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A Study to Determine Why Middle School Students Enrolled in Technology Education Classes

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A STUDY TO DETERMINE WHY MIDDLE SCHOOL STUDENTS
ENROLLED IN TECHNOLOGY EDUCATION CLASSES

A RESEARCH PAPER

PRESENTED TO

THE FACULTY OF THE DEPARTMENT OF OCCUPATIONAL AND
TECHNICAL STUDIES

AT

OLD DOMINION UNIVERSITY

IN PARTIAL FULFILLMENT FOR THE
REQUIREMENTS FOR THE
MASTER OF SCIENCE IN EDUCATION

BY

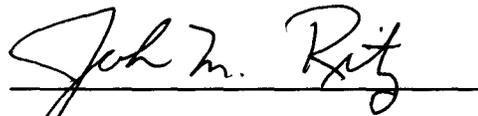
DAVID LOCKLEAR JR

MAY, 1999

APPROVAL PAGE

This research paper was prepared by David Locklear JR under the direction of Dr. John M. Ritz in OTED 636, Problems in Education. It was submitted to the Graduate Program Director as partial fulfillment of the requirements for the Degree of Masters of Science in Education.

APPROVED BY:



Dr. John M. Ritz
Advisor and Graduate
Program Director

5-5-99

Date

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I would further like to thank my wife for enduring the long days and nights I exhausted away from her and our lives. She has been very patient and was extremely helpful in editing the text prior to the submission to Dr. John M. Ritz for review.

Finally, I would like to dedicate this to my mother who always told me that I could make it through college.

David Locklear JR

May 4, 1999

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CHAPTER I

INTRODUCTION

Technology Education is one of the most developing and expanding curriculums available to students at the middle school level. This curriculum has been identified in previous decades as industrial arts and shop in various parts of the country. However, the title Technology Education has been in existence most of this decade and appears to be cemented within the public school system.

Virginia (Department of Education, 1989) developed a middle school technology education program that contained three courses: Introduction to Technology, Inventions and Innovations, and Technological Systems. These courses have four recurring components that are considered the basics for technology: resources, processes, systems, and impacts (Foundations of Technology Education, 1995, p. 263).

Most middle schools in the Tidewater Virginia area offer Technology Education as an elective for the student body. The prospective student may enroll in the schools technology program at the sixth, seventh or eight-grade level; moreover, students may sign up at each grade level through their middle school years.

More often than not if a student has a successful first year technology class he or she will return the subsequent year. Success is measured in many different ways for the individual student. For example, one student will enjoy the computers involved in the program or another may be motivated with construction, communication, or the manufacturing processes; any number of interests may be satisfied.

There is a far greater opportunity available for today's technology student as compared to this researcher's middle school years. State of the art equipment provides individual

students with a wide range of opportunities for learning. For instance, the synergistic lab allows the student to study physics, machines and energy, drafting, robotics, electronic photography, computer graphics and a host of other technologies. This type of lab provides the technology student with greater motivation and incentive to learn technology than the outdated industrial arts programs of the past.

Statement of Problem

The purpose of this study was to determine why students at Larkspur Middle School enrolled in technology education classes.

Research Goals

To answer this problem, the following goals were developed:

1. Determine why students take technology classes as an elective.
2. Determine what specific reasons attracted students to technology education

Background and Significance

The mission of the Virginia Beach City Public Schools, in partnership with their community, is to ensure that each student is empowered with the knowledge and skills necessary to meet the challenges of the future (Virginia Beach School Board, June 1994). Technology is a system based on the application of knowledge, manifested in physical objects and organizational forms, for the attainment of specific goals, (Volti, 1995, p. 6). Industrial Arts was the forerunner to Technology Education. Industrial Arts, as a curriculum, is defined as those phases of general education which deal with technology-its evolution, utilization, and significance; with industry-its organization, materials, occupations, processes, and products; and with the problems and benefits resulting from the technological and industrial nature of society (Maley, 1973, p. 2). Its purpose was to

teach knowledge of the tools, materials, processes and their relationships to industry. The focus was in the area of woods, metals, mechanics, plastics, leather, graphic arts, and ceramics (Maley, 1973, pp. 12, 13).

Technology Education is an educational program that assists people to develop an understanding and competence in designing, producing, and using technology products and systems, and in assessing the appropriateness of technological actions (Wright & Lauda, 1993, p. 4).

It is extremely important for educators to know and understand why students enroll in technology education. If for example, the teacher is aware of why his or her students selected their technology class as an elective, then the teacher can make adjustments to the program as required. There may be times when what the student saw in your technology curriculum from the outside (not enrolled) will be different once the student has enrolled and class begins.

The teacher should not eliminate any information or material that is essential to technology education but should always strive to make his or her program more attractive to students. Teaching Technology Education demands constant review and revision of subject content, teaching methods and facility. Knowing what has attracted students to technology education will provide the teacher useful information necessary to make improvements to their existing programs.

Limitations

The limitations of the study included the following:

1. The study was conducted during the academic school year, 1998-1999.
2. The study was conducted in a Commonwealth of Virginia public middle school.

3. The participants of the study were sixth, seventh, and eighth grade students enrolled in technology classes at Larkspur Middle School in Virginia Beach, Virginia.
4. The study included both female and male students.

Assumptions

The researcher made the following assumptions as this study related to middle school technology education students.

1. The data solicited from the middle school technology education student was accurate and truthful of their feelings.
2. All the students completing the questionnaire were middle school students.
3. Gender difference, ethnic background or social economic status would not be a limiting factor.
4. The students voluntarily provided the information.
5. Students will be attracted to technology classes if the programs are well organized, efficiently operated, and supported by enthusiastic teachers of Technology Education.

Procedures

The subjects of this study were sixth, seventh, and eighth grade students enrolled in the technology classes at Larkspur Middle School located in Virginia Beach, Virginia.

A standard questionnaire developed by the technology teacher at Larkspur Middle School was used to provide the needed data. The data collected was then tabulated to determine specifically why students take technology courses.

Definition of Terms

The following definitions are provided to clarify terminology for the research:

1. **Data:** Factual information, especially information organized for analysis or used to reason or make decisions.
2. **Elective courses:** Courses that are not considered part of the core courses or courses that are required for the student to complete his or her high school program.
3. **Technology:** A body of knowledge and actions, used by people, to apply resources in designing, producing, and using products, structures and systems to extend human potential for controlling and modifying the natural and human-made (modified) environment (Foundations of Technology Education, 1995, p. 2).
4. **Technology Education:** Is “an educational program that assists people [to] develop an understanding and competence in designing, producing, and using technology products and systems, and in assessing the appropriateness of technological actions” (Foundations of Technology Education, 1995, p. 14).
5. **Technological literacy:** The ability to interact successfully with technology, to assess the impacts of technology on everyday life, and to apply conceptual knowledge in order to solve problems (ERIC Doc 329708, 1989, p. 3).

Overview of Chapters

In Chapter I of this study, the problem, research goals and limitations were identified.

The problem focused on determining why middle school students enrolled in the technology program offered by Larkspur Middle School. Research goals were directed toward why students select technology classes as an elective, and what specifically attracted these students to technology education.

Chapter II will provide an analysis and examination of the literature associated with technology and technology education. Chapter III will explain the methods and procedures used to conduct the study.

In Chapter IV, the findings of this study were reported and analyzed. This will be supported with the use of figures and tables. Chapter V will be a summation of all the data including the conclusions and recommendations as were supported by the data within the findings.

This study will help educators understand what motivates or attracts middle school students to technology education. The newly analyzed material should afford the educational system an opportunity to improve upon the attractiveness of the individual technology program.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter is a review of selected literature found by the researcher related to the topic of this research. The chapter will include information obtained from educational journals and school textbooks, as well as electronic media such as the Internet.

Through the course of the review of the literature the focus will be on the following general areas as to why students take technology education: 1. Why students are attracted to technology education, 2. Why students want to learn about technology, 3. Technology is fun, 4. The student's creativity, 5. Students' electives or mandatory requirements, 6. Summary.

Why Students are Attracted to Technology Education

An example, which will attract students, especially second year technology students, is explained in an article from *The Technology Teacher*, March, 1999, p. 25. The author provides an illustration of a technology lab that is not operating in a manner which would create a healthy learning environment. Prior to any changes, the students were experiencing boredom. The modification consisted of changing an existing computer network that required the students to use one computer station for both printing and access to a CDROM. This teaching setting created a lot of frustration that eroded the motivation held by the students. After the modifications, there was improved productivity among the students and a significant increase in their motivation to learn about technology.

The above example is an instance of how technology could be used to attract students to technology education. Additionally, a positive learning environment such as the above mentioned scenario will attract students to technology education on a consistent basis.

Students Want to Learn about Technology

Students are initially attracted to Technology Education by their own curiosity of the subject. They have a lot of questions. Questions such as what are we going to do? What are the materials? What are the tools and equipment? Will I be safe in the technology lab? Is technology education a difficult subject? All of these concerns lead the students to a point at which they want to learn about technology.

Students want to learn about technology, as summarized by Gonzales, (1997, p. 60).

“Technology has become an amazing field of study, and many students enjoy investigating technological advances”. Technological advances provide a challenge for the middle school student from their cognitive abilities to psychomotor skills and their attitudinal dimensions.

Students Believe Technology is Fun

Advertisements in the school will create a sense among students that technology is an interesting and fun curriculum. The technology teacher’s efforts to support his or her department by displaying projects completed by other technology students will attract a lot of attention from potential technology students. A technology school newsletter or pamphlet explaining what the local technology classes are doing and leads the prospective student to conclude and believe technology education is a fun class to take. Another important advertising component for technology is The National Science and Technology Week sponsored by the National Science Foundation. One of the goals for

this year is the introduction of a National Science Foundation (NSF) new initiative, *find out why*.

This initiative is designed to foster “kitchen-table science” in the homes across America and to challenge people of all ages to discover the science and technology found everywhere in their daily lives (National Science Foundation, 1999). Kitchen-table science is science and technology activities designed for students and parents to conduct within their homes with a minimal amount of material and components. Press such as this by the National Science Foundation will foster the idea that technology education is fun.

The Technology Student Association (TSA) is also a national organization. The mission of TSA is to promote leadership and personal growth in a technological society (Technology Student Association, 1988a). Most students want or need to belong to an organization or group. They feel secure and develop a sense of selfworth by being part of an organization such as the TSA.

As this researcher observed during technology classes at Larkspur Middle School, the students’ motivation was significantly affected by their accomplishment of performance goals and learning goals. Performance goals are goals in which individuals seek to gain favorable judgments of their competence or avoid negative judgments of their competence (Muth and Alvermann, 1999, p. 63). A student who is highly confident in their ability to reach a goal usually accomplishes a performance goal. This individual views performance goals as challenging and thus will persist in accomplishing the goal. Learning goals are goals “in which individuals seek to increase their competence, to understand or master something new” (Muth and Alvermann, 1999, p. 63). Here the

student will focus on mastery through effort and by doing so will be energized by the challenge of the goal.

Additional research of middle schools will show these students are motivated if classroom learning tasks can be linked to the adult world of work (U.S. Department of Education, 1997a, p. 23).

The Student's Creativity

Most academically capable students enjoy a challenge from their curriculums in school and the technology education class is not an exception. Technology education provides the technology student with an avenue for their creative minds to explore all the wonders of technology.

Technology is the study of the human-made world. Students learn about the world around them through the study of technology and they also understand some of the responsibilities that come with living in a technologically advanced world. The way children learn is through design, that is, building, creating, and effecting the world in which we live (Pillsworth, 1999, p. 20). Technology and design requires a lot of personal effort by the technology student, therefore this involvement develops a sense of commitment to the task. In the end, a project becomes important to the student.

Students' Electives or Mandatory Requirements

In most school districts a certain number of electives are usually part of the requirements for students to complete before they finish middle school. An example of a successful program is the business education program offered as an elective in Des Moines Public Schools. In times of favorable economic conditions with plentiful job opportunities, emphasis and enrollment have declined and in times of unfavorable economic conditions,

emphasis and enrollment have increased (ERIC Doc ED354358, 1993). The Business Education program is designed to meet the needs of students in three different areas, (1) general education, (2) personal use education, and (3) vocational education. Each course of the program is designed to help develop reading, writing, listening, speaking, thinking, and decision-making skills for the student. Additionally, the business education programs will help students get along with others. Another important feature of these programs is they teach the students valuable skills, which are relevant in the present and future lives of the recipient. When students are able to see the relevance of material they are enthusiastic about enrolling in the class.

Another study (ERIC Doc ED362651, 1993) examined the role of guidance in girls' decisions about whether or not to take technology education as an elective in high school and to consider future careers in technological fields. During the research, eighteen guidance counselors from three school districts in Connecticut were interviewed. These counselors identified three barriers as prohibiting more girls from taking technology education: lack of information, lack of connection, and lack of flexibility. First, the guidance counselors believed the girls were not knowledgeable about technological careers; they viewed careers as male and female. Secondly, girls in middle school failed to make the connection between what they were learning in technology education classrooms and careers in technological fields. Thirdly, lack of flexibility in the school's curriculum, for example, after entering high school, graduation requirements allowed the students no more than one or two elective subjects.

As a result of the study, the following recommendations were provided to reduce or eliminate gender inequity in technology education:

- Make gender equity a clear focus of career days or fairs.
- Have middle school students visit technology labs at high schools.
- Bring guest speakers, especially women, into the technology classrooms.
- Forge links with local business/industry.
- Create more flexible course structures.
- Introduce career centers in middle schools.
- Develop interdisciplinary courses linking technology education and other academic departments.

The purpose of guidance counselors is to provide information and advice to students at the middle school and high school level. These counselors should advise them on whether or not to take technology education.

In the state of New York, legislation has been passed that require all middle school students to take Introduction to Technology. The purpose of the technology program is to make all New York State students technologically literate (ERIC Doc ED329708, 1989). At the high school level, technology education is still an elective for the students. In the opinion of the New York State educators, technology penetrates almost every aspect of life, therefore each student must have some training in technology education.

SUMMARY

After a review of the literature, the reasons why students take technology education vary from wanting to enroll in technology classes to mandatory enrollment. There is more of

an effort to encourage middle school students to voluntarily enroll in technology classes, than to make enrollment a requirement.

The need to become technological literate has never been greater. Most research will support this position. Moreover, educators are increasing the efforts to enroll more and more students beginning at the middle school level into technology classes.

Chapter III will describe the methods and procedures used during the study.

CHAPTER III

METHODS AND PROCEDURES

The purpose of this chapter is to identify the procedure used to gather data for this study. Additionally, other subject matter presented will be the population who participated in the study, the instrument design, method of data collection, statistical analysis, and concluding with a summary.

POPULATION

The populations targeted for this study were middle school students of the sixth, seventh, and eighth grade in the Virginia Beach Public City School system. There were 65 sixth grade students, 94 seventh grade students, and 50 eighth grade students participating in the survey. The individual students that provided answers to the questionnaire were currently enrolled in a technology class. These students consisted of individuals that had taken a technology class the previous year or who were taking the class for the first time.

Instrument Design

The instrument used for data collection was written and designed by the current Technology Teacher at Larkspur Middle School in Virginia Beach, Virginia. This instrument encompassed a wide range of material, however this researcher was only concerned with that information which pertained to the current study. The source document includes questions pertaining to gender, grade level, hobbies, and why he or she enrolled in the technology class. An information sheet was attached to the questionnaire form. This sheet provided information about the technology classes as well as safety information as it related to the technology courses and classes. Also on the

information sheet was a signature block for both the student and his or her parent or legal guardian. A sample of this instrument is located in Appendix A.

Data Collection

The data was collected during the first week of the first semester on each student that was enrolling in the technology class. A time frame was set for one week to issue and collect each completed questionnaire and information sheet. For example, if the first class was on a Monday, then the completed documents were expected to be returned by the following Monday. The data was collected in September 1998.

Statistical Analysis

The completed questionnaires were sorted and compiled by the researcher. The number and frequency of response for selecting technology education was reported. The data was also reported in a graph and figures in Chapter IV.

Summary

Chapter III described the population under inquiry, the instrument used to collect the data, and the data collection procedures. The analysis of the data will be presented in Chapter IV.

CHAPTER IV

FINDINGS

The purpose of this study was to determine why middle school students at Larkspur Middle School in Virginia Beach, Virginia, enrolled in the school's technology classes. In order to obtain the data, a questionnaire was submitted to 65 sixth grade, 94 seventh, and 50 eighth grade students. A copy of the total individual responses for each grade level may be found in Appendix B.

The following pages will provide a list of tables showing the responses provided by the middle school students to the question. Why did you take technology education?

Why Sixth Grade Students Enrolled in Technology Education

Table 1 shows that 28 % of the sixth grade students enrolled in technology education, because they enjoyed making or building things.

Table 1

I like Making or Building Things

Sixth Grade

PERCENT	NUMBER
28	18

Table 2 shows that 17 % of the sixth grade students enrolled in technology education, because they thought it would be fun.

Table 2
I Thought Technology Would be Fun
Sixth Grade

PERCENT	NUMBER
17	11

Table 3 shows that 12 % of the sixth grade students enrolled in technology, because they wanted to learn about technology.

Table 3
I Wanted to Learn about Technology
Sixth Grade

PERCENT	NUMBER
12	8

Table 4 shows that 5 % of the sixth grade students indicated a relative advised them to take technology education.

Table 4
A Relative Advised me to Take Technology Education
Sixth Grade

PERCENT	NUMBER
5	3

Table 5 shows that 5% of the sixth grade students wanted to take technology education, because they wanted to learn some new information.

Table 5
I Wanted to Learn New Information
Sixth Grade

PRECENT	NUMBER
5	3

Why Seventh Grade Students Enrolled in Technology Education

Table 6 shows that 23 % of the seventh grade students enrolled in technology education, because technology education was fun.

Table 6
Technology is Fun
Seventh Grade

PERCENT	NUMBER
23	21

Table 7 shows that 20 % of the seventh grade class enrolled in technology education, because they enjoyed it the previous year.

Table 7
I Enjoyed Technology Education the Previous Year
Seventh Grade

PERCENT	NUMBER
20	19

Table 8 shows that 16 % of the seventh grade technology students enrolled in technology education, because they enjoy building things.

Table 8

I like to Build Things

Seventh Grade

PERCENT	NUMBER
16	15

Table 9 shows that 12 % of the seventh grade technology students enrolled in technology education, because their friends said they should take technology education.

Table 9

My Friends Said I Should Take Technology Education

Seventh Grade

PERCENT	NUMBER
12	11

Table 10 shows that 6 % of the seventh grade students enrolled in technology education, because technology is interesting.

Table 10
Technology is Interesting
Seventh Grade

PERCENT	NUMBER
6	6

Why Eighth Grade Students Enrolled in Technology Education

Table 11 shows 38 % of the eight grade students enrolled in technology education, because they liked technology education.

Table 11
I like Technology Education
Eight Grade

PERCENT	NUMBER
38	19

Table 12 shows 14 % of the eight grade technology students enrolled in technology education, because they like to make things.

Table 12

I like to Make Things

Eight Grade

PERCENT	NUMBER
14	7

Table 13 shows that 8 % of eight grade students enrolled in technology education, because they like working with computers.

Table 13

I like Working with Computers

Eight Grade

PERCENT	NUMBER
8	4

Table 14 shows that 6 % of eight grade students enrolled in technology education, because they like to work with wood.

Table 14

I like to Work with Wood

Eight Grade

PERCENT	NUMBER
6	3

Table 15 shows that 6 % of eight grade students enrolled in technology education, because they enjoyed technology education the previous year.

Table 15

I Enjoyed Technology Education the Previous Year

Eight Grade

PERCENT	NUMBER
6	3

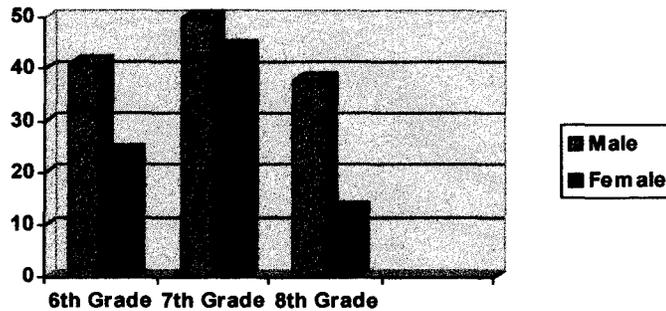


Figure 1

Figure 1 displays the total number of males and females enrolled in the technology program during September 1998. There were 129 males and 80 females enrolled in the technology program. This included 24 females and 41 males in the sixth grade. There were 44 females and 50 males enrolled in technology classes for the seventh grade. The eighth grade consisted of 12 females and 38 males in the technology classes.

Summary

In Chapter IV, the researcher presented and explained the data obtained from the questionnaire which was provided by the sixth, seventh, and eight grade technology students.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter will be used to summarize all the information provided in the previous four chapters. The conclusions along with the recommendations will be given based upon this study.

SUMMARY

The technology areas at Larkspur Middle School consisted of a production and manufacturing lab and a modern synergistic lab. Each lab has its own unique characteristics; for instances, the production lab was a facility designed to teach students how to build things. Students working in the production lab used wood and wood products, metals, and plastics to build and construct various projects.

The synergistic lab contained electronic modules that allowed two students to work as a team. Each module was used to teach a different technology such as, physics, flight technology, energy, power and machines, computer graphs, and robotics, etc.

Both of the technology labs provide a positive learning environment for all the students. Since the two facilities were successful, the problem was to determine why these students enrolled in the technology program. In order determine why students enrolled in the technology program, two questions needed answering. First, determine why students took technology education as an elective and secondly, what specific reasons attracted students to technology education.

During the research all the students had positives comments for the program and technology teachers at Larkspur Middle School.

CONCLUSIONS

The findings from the questionnaire were analyzed and compared to the goals established in Chapter 1 of this study. The goals and conclusions are the following:

1. Determine why students take technology classes as an elective.

The majority of the students enrolled in technology classes as an elective because they preferred it to courses such as language matters and foreign speech classes such as French. Other students stated the other electives were just boring.

2. Determine what specific reasons attracted students to technology education.

The primary reason given by students to this question was that they liked technology. This was 24% of the technology students. Additionally, 19 % of the students ranked building projects as a major factor in their decision to take technology education. Finally 15% of the students stated that they enjoyed technology education the previous school year.

After conducting this investigation, the data obtained supports the conclusion of this researcher. That is, on examination of the goals for the Virginia Department for Technology which recounts the reasons why students take technology education.

These goals are :

1. Identify the historical, current, and future development of technology and their impacts and potential on earth and in space.
2. Apply critical thinking processes to solve technological problems.
3. Use tools, material, and processes safely and efficiently.
4. Strengthen creative abilities, positive self-image, and individual potential in technology.

5. Explore occupations and educational programs for technology-oriented careers,
(Foundations of Technology Education, 1995, p. 266)

A review of the reason given by the students indicates that the goals are being accomplished. The program at Larkspur Middle School has, within the curriculum, objectives that satisfy the students and meet the goals of the Virginia Department of Education. By accomplishing the goals of the state of Virginia, the needs and the desires of the students are fulfilled.

RECOMMENDATIONS

Based upon the results and conclusions of this study, the researcher recommends the following:

1. All technology education teachers should develop a questionnaire to determine why their students enrolled in the technology program.
2. This data should be used as a measuring device to determine if the goals of the technology program are being accomplished.
3. The data collected should be used to advertise and recruit future students into the technology education program.
4. Middle school teachers should use the success their students are achieving and advise students to continue to enroll in technology education at the high school level.

BIBLIOGRAPHY

- Business Education Grades 6-12. Program Evaluation.* Education Resources Information Center (ERIC) Document 354358, 1993.
- Deal, Walter F. *TechNet. Connectivity in the Technology Lab.* *The Technology Teacher*, p. 25, March 1999.
- Elizabeth Pillsworth. *Time for Technology.* *The Technology Teacher*, p. 20, April 6, 1999.
- Gonzales, Ronald F. *The Perspectives of Technology Education.* The American Vocational Association Inc. Oct 1997, v72, n7, p. 60.
- Maley, Donald. *The Maryland Plan, The Study of Industry and Technology in the Junior High School* 1973, p. 2.
- Martin Eugene G. Editor *Foundations of Technology Education, 1944th Yearbook* 1995.
- Muth, K. Denise and Alvermann E. Donna. *Teaching and Learning in the Middle Grades.* Second Edition. 1999.
- Technology Education in New York State. *A New Basic for the 21st Century.* Education Resources Information Center (ERIC) Document ED329708.
- U.S. Department of Education, (1997a). *Education reform and students at risk.* Washington, DC: U.S. Department of Education, Office of Education Research and Improvement.
- Volti, Rudi. *Society and Technological Change.* Third Edition. 1995.

Appendixes

Appendix A-Sample Questionnaire

Appendix B-Total Students Responses for Selecting Technology Education

Appendix A

Sample Sixth Grade Questionnaire and Information Sheet

Introduction to technology education:

This is a nine-week exploratory course in which you will study the elements of technology, including tools, machines, materials, processes and sources of energy. Also you will explore one of the systems of technology: communication, production and manufacturing, or transportation technologies.

Dear Parents: It is everyone's desire to participate in an enriching and safe learning environment. To fulfill this expectation your child will receive instruction regarding all tools, machines, and materials that he or she will be utilizing during this nine week semester as Larkspur Middle School.

Parent's Signature: _____

Student Name: _____

Grade: _____

Address: _____

Birthday: _____

Hobbies / Interests: _____

Why did you sign up for this class? _____

Student's Signature: _____

Appendix A (Continued)

Sample Seventh Grade Questionnaire and Information Sheet

Inventions and Innovations:

This is a nine-week course in which students make projects or models of significant inventions that have advanced society and human potential. Students will follow formal procedures to create new solutions or inventions to solve problems.

Dear Parents: It is everyone's desire to participate in an enriching and safe learning environment. To fulfill this expectation your child will receive instruction regarding all tools, machines, and materials that he or she will be utilizing during this nine week semester as Larkspur Middle School.

Parent's Signature: _____

Student Name: _____

Grade: _____

Address: _____

Birthday: _____

Hobbies / Interests: _____

Why did you sign up for this class? _____

Student's Signature: _____

Appendix A (Continued)

Sample Eighth Grade Questionnaire and Information Sheet

Technical Systems:

This is an eighteen-week course in which students experience activities that help them use a systems approach to solve problems and understand technology.

Dear Parents: It is everyone's desire to participate in an enriching and safe learning environment. To fulfill this expectation your child will receive instruction regarding all tools, machines, and materials that he or she will be utilizing during this nine week semester as Larkspur Middle School.

Parent's Signature: _____

Student Name: _____

Grade: _____

Address: _____

Birthday: _____

Hobbies / Interests: _____

Why did you sign up for this class? _____

Student's Signature: _____

Appendix B

Sixth Grade Student Responses for Selecting Technology Education

1. I like making or building things	female: 06	male: 12	Total: 18
2. I thought it would be fun	female: 06	male: 05	Total: 11
3. I wanted to learn about technology	female: 04	male: 04	Total: 08
4. A relative said I should	female: 03	male: 00	Total: 03
5. I wanted to learn new information	female: 01	male: 02	Total: 03
6. I wanted to make rockets	female: 00	male: 02	Total: 02
7. I want to learn about machines	female: 00	male: 02	Total: 02
8. I thought technology might be interesting	female: 00	male: 02	Total: 02
9. I wanted to learn about electronics	female: 01	male: 01	Total: 02
10. I wanted to build a robot	female: 00	male: 02	Total: 02
11. My mother made me sign up	female: 00	male: 01	Total: 01
12. I like designing things	female: 01	male: 00	Total: 01
13. I like mechanical things	female: 00	male: 01	Total: 01
14. I like to create stuff	female: 00	male: 01	Total: 01
15. I am interested in computers	female: 00	male: 01	Total: 01
16. I wanted to use tools	female: 00	male: 01	Total: 01
17. I like doing things with my hands	female: 01	male: 00	Total: 01
18. I did not want to cook and sew	female: 00	male: 01	Total: 01
19. Technology is one of my hobbies	female: 00	male: 01	Total: 01
20. I want to be a computer engineer	female: 00	male: 01	Total: 01
21. I really want to learn about everything	female: 00	male: 01	Total: 01
22. Technology was something different	female: 01	male: 00	Total: 01
	Totals female: 24	male: 41	Total: 65

Appendix B (Continued)

Seventh Grade Student Responses for Selecting Technology Education

1. Technology is fun	female: 05	male: 16	Total: 21
2. I enjoyed Tech. Ed. the previous year	female: 12	male: 07	Total: 19
3. I like to build things	female: 06	male: 09	Total: 15
4. My friends said I should take Tech. Ed.	female: 06	male: 05	Total: 11
5. Technology is interesting	female: 03	male: 03	Total: 06
6. I wanted to learn about technology	female: 03	male: 02	Total: 05
7. I like working with wood.	female: 02	male: 02	Total: 04
8. I like experiencing new things	female: 02	male: 01	Total: 03
9. I wanted to build a race car	female: 01	male: 01	Total: 02
10. I wanted to learn about machines	female: 00	male: 02	Total: 02
11. I wanted to learn about electronics	female: 01	male: 00	Total: 01
12. I did not want to take language matters	female: 01	male: 01	Total: 01
13. I like making things with my hands	female: 01	male: 00	Total: 01
14. I thought it would be a good start toward my career in aerospace engineering:			
	female: 00	male: 01	Total: 01
15. I like technology and science	female: 01	male: 00	Total: 01
	Totals female: 44	male: 50	Total: 94

Appendix B (Continued)

Eighth Grade Student Responses for Selecting Technology Education

1. I like technology education	female: 04	male: 15	Total: 19
2. I like to make things	female: 01	male: 06	Total: 07
3. I like working with computers	female: 01	male: 03	Total: 04
4. I like to work with wood	female: 00	male: 03	Total: 03
5. I enjoyed technology the previous year	female: 01	male: 02	Total: 03
6. I wanted learn how to use tools	female: 00	male: 01	Total: 01
7. I like working with machines	female: 01	male: 00	Total: 01
8. I wanted to learn about technology	female: 01	male: 00	Total: 01
9. I wanted to learn how to build toys	female: 01	male: 00	Total: 01
10. Other classes were boring	female: 00	male: 01	Total: 01
11. I like to draw	female: 00	male: 01	Total: 01
12. Technology was the best class available	female: 00	male: 01	Total: 01
13. I wanted to make projects	female: 00	male: 01	Total: 01
14. I liked the different things in the class	female: 00	male: 01	Total: 01
15. I am good with my hands	female: 00	male: 01	Total: 01
16. I love electronics	female: 00	male: 01	Total: 01
17. My dad signed me up for the class	female: 01	male: 00	Total: 01
18. The teachers are nice	female: 01	male: 00	Total: 01
19. Technology is better than French 1	female: 00	male: 01	Total: 01
	Totals female: 12	male: 38	Total: 50