" The data in Table 1 shows that in general, instructors need to change or upgrade their curriculum to accommodate technology. This could be accomplished through specialized training courses and/or workshops for both instructors and supervisory educational professionals with decision-making influence/power. These courses are often geared toward the implementation process of technology in many different environments and are a useful tool to educate individuals on the advantages of becoming a technologically literate organization. Education professionals also need to

gain a positive attitude toward technology in education and strive to be more open to change because today's society thrives on technology and it is, in essence, a necessity of modern life. Another common consensus of the data obtained is that these professionals should become more comfortable with, and knowledgeable about technology in their personal lives so they are able to smoothly transition technology into their professional, instructional environment.

Table 1

Competencies - Education Professional / Teacher

Key Words	# Occurrences	Male / Female	S / E / F *
Personal use of PC/Internet	1	1M	1E
Teachers are stubborn to change	12	8F, 1M	2S, 1E, 9F
Don't understand technology	1	1F	1E
Doesn't apply to curriculum	1	1F	1E
Technology is now a necessity of life	8	5F, 3M	2S, 1E, 5F
Need to change curriculum to accommodate technology	32	20F, 12M	12S, 4E, 16F
Specialized training courses / workshops	15	10F, 5M	4S, 4E, 7F
Used every day, can't believe others don't use at all	2	1F, 1M	2E
So useful at home, I can't believe the schools aren't encouraging more use	3	2F, 1M	1E, 2F

* S=student, E=educational professional, F=family

Research question two asked, " What types of technical views/competencies does the student need?" The data in Table 2 shows that students need to work directly with technology in order to gain familiarity and knowledge of today's changing world, just as the education professionals do. Use of the Internet, games and other interactive events are excellent ways to gain that familiarity and comfort level needed in order to "want" to work closely with technology. Wanting to work with technology encourages students to include it into appropriate courses and possibly extracurricular activities, such as writing

papers, brochures, and poetry, or making cards and games. This in turn may discourage the "never had to take it" attitude toward course work and in the end, eliminates the unfamiliarity of technology when it begins to take a larger role in their everyday lives.

Table 2

Competencies - Student / Learner / Client

Key Words	# Occurrences	Male / Female	S / E / F *
Never had to take it	18	12F, 6M	15S, 3F
Don't have a computer at home	13	5F, 8M	10S, 1E, 2F
The Internet is great!	36	20F, 16M	20S, 2E, 14F
Games, chat rooms and other interactive events	28	16F, 12M	20S, 2E, 6F
Create papers for school	12	8F, 4M	10S, 1E
Make cards	8	6F, 2M	4S, 1E, 3F
Brochures for fund raisers	2	2F	1E, 1F

* S=student, E=educational professional, F=family

Research question three asked, "How do students view technology in the curriculum at present?" The data in Table 3 shows that generally, students view technology in their current curriculum as inadequate. From lab space in school, in turn causing a low technology device to student ratio; to lack of changes in curriculum to accommodate technology; to the need for change in attitudes (both student and teacher) toward technology and the realization of the influence that technology has on the world. Trust can also be a factor, often not taken into consideration, when dealing with curriculum changes. If students and teachers alike do not trust change and what it can do for them, the change will most likely fail. All individuals involved must learn to recognize the benefits of technology and learn to trust that it is working for them, not against them. Being open to change is the key factor in this instance and when the benefits are recognized, these individuals must work to encourage other teachers,

students, and family members that once they become familiar, they will see what great opportunities are out there for technology literate individuals.

Table 3

Technology Views

Key Words	# Occurrences	Male / Female	S / E / F
Professional Advancement	30	18F, 12M	14S, 4E, 12F
Communication Source	42	26F, 16M	26S, 4E, 12F
Advanced Curriculum Development	4	3F, 1M	3E, 1F
Research Tool	33	20F, 13M	24S, 4E, 5F
Couldn't do job without technology	2	2M	2F
Companies can't operate without technology	3	1F, 2M	3F
Technology plays no role in my life	6	2F, 4M	1S, 5F
Simply fun	1	1M	1S
Practice makes perfect	2	2F	1E, 1F
My whole world revolves around technology	3	2F, 1M	1S, 2F

* S=student, E=educational professional, F=family

Research question four asked, "What improvements need to take place to increase the technological competencies of both the education professional and the student?" The data in Tables 4 and 5 show that communication is the backbone of the success of technological implementation, no matter what the setting is. If there is no communication of the benefits and drawbacks of this type of mechanism, there is a high risk that implementation may not occur, or if it does, may not be successful. Advanced curriculum development must be closely looked at in order to fully assess the situation at hand – whether the instructional institution is upgrading their technology curriculum or starting from scratch for the first time. Research within the community could be helpful in order to improve competency levels, since most outside corporations cannot operate without technology. The day-to-day functions of corporations and most households

cannot be performed without the use of this technology – from personal computers to supercomputers, to power and water, to phones and faxes – life today would come to a standstill without the use of technology – whether it is recognized in everyday life or not.

Table 4

Improvements - Education Professional / Teacher

Key Words	# Occurrences	Male / Female	S / E / F *
Update Labs	40	32F, 8M	20S, 4E, 16F
More space in school to expand	18	10F, 8M	16S, 2E
More funding to improve computer to student ratio	36	24F, 12M	26S, 4E, 6F
Curriculum changes	21	10F, 11M	8S, 2E, 11F
Look at technology as positive, not negative	3	2F, 1M	2E, 1F
Make technology a requirement for course work	35	21F, 14M	21S, 2E, 12F
Trust technology	2	1F, 1M	1S, 1E
Be open to change	13	6F, 7M	3S, 4E, 6F
Recognize the benefits	7	4F, 3M	2S, 4E, 1F
Receive more training	1	1F	1E
Encourage students to use as much as possible	13	9F, 4M	1E, 12F

* S=student, E=educational professional, F=family

Table 5

Improvements - Student / Learner / Client

Key Words	# Occurrences	Male / Female	S / E / F
Use for more educational uses, not games	4	4F	1E, 3F
Start using technology more	46	34F, 12M	27S, 4E, 15F
Ask instructors, if not using it	1	1F	1F
Become familiar with all of the uses	6	4F, 2M	1S, 2E, 3F
Be sure to gain exposure as soon as possible	2	1F, 1M	1S, 1F
Encourage family involvement	11	10F, 1M	3S, 2E, 6F

* S=student, E=educational professional, F=family

Chapter Five

Summary

In order for technology to be recognized as a major contributing factor to the success of today's education system, technological competencies need to be obtained. Both the education professionals, as well as the students of today's education system need to recognize the views/competencies that exist, along with the ones that need to be learned for this process to benefit society.

A review of the literature revealed numerous arguments as to the views/competencies needed or had by all parties involved. The literature also provided information on the need for technology in our educational systems. Although there is not a scholarly consensus on the specific views/competencies necessary, there are common themes regarding the importance of technology on our education system.

Individuals interviewed throughout the Oakwood Mall in Eau Claire, WI were the sample population invited to complete a simple questionnaire that would be used to discover the concept of technology education professionals, students, and their families bring into the local education system. This questionnaire asked the sample to write statements, in their own words, giving their views of technology and technological competencies needed in today's education system. Themes found in the literature were operationalized and used to code the responses.

The statements were reviewed for words or phrases that coincided with the concepts of competencies – education professional/teacher, competencies – student, technology views – poor, average, good, and/or excellent, improvements – education

professional/teacher, improvements – student. All words and phrases found for each theme were counted and assembled into tables.

Conclusions and Recommendations

The purpose of this study was to find out what concepts of technology students, their families, and education professionals bring into the classroom. The following narrative will provide conclusions and recommendations by the researcher of the competencies necessary for students, their families, and education professionals to help create successful education technology programs.

Research question one asked, "What types of technical views/competencies do education professionals need?" The sample subjects formed the opinion that, in general, education professionals need to upgrade and/or change their curriculum in order to accommodate technology. Through the use of training and interaction with technology, these professionals would be able to gain the knowledge and comfort level to incorporate technology into their curriculum, and in turn, their everyday lives. Based on the data, it can be concluded that many education professionals need to look at change in curriculum as a positive move, rather than being looked at as straying from the norm. When the benefits of technology and the relevance it plays in everyday life is communicated, the appropriate training and knowledge of technology will assist in boosting the comfort and knowledge level of the education professional so that they will be able to translate these factors into their curriculum. Based on that conclusion, it is recommended that school districts and private education organizations look closely at the continuing education of their professionals so they are willing and able to incorporate technology into their curriculum and realize that as the technology changes, their views and curriculum must

change accordingly. Maintaining an open mind toward advancing and modernizing the educational setting for their students is a crucial component in keeping their students on the competitive edge in preparation for today's world that is run by technology.

Research question two asked, " What types of technical views/competencies does the student need?" Through the research conducted, this researcher found that students must work directly with technology in order to gain the familiarity and knowledge of today's changing world, just as education professionals do. They must gain the "want" to work with technology in both their educational and personal lives in order to accelerate their learning and prepare for life outside the educational setting. Based on the data, it can be concluded that many students are not comfortable with technology because they are not noticing it in their every day life. The "want" to learn and accelerate at the usage of technology is not present and the necessary tools to gain this "want" is not being readily offered or encouraged in the educational setting. Based on that conclusion, it is recommended that technology must play a larger role in students' curriculum. Even with support in the home environment, if schools are not encouraging the use of technology, many students do not have the means to learn or communicate these needs on their own. The support and encouragement of the educational organization must be there in order for the student to gain this knowledge and show them how to utilize this technology in their every day lives. Students and their families must push for upgrades and changes in curriculum in their local schools. With the support of the community, advanced curriculum development needs to be incorporated in the schools for the proper implementation of this technology into curriculum. Funding for more lab space or possibly for expanding the education staff, to accommodate these changes, may be

necessary in order to make this transition successful. The elimination of the "never had to take it" attitude will also help to eliminate the unfamiliarity of technology when it begins to take a larger role in students everyday lives.

Research question three asked, "How do students view technology in the curriculum at present?" The data shows that generally, students view technology in their current curriculum as inadequate. Whether this is due to the lack of lab space or lack of courses offered, students seem to come to the common consensus that they do not have all of the desired options to learn about, or to use technology in their regular curriculum. Based on the data, it can be concluded that students feel technology education is lacking in their regular curriculum. Too often it is not required that students take courses that encourage the use of technology. Based on that conclusion, it is recommended that curriculum is upgraded or changed to accommodate technology. Students must gain exposure to technology in order to remain competitive in their educational, professional and personal lives. Without this knowledge, the gap of technology use widens, and eventually that lack of knowledge could prevent acceleration in school, advancement in professional careers, and general "know-how" in basic personal discussions. Technology plays too large a role in the world to not recognize and use it comfortably.

Research question four asked, "What improvements need to take place to increase the technological competencies of both the education professional and the student?" The data gathered shows that communication is the backbone of the success of technological implementation, no matter what the setting is. Research within the community could be a common suggestion, given the emphasis on the role technology plays in people's lives outside the educational setting. Based on the data, it can be concluded that continuing

education is necessary both on the part of the education professional as well as the students and their families. With a knowledgebase established, people will grow and change with technology, keeping them current and able to remain on a competitive edge. If there is no communication of the benefits and drawbacks of this type of mechanism to others, there a high risk that technology implementation may not occur, or if it does, may not be successful. Based on that conclusion, it is recommended that a technology implementation plan is established for educational organizations and the implementation occurs at the elementary level. The earlier teachers, students and their families are exposed to technology, the more comfortable they will become, and the more willing and able they will be to communicate technology in their every day lives.

Recommendations for Further Study

The following recommendations are based on the conclusions and findings in the study:

- A correlation study could be conducted at the start and finish of technology education courses at various grade levels to evaluate course objectives throughout the education system.
- A follow-up study of the same type of sample population could be conducted to determine the degree to which education professionals, students and their family's views of technology in the educational system are enhanced or changing.
- Similar studies could be conducted using a younger sample population to monitor their concepts and views of technology for upcoming events in the education system.

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