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A Study to Determine the Reasons Why Old Dominion University Military Career Transition Program Students Selected Certification to Teach Technology Education as a Second Career

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A STUDY TO DETERMINE THE REASONS WHY

OLD DOMINION UNIVERSITY

MILITARY CAREER TRANSITION PROGRAM STUDENTS

SELECTED CERTIFICATION TO TEACH

TECHNOLOGY EDUCATION AS A SECOND CAREER

A Reasearch Paper

Presented To The Graduate Faculty of

the Department of Occupational and Technical Studies

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In Partial Fulfillment

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Master of Science in Education Degree

By

Michael G. Owen

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SIGNATURE PAGE

This research paper was prepared by Michael G. Owen 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 of Education.

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i

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-Michael G. Owen-

Table of Contents

Table of Tables

Table of Tables

CHAPTER I

INTRODUCTION

Technological changes in society are challenging the education system to raise standards for student learning, improve teaching methods, provide more and higher qualified teachers, transform school structures to enhance individual student successes, and decentralize decision making to facilitate problem solving at the lowest possible level: the school site. School reform is motivated by an increasing technologically dependent society where students who do not achieve technological literacy in the classroom will not be able to survive in the technological work place, and societies that do not succeed at technology education will not survive in the global marketplace.

The Hudson Institute (1987), in an analysis of workforce requirements for the twenty- first century, projected that 50% of the job market will require post secondary education and 90% will require as a minimum a high school education that ensures student technological literacy (p. 1). Today's technological society requires a technological literate work force that can solve problems, manage complexity, find and use resources, and learn and apply evolving technologies.

This paradigm shift in our schools has created a demand for professional technology educators. This demand is exacerbated by the current and projected teacher shortages. Survey findings (May 1996) released by Recruiting New Teachers Inc., on behalf of the Urban Teachers Collaborative, revealed that in the next ten years, America will have to hire two million new teachers due to the expected retirement of half of the nation's teachers in the same period (p. 1). At the same time, it is estimated that by 2006 student enrollment will grow from 54 million to 57 million (U.S. Department of Education, 1995, p. 72). To

alleviate this shortage, alternative teacher licensure programs have been developed. At Old Dominion University, the Military Career Transition Program was established as an alternatiive teacher liscensure program providing a means for separating or retiring military professionals to become certified teachers. One option available for the Military Career Transition Program students is liscensure in technology education as their second career choice.

Statement Of the Problem

The problem of this study was to determine the reasons why current Old Dominion University Military Career Transition Program technology education graduate students selected certification to teach technology education as a second career.

Research Goals

In order to guide this study to determine the reasons current Old Dominion University Military Career Transition Program graduate students selected certification to teach technology education as a second career, the following questions were posed:

1. What were the prime factors that influenced the current Military Career Transition Program students to choose technology education certification in lieu of a traditional core curriculum certification?

2. What are the psychological type preferences of the Military Career Transition Program students who chose liscensure as a technology education teacher.

3. What were the significant strengths and weaknesses of the Old Dominion University technology education program?

4.   What are the current student's recommendations to enhance curriculum requirements and improve student satisfaction?

Background and Significance

The Military Career Transition Program was established as an alternative teacher certification program to train senior enlisted and officer personnel that will soon be retiring or separating from the military as a result of the Department of Defense drawdown to become teachers. The program was designed specifically for each candidate based on his/her academic and military training. The Military Career Transition Program is comprehensive as it provides for the training and development of the prospective teacher ensuring counseling, advising, placement assistance and career mentoring. The Military Career Transition Program seeks to provide a solution to the current and projected teacher shortages by synergizing the broad based experiences of military personnel into the classroom. Military personnel spend a large part of their careers either as students or as instructors. They have been exposed to military training, instructional training, multicultural sensitivity, substance abuse prevention, motivational theory, management by objective, accountability, assessment, counseling skills and a broad understanding of technology (Military Career Transition Program, 1997, p. 20).

Military personnel who desire to teach as a second career and pursue liscensure through the Military Career Transition Program can apply for teacher certification in one of five areas:

1.   Early Childhood (K-4)

2.   Middle School (4-8)

3. Secondary Education

4. Special Education (K-12)

5. Technology Education

This researcher has chosen to examine the Military Career Transition Program in relation to the technology education licensure program. In the Technology for All Americans Executive Summary (1996), technology education is described as human innovation in action. This involves the generation of knowledge and processes to develop systems that solve problems and extend human capabilities (p. 1). The National Research Council (1996) suggests that attainment of technological literacy is best achieved through our nations schools (p. 4). They envision an articulated hands-on program that enables students to achieve technological literacy by working with a broad spectrum of technological devices and processes. In an effort to achieve a unified technology education curriculum, the National Science Foundation and the National Aeronautics and Space Administration are funding an effort spearheaded by the International Technology Education Association entitled Technology for All Americans which recommends that school systems across the country develop an effective technological literacy program for grades K-12 (Satchwell and Dugger, 1996, p. 2). If this vision of technology education is implemented, and technology education becomes a core curriculum subject, it will require an increased number of professional technology educators. Military Career Transition Program students by the very nature of their training are excellent candidates for technology educators. Therefore, the need of this study is important to determine the factors that have influenced Old Dominion University Military Career Transition Program students to choose licensure as a technology

teacher as a second career. The results will provide data that will enable the Occupational and Technical Studies Department to evaluate the effectiveness of their program with respect to program content, program context, student recruitment and perceived strengths and weaknesses.

Limitations

The following limitations were recognized as having an effect on the outcome of this research project:

1. This research study was limited to current Military Career Transition Program students enrolled at Old Dominion University in the graduate technology education certification program.

2. The response to the survey instrument used was a limiting factor to the study.

Assumptions

The results of this research study were based on the following assumptions:

1. It was assumed that all of the persons surveyed would respond truthfully to the questions asked.

2. Students can objectively evaluate their likes and dislikes of the current technology education certification curriculum.

3. The recommendations to improve the technology education curriculum are based on sound academic principles vice personal preferences and personalities.

Procedures

In order to conduct this study, the researcher had to obtain the names of current Old Dominion University Military Career Transition Program graduate students currently enrolled in the technology education certification program. A survey was developed and distributed with a cover letter briefly explaining the research project and a stamped return envelope. The questions on the survey were developed with the intent to answer the goals of this research project. The information provided as a result of the questionnaire was used to categorize the likes and dislikes of the current technology education curriculum and to evaluate whether content or context changes should be made to the current instructional methodology.

Definition of Terms

The following is a list of terms used by this researcher that may have a special meaning or inference to the data presented in this study. To ensure the proper interpretation of the terms, refer to the following definitions:

1. **Military Career Transition Program** - A teacher training program designed for senior enlisted and officer personnel that are transitioning from the military as a result of retirement or early separation.

2. **Technology Education** - The school discipline for the study of the application of knowledge and resources to solve problems and extend human potential with the content consisting of past, present and future technological advancements (The Technology Education Curriculum K-12, 1992, Virginia Council on Technology Education for the 21st Century, p. 6).

3. **Technology** - Human innovation in action that involves the generation of

knowledge and processes to develop systems that solve problems an extend human capabilities (Technology for All Americans: Executive Summary (p. 1)

4.   **Second Career** - Job held by a person after successful completion of a military career.

Summary and Overview

Chapter I has presented an overview of the Military Career Transition Program and introduced the field of technology education. The research study was developed and designed to determine the reasons current Old Dominion University Military Career Transition Program technology education graduate students selected certification to teach technology education as a second career field instead of a traditional core curriculum subject. The researcher selected the descriptive research methodology utilizing the survey method to gather the raw data required to complete the study. Chapter II will provide a summary and review of the relevant literature on the Military Career Transition Program as an alternative certification program and the study of type preference in relation to career selection. Chapter III specifically analyzes and explains the methodology and procedures used to gather and interpret the data relevant to the research goals. Chapter IV is a summary and descriptive presentation of findings. Chapter V is a summation of the research study, the researchers conclusions and recommendations for possible future studies in the research area.

CHAPTER II

REVIEW OF LITERATURE

The literature reviewed for this chapter comes from the current and relevant

literature on education. This chapter will discuss: 1) The Military Career Transition

Program as an alternative teacher certification program, 2) Psychological type preference

and learning styles in reference to career selection and 3) Summary.

Military Career Transition Program

as an

Alternative Teacher Certification Program

The Military Career Transition Program is an alternative teacher certification

program established in 1989 at Old Dominion University (MacDonald, 1994, p. 21). It is

one of many alternative teacher certification programs that evolved as a result of

projected teacher studies completed in the 1980's by the National Center for Education

Statistics that projected:

- Elementary and then secondary school enrollment would increase

- Attrition rates for teachers would rise

- No more teachers would study to be teachers than did in the decade of the 80's

- A substantial number of teachers would soon reach retirement age.

Criticized initially as emergency quick teacher fill programs based on reaction

rather than teacher preparation, alternative teacher certification programs have evolved to

programs that are specifically designed to recruit adults that have a bachelors degree in

fields other than teaching into the teaching profession (Feistritzer, 1993, p. 21). The

National Center for Education Information has been tracking the evolution and status of

alternative teacher certification programs since 1983. In 1983, eight states reported they

were implementing alternatives to the college teacher education program route for

certifying teachers. The number rose to 33 in 1990. In 1991, seven additional states

reported they were implementing an alternative teacher certification program, and New

York withdrew its implementation status. This resulted in 39 states that were

implementing alternative teacher certification programs in 1991. In 1992, the number

had risen to 40 (Feistritzer, 1993, p. 26). In reviewing over 25 articles published on

alternative teacher certification programs this researcher has concluded that many in

academia have published well stated pro and con opinions on alternative teacher

certification programs. However, as discussed with Emily Feistritzer (personal

interview, March, 1997), founder of the National Center for Education Information, there

is a general lack of quantitative research to substantiate the long term reliability and

accuracy of the published opinions.

Stoddart and Folden (1995) summarized the prevalent pro and con opinions on

alternative teacher certification programs. Proponents of alternative teacher certification

hold that current teacher training has been ineffective in recruiting and retaining quality

educators. They feel that traditional teacher training consists of too much pedagogical

theory and too little practical preparation. They argue that academia has been slow to

embrace program design change and establish teacher mentorships. Critics of alternative

teacher certification programs submit that subject matter expertise does not automatically

confer the ability to teach. They feel that teaching expertise is gained through a rigorous

program of institutionalized pedagogical theory consisting of classroom management, instructional strategies and discipline. They believe preservice programs, inservice programs and restructuring classroom techniques in order to improve teaching skills should be the focus instead of alternative teacher certification programs. They also believe that alternative teacher certification programs dilute the professionalism of the teaching ranks (p. 14).

Traditional teacher certification advocates pose that teachers certified via an alternative certification program are weak in curriculum development, classroom management, attending to students with different learning styles and do not have the ability to motivate students (Darling-Hammond, 1992, p. 131). But, regardless of the criticism, alternative teacher certification programs have created an opportunity for mid career individuals that desire to teach. Littleton and Holcomb (1994) evaluated this new potential pool of teachers as more mature than traditional beginning teachers, having significant real world experiences that were valuable to the teaching profession (p. 38). Eldefelt (1994) states that teaching requires greater maturity than a typical college graduate possesses and current curriculums should be changed to incorporate and develop life experiences and maturity (p. 221). The number of individuals being certified through alternative routes is growing rapidly. Feistritzer (1994) reported that from 1985-1993 fifty thousand teachers were certified through alternative programs administered by institutions of higher learning. In field surveys conducted by the National Center for Education Information, 85% of school board presidents, 82% of superintendents, 77% of public school principals and 88% of private school principals favored alternative

certification routes for perspective teachers who already hold a bachelors degree in a field

other than education (Feistritzer, 1993, p. 25).

Houston, Marshall and McDavid (1993) in a two year study of first year teachers

analyzed and compared the perceptions of 69 first year traditionally certified teachers to

162 alternatively certified teachers. Their research findings indicated that after eight

months on the job, no significant differences were noted in six key areas: the ability to

motivate students, the ability to manage classroom time, the amount of paperwork, the

ability to interact with administration, lack of personal time and the ability to effectively

grade students (p. 88). Additionally, Stevens and Dial (1993) completed a qualitative

study of alternatively certified teachers. In an interview format, alternatively certified

teachers were questioned regarding their background, impressions of education, their

decision to teach and their ability to positively impact students. The comparisons

indicated that alternatively certified teachers were comparable to traditionally certified

teachers in retention, student achievement, classroom performance and subject matter

knowledge.

Despite successes the opponents argue the point that alternative teacher

certification programs eliminate state liscensure, require no formal education course work

and allow immediate entry into the classroom, and must be eliminated. Wise (1994),

summarized the opponents of alternative teacher certification programs position that

states issuing alternative teacher certification program licensees have established policies

that have decreased quality, eliminated accountability and bypassed teacher attainment of

rigorous standards that must be met by those who practice in the field of education (p.

141). He further argues that alternative teacher certification programs should be developed in the context of one principle objective that teachers should only be recommended for liscensure upon graduation from a professionally accredited institution of higher learning (p. 142).

In an effort to provide state education administrators with a concise guide, classifications and qualifications of alternative teacher certification programs, the National Center for Education Information (1991) developed an alternative teacher certification program classification system that categorized alternative teacher certification programs into eight distinct categories. These include:

Class A: Programs to attract talented individuals who hold bachelor's degrees in fields other than education into elementary and secondary education. These programs are not restricted to shortages, secondary grade levels, or subject areas; they involve teaching with a trained mentor and contain formal pedagogical instruction during the school year and/or summer school.

Class B: Certification routes to bring talented individuals who already hold bachelor's degrees into teaching. These programs involve formal instruction and mentoring; states restrict such programs to shortage areas and/or secondary grade levels and /or subject matters.

Class C: Review of academic and professional background transcripts for those who already hold bachelor's degrees. Programs involve individually designed inservice and course-taking to teach competencies for certification; *the state and/or local districts have the major responsibility for program design.*

Class D: Review of academic and professional background transcripts for those who already hold bachelor's degrees. Such programs include individually designed inservice and course-taking for certification: *institutions of higher education have the major responsibility for program design.*

Class E: Post-baccalaureate programs based at institutions of higher education.

Class F: Emergency route programs. These programs provide emergency certificates or issue waivers that allow individuals to teach - usually without supervision while taking courses for full certification.

Class G: Programs for those with few requirements left for full certification, such as those moving to other states or desiring to receive additional education endorsements.

Class H: Routes for "special people" with qualifications, such as well-known authors or statesmen.

Feistritzer (1994) classified true alternative teacher certification programs into two classes: "A" and "B". Twenty-one states currently have class "A" and "B" programs (Feistritzer, 1994, p. 135). In an effort to further identify the essential elements of an alternative teacher certification program, Littleton and Holcomb (1994, p. 38), and McKibbin and Ray (1994, p. 206), hold that alternative teacher certification programs should include as a minimum:

- Collaboration between the college of education program administrators, teacher mentors, instructors and be monitored constantly for content and context legitimacy.

- The program must be selective in its admissions process, establishing procedures to assess perspective teachers ability to become a classroom teacher.

- The program should include adequate teacher preparation training and most importantly provide for follow on professional development.

- The program should use mentor teachers to assist the perspective teacher.

- The program should have clearly defined standards of effectiveness monitored to ascertain how well the program lives up to expectations.

- The program must have strong support from administration.

Military Career Transition Program

The Military Career Transition Program, designed by Old Dominion University is a class "A" alternative teacher certification program. The content and context of the Military Career Transition Program meets all of the essential elements identified by Littleton and Holcomb (1994) and McKibbin and Ray (1994). MacDonald (1994) holds that six features of the Military Career Transition Program distinguish it from conventional teacher education (pp. 22-24):

- The role of counselors: Counselors work with Military Career Transition Program students through all phases of the program, from initial exploration of education as a second career to placement seminars at the completion of training.

- Frequency of in school experiences: The Military Career Transition Program requires as a minimum six weeks of student teaching. Most students complete an additional 60 hours in small group tutorial and individualized instruction prior to entering the classroom.

- Use of master teachers as mentors: Master teachers serve as role models for perspective teachers and serve as supervisors for all field based experiences

associated with the Military Career transition Program.

- Range of certification areas available to graduates: Successful completion of the Military Career Transition Program can lead to liscensure in elementary, middle school, secondary school, special education or technology education.

- Time and location of classes: The classes are scheduled at times that are convenient to students who are currently employed as full time military professionals.

- Continuing collaboration among schools, State Department of Education, other university departments and military education offices: Two successes have resulted from the continuing collaboration effort. First, the collaboration has enabled the program to be successful and secondly it has led to program participants being offered early teaching contracts.

In summary alternative teacher certification program reform initiatives have created two opinionated fields of thought:

- Those who support traditional teacher certification insist the improvement in quality education depends on both professional knowledge and subject matter pedagogical training.

- Those who support alternative teacher certification programs insist that educational quality can be improved by inviting talented young people, or mid career personnel, into the field of education.

Psychological Type Preference

Researching Military Career Transition Program students preference for selecting technology education requires an understanding of choice. People make career decisions and form opinions based on their perceptions. To understand choice and perception requires an analysis of individual student psychological type preferences and learning styles. By understanding psychological type preferences and learning styles of Military Career Transition Program students, we may be able to gain insights into the reasons they choose technology education as their second career orientation. Psychological type theory provides a construct that explains individual propensities toward favored or natural behaviors and abilities.

The Myers-Briggs Type Indicator (MBTI) (Myers and McCaulley, 1985) and the Keirsey-Bates Temperament Sorter (Keirsey and Bates, 1984) are two of several instruments used to measure personality type preference. Based on Jungian psychological theory, the type preference instruments seek to determine how people consciously prefer to attend to the world, how they choose to perceive that to which they attend, and how judgments are made about those perceptions. Modeled after the Myers-Briggs Type Indicator (MBTI) (Myers & Briggs, 1975), the Keirsey-Bates Temperament Sorter provides a framework for determining predisposition's toward favored or natural tendencies in human behavior (Kiersey and Bates, 1984).

To understand type correlation's of Military Career Transition Program students as a function of MBTI, a brief explanation of type theory and term definition is presented

(Myers and McCaully, 1985, pp. 11-30). Jung's comprehensive theory as applied by Myers and Briggs and Kiersey and Bates is based in the belief that all people use four basic mental functions in daily life:

- (S) Sensing: mental activity that seeks experiences that are real

- (F) Feeling: mental activity that seeks imaginative experiences

- (N) Intuition: mental activity that seeks rational order based on impersonal logic

- (T) Thinking: mental activity that seeks rational order based on subjective values

The four processes (SNFT) are refereed to as orienting functions defined by Jung as "a particular form of psychic creativity that remains the same in principle under varying conditions" (Jung, 1923, p. 436). Each individual has one of the orienting functions as a dominate function. The way in which the dominate and submissive functions interact is based on an individuals judgment-perception (JP) and extroversion-introversion (EI).

- JP: A judging person is concerned with making decisions, seeking closure, planning operations or organizing activities. A perceptive person is open, curious and attuned to incoming information.

- EI: An extroverted person is action oriented, communicative and frank. An introverted person is interested in clarity of concept, thoughtful, contemplative and private.

Both the MBTI and KBTS allow separate indices for the basic preferences: extroversion (E), introversion (I), sensation (S), intuition (N), thinking (T), feeling (F), judging (J) and perception (P). Specific relationships between the dichotomous scales

lead to descriptions and characteristics for 16 separate psychological types. Personality

types are expressed by a four-letter composite that represents an individual's preference

on each of the four indices. The four personality dimensions, based on Jung's attitude

(extroversion and introversion) and functions (perception and judgment) are:

EI Index: Extroversion (E) Active involvement with people as a source of energy.

Perception and judgment are focused on people and things. Introversion (I) A preference

for solitude to recover energy. Perceptions and judgment are focused on concepts and

ideas. Seventy-five percent of the general population prefer an extroverted orientation,

while twenty-five percent prefer an introverted one.

SN Index: Sensing (S) Receiving or gathering information directly through use of

the five senses. Intuition (N) Perceiving things indirectly, through hunches or a "sixth

sense." Represents the unconscious incorporation of ideas or associations with outside

perceptions. Three-fourths of the general population report a sensing preference, while

the remaining one-fourth prefer intuition as a means of perceiving and gathering

information.

TF Index: Thinking (T) Drawing conclusions based on logical process using

impersonal and objective facts. Feeling (F) Drawing conclusions based on personal

values and subjective observations. The general population is divided equally between a

preference for thinking (50%) and feeling (50%).

JP Index: Judgment (J) A preference to live in a structured, orderly, and planned

fashion. Perception (P) A preference to live in a more spontaneous and flexible fashion.

Fifty percent of the general population report to be judging, while the other half report a preference for perception (Keirsey & Bates, 1984 and Myers & McCaulley, 1985).

Wicklien and Rojewski (1995) researched the relationship between professional orientation and psychological type preference. Their findings indicated four MBTI personality types -- ESTJ, ISTJ, ENTJ, and ENFJ -- accounted for 69% of all technology professionals included in their study. Industrial Arts educators (44% of the population) tested as ESTJ or ISTJ psychological types. Practical and realistic, these individuals tend to solve problems in a more concrete fashion, relying on past experiences, preferring organization and structure. In contrast, Technology Education professionals (25% of the sample) tested as ENTJ and ENFJ psychological types, preferring to solve problems conceptually through structured investigation and inquiry. These personality types rely more on intuition and the consideration of multiple possibilities when solving problems than other types. They tend to be structured and organized, yet a general concern for others is often evident.

In a similar study, Peterson and Custer (1994) analyzed the correlation of "Personality Styles, Job Satisfaction, and Retention of Teachers of Vocational Subjects". Their research reported findings that substantiate the work of Wicklein and Rojewski (1995). In a comparison of 117 vocational teachers to 1438 core subject teachers, their research indicated 45% of the vocational teachers were MBTI personality types: ISTJ (23%), ESTJ (15.38%), ENTJ (4%), and ENFJ (3%) (p. 26). This study revealed a clear pattern in the personality types of individuals that are attracted to teach in the vocational areas. The pattern is further substantiated by comparing job descriptions of the

vocational teacher to the main characteristics of the prevalent personality types.

In an effort to present a comprehensive analysis of personality types and career choice, Meyers and McCaulley (1985) compiled data from MBTI response sheets for a ten year period (1974-1984). The validity of this data analysis is noteworthy to researchers because the response sheets were completed by personnel actually working in the career field surveyed. Careers were correlated to personality type based on a minimum of 50 responses (p. 243). The results of this data compilation is a benchmark substantiating subsequent research into type personality and vocation, revealing that 57% of the vocational teachers sampled were personality types ESTJ (27.3%), ISTJ (18.49%), ENTJ (6.72% and ENFJ (4.2%) (Myers and McCaulley, 1985, pp. 261-292).

Summary

In the current context of educational reform, administrators, teachers and parents are examining technology education and the ramifications of making students technological literate. To affect this change requires a cadre of professional technology educators. Technology education as an education field that is selected based on individual preference. This chapter has examined the Military Career Transition Program as an alternative teacher certification program and the personality types associated with technology education. By further examining and understanding the literature pertaining to alternative teacher certification programs and personality type choice, policy makers can make and implement decisions that effect the technology education program and curriculum.

CHAPTER III

METHODS AND PROCEDURES

The purpose of this chapter was to present the methods and procedures that were

used to determine the reasons current Old Dominion University Military Career

Transition Program technology education graduate students selected certification to teach

technology education as a second career. A descriptive study using a survey

questionnaire was used to collect data. In this chapter the reader will find information on

the population, instrument design, methods of data collection, statistical analysis and

summary.

Population

The population of this study consisted of current Old Dominion University

Military Career Transition Program technology education graduate students. Based on

the small population of the Military Career Transition Program students, all current

technology education graduate students were included in the sample. The population for

this study was 55.

Instrument Design

A three part survey was designed and developed which consisted of closed ended

questions, open ended questions and the Kiersey-Bates personality profile instrument.

The opening section consisted of closed ended questions used to elicit the prime factors

that influenced the students to choose technology education teacher liscensure. The

second section consisted of open ended questions that enabled the respondents to list

recommendations to improve the content and context of the Old Dominion University

technology education program and curriculum. The third section of the survey instrument contained the Kiersey-Bates Temperament Sorter (KBTS) which was selected as the instrument to determine psychological type profiles of the current students. The KBTS is a 70 item forced choice questionnaire designed to elicit the respondents psychological type preference in relation to four indices: sensing/judging (SJ), sensing/perceptive (SP), intuitive/thinking (NT) and intuitive feeling (NF). This section was intended to provide data that would answer the research goals of the study which were:

1. What were the prime factors that influenced the current Military Career Transition Program students to choose technology education certification in lieu of a traditional core curriculum certification?

2. What are the psychological type preferences of the Military Career Transition Program students who chose liscensure as a technology education teacher?

3. What were the significant strengths and weaknesses of the Old Dominion University technology education program?

4. What are the current student's recommendations to enhance curriculum requirements and improve student satisfaction?

A copy of the instrument is included in Appendix A.

Methods of Data Collection

The survey was distributed to 55 current technology education Old Dominion University graduate students. The students were given ten days to respond before a

follow-up letter and a second survey instrument was mailed. Additionally, all participants were personally contacted via telephone by the researcher. A copy of the cover letter is provided in Appendix B and the follow-up letter is provided in Appendix C.

Statistical Analysis

To organize the results of the questionnaire for analysis, the data was compiled in a statistical format. The Old Dominion University Occupational and Technical Studies Department provided a data base that identified 65 current MCTP technology education graduate students. Of the initial 65 students seven had withdrawn from the program, two were not MCTP students and one was not a graduate student. This resulted in a sample size of 55 students. The 55 were surveyed and 33 students responded representing a 60 percent response rate.

The responses to the closed ended questions were tabulated utilizing a weighted mean. Each responses was assigned a value. One was assigned to the response strongly disagree. Two was assigned to the response agree. Three was assigned to the response uncertain. Four was assigned to the response agree. Five was assigned to the response strongly agree. A mean was calculated for each closed ended question using the assigned values. The responses to the open ended questions were listed in order of frequency of response. The Kiersey - Bates profile instrument was scored and the respondents personality profiles were tabulated by percentage. The psychological type preferences of the MCTP students were then compared to the psychological type preferences of technology educators and the general population at large.

Summary

This chapter presented the methods and procedures that this researcher used in the study. Chapter III included the population, instrument design, methods of data collection and statistical analysis. The findings of the survey will be presented in Chapter IV.

CHAPTER IV

FINDINGS

The purpose of this chapter was to present the information obtained from the survey conducted during the research. The problem of this study was to determine the reasons why Old Dominion University Military Career Transition Program graduate students selected licensure to teach technology education. The survey instrument was designed to answer the questions posed in the research goals. Included in the questionnaire portion of the survey instrument were questions related to personal information to determine the demographics of the sample population. Part one of this chapter will describe the demographic information collected.

Demographic Information From Respondents

The first two questions of the survey pertained to demographic information. The survey was sent to the entire population, 55 students. Of the 55 students surveyed 33 responded. The response rate represented 60 percent of the population. 97 percent of the respondents were male. Three percent were female. See Table 1.

TABLE 1			
Gender of Respondents	Number Surveyed	Number Responded	Response Percentage
Male	54	32	59%
Female	1	1	100%
Total	55	33	60%

The most common age group for the respondents was 41 to 50. 54 percent of the respondents fell into this age bracket. See Table 2.

TABLE 2		
Age Group	Respondents	Percentage
30 or Less	2	6%
31 - 40	9	27%
41 - 50	18	55%
51 - 60	4	12%
Total	33	100%

Survey Results

Question three identified how the respondents like of working with their hands

influenced their decision to choose technology education as a MCTP graduate program

option. The data presented in Table 3 indicates that the respondents attitude was

approaching agree with a mean of 3.9.

TABLE 3						
QUESTION		1	2	3	4	5	Mean
3	I chose to teach technology education because I like working with my hands.	1	2	4	17	9	3.9

Question four identified how the respondents like of working with hand tools

influenced their decision to choose technology education as a MCTP graduate program

option. The data presented in Table 4 indicates that the respondents attitude was

approaching agree with a mean of 3.8.

TABLE 4						
QUESTION		1	2	3	4	5	Mean
4	I chose to teach technology education because I like working with hand tools.	2	3	3	16	9	3.8

Question five focused on how the respondents attitudes toward solving problems

influenced their decision to choose technology education as a MCTP graduate program

option. The data presented in Table 5 indicates that the respondents attitude was

approaching agree with a mean of 4.3.

TABLE 5						
QUESTION	1	2	3	4	5	Mean
5 I chose technology education because I like solving problems.	0	0	3	14	16	4.3

Question six focused on how the respondents attitudes toward projects influenced

their decision to choose technology education as a MCTP graduate program option. The

data presented in Table 6 indicates that the respondents attitude was approaching agree

with a mean of 4.3.

TABLE 6						
QUESTION	1	2	3	4	5	Mean
6 I chose technology education because I like projects.	0	1	1	16	15	4.3

Question seven addressed how the respondents attitudes toward practical problem

solving influenced their decision to choose technology education as a MCTP graduate

program option. The data presented in Table 7 indicates that the respondents attitude was

approaching agree with a mean of 4.3.

TABLE 7						
QUESTION	1	2	3	4	5	Mean
7 I chose technology education because I am practical in my approach to problem solving.	0	1	1	16	15	4.3

Question eight addressed how the respondents attitudes toward realistic solutions

to problem solving influenced their decision to choose technology education as a MCTP

graduate program option. The data presented in Table 8 indicates that the respondents

attitude was approaching agree with a mean of 4.2.

TABLE 8						
QUESTION	1	2	3	4	5	Mean
8 I chose technology education because I am realistic when considering solutions to a problem.	0	0	6	15	12	4.2

Question nine indicated how the respondents attitudes toward structure and

organization when solving problems influenced their decision to choose technology

education as a MCTP graduate program option. The data presented in Table 9 indicates

that the respondents attitude was approaching agree with a mean of 3.8.

TABLE 9						
QUESTION	1	2	3	4	5	Mean
9 I chose technology education because I am structured and organized when solving problems.	1	3	7	13	9	3.8

Question ten indicated how the respondents attitudes toward relying on past

experiences when solving problems influenced their decision to choose technology

education as a MCTP graduate program option. The data presented in Table 10 indicates

that the respondents attitude was agree with a mean of 4.1

TABLE 10						
QUESTION	1	2	3	4	5	Mean
10 I chose technology education because I rely on past experiences when solving problems	1	2	4	16	11	4.1

Question eleven indicated how the respondents reliance on concepts when solving

problems influenced their decision to choose technology education as a MCTP graduate

program option. The data presented in Table 11 indicates that the respondents attitude

was uncertain approaching agree with a mean of 3.6.

TABLE 11							
QUESTION		1	2	3	4	5	Mean
11	I chose technology education because I rely on concepts when solving problems.	0	2	13	12	6	3.6

Question twelve focused on the relationship between technology education and

military duties as a factor in the respondents choosing technology education as a MCTP

graduate program option. The data presented in Table 12 indicates that the respondents

attitude was disagree approaching uncertain with a mean of 2.9.

TABLE 12							
QUESTION		1	2	3	4	5	Mean
12	I chose technology education because it related to my duties in the military.	6	10	6	3	8	2.9

Question thirteen identified if the respondents like of technology education in

school influenced their decision to choose technology education as a MCTP graduate

program option. The data presented in Table 13 indicates that the respondents attitude

was uncertain with a mean of 3.1.

TABLE 13							
QUESTION		1	2	3	4	5	Mean
13	I chose technology education because I liked it in school.	4	7	9	7	6	3.1

Question fourteen identified if the respondents interpretation of their past

technology education teachers as roll models influenced their decision to choose

technology education as a MCTP graduate program option. The data presented in Table

14 indicates that the respondents attitude was approaching uncertain with a mean of 2.8.

TABLE 14							
QUESTION		1	2	3	4	5	Mean
14	I chose technology education because I thought of my past technology teachers as good role models.	8	8	6	5	6	2.8

Question fifteen identified if the Old Dominion University program briefs and

counseling sessions influenced the respondents decision to choose technology education

as a MCTP graduate program option. The data presented in Table 15 indicates that the

respondents attitude was approaching agree with a mean of 3.7.

TABLE 15							
QUESTION		1	2	3	4	5	Mean
15	I chose technology education because of the Old Dominion University program briefs and counseling sessions.	1	8	3	11	10	3.7

Question sixteen focused on the availability of technology education teaching jobs

as a motivator to choose technology education as a MCTP graduate program option. The

data presented in Table 16 indicates that the respondents attitude was approaching agree

with a mean of 3.6.

TABLE 16							
QUESTION		1	2	3	4	5	Mean
16	I chose technology education because of the abundance of jobs available in the field.	3	6	4	14	7	3.6

Question seventeen identified the respondents attitudes on the Old Dominion

University technology education facilities as a reason for selecting technology education

as a MCTP graduate program option. The data presented in Table 17 indicates that the

respondents attitude was approaching uncertain with a mean of 2.8.

TABLE 17						
QUESTION	1	2	3	4	5	Mean
17 I chose technology education because of the technology facilities available at Old Dominion University	1	11	9	6	4	2.8

Table 18 summarizes the data tabulated from questions three through seventeen.

TABLE 18						
1. Strongly disagree 2. Disagree 3. Uncertain 4. Agree 5. Strongly agree						
QUESTION	1	2	3	4	5	Mean
3 I chose to teach technology education because I like working with my hands.	1	2	4	17	9	3.9
4 I chose to teach technology education because I like working with hand tools.	2	3	3	16	9	3.8
5 I chose technology education because I like solving problems.	0	0	3	14	16	4.3
6 I chose technology education because I like projects.	0	1	1	16	15	4.3
7 I chose technology education because I am practical in my approach to problem solving.	0	1	1	16	15	4.3
8 I chose technology education because I am realistic when considering solutions to a problem.	0	0	6	15	12	4.2
9 I chose technology education because I am structured and organized when solving problems.	1	3	7	13	9	3.8
10 I chose technology education because I rely on past experiences when solving problems	1	2	4	16	11	4.1
11 I chose technology education because I rely on concepts when solving problems.	0	2	13	12	6	3.6
12 I chose technology education because it related to my duties in the military.	6	10	6	3	8	2.9
13 I chose technology education because I liked it in school.	4	7	9	7	6	3.1
14 I chose technology education because I thought of my past technology teachers as good role models.	8	8	6	5	6	2.8
15 I chose technology education because of the Old Dominion University program briefs and counseling sessions.	1	8	3	11	10	3.7
16 I chose technology education because of the abundance of jobs available in the field.	3	6	4	14	7	3.6
17 I chose technology education because of the technology facilities available at Old Dominion University	1	11	9	6	4	2.8

Questions eighteen, nineteen and twenty were open ended questions. Question

eighteen asked the respondents to list five perceived weaknesses of the technology

education program. The 33 respondents indicated 59 perceived weaknesses in the

technology education program. The data presented in Table 19 summarizes the responses

by number and frequency.

TABLE 19		
Number	**Response**	**F**
1	Equipment in classrooms old and outdated	8
2	Lack of emphasis on teaching "teaching skills"	7
3	Lack of subject knowledge by teachers	6
4	Inconsistent course offerings	3
5	Curriculum development skills not taught	3
6	Lack of teacher devotion to curriculum	3
7	Student lack of computer skills detract from instruction	2
8	Courses too expensive	2
9	Classroom activities lack challenge	2
10	Poor counseling	2
11	Poor course structure	2
12	Student teaching time requirement too long	1
13	Use of Lab 2000 vice Synergistics Lab	1
14	Program industrial arts oriented vice technology oriented	1
15	Too many training sites	1
16	Course workload too much for students with full time jobs	1
17	Technology education courses isolated from main campus	1
18	One week practicum too short	1
19	Eliminate mechanical drawing	1
20	Some professors hard to contact	1
21	Offer more internships at certification level	1
22	Need more computers	1
23	No administrative support	1
24	Instruction on use of power tools inadequate	1
25	Not enough emphasis on electronics	1
26	Limited direction on thesis requirements	1
27	Program not supportive of students	1
28	Program not flexible	1
29	Program chair not accessible	1
30	Tech Ed academic standards perceived lower than other curriculums	1

Question 19 asked the respondents to list the significant strengths of the program. The 33 respondents indicated 93 perceived weaknesses in the technology education program. The data presented in Table 20 summarizes the responses by number and frequency.

TABLE 20		
Number	**Response**	**Freq**
1	Quality of instructors	23
2	Quality of facility	7
3	Excellent counseling	7
4	Employment opportunity on completion of program	7
5	Excellent curriculum	5
6	Use of problem solving activities in curriculum	5
7	Program emphasizes a hands on approach	5
8	Classes are interesting	5
9	Scheduled classes are convenient	5
10	Class scheduling	5
11	Course topics related to real world	4
12	Strong core subjects	3
13	Application to both math and science	3
14	Group projects	2
15	Application of theory	2
16	Program interesting to men and women	1
17	Job satisfaction	1
18	Program reputation	1
19	Growth industry	1
20	Good value	1

Question 20 asked the respondents to list the one change they would make to improve the technology education curriculum. The 33 respondents suggested 33 changes to the technology education program. The data presented in Table 21 summarizes the 33 responses by number and frequency.

TABLE 21		
Number	Response	Freq
1	Improve curriculum to teach teacher "teaching" skills	6
2	OTED 789 should always be a 16 week course	4
3	Improve facilities	2
4	Establish more remote sites	2
5	Make AUTOCAD a requirement	2
6	Improve teacher quality	2
7	More weekend classes	2
8	Provide counseling in job networking	1
9	Do not require the GMAT or GRE as a prerequisite	1
10	Make Industrial Design a required course	1
11	Make internship a requirement for graduation	1
12	Update the courses	1
13	Make curriculum applicable to every day life	1
14	Include bio-technology and ecology	1
15	Make technology education a core subject in school	1
16	Offer more courses each semester	1
17	Lower graduation requirements	1
18	Replace the Lab 2000 with the Synergistics Lab	1
19	Increase the use of computers	1
20	None	1

Kiersey-Bates Personality Profile Results

The Kiersey-Bates personality profile instrument was given to compare the

psychological type of the respondents to the psychological type of technology educators

in the general population and the general population as a whole. Table 22 summarizes

this comparison. 73 percent of the respondents were ESTJ as compared to 28 percent of

the technology educators in the general population and 13 percent in the general

population as a whole. Six percent of the respondents were ESFJ as compared to four

percent of the technology educators in the general population and 13 percent in the

general population as a whole. Three percent of the respondents were ENTJ as compared

to 16 percent of the technology educators in the general population and five percent in the general population as a whole. Three percent of the respondents were ENTP as compared to six percent of the technology educators in the general population and five percent in the general population as a whole. Six percent of the respondents were ENFJ as compared to 16 percent of the technology educators in the general population and five percent in the general population as a whole. Six percent of the respondents were ENFP as compared to eight percent of the technology educators in the general population and five percent in the general population as a whole. Three percent of the respondents were ISTJ as compared to 11 percent of the technology educators in the general population and six percent in the general population as a whole. There were no personality types ESTP, ESFP, ISTP, ISFJ, ISFP, INTS, INTP, INFJ or INFP among the respondents.

TABLE 22				
MBTI TYPE	MCTP Tech Ed Students n=33		Technology Educators	General Population
	n	(%)	(%)	(%)
ESTJ	24	73	28	13
ESTP	0	0	2	13
ESFJ	2	6	4	13
ESFP	0	0	0	13
ENTJ	1	3	16	5
ENTP	1	3	6	5
ENFJ	2	6	16	5
ENFP	2	6	8	5
ISTJ	1	3	11	6
ISTP	0	0	0	6
ISFJ	0	0	3	6
ISFP	0	0	0	6
INTJ	0	0	3	1
INTP	0	0	0	1
INFJ	0	0	1	1
INFP	0	0	2	1

Summary

In conclusion, the questionnaire contained 17 closed ended questions, three open ended questions and a 70 question Kiersey-Bates temperament sorter. The survey was designed to elicit information on demographics and answer the research goals of the study. The findings of the survey were tabulated and presented in a format that would be easily interpreted and understood by the reader.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The problem of this study was to determine the reasons why current Old Dominion University Military Career Transition Program technology education graduate students selected certification to teach technology education as a second career. This chapter summarizes the entire study, draws conclusions and makes recommendations based on the findings.

In order to guide this study to determine the reasons current Old Dominion University Military Career Transition Program graduate students selected certification to teach technology education as a second career, the following goals were established at the beginning of the study:

1. What were the prime factors that influenced the current Military Career Transition Program students to choose technology education certification in lieu of a traditional core curriculum certification?

2. What are the psychological type preferences of the Military Career Transition Program students who chose liscensure as a technology education teacher?

3. What were the significant strengths and weaknesses of the Old Dominion University technology education program?

4. What are the current student's recommendations to enhance curriculum requirements and improve student satisfaction?

Today's technological society requires a technological literate work force that can solve problems, manage complexity, find and use resources, and learn and apply evolving technologies. To support this ever increasing technological dependent society, professional technology educators are required to ensure technological literacy is achieved in the classroom. This study examined the reasons current Old Dominion University Military Career Transition Program graduate students selected certification to teach technology education as a second career. The data compiled and analyzed as a result of this study can be used to improve the Old Dominion University technology education program.

The accuracy of this research project was impacted by the following limitations:

1. This research study was limited to current Military Career Transition Program students enrolled at Old Dominion University in the graduate technology education certification program.

2. The response to the survey instrument used was a limiting factor to the study.

The study targeted a specific population. The population selected for this study comprised 55 current Old Dominion University Military Career Transition Program graduate students pursuing certification to teach technology education as a second career.

In order to collect the data required to complete this study, a three part survey was designed and developed which consisted of closed ended questions, open ended questions and the Kiersey-Bates personality profile instrument. The opening section consisted of closed ended questions used to elicit the prime factors that influenced the students to choose technology education teacher liscensure. The second section consisted of open

ended questions that enabled the respondents to list recommendations to improve the content and context of the Old Dominion University technology education program and curriculum. The third section of the survey instrument contained the Kiersey-Bates Temperament Sorter (KBTS) which was selected as the instrument to determine psychological type profiles of the current students. A cover letter explaining the research project, the survey instrument and the Kiersey-Bates Temperament Sorter was mailed to the population via U. S. mail.

To organize the results of the questionnaire for analysis, the data was compiled in a statistical format. The Old Dominion University Occupational and Technical Studies Department provided a data base that identified 65 current MCTP technology education graduate students. Of the initial 65 students seven had withdrawn from the program, two were not MCTP students and one was not a graduate student. This resulted in a sample size of 55 students. The 55 were surveyed and 33 students responded representing a 60 percent response rate.

The responses to the closed ended questions were tabulated utilizing a weighted mean. Each responses was assigned a value. One was assigned to the response strongly disagree. Two was assigned to the response agree. Three was assigned to the response uncertain. Four was assigned to the response agree. Five was assigned to the response strongly agree. A mean was calculated for each closed ended question using the assigned values. The responses to the open ended questions were listed in order of frequency of response. The Kiersey - Bates profile instrument was scored and the respondents personality profiles were tabulated by percentage. The psychological type preferences of

the MCTP students were then compared to the psychological type preferences of technology educators and the general population at large.

Conclusions

The conclusions of this study were based on the findings of the survey instrument. The first section of the survey instrument provided demographic information. The data obtained from this section can be used to identify an average respondent. The typical respondent in this research study was male, age 41 to 50.

The first goal of the study posed, **what were the prime factors that influenced the current Military Career Transition Program students to choose technology education certification in lieu of a traditional core curriculum certification?** The findings from the statistical tabulation of the data from section one of the survey (15 closed ended questions) fell into three categories that influenced MCTP students to choose technology education certification. Category one, indicated five significant factors, weighted mean agree (4.0) to approaching strongly agree (5.0). Category two, consisted of seven factors, weighted mean uncertain (3.0) to approaching agree (4.0). Category three, consisted of three factors, weighted mean disagree (2.0) to approaching uncertain (3.0).

Category One

Significant Factors	Weighted Mean
1. Respondents like for problem solving.	4.3
2. Respondents like for projects	4.3
3. Respondents practical approach to problem solving	4.3
4. Respondents realistic expectations to problem solutions	4.2

5. Respondents reliance on past experiences   4.1

The findings in this category identified perspective teacher preferences that support the concepts of technology education discussed in Chapter I. Concepts based on the belief that today's technological society requires a cadre of professional technology educators that can teach students the methodologies required to solve problems, manage complexity, find and use technological resources, and learn and apply new technologies. The five significant factors listed above are indicative of the goals of technology education that challenges educators to teach children how to apply knowledge and resources to solve problems and extend human potential by using past experiences and present and future technological advancements.

Category Two

Significant Factors	Weighted Mean
1. Respondents like of working with their hands	3.9
2. Respondents like of working with hand tools	3.8
3. Respondents structured and organized	3.8
4. Quality of program briefs and counseling	3.7
5. Reliance on concepts when solving problems	3.6
6. Because of the abundance of jobs in the field	3.6
7. Respondent liked technology education in school	3.1

The findings in this category identified perspective teacher preferences that match the National Research Council's philosophy and methodology of technology education. A philosophy that supports technology education that is attained by establishing technological

literacy via an articulated hands on program of problem solving using a spectrum of technological devices and processes.

Category Three

Significant Factors	Weighted Mean
1. Technology education related to military duties	2.9
2. Past technology teachers were good role models	2.8
3. Technology facilities at Old Dominion University	2.8

The findings in this category indicate that military duties, the influence of current students former technology education teachers and the facilities at Old Dominion University are not significant factors that influenced perspective technology educators.

The second goal of the study posed, **what are the psychological type preferences of the Military Career Transition program students who chose liscensure as a technology education teacher?** The findings in this category indicate that the majority of the respondents (73%) were of psychological type preference ESTJ. A psychological type preference normally associated with industrial arts educators. Respondents identified as ESTJ psychological type preference are extroverted, action oriented and communicative. They prefer gathering information through the use of their five senses. Respondents of this type prefer a logical objective problem solving style that relies on factual information. In contrast to the industrial arts ESTJ type preference, most technology educators are of the type preference ENTJ and ENFJ. Only nine percent of the current MCTP students were of type preference ENTJ and ENFJ. Respondents of this type preference prefer to solve problems conceptually through structured investigation and inquiry while considering

multiple solutions.

The third goal of the study posed, **what were the significant strengths and weaknesses of the Old Dominion University technology education program?** The respondents provided 20 perceived strengths and 30 perceived weaknesses of the technology education program that are listed below in order of frequency of response:

Strengths

Number	Response	Frequency
1.	Quality of instructors	23
2.	Quality of facility	7
3.	Excellent counseling	7
4.	Employment opportunity on completion of program	7
5.	Excellent curriculum	5
6.	Use of problem solving activities in curriculum	5
7.	Program emphasizes a hands on approach	5
8.	Classes are interesting	5
9.	Scheduled classes are convenient	5
10.	Class scheduling	5
11.	Course topics related to real world	4
12.	Strong core subjects	3
13.	Application to both math and science	3
14.	Group projects	2
15.	Application of theory	2

16.	Program interesting to men and women	1
17.	Job satisfaction	1
18.	Program reputation	1
19.	Growth industry	1
20.	Good value	1

The main suggestion that can be gathered from this list of perceived strengths of the technology education program is that current MCTP students are satisfied with the curriculum, quality of instructors, counseling, employment opportunity and the facility. The data indicates that the MCTP is meeting the goals of the Old Dominion University MCTP as discussed in Chapter I. In addition, based on the responses, the MCTP is meeting individual student expectations as well as program goals.

The respondents provided 30 perceived weaknesses of the technology education program that are listed below in order of frequency of response:

Weaknesses

Number	Response	Frequency
1.	Equipment in classrooms old and outdated	8
2.	Lack of emphasis on teaching "teaching skills"	7
3.	Lack of subject knowledge by teachers	6
4.	Inconsistent course offerings	3
5.	Curriculum development skills not taught	3
6.	Lack of teacher devotion to curriculum	3

7.	Student lack of computer skills detract from instruction	2
8.	Courses too expensive	2
9.	Classroom activities lack challenge	2
10.	Poor counseling	2
11.	Poor course structure	2
12.	Student teaching time requirement too long	1
13.	Use of Lab 2000 vice Synergistics Lab	1
14.	Program industrial arts oriented vice technology oriented	1
15.	Too many training sites	1
16.	Course workload too much for students with full time jobs	1
17.	Technology education courses isolated from main campus	1
18.	One week practicum too short	1
19.	Eliminate mechanical drawing	1
20.	Some professors hard to contact	1
21.	Offer more internships at certification level	1
22.	Need more computers	1
23.	No administrative support	1
24.	Instruction on use of power tools inadequate	1
25.	Not enough emphasis on electronics	1

26.	Limited direction on thesis requirements	1
27.	Program not supportive of students	1
28.	Program not flexible	1
29.	Program chair not accessible	1
30.	Tech Ed academic standards perceived lower	1

The main suggestion that can be gathered from this list of perceived weaknesses of the technology education program is that current MCTP students are dissatisfied with the age of the equipment in the classroom, lack of emphasis on teaching "teaching" skills, a perceived lack of subject knowledge by the staff and a lack of teaching curriculum development.

The fourth goal of the study posed, **what are the current student's recommendation to enhance curriculum requirements and improve student satisfaction?** The respondents provided 20 recommended enhancements to the technology education program listed below by frequency of response:

Enhancements

Number	Response	Frequency
1.	Improve curriculum to teach teacher "teaching" skills	6
2.	OTED 789 should always be a 16 week course	4
3.	Improve facilities	2
4.	Establish more remote sites	2
5.	Make AUTOCAD a requirement	2
6.	Improve teacher quality	2

7.	More weekend classes	2
8.	Provide counseling in job networking	1
9.	Do not require the GMAT or GRE as a prerequisite	1
10.	Make Industrial Design a required course	1
11.	Make internship a requirement for graduation	1
12.	Update the courses	1
13.	Make curriculum applicable to every day life	1
14.	Include bio-technology and ecology	1
15.	Make technology education a core subject in school	1
16.	Offer more courses each semester	1
17.	Lower graduation requirements	1
18.	Replace the Lab 2000 with the Synergistics Lab	1
19.	Increase the use of computers	1
20.	None	1

All suggestions made by the respondents have merit and could be included into the program to enhance the students educational experience. However, the suggestion to improve the curriculum to include classes that teach classroom management techniques and curriculum development is a common thread throughout the respondents comments on the technology education program.

Recommendations

Based on the findings and conclusions of this study, the following suggestions are

made to improve the MCTP technology education curriculum:

Suggested Improvements

- The Old Dominion University Occupational and Technical Studies Department should expand their excellent counseling and recruitment polices by placing a higher emphasis on recruiting female MCTP students into the technology education program.

- The Old Dominion University Occupational and Technical Studies Department should modify the technology education curriculum requirements to include additional classes that teach classroom management techniques and curriculum development.

- The Old Dominion University Occupational and Technical Studies Department should modify the technology education curriculum subject content to teach students conceptual problem solving techniques vice factual problematic techniques.

- The Old Dominion University Occupational and Technical Studies Department should establish a technology education curriculum prerequisite that ensures all students entering the program have the same computer technology skills.

- The Old Dominion University Occupational and Technical Studies Department should establish a phased replacement program targeted at replacing outdated equipment and lab modules with current state of the art training aids.

Suggestions for Additional Research

- A study to compare traditionally educated technology education teachers to alternatively certified technology education teachers abilities in classroom management techniques, curriculum development processes and their abilities to attend to students with different learning styles.

- A study to compare problem solving ability and problem solving methodology of industrial arts teachers and technology education teachers based on psychological type preference.

- A study of Old Dominion University MCTP graduate students attitudes toward the teaching profession one year after initial employment.

- A study to compare and evaluate student problem solving abilities in three technology education environments: the Synergistics Lab, LAB 2000 and the traditional classroom setting.

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APPENDIX A

SURVEY INSTRUMENT

A Study of
OLD DOMINION UNIVERSITY
Technology Education Students

Purpose: This survey is designed to provide specific information concerning the reasons Old Dominion University Military Career Transition Program students chose certification to teach technology education as a second career.

Directions: In part one fill in the bubble corresponding to your answer. In part two provide a brief concise answer in the space provided. In part three complete the inventory as directed. Do not score your answers in part three.

Part One

1. **What is your age?**
   O 30 or less   O 51-60
   O 31-40   O over 60
   O 41-50

2. **What is your sex?**
   O Male
   O Female

Please select the answer that most approximates your reason for selecting technology education.
1. Strongly disagree   3. Uncertain   5. Strongly agree
2. Disagree   4. Agree

3. **I chose to teach technology education because I like working with my hands.**
   1. O   2. O   3. O   4. O   5. O

4. **I chose to teach technology education because I like working with hand tools.**
   1. O   2. O   3. O   4. O   5. O

5. **I chose technology education because I like solving problems.**
   1. O   2. O   3. O   4. O   5. O

6. **I chose technology education because I like projects.**
   1. O   2. O   3. O   4. O   5. O

7. **I chose technology education because I am practical in my approach to problem solving.**
   1. O   2. O   3. O   4. O   5. O

8. **I chose technology education because I am realistic when considering solutions to a problem.**
   1. O   2. O   3. O   4. O   5. O

9. **I chose technology education because I am structured and organized when solving problems.**
   1. O   2. O   3. O   4. O   5. O

10. **I chose technology education because I rely on past experiences when solving problems.**
    1. O   2. O   3. O   4. O   5. O

11. **I chose technology education because I rely on concepts when solving problems.**
    1. O   2. O   3. O   4. O   5. O

12. **I chose technology education because it related to my duties in the military.**
    1. O   2. O   3. O   4. O   5. O

13. **I chose technology education because I liked it in school.**
    1. O   2. O   3. O   4. O   5. O

14. **I chose technology education because I thought of my past technology teachers as good role models.**
    1. O   2. O   3. O   4. O   5. O

15. **I chose technology education because of the Old Dominion University program briefs and counseling sessions.**
    1. O   2. O   3. O   4. O   5. O

16. **I chose technology education because of the abundance of jobs available in the field.**
    1. O   2. O   3. O   4. O   5. O

17. **I chose technology education because of the technology facilities available at Old Dominion University.**
    1. O   2. O   3. O   4. O   5. O

Part Two

18. **Based on your opinion, list the five perceived weaknesses of the technology education program.**

       1.

       2.

       3.

       4.

       5.

19. **Based on your opinion, list the five significant strengths of the technology education program.**

       1.

       2.

       3.

       4.

       5.

20. **Given the opportunity, what would be the one change you would make to improve the technology education curriculum.**

Part Three

21. **Complete the attached inventory. <u>Do not score the inventory</u>.**

_____ (for follow up)
      Name

1 At a party do you
(a) interact with many, including strangers
(b) interact with a few, known to you

2 Are you more
(a) realistic   (b) philosophically inclined

3 Are you more intrigued by
(a) facts   (b) similes

4 Are you usually more
(a) fair minded   (b) kind hearted

5 Do you tend to be more
(a) dispassionate   (b) sympathetic

6 Do you prefer to work
(a) to deadlines   (b) just "whenever"

7 Do you tend to choose
(a) rather carefully   (b) somewhat impulsively

8 At parties do you
(a) stay late, with increasing energy
(b) leave early, with decreased energy

9 Are you a more
(a) sensible person   (b) reflective person

10 Are you more drawn to
(a) hard data   (b) abstruse ideas

11 Is it more natural for you to be
(a) fair to others   (b) nice to others

12 In first approaching others are you more
(a) impersonal and detached
(b) personal and engaging

13 Are you usually more
(a) punctual   (b) leisurely

14 Does it bother you more having things
(a) incomplete   (b) completed

15 In your social groups do you
(a) keep abreast of others' happenings
(b) get behind on the news

16 Are you usually more interested in
(a) specifics   (b) concepts

17 Do you prefer writers who .
(a) say what they mean
(b) use lots of analogies

18 Are you more naturally
(a) impartial   (b) compassionate

19 In judging are you more likely to be
(a) impersonal   (b) sentimental

20 Do you usually
(a) settle things   (b) keep options open

21 Are you usually rather
(a) quick to agree to a time
(b) reluctant to agree to a time

22 In phoning do you
(a) just start talking
(b) rehearse what you'll say

23 Facts
(a) speak for themselves
(b) usually require interpretation

24 Do you prefer to work with
(a) practical information
(b) abstract ideas

25 Are you inclined to be more
(a) cool headed   (b) warm hearted

26 Would you rather be
(a) more just than merciful
(b) more merciful than just

27 Are you more comfortable
(a) setting a schedule   (b) putting things off

28 Are you more comfortable with
(a) written agreements (b) handshake agreements

29 In company do you
(a) start conversations (b) wait to be approached

30 Traditional common sense is
(a) usually trustworthy (b) often misleading

31 Children often do not
(a) make themselves useful enough
(b) daydream enough

32 Are you usually more
(a) tough minded   (b) tender hearted

33 Are you more
(a) firm than gentle   (b) gentle than firm

34 Are you more prone to keep things
(a) well organized   (b) open-ended

35 Do you put more value on the
(a) definite   (b) variable

36 Does new interaction with others
(a) stimulate and energize you
(b) tax your reserves

37 Are you more frequently
(a) a practical sort of person
(b) an abstract sort of person

38 Which are you drawn to
(a) accurate perception
(b) concept formation

39 Which is more satisfying
(a) to discuss an issue thoroughly
(b) to arrive at agreement on an issue

40 Which rules you more:
(a) your head   (b) your heart

41 Are you more comfortable with work
(a) contracted
(b) done on a casual basis

42 Do you prefer things to be
(a) neat and orderly   (b) optional

43 Do you prefer
(a) many friends with brief contact
(b) a few friends with longer contact

44 Are you more drawn to
(a) substantial information
(b) credible assumptions

45 Are you more interested in
(a) production   (b) research

46 Are you more comfortable when you are
(a) objective   (b) personal

47 Do you value in yourself more that you are
(a) unwavering   (b) devoted

48 Are you more comfortable with
(a) final statements   (b) tentative statements

49 Are you more comfortable
(a) after a decision   (b) before a decision

50 Do you
(a) speak easily and at length with strangers
(b) find little to say to strangers

51 Are you usually more interested in the
(a) particular instance (b) general case

52 Do you feel
(a) more practical than ingenious
(b) more ingenious than practical

53 Are you typically more a person of
(a) clear reason   (b) strong feeling

54 Are you inclined more to be
(a) fair-minded   (b) sympathetic

55 Is it preferable mostly to
(a) make sure things are arranged
(b) just let things happen

56 Is it your way more to
(a) get things settled   (b) put off settlement

57 When the phone rings do you
(a) hasten to get to it first
(b) hope someone else will answer

58 Do you prize more in yourself a
(a) good sense of reality
(b) good imagination

59 Are you drawn more to
(a) fundamentals   (b) overtones

60 In judging are you more usually more
(a) neutral   (b) charitable

61 Do you consider yourself more
(a) clear headed   (b) good willed

62 Are you more prone to
(a) schedule events (b) take things as they come

63 Are you a person that is more
(a) routinized   (b) whimsical

64 Are you more inclined to be
(a) easy to approach (b) somewhat reserved

65 Do you have more fun with
(a) hands-on experience
(b) blue sky fantasy

66 In writings do you prefer
(a) the more literal   (b) the more figurative

67 Are you usually more
(a) unbiased   (b) compassionate

68 Are you typically more
(a) just than lenient   (b) lenient than just

69 Is it more like you to
(a) make snap judgments
(b) delay making judgements

70 Do you tend to be more
(a) deliberate than spontaneous
(b) spontaneous than deliberate

Answer Sheet

Enter a check for each answer in the column for a or b.

	A	B		A	B		A	B		A	B		A	B		A	B		A	B
1			2			3			4			5			6			7		
8			9			10			11			12			13			14		
15			16			17			18			19			20			21		
22			23			24			25			26			27			28		
29			30			31			32			33			34			35		
36			37			38			39			40			41			42		
43			44			45			46			47			48			49		
50			51			52			53			54			55			56		
57			58			59			60			61			62			63		
64			65			66			67			68			69			70		

1   2 3   4 3   4 5   6 5   6 7   8 7   8

E I   S N   T F   J P

Directions for Scoring:

First add the check marks in the "A" columns and place the sums in the boxes at the bottom of the columns. Do the same for the "B" columns.

Next transfer the number in box No. 1 to box No. 1 below the answer sheet (see lower left corner of the sample answer sheet). Do the same for box No. 2. Note, however, that you have two numbers for boxes 3 through 8. Bring down the first number for each box beneath the second, as indicated by the arrows. Now add all the pairs of numbers and enter the total in the boxes below the answer sheet, so each box has only one number.

Now you have four pairs of numbers. Circle the letter below the larger number of each pair, as shown in the sample answer sheet on the following page. (If two numbers of any pair are equal, then put a large X below them and circle it. If your score for N is equal to your score for S, then the test did not accurately identify your personality. You might try another test, such as the *Brief Test of Character Traits.*)

APPENDIX B

COVER LETTER

A Study Of
OLD DOMINION UNIVERSITY
Technology Education Students

June 22, 1997

Dear _____,

As a current Old Dominion University Military Career Transition Program graduate student in technology education I am seeking your assistance in a study to determine why you selected technology education as your teaching liscensure field. This study is required in partial fulfillment of the requirements for my Master of Science in Education Degree, and the results will be beneficial to ensure the continuing success of the Military Career Transition Program technology education option.

As a current Military Career Transition Program graduate technology education student your response to this survey instrument is *critical* to its success. With the results I hope to determine what changes can be made to enhance the content, context and methodology of the technology education curriculum. Please, take a few moments from your busy schedule and complete the enclosed questionnaire. Your answers and participation will be kept anonymous.

Please return the completed questionnaire in the self addressed stamped envelope provided by July 1, 1997. If you have any questions regarding this study or the survey instrument please contact me at the phone numbers listed below.

Thank you very much for taking the time to participate.

Sincerely,

Michael G. Owen
1531 Ave Degrasse
Norfolk, VA 23509
(757) 622-2952 (H)
(757) 444-4885 (W)

APPENDIX C

FOLLOW UP LETTER

APPENDIX C

**A Study Of
OLD DOMINION UNIVERSITY
Technology Education Students**

April 17, 1997

Dear Student,

Recently you received a survey and were asked to participate as a respondent in my research project concerning Old Domonion University technology education students. If you have already returned it, I again would like to thank you for your help. This study would not be possible without your *valuable* input.

If you have not completed and returned the survey, *please* take a few minutes and do so. **Without your help I cannot complete my study.**

Thanks again!

Michael G. Owen