# DESCRIPTION OF ELEMENTARY TECHNOLOGY EDUCATION IN THE DC EVEREST PUBLIC SCHOOL DISTRICT AS PERCEIVED BY ELEMENTARY TEACHERS

**By**

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A Research Paper

Submitted in Partial Fulfillment of the
Requirements for the
Master of Science Degree
With a Major in

Industrial/Technology Education

Approved: 2 Semester Credits

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May, 2001

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## ABSTRACT

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Description of Elementary Technology Education in the DC Everest Public School District as Perceived by Elementary Teachers

(Title)

Industrial/Technology Education Dr. Michael Galloy

May, 2001 38
(Month/Year) (No. of Pages)

American Psychological Association A.P.A. Publication Manual
(Style Manual)

The purpose of this study was to determine where Technology Education fit into the elementary curriculum of the DC Everest Public School District in Schofield, Wisconsin. This study was based on the need to examine the lack of coordination of Technology Education activities between the elementary schools and the junior high. Data was collected from all regular education elementary teachers within the DC Everest Public School District in the spring of 2001.

Elementary teachers were surveyed because they are the primary decision-makers in terms of elementary curriculum and they have been neglected as a resource in past studies. The research seems to indicate that elementary teachers understand the need for Technology Education at the elementary level but are currently juggling several priorities

and initiatives other than Technology Education. The research project objectives were as follows: (1) to determine the importance of Technology Education in the elementary curriculum; (2) to describe the attitude of elementary teachers toward technology education at the elementary level; and (3) to determine if technology education exists as an integrated discipline at the elementary level.

Fifty-nine out of 113 DC Everest elementary teachers returned the survey. The results revealed Technology Education to be the 7th most important academic area in the elementary curriculum. The attitude of teachers toward Technology Education was found to be generally positive. It was also discovered that Technology Education exists as an independent discipline and as an integrated portion of other curriculums at the elementary level. Results were shared with DC Everest elementary teachers and vocational staff with the hope of facilitating coordination between the groups of Technology Education activities.

## ACKNOWLEDGEMENTS

As I near the completion of my Masters degree in Industrial/Technology Education, it would be foolish not to acknowledge those who have pushed and supported me through this project. First, I would like to thank my wife, Stephanie, for putting up with me throughout my graduate work at UW-Stout. Also, the rest of the Sand family for sharing with me how special it is to be part of the Stout family.

I'd also like to thank my advisors at the University of Wisconsin-Stout who made my graduate work a true learning experience. Dr. Michael Galloy, who has been so good to both my wife and I, for without his patience and final push I might not have completed this task.

Dr. Alan Block also helped shape my educational philosophy by forcing me to think long after his class was over. I hope we both live to see the day of post-modernism as an accepted practice in public education.

The elementary teachers of the DC Everest and Clintonville Public School Districts have been a tremendous inspiration throughout my teaching career. I can only hope and work hard to maintain the fire you have kindled in our students to learn through your dedication to every child.

I'd especially like to thank all of the students that I've had the pleasure of teaching. Whether you were a dream student or classroom menace your entertainment value has always outweighed any problems you may have caused me. You are my calling and the reason I continue to work in the classroom.

Finally, I'd like to thank my children Aliena and Kole. The time, money, and resources I spent on my education did not happen without a more personal price. Remember that hard work and determination, you can accomplish your goals and nothing takes the place of a quality education. My hope is that I may be able to set an example by demonstrating that goals that are worthwhile never come easily. However, the personal self-satisfaction of attaining these goals and the gaining of knowledge is priceless and can never be taken from you.

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# Chapter I

## INTRODUCTION TO THE STUDY

> The growing concern about education providing the proper learning experiences means educators need to look not only at how technology can be used in the classroom but when a Technology Education program should begin. Technology related information should be presented to students at an early age. Developing an awareness of the effects of technology today and in the future, as well as developing the ability to adapt to changes brought about by technological advancements are important concepts to explore. (Thode 1989, p. 12)

Technology Education should be an important part of the modern elementary curriculum in order to prepare students for an ever-changing world. State and national standards have been written to define Technology Education as essential when preparing all elementary students to be competitive in a technology-based society. Despite identifying and writing these standards little is known about the implementation of these standards at the elementary level.

State education goals focus upon testing in the "core" areas of language arts, math, science, and social studies. With the threat of losing government funding districts are forced to put more emphasis upon the core areas of the curriculum. Despite all academic areas having written standards only those within the identified core are tested by the state. Academic areas that are not a part of the core suffer in order to bolster core test scores at the elementary level. Neglect of these areas may compromise the effectiveness of the elementary curriculum.

The elementary curriculum is very broad. The teacher is the primary decision-maker of activities to be presented in the classroom. With individual teachers in control of the curriculum there are bound to be differences between classrooms within a school district. These differences become evident when students begin taking Technology Education classes in junior high. It is obvious that some junior high students have engaged in Technology Education lessons at the elementary level while others have not.

Local industry leaders and parents have voiced concern regarding Technology Education in the DC Everest School District. The community would like to see relevancy in the school curriculum towards preparing students for a changing technological society. One way to address these social concerns would be through integration of Technology Education throughout the elementary curriculum. In addition, educators will need to coordinate Technology Education activities between the elementary and junior high levels.

**Statement of the Problem**

The problem that this study addressed was the Technology Education department's lack of knowledge about Technology Education at the elementary level in the DC Everest Public School District. The district defines elementary as kindergarten through sixth grade. Junior High begins with the seventh grade where all students are required to take a semester long Technology Education class. After seventh grade Technology Education is no longer required and is offered strictly as an elective. Coordinating Technology Education activities between elementary and junior high staff could improve the effectiveness of Technology Education within the DC Everest School District.

**Purpose of the Study**

The purpose of this study was to determine where Technology Education fits into the elementary curriculum. The results of this study will be used to improve the coordination of Technology Education activities between elementary and junior high Technology Education staff within the DC Everest School District. This study will give Technology educators a better understanding of the elementary level.

**Objectives**

This study focused upon the following objectives:

1) Determine the importance of Technology Education at the elementary level.
2) Describe the attitude of elementary teachers toward Technology Education at the elementary level.
3) Determine if Technology Education exists as an integrated discipline at the elementary level.

**Significance of the Study**

Within the DC Everest School District this study will help improve coordination of Technology Education activities between elementary and junior high Technology Education teachers. Improved coordination should result in a more effective Technology Education program within the district. This will help satisfy some of the community's concerns about the school district.

Results of this study will also help generate knowledge about Technology Education's place in the elementary curriculum. Surveying elementary staff sheds new light upon what Technology Education looks like at the elementary level. While much documentation exists regarding what people think elementary level Technology

Education should look like, this study illustrated the current state of Technology Education within DC Everest elementary classrooms.

The results of this study may demonstrate to other districts the need to address Technology Education's role in the elementary curriculum. This study can be replicated by any district interested in finding out where Technology Education fits within the district's elementary curriculum. Because the teacher is the primary decision-maker in the classroom, this study demonstrated a need to investigate elementary Technology Education from the perspective of the elementary teacher.

**Limitations of the Study**

1) This study only gathered data in one school district and may not be generalized elsewhere.
2) Technology Education is not part of the elementary teacher-training program at many universities possibly resulting in an inconsistent understanding of Technology Education within the population surveyed.

**Definition of Terms**

The following definitions are included to promote the understanding of this study.

Curriculum. All the courses of study offered by a school. (The American Heritage Dictionary, 1976)

Educational Technology. Devices and systems used to deliver education; generally communication technology equipment and the associated processes. (Wisconsin Department of Public Instruction, 1998)

Pedagogy. The art, profession, or study of teaching. (The American Heritage Dictionary, 1976)

Standard. A model that is used as a basis of judgment. (Reeves, 1998)

Technology. The generation of knowledge and processes to develop systems that solve problems and extend human capabilities. (Technology for All Americans, 1996)

Technology Education. A program of studies that leads to technological literacy. (Wisconsin Department of Public Instruction, 1998)

# Chapter II

# REVIEW OF LITERATURE

## Introduction

This chapter presents information about Technology Education in the elementary classroom. Upon reviewing the literature, three areas were identified that related to this study. They were (1) Technology Education at the elementary level, (2) elementary teachers' attitudes toward Technology Education, and (3) the integration of Technology Education in elementary education.

## Technology Education at the Elementary Level

The elementary classroom is an interesting educational setting where students are responsible to a single teacher for many subjects of study. This gives an elementary teacher tremendous influence as the primary decision-maker for the overall education of the children within their care. In addition to the four "core" academic areas of Language Arts, Mathematics, Science, and Social Studies elementary schools also provide experiences in the academic areas of Technology Education, Family and Consumer Education, Physical Education, Fine Arts, Foreign Languages, and Business Education. With ten identified academic areas competing to meet state objectives the elementary teacher will make many decisions regarding the priority placed upon each within their respective classroom. This section of the chapter focuses upon what the literature says about current elementary Technology Education practice and what its role should be within the elementary curriculum.

"Technology Education needs to become a core subject in every school and at all grade levels along with the development of Technology Education graduation standards." (Governor Tommy Thompson's Task Force on Technical Education 1999, p. 9). This

stand taken by state government emphasizes the importance of decisions made by elementary educators as children begin their technical training in the public education system. "Business and industry have expressed a need for a new kind of employee, one who can adapt to changing technologies, work independently or as a part of a team, think critically and manage resources." (Todd & Hutchinson 1991, p. 5). The Wisconsin Department of Public Instruction also stressed the influential role played by the elementary teacher in the development of technologically literate citizens (Wisconsin Department of Public Instruction 1998, p. XV). One of the first obstacles of Technology Education at the elementary level is the disciplines own definition.

"Technology Education is a general education program intended to teach all students about technological concepts, processes, materials, and systems as well as the impact of technology on society." (Kerka 1991, p. 1). Often when technology is mentioned in the classroom reference is made to educational technology instead of Technology Education. If students are to become technologically literate within the public education system the mere existence of technology in the elementary classroom will not be enough. State and National standards have been recognized and developed to stress the importance of Technology Education in the classroom to benefit all students. As Dugger and his colleagues have pushed for many years with the Technology for All Americans project, technology must not be exclude from the education of any individual in our ever increasing diversified world (Dugger 1997, p. 97). These standards have attempted to broaden the use of technology beyond machines, devices, and gadgets.

Technology Education in the elementary grades begins with the child in mind. It allows children to fulfill their need to encounter the world on their own terms by forcing

them to engage directly with the content (Kirkwood 1992, p. 30). These first experiences become even more vital as students will need to build upon them as their education's progress. Technology Education illustrates flexibility of thinking through "characteristics such as persistence, decreasing impulsivity, striving for accuracy, precision, and risk taking" (Mahlke 1993, p. 7). Technology Education catalyzes school reform because it allows students to approach problems from different points of view. Technology Education teaches students about the need to make a choice whether to stand by and let our world happen to us, or join others in designing it (Shannon 1989, p. 43).

The future success of students, "in the job market or in higher education is directly related to their ability to adapt to change, solve problems, apply science and math- in short, to understand technology." (Thode 1989, p. 12). Though Technology Education at the elementary level is supported strongly in literature the individual elementary teacher is the primary decision-maker with regards to curriculum. Therefore, it is important to take into consideration the attitude of elementary teachers towards Technology Education in their classrooms.

**Attitude of Elementary Teachers Toward Technology Education**

"New technologies will not automatically or magically revolutionize education." (Faison 1996, p. 57). The teacher still remains the primary decision-maker in the elementary classroom. "Elementary teachers bring pedagogical expertise to structure objectives, sequence learning, organize lessons, acquire materials, and conduct activities, in addition to having knowledge of their appropriateness for particular age groups." (Kerka 1991, p.1). The attitude of these individuals towards Technology Education greatly influences the education of primary learners.

"Through workshops teachers are beginning to realize the need to develop technological understanding with elementary children." (Wippermann 1996-1997, p. 14). "Adding a Technology Education emphasis is a natural and exciting extension of many of the activities elementary students already explore." (Thode 1996, p. 18). Personal proficiency and comfortablilty with Technology Education influences the attitude of teachers. Birse (1996) reported that many elementary teachers felt a lack of confidence teaching technology because much of the curriculum was not teacher centered. However, Standish (1993) in her study proved that through staff development the confidence of elementary teachers to implement technology increases.

Pressure comes from national, state, and local influences, administrators, school boards, parents, and student needs as elementary teachers make curriculum decisions. One suggestion made by DPI (1998) has been to use district vocational staff as a resource to help facilitate the implementation of Technology Education activities at the elementary level. Such a partnership may work with the vocational staff aiding with the acquisition of supplies and expertise of the content. The elementary staff can make sure that the Technology Education experiments are developmentally appropriate for the student's stage of development (Sigmon 1997, p.15). An approach to Technology Education at one level may not be appropriate at another.

Elementary schools are not independent by themselves and are part of a larger district organization that will put pressures on teachers and therefore affect their attitude toward their role in the classroom. "Curriculum comes and goes as public opinion changes on topics of interest." (Rozycki 1997, p. 61). Public opinion also pressures decisions made by school boards, administrators, and other decision-makers within a

district. "Just as government, parents, and educators realized over the past two centuries that all children needed to read to compete in the workforce of the nineteenth and twentieth centuries, these groups now realize that all children need to be technologically literate in the twenty-first century." (Moran 1997, p. 12).

As technology has become increasingly more present in schools it has led to a change in the role of the teacher. In *A Place Called School* Goodlad expressed the complaints of teachers who are now feeling more like technicians than teachers. Their education did not prepare them for this role and it becomes increasingly stressful when teachers become the scapegoat for technology not being used to its full potential in the classroom.

Factors outside of the district also influence the attitudes of teachers. "The freedom and encouragement to experiment is limited, because teachers owe professional allegiance to state objectives." (Carroll 1997, p. 67). The absence of Technology Education standards in high-stakes state testing discourages elementary teachers from connecting with students through Technology Education. Goodlad stated a belief that, "there was a surge toward schools connecting with children until a few years ago when test scores moved, once again, to the front as almost the only criterion for judging the goodness of schools." (Goodlad, 2000).

Finally, Technology Education standards can be looked at as more work added to an already rigorous elementary curriculum. Teachers may also view Technology Education as an opponent to curricular orientations they already hold onto with great ownership and pride. As the role of the elementary teacher continues to evolve, their influence over what takes place in the classroom will potentially broaden student

possibilities. One way of broadening these possibilities might be to integrate Technology Education throughout the existing elementary curriculum.

**The Integration of Technology Education in Elementary Education**

Another important concept in elementary education is integration between disciplines of study. "Integrated curricula has gained a great deal of acceptance among educators." (Czerniak 1999, p. 421). Technology Education could be a key contributor to the successful integration of the academic disciplines within the elementary curriculum. Kirkwood and Foster (1999) found that Technology Education existed in all core subjects at the elementary level and often remained isolated and foreign when teachers failed to perceive its importance.

Standards have been written in all academic areas in an attempt to define what is taught in public schools. The Wisconsin Department of Public Instruction (1998) believes that Technology Education standards should be integrated throughout the elementary curriculum. This quest for consistency between public schools has led to the redefinition of many standards for all of the academic areas. In fact the Wisconsin Technology Education Association has gone so far as to state that "other school subjects will contribute to the improvement of the standards of Technology Education as they are developed and modified." (WTEA 1997, p. 17).

Wisconsin's state academic standards emphasize the interrelationship between Technology Education and science. "The relationship of science and math to Technology are rich in their potential for higher level thinking." (Todd & Hutchinson 1991, p. 9). However, science holds a place in the current law required academic core while

Technology Education does not. Students are not required to pass an exam based on Technology Education standards as they are in science at grades 4, 8, and 10.

The principles of Technology Education enrich other subject matter (Kirkwood 1992, p. 13). "The NASA/Elementary Technology Education Project found that a holistic approach integrating technology into the existing curriculum motivated students, stimulated creativity, and improved standardized test scores." (Kerka 1991, p. 1). While Kirkwood and Kerka stress Technology Education's positive influence upon other subjects others such as Wright want to make sure that elementary teachers integrating Technology Education don't lose sight of what the content of Technology Education has to offer. Technology Education at the elementary level must be based on the need for technological literacy not Technology Education's effect on other subject learning because no conclusive evidence exists stating that it increases performance in other subjects (Wright 1999, p. 62).

Pressures exist to level the playing field between Technology Education and the core areas at the elementary level. However, the individual elementary teacher remains the primary decision-maker regarding elementary curriculum. The attitude of these individuals toward Technology Education and its integration into the existing elementary curriculum will continue to have the greatest impact on Technology Education's place within elementary classrooms.

# Chapter III

# METHODS AND PROCEDURES

## Introduction

The purpose of this study was to determine where technology education fits into the elementary curriculum. The methods and procedures used in this study of elementary technology education are explained in this chapter under the headings of: research design, sample selection, instrumentation, procedures followed, and data analysis.

## Research Design

This descriptive study surveyed elementary educators to determine Technology Education's place in the DC Everest elementary curriculum. All contact with respondents was done through the mail. In addition to the survey, all subjects received a consent form and cover letter explaining the purpose of the study. All subjects received identical surveys.

## Population Selection

The surveyed population of this study consisted of 113 elementary teachers working for the DC Everest School District during the 2000/2001 school year. These subjects were identified as regular classroom teachers who worked solely in one building teaching from kindergarten to sixth grade. Elementary teachers who were specialists, traveling teachers, or taught one primary discipline were eliminated. All elementary teachers not eliminated by these criteria were surveyed. All of the district's elementary teachers were surveyed to increase the validity of the research data.

## Instrumentation

The survey instrument (Appendix A) consisted of three sections totaling twenty-three questions that pertained directly to the research objectives. In the first section

respondents used a seven point Likert scale to identify the importance of the ten academic areas in the elementary curriculum. One was not important, seven was essential. The second section asked five yes or no questions pertaining to elementary teacher attitudes towards Technology Education. The final section used a five point Likert scale to rate attitudes about elementary classroom issues regarding Technology Education and integration. Tim Mero, DC Everest local vocational education coordinator, approved content validity.

**Procedures Followed**

The research process consisted of problem identification, literature review, survey development (See Appendix A), survey administration, analysis of data, and summarization of data and generation of recommendations.

**Data Analysis**

Surveys were mailed to subjects at their respective schools on March 12, 2001. A self-addressed, stamped envelope was enclosed with each survey. A five-day deadline was given for response. The surveys were returned to the researcher's home address.

The fifty-nine completed surveys were delivered to Christine Ness at the University of Wisconsin-Stout for statistical analysis. Her first task was to average the responses for survey questions 1-10 and 16-23 to determine where the respondents as a population fit on the respective Likert Scale for each question. Survey questions 11-15 required her to tabulate the number of yes and no responses for each question to determine the percentage of population that was in agreement with each statement. Finally, it was requested that a Pearson Correlation be performed of number 5 with numbers 16, 20, and 21 to determine if a relationship existed between the importance

respondents placed on Technology Education and their feelings towards technological literacy and integration.

# Chapter IV

## ANALYSIS OF RESULTS

The purpose of this study was to determine where Technology Education fit in the elementary curriculum. Elementary educators from the DC Everest Public School District were surveyed in the spring of 2001. The survey consisted of three sections that addressed the three objectives of the study.

The first research objective was to determine the importance of Technology Education at the elementary level. This objective was addressed by asking the population to identify the importance of the ten academic areas present at the elementary level. This section employed a seven point Likert Scale. Scale rankings were as follows: 1 = Not Important, 2 = Slightly Important, 3 = Moderately Important, 4 = Fairly Important, 5 = Important, 6 = Very Important, and 7 = Essential. Results for these inquiries (numbers 1-10) are the averages of the responses.

The second research objective was to describe the attitude of elementary teachers towards Technology Education at the elementary level. The second section and a portion of the third section of the research instrument addressed this objective. The second section of the research instrument consisted of five yes/no questions. The results for these inquiries (numbers11-15) are percentages of the responses. The final section of the research instrument employed a five point Likert Scale to survey how respondents felt about eight statements. Scale rankings were as follows: 1 = strongly agree, 2 = agree, 3 = neutral/not applicable, 4 = disagree, and 5 = strongly disagree. Results for these questions (numbers 16 – 23) are the averages of the responses.

The third research objective was to determine if Technology Education existed as an integrated discipline at the elementary level. This objective was addressed by three inquiries within the third section of the research instrument.

The percentage of return of the surveys was 52.2%. This data was collected and presented to Christine Ness at UW-Stout for analysis. The findings of this data follow. In addition, comments made by respondents have been included following the data results collected for specific inquiries.

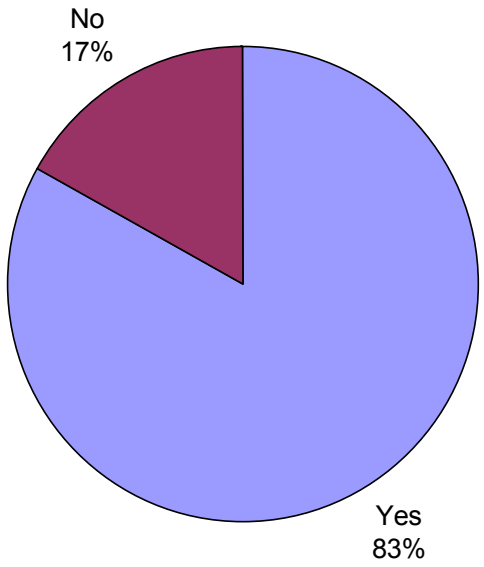
**Importance of Academic Areas**

In Table 1, the respondents identified Technology Education as the seventh most important academic area at the elementary level. The "core" areas scored the highest: Math and Language Arts scoring 6.8 (7 = Essential) with Social Studies and Science scoring 5.9 (6 = Very Important). Physical Education and the Fine Arts closely followed scoring 5.7. Technology Education scored 4.8 (5 = Important), Family and Consumer Education scored 3.1 (3 = Moderately Important), Foreign Languages scored 2.9, and Business Education scored 2.4 (2 = Slightly Important).

**Attitude of Elementary Teachers Toward Technology Education**

In Table 2, eighty-three percent of respondents thought that Technology Education should be taught at the elementary level.

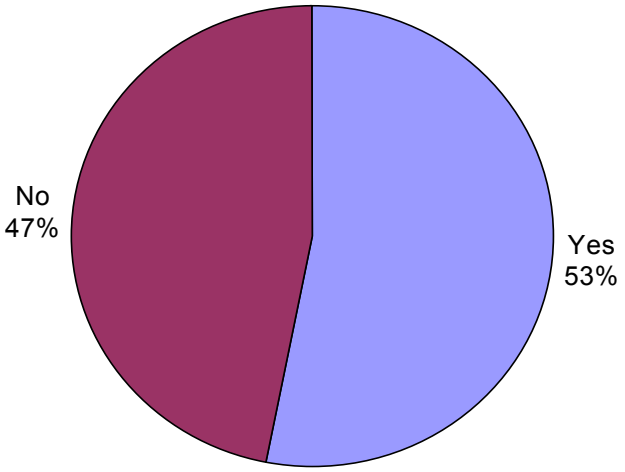
## TABLE 2: TECHNOLOGY EDUCATION SHOULD BE TAUGHT AT THE ELEMENTARY LEVEL




Comments added by respondents regarding inquiry number eleven of the research instrument include “integrated with existing subjects” and “not lower elementary – maybe higher level – no time – no materials”.

In Table 3, 53 percent of the respondents expressed feeling comfortable implementing Technology Education lessons at the elementary level.

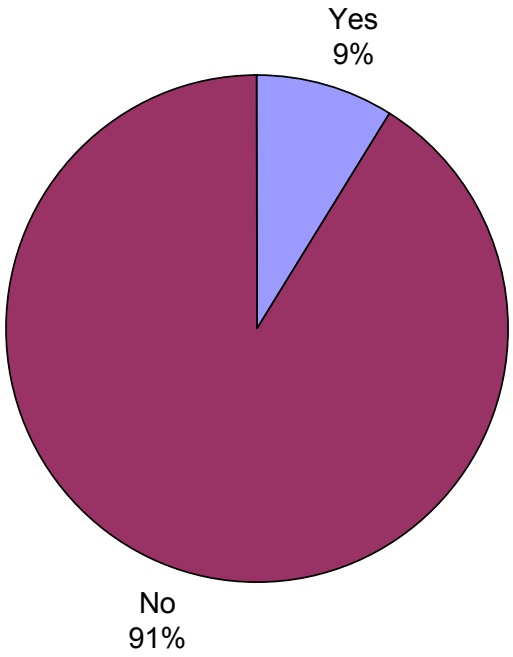
## TABLE 3: FEEL COMFORTABLE IMPLEMENTING TECHNOLOGY EDUCATION LESSONS AT THE ELEMENTARY LEVEL




Comments added by respondents regarding inquiry twelve of the research instrument include “at my level”, “never enough time on own to plan well a variety of events”, and “if trained appropriately”.

In Table 4, nine percent of the respondents had collaborated with Technology Education staff to develop Technology Education lessons.

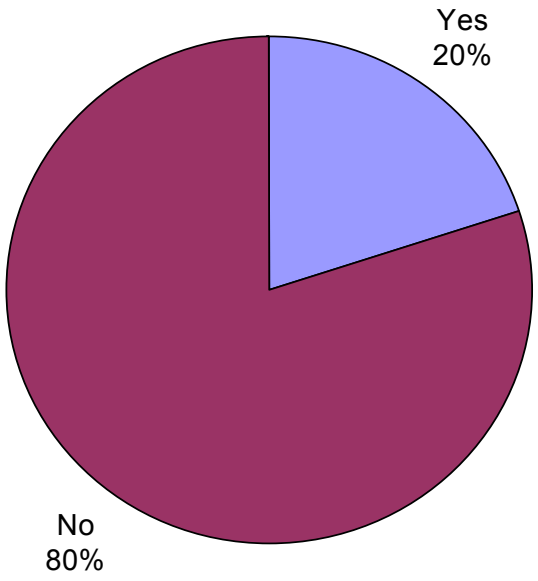
**TABLE 4: HAVE COLLABORATED WITH TECHNOLOGY EDUCATION STAFF TO DEVELOP TECHNOLOGY EDUCATION LESSONS**




One respondent regarding inquiry thirteen of the research instrument commented "a one week class – minimal exposure".

In Table 5, 20 percent of the respondents possessed a copy of the Wisconsin State Technology Education standards.

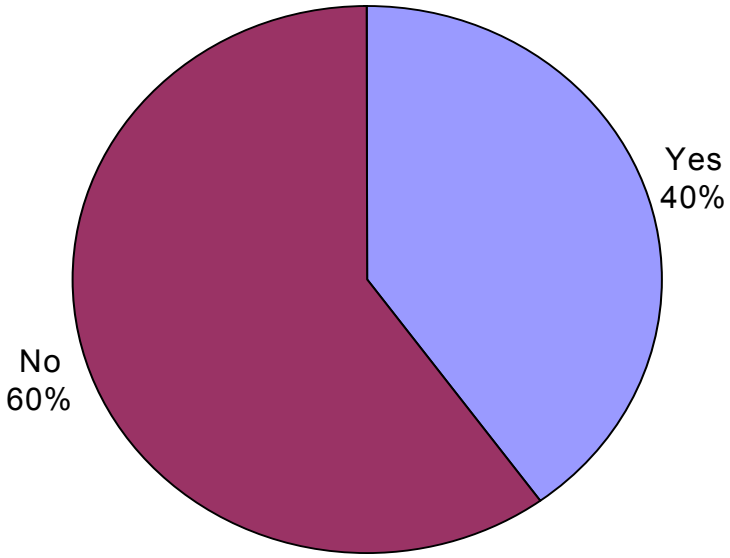
## TABLE 5: POSSESS A COPY OF TECHNOLOGY EDUCATION STANDARDS




One respondent regarding inquiry 13 of the research instrument commented "some are included in our language arts standards and science standards".

In Table 6, forty percent of respondents included Technology Education activities in their curriculum.

**TABLE 6: TECHNOLOGY EDUCATION ACTIVITIES ARE PART OF YOUR CURRICULUM**




Comments added by respondents regarding inquiry fifteen of the research instrument include “at times not often though”, “I have no list of standards; however, some of my activities fit into construction, communications, transportation, or manufacturing – computer technology standards are available”, “we use the computer lab to practice using keyboard/mouse – play math games (K level)”, “keyboarding at grade 4”, “from district standards and benchmarks”, “not really”, “I’m not sure what they include”, and “somewhat”.

Instrument inquiry number sixteen stated *A student's understanding of technology needs to go beyond its mere use*. The average response to this statement was 2.2. DC Everest elementary educators agreed that a student's understanding of technology needed to go beyond its mere use.

Instrument inquiry number 17 stated *You are provided with the resources necessary to meet Wisconsin State Technology Education standards*. The average response to this statement was 3.2. DC Everest elementary educators were neutral about whether or not they were provided with the resources necessary to meet Wisconsin State Technology Education standards. Comments added by respondents regarding inquiry seventeen of the research instrument include "do not know standards", "nor do I wish to have these resources, our elementary curriculum is already packed", "lack hands on training".

Instrument inquiry number 18 stated *The teacher is the primary decision-maker in the classroom*. The average response to this statement was 2.2. DC Everest elementary educators agreed that the teacher was the primary decision-maker in the classroom. One respondent regarding inquiry eighteen of the research instrument commented "depends on age of student, at my level K, I would say yes, high school – no".

Instrument inquiry number 19 stated *The elementary curriculum is overwhelming*. The average response to this statement was 2.0. DC Everest elementary educators agreed that the elementary curriculum was overwhelming.

Instrument inquiry number 21 stated *Elementary students must become technologically literate*. The average response to this statement was 2.1. DC Everest

elementary educators agreed that elementary students must become technologically literate.

**Integration of Technology Education into Elementary Classroom**

Instrument inquiry number twenty stated *Technology Education belongs in the science curriculum at the elementary level*. The average response to this statement was 3.4. DC Everest elementary educators were neutral favoring disagreement toward Technology Education belonging in the science curriculum at the elementary level. Comments added by respondents regarding inquiry twenty of the research instrument include "also fits in math – or in some cases language arts or social", "throughout curriculum", "no room", "integrated".

Instrument inquiry number twenty-two stated *Technology Education enhances other subject areas*. The average response to this statement was 2.0. DC Everest elementary educators agreed that Technology Education enhanced other subject areas.

Instrument inquiry number 23 stated *Technology Education improves standardized test scores*. The average response to this statement was 2.9. DC Everest elementary instructors were neutral toward Technology Education improving standardized test scores. Comments added by respondents regarding inquiry twenty-three of the research instrument include "seems logical that it would", have no background to base this on", and "don't know".

**Correlations**

Data analysis was performed on selected instrument inquiries looking for Pearson's Correlation to determine if a relationship existed between the importance respondents placed on Technology education and their feelings towards technological

literacy and integration. Those inquiries selected were Number 5 with Number 16, Number 5 with Number 20, and Number 5 with Number 21.

Number 5 *Technology Education's Importance* with Number 16 *A student's understanding of technology needs to go beyond its mere use* showed a positive Pearson Correlation of .255.

Number 5 *Technology Education's Importance* with Number 20 *Technology Education belongs in the science curriculum at the elementary level* showed a positive Pearson Correlation of .122.

Number 5 *Technology Education's Importance* with Number 21 *Elementary students must become technologically literate* showed a positive Pearson Correlation of .452.

# Chapter V

## SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Within the DC Everest Public School District there exists a lack of coordination of Technology Education activities between elementary and junior high staff. This study was designed to address the need of solving this problem by first determining where Technology Education fit into the district's elementary curriculum. This study focused upon the following objectives:

1) Determine the importance of Technology Education at the elementary level.
2) Describe the attitude of elementary teachers toward Technology Education at the elementary level.
3) Determine if Technology Education exists as an integrated discipline at the elementary level.

### Methods and Procedures

After identifying the problem and developing a purpose for the study literature was reviewed leading to the construction of a survey instrument that met the needs of this study. Regular elementary classroom teachers, kindergarten through sixth grade, were identified and mailed surveys. Of these 113 instructors 64 (56.6%) returned surveys. Data was tallied from these returned surveys and presented to Christine Ness at UW-Stout for data analysis.

### Major Findings

This study found that, even though elementary teachers deem Technology Education to be an important academic area at the elementary level, the discipline plays a

minor role in the DC Everest elementary curriculum. The attitude of DC Everest elementary teachers toward Technology Education at the elementary level was found to be positive. Technology Education was found to exist independently as well as an integrated part of other disciplines.

**Conclusions**

Since DC Everest elementary educators rated Technology Education seventh out of the 10 academic areas it can be concluded that Technology Education plays a small role in the elementary curriculum. This conclusion was further supported by 40% of the staff stating that they had Technology Education based activities as a part of their curriculum. Just over half of the sample felt comfortable implementing Technology Education lessons while 20% even possessed a copy of the state's Technology Education standards and only 9% had collaborated with vocational staff to develop Technology Education lessons.

Eighty-three percent of respondents stated that Technology Education should be taught at the elementary level. DC Everest elementary instructors agreed that a student's understanding of technology needs to go beyond its mere use and elementary students need to become technologically literate. It was concluded from these results that DC Everest elementary teachers had a generally positive attitude towards Technology Education at the elementary level.

The respondents were neutral favoring disagreement towards classifying Technology Education as a part of the science curriculum. DC Everest elementary educators agreed that Technology Education enhanced other subject areas and identified the integration of Technology Education with the disciplines of math and English in addition to science through comments added on some surveys. However, the high marks

of Technology Education's importance and the neutral position taken that Technology Education should be categorized within another discipline leads to the conclusion that Technology Education exists independently and as an integrated part of other disciplines within the DC Everest elementary curriculum.

**Recommendations**

Using the conclusions derived from this study the author hopes to usefully employ this data within the DC Everest Public School District and other districts interested in facilitating the Technology Education needs of elementary students. Several DC Everest elementary teachers have shown interest regarding the outcomes of this study. This could translate into an excellent start towards improving coordination of Technology Education activities within the district. Technology Education could take a more active role in the education of children if the discipline made a greater effort to understand what happens in elementary classrooms.

**Recommendations Related to This Study**

In accordance with the objectives of this study the following recommendations to the DC Everest Public School District have been developed based upon the findings and conclusions of this study:

1) DC Everest should share the results of this study with its elementary staff to help them better understand how they feel as a group regarding the importance of Technology Education at the elementary level.
2) DC Everest should provide all elementary educators with a copy of the state of Wisconsin's academic standards for Technology Education.
3) The district should offer Technology Education inservice opportunities for elementary staff to help them better understand the discipline.

4) DC Everest, with input from its elementary staff, should identify and strengthen important areas of its elementary curriculum through integration rather than overwhelm staff with additional academic initiatives.
5) The district should identify which of its own "core" standards were developed from the Technology Education standards to help elementary teachers identify opportunities for integration of Technology Education with other disciplines.
6) The district should provide the time and resources necessary to facilitate successful implementation of the Technology Education at the elementary level.

**Recommendations for Further Study**

The first suggestion for further study would be to determine what factors inhibit Technology Education at the elementary level. Upon identifying these factors one could better understand why so many respondents identified Technology Education as important to their students but still manage to facilitate little if any Technology Education in their curriculum. Another suggestion would be investigate why so few vocation staff members take interest in what takes place in terms of their discipline at the elementary level. It would be interesting to discover and compare what vocational and elementary staff feel elementary Technology Education should look like.

All programs need a means by which to measure their success. If the data from this study is used to change elementary Technology Education an assessment should be done to evaluate the effectiveness of those changes. Technology Education is not the only discipline that can benefit from the coordination of activities between elementary and junior high educators. The effectiveness of all disciplines within the school

curriculum could be improved through the cooperation of instructors at both levels and assessing implemented changes.

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# APPENDIX A: SURVEY

**DIRECTIONS:** Identify how important each academic area is at the elementary level. Use the following responses:

1 = NI = Not Important
2 = SI = Slightly Important
3 = MI = Moderately Important
4 = FI = Fairly Important
5 = I = Important
6 = VI = Very Important
7 = E = Essential

| | Academic Areas | Importance | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | NI 1 | SI 2 | MI 3 | FI 4 | I 5 | VI 6 | E 7 |
| 1. | Language Arts | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. | Math | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. | Social Studies | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. | Science | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. | Technology Education | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. | Family and Consumer Education | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. | Physical Education | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. | Fine Arts | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. | Foreign Languages | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. | Business Education | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**Directions:** Answer the following questions by circling the best response.

Yes No 11. Should Technology Education be taught at the elementary level?

Yes No 12. Do you feel comfortable implementing Technology Education lessons at the elementary level?

Yes No 13. Have you collaborated with vocational staff to develop Technology Education lessons?

Yes No 14. Do you possess a copy of the Wisconsin State Technology Education standards?

Yes No 15. Are Technology Education standards based activities a part of your curriculum?

**DIRECTIONS:** Use the following criteria to rate how you feel about each statement. Circle your response.

Criteria:
1. Strongly Agree
2. Agree
3. Neutral/Not Applicable
4. Disagree
5. Strongly Disagree

| | | | | | |
|---|---|---|---|---|---|
| 16. A student's understanding of technology needs to go beyond its mere use. | 1 | 2 | 3 | 4 | 5 |
| 17. You are provided with the resources necessary to meet Wisconsin State Technology Education standards. | 1 | 2 | 3 | 4 | 5 |
| 18. The teacher is the primary decision-maker in the classroom. | 1 | 2 | 3 | 4 | 5 |
| 19. The elementary curriculum is overwhelming. | 1 | 2 | 3 | 4 | 5 |
| 20. Technology Education belongs in the science curriculum at the elementary level. | 1 | 2 | 3 | 4 | 5 |
| 21. Elementary students must become technologically literate. | 1 | 2 | 3 | 4 | 5 |
| 22. Technology Education enhances other subject areas. | 1 | 2 | 3 | 4 | 5 |
| 23. Technology Education improves standardized test scores. | 1 | 2 | 3 | 4 | 5 |

# APPENDIX B: SURVEY LETTER

March 11, 2001

Name
Elementary School

Dear Name:

The DC Everest Vocational Education Department is attempting to determine the needs of elementary teachers to meet Wisconsin's Technology Education standards. The district's elementary educators are the essential resource in this study. The results of this study will be used to improve communication between technology education staff and elementary teachers.

Would you please take a few minutes to respond to the attached survey. The purpose of this study is to determine the needs you feel are most important for the successful integration of state technology education standards into the elementary curriculum. Please return the survey in the attached self-addressed stamped envelope by March 16, 2001.

You may be assured of complete confidentiality. Please rest assured that your name will never be used in any portion of our analysis on the report.

If you would like a copy of the results, please feel free to contact me.

Thank you for your assistance.

Sincerely,

Chad Brecke, Technology Education Instructor
DC Everest Junior High
1000 Machmueller St.
Weston, WI 54476

# APPENDIX C: CONSENT FORM

I understand that by returning this survey, I am giving my formal consent as a participating volunteer in this study. I understand the basic nature of the study and agree that any potential risks are exceedingly small. I also understand the potential benefits that might be realized from the successful completion of this study. I am aware that the information is being sought in a specific manner so that no identifiers are needed and so that confidentiality is guaranteed. I realize that I have the right to refuse to participate and that my right to withdraw from participation at any time during the study will be respected with no coercion or prejudice.

Note: Questions or concerns about participation in the research or subsequent complaints should be addressed first to the researcher or research advisor and second to Dr. Ted Knous, Chair, UW-Stout Institutional Review Board for the Protection of Human Subjects in Research, 410 BH, UW-Stout, Menomonie, WI, 54751, phone (715) 232-1126.