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# A Study of Technology Teacher Education Graduate Programs and Their Philosophical Focus

Frederick Simpson Gard  
*Old Dominion University*

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**A STUDY OF  
TECHNOLOGY TEACHER EDUCATION  
GRADUATE PROGRAMS  
AND THEIR  
PHILOSOPHICAL FOCUS**

**A Research Paper  
Presented to the Graduate Faculty  
of the Department of Occupational and Technical Studies  
at Old Dominion University**

**In Partial Fulfillment  
Of the Requirements for the Degree  
Master of Science in Education**

**by  
Frederick Simpson Gard  
July 1994**

## SIGNATURE PAGE

This research paper was prepared under the direction of Dr. John M. Ritz, Graduate Advisor. It is submitted to the Graduate Program Director for Secondary Education in partial fulfillment of the requirements for the Degree of Master of Science in Education.

Date: 7-27-94

Approved by: John M. Ritz

John M. Ritz, Ed.D.

Graduate Advisor and

Graduate Program Director

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# **CHAPTER I**

## **INTRODUCTION**

There are many aspects to consider when determining which institution to attend for graduate study. Considerations include location of the institution, intended major, number of students enrolled, affordability, and reputation of the institution to name a few. However, the aspect which needs to be first and foremost when inquiring about graduate studies should be the ability of a particular program to provide the most beneficial education possible. This paper focuses on master's level technology teacher education graduate programs at institutions approved by the National Council for Accreditation of Teacher Education (NCATE). After a review of programs offered at different institutions, one will be able to make a more knowledgeable selection about where to pursue an advanced degree.

### **STATEMENT OF THE PROBLEM**

The problem of this study was to determine the philosophical focus and program emphasis of graduate programs in technology teacher education at NCATE approved institutions.

## **RESEARCH GOALS**

The purpose of this study was:

1. To identify the philosophical focus of technology teacher education graduate programs at institutions approved by NCATE.
2. To determine the program emphasis at different institutions approved by NCATE for a graduate technology teacher education program.

## **BACKGROUND AND SIGNIFICANCE**

This study has been undertaken in an effort to review the philosophical focus of graduate programs in a technology teacher education program at institutions accredited by NCATE. Individuals entering the graduate level of their education usually have goals they would like to reach during their schooling. Graduate studies should provide the individual with the chance to ascertain these goals and even go beyond those limits with the assistance of established professors operating at institutions meeting the rigorous requirements necessary for accreditation. "There is a need for graduate programs in technology education which challenge the students to distinguish themselves by their independence of judgement and to have a lively concern for the theory of knowledge." (Starkweather, 1980, pg. 18)

Students should choose an institution which will provide them with the greatest amount of personal and academic development and growth in their area of study. In

identifying the philosophical focus of a graduate program, students should be able to make a sound decision based on their educational needs. The institution of choice should be one which will allow each student to develop personally as well as professionally with an emphasis being placed on knowledge gained and a complete understanding of the philosophical focus of the technology teacher education program. (Starkweather, 1980, pg. 18)

### **LIMITATIONS OF THE STUDY**

This study is limited to institutions accredited by NCATE with a graduate program related to technology teacher education. Other institutions will not be considered for research. The other limiting factor will be the responses given by the institutions from which the information is requested. The results of this study will enable one to make a wise decision about which institution to attend for a graduate degree in technology teacher education.

### **BASIC ASSUMPTIONS**

Various philosophies shape program development on the graduate level in technology teacher education. Therefore diversity in program emphasis is seen at various institutions. Along with perceived goals, graduate students have certain philosophical views they would like to develop. Students in search of higher education usually do so

in an effort to gain knowledge in the content area and to personally develop their philosophical views in the subject area. Institutions not allowing for these goals to be met by each student are not allowing for the full development of individuals seeking higher education.

### **PROCEDURES FOR TREATING DATA**

Data for this study was obtained from institutions accredited by NCATE and from data monitored by the Council on Technology Teacher Education (CTTE). A questionnaire was developed regarding program requirements and a telephone survey was conducted with those technology teacher education program institutions. A course concentration sheet was also requested from each institution contacted. Requirements needed for the completion of a graduate degree were reviewed in an effort to determine the philosophical focus from which the program was developed.

### **DEFINITION OF TERMS**

There are several terms used in this study which may be unfamiliar to the reader.

These terms are as follows:

1. **NCATE** - National Council for Accreditation of Teacher Education.
2. **CTTE** - Council for Technology Teacher Education.

3. Accreditation - "...the requirement of a level of professional education that fosters competent practice of graduates, and encourages institutions to meet rigorous academic standards of excellence in professional education..." (Allred and Coombs, 1993, p. 165)
4. Philosophical focus (theoretical point of view) - Philosophical focus in this study will encompass professional development, research, and technological specification as critical cores of a graduate program.

### **OVERVIEW OF CHAPTERS**

This chapter identifies the need for reviewing the philosophical focus of technology teacher education programs on the graduate level at different institutions. There are variations in programs depending on which institution one is attending. It is important to identify the program which will fit the needs of a particular individual. With so many variables, one should make a careful selection when determining which institution to attend.

Chapter II will establish the need for determining the philosophical focus of technology teacher education programs and the graduate program emphasis at various institutions. This section will be entitled "Review of Literature". Chapter III will be entitled "Methods and Procedures". Its purpose will be to outline the procedures for obtaining data. Chapter IV will be centered around documenting the results of the findings. This chapter will be entitled "Findings". Lastly, Chapter V, entitled

"Summary, Conclusions, and Recommendations", will be used to summarize the research findings. In this section the researcher will also convey the conclusions of the research and provide recommendations for program improvement.

## **CHAPTER II**

### **REVIEW OF LITERATURE**

The goal of this study is to determine the philosophical focus and graduate emphasis of programs of study in technology education at institutions approved by NCATE. In an effort to determine the philosophical focus, it will be necessary to first identify the components considered in a master's degree program at various institutions. When students are considering which institution to attend, it is also important for them to consider those which offer program flexibility allowing graduate students to develop skills appropriate to their personal philosophical focus. (Lux, 1975, p. 397)

#### **EARLY TECHNOLOGY TEACHER EDUCATION PROGRAMS**

Before identifying the current focus of the master's degree program in technology teacher education, the researcher will first identify the evolution of graduate studies in vocational education. In the late eighteenth hundreds, skilled craftsmen were recruited to become teachers in an effort to train students to become skilled workers. During this era the program we call technology education was then referred to as manual training. With this method of study, many problems arose. Manual training often lacked teaching objectives. The areas of course content and methods of instruction were vague and left many unanswered questions in the student's training. Manual training at the undergraduate level was not successfully providing students with the professional

capabilities to resolve such issues. Therefore, it became apparent in order to improve the professional status of the program, it would be necessary to establish post graduate and research programs.

### **EARLY GRADUATE PROGRAMS**

After years of persistent efforts to establish a graduate program following an undergraduate degree in manual training, graduate programs in industrial education began to emerge at numerous institutions. In 1920, the University of Wisconsin became one of the first major universities to offer a graduate degree with a major in manual arts. Other schools such as Ohio State and Oklahoma A & M soon began to offer graduate programs in industrial education. According to Bohn and Norman (1961, pp. 90-91) "...graduate study in industrial education became a recognized part of this country's educational program in the late twenties and has grown steadily, with interruptions occurring only during the depression years and the second world war."

Industrial arts education programs at the graduate level are well established in many major universities and colleges throughout the country with growth continuing. The graduate program in technology education at Old Dominion University began in 1974. (Davenport, 1980, p. 2) Wright points out that there is "...widespread agreement that the transition from a craft oriented focus to a highly technological approach will require new content which is conceptually based, activity centered and future oriented, encompassing unique problem solving experiences for all students." (Jones and Wright

1980, p. 3)

### **PHILOSOPHICAL FOCUS**

The philosophical focus of graduate studies should be geared toward three specific, yet interrelated, cores to include professional development, research, and technological specialization. Professional core courses might include "... history and philosophy, curriculum development, instructional strategies, supervision, and educational foundations." (Ritz, 1980, p. 20 ) The research core includes courses in methods along with data collection and analysis. Some universities require a research paper while others do not. "...Technology based graduate programs require students to engage in critical analysis of the broad systems of technology (transportation, production, communication, energy, materials and processes) or the specialization within one." (Ritz, 1980, p.20)

Though a focus has been determined as far as course content, program flexibility on the graduate level is important in order to meet the needs of and accommodate the differences seen in both individuals and in undergraduate programs. (Lopez 1961, p.138) Because variations exist between undergraduate and graduate technology programs across the nation, students often find themselves lacking competencies to attain a successful education on the graduate level at certain institutions. Students pursuing graduate studies should take into consideration the philosophical focus of the program content before choosing a particular institution.

One major emphasis in a technology teacher education program is to look at courses which draw from other disciplines. In an effort to satisfy this need, institutions focus on the professional core to provide students with a beneficial education. Realizing the importance of interrelatedness of other disciplines with technology, it is necessary to develop a curricula which offers a broad range of information for each student. Each area of focus is considered only a part of the total picture of the educational process. In order for an individual to become a successful teacher, it is essential for that person to develop a broad knowledge base which has stemmed from a variety of other disciplines. For instance, the study of history is an attempt to familiarize students with characteristics which have allowed humans to develop a knowledge base to adequately solve problems through one's intellect, social institutions, science and technology. (Champion, 1961, p. 144) Programs which stress interrelatedness between curricula yield more well-rounded graduates.

The research emphasis in technology education graduate programs plays a vital role in the professional development of the students. "Any profession, or for that matter, any endeavor, that wishes to grow, gain new insights and relationships, accumulate new knowledge, and search for truth, must engage actively in research." Although the technology education profession has certainly been involved in research, there continues to be a need for academic involvement in this arena. (Bohn and Norman, 1961, p. 120) One benefit from research in any area of study is that it enables the researcher to gain insights and understandings which have value in determining the future direction in an individual's chosen field. "Within the research core are courses in methods of data

collection and analysis, which are handled differently at most universities." (Ritz, 1980, p. 20) An important element of any graduate program is not only course content, but how well the individual enrolled in the program utilizes the content provided. (Starkweather, 1980, p. 80) To further support an interrelatedness in program emphasis, it is essential for graduate students involved in research studies to have a firm understanding of statistics in order to have the capabilities to interpret significant data.

Technological specification, or the technical core, is the most important focus in the master's program. This is the portion of the graduate program which should be an expression of the student's goals. The technical core of any graduate program will vary slightly depending on the philosophical focus of both the student and the institution. In 1961, in an attempt to meet the needs of an ever changing society, Wayne Champion established a three-option graduate core which would meet the various needs of students enrolling in a vocational program. (1961, p. 144) The cores mentioned were Pre-Vocational, Craftsmen and Creativity, and the Scientific-Technological Orientation. Each core was designed to cater to students who were interested in pursuing a particular focus area in the vocational field.

With rapidly changing times, the Pre-Vocational and Craftsmen and Creativity cores are, for the most part, outdated. The technology education teacher of today needs to be very knowledgeable and well rounded not just in vocational education but in other disciplines as well. It is difficult to establish core studies for graduate work in technology education because of the ever changing nature of the subject areas. Bearing this in mind, this particular field of study is under continual revision in order to meet the

rapidly changing needs of a technologically advancing society.

For one to be prepared to teach technology education, it is crucial they have a "sound understanding of the sciences, business matters, economics and sociology and the most complete understanding of the contemporary industrial method. (Champion, 1961, p. 148) Students need to have a general understanding of traditional industry, however, extensive laboratory hours are usually required at the undergraduate level. Emphasis at the graduate level should be placed on the professional development and research cores.

## SUMMARY

The progression of technology education has been evolutionary as it has transitioned from an industry to a technology content base. Further development and study is only limited by our imagination as the opportunities for research, curriculum development, and leadership are explored. (Wright, 1986, p. 218)

## **CHAPTER III**

### **METHODS AND PROCEDURES**

The purpose for this chapter is to identify the methods used to determine the philosophical focus of graduate programs in technology teacher education at institutions approved by NCATE and the graduate emphasis of such programs. A descriptive study was conducted utilizing a telephone interview to gather data for this study. This chapter outlines the methods and procedures used to facilitate the completion of this study.

#### **POPULATION**

The population in this study consisted of 24 institutions approved by the ITEA/CTTE groups to give NCATE program accreditation in technology teacher education. The institutions chosen for this study were acquired from a list of identified NCATE approved technology teacher education programs listed in Appendix A.

#### **INSTRUMENT DESIGN**

In an effort to determine the philosophical focus of graduate programs in technology teacher education at institutions approved by NCATE and the graduate program emphasis, a telephone interview was designed and administered to the 24 institutions identified as accredited. The interview consisted of two sections. The first

section was designed to determine the philosophical focus of graduate studies in the technology teacher education program at each institution. Utilizing the "Industrial Teacher Education Directory," the researcher telephoned 24 institutions with NCATE accreditation. A listing of institutions contacted is included in the appendix along with the interview questions. (Appendix B)

The second section of the questionnaire was used to identify the course requirements for students enrolled in graduate studies in technology teacher education. Participants were asked to FAX or mail a copy of their concentration requirements to the researcher. University catalog descriptions of their courses were also requested.

### **METHODS OF DATA COLLECTION**

Using the "Industrial Teacher Education Directory," a telephone interview was conducted with the institutions holding NCATE Technology Education accreditation. The researcher recorded verbal answers for section one of the interview which included two questions. A request was made for information to be FAXed or mailed for section two.

### **METHODS OF STATISTICAL ANALYSIS**

In reviewing the responses of the interview, the data from both sections were analyzed. Section one was analyzed to determine if the institution had a graduate program in technology education and the degree emphasis of that program. After

tabulating the results of the interview, numbers and percentages were calculated for the two questions in this section. The second section of the interview, involving the information sent to the researcher, was reviewed to determine the philosophical focus for each institution responding.

## **SUMMARY**

This chapter focused on the design and administration of the instrument. The results from the telephone conversation and the information sent to the researcher were analyzed to determine the philosophical focus of graduate technology teacher education programs at institutions approved by NCATE and to determine the course requirements of each institution. The results of the interview may be found in Chapter IV of this study.

## CHAPTER IV

### FINDINGS

Chapter IV of the study contains the statistical results of the telephone interviews conducted with 24 NCATE accredited institutions designed to determine technology teacher education graduate programs and their philosophical focus. The telephone interview consisted of a brief statement of introduction and purpose of the research. Section one involved two questions related to the availability of graduate study in technology teacher education and the degree emphasis options available. Section two made a request for information to be sent to the researcher via FAX or mail concerning the program study concentration and required courses for the completion of the graduate degree. University catalog descriptions of course offerings were also requested.

As indicated in Table 1, 24 NCATE accredited institutions were contacted. Responses were received from 21 institutions or 88 percent of the population. The number of useable responses from accredited institutions totaled 18 or 75 percent.

**TABLE 1**  
**RESPONSES TO TELEPHONE INTERVIEW**

Number Contacted	Number of Responses	% of Responses	Number of Useable Responses	% Useable Responses
24	21	88	18	75

Responses to section one (Table 2) of the telephone interview indicated that 18 of the 24 institutions or 75 percent answered "yes" to the question regarding whether their institution offered a graduate program in technology education. Three institutions, Elizabeth City State University, Trenton State College and the University of Wisconsin at Platteville answered "no" to this question. Trenton State College in New Jersey indicated that their graduate technology program had been temporarily cancelled. Rhode Island College, Saint Cloud State University and The University of Nebraska at Kearney were unavailable for questioning.

In Table 3, the researcher identified the program option that guides the graduate degree emphasis in Technology Teacher Education at each institution. Currently, none of the institutions contacted offer a graduate degree emphasis in General Education or Industrial Arts. Four or 22 percent of the institutions surveyed offer a graduate degree emphasis in Industrial Technology. Of the eighteen useable responses, eight or 44 percent offer a graduate degree emphasis in Technology Education. Two or 11 percent of the useable responses offer a graduate degree emphasis in Vocational Education. Five or 28 percent of the institutions reported a program emphasis different from the ones mentioned in the questionnaire. Central Missouri State University offers a graduate degree emphasis in Industrial Vocational Education. Purdue University offers a graduate degree emphasis in Vocational Industrial Education. A Master of Arts in technology Education is offered at the University of Northern Iowa. Two Virginia institutions, Virginia State University and Virginia Polytechnic Institute, award graduate degrees in Vocational Technical Education.

**TABLE 2**

**GRADUATE PROGRAMS IN TECHNOLOGY TEACHER EDUCATION**

INSTITUTION	YES	NO
Ball State University, IN	X	
Bowling Green State University, OH	X	
California University of Pennsylvania, PA	X	
Central Missouri State University, MO	X	
Colorado State University, CO	X	
Eastern Michigan University, MI	X	
Elizabeth City State University, NC		X
Indiana State University, IN	X	
Kent State University, OH	X	
Millersville University, PA	X	
Norfolk State University, VA	X	
North Carolina State University, NC	X	
Old Dominion University, VA	X	
Purdue University, IN	X	
Rhode Island College, RI		NR
Saint Cloud State University, MN		NR
Trenton State College, NJ		X
University of Nebraska at Kearney, NE		NR
University of Northern Iowa, IA	X	
University of Wisconsin at Platteville, WI		X
University of Wisconsin at Stout, WI	X	
Virginia State University, VA	X	
Virginia Polytechnic Institute, VA	X	
Wayne State University, NE	X	

KEY: NR = No Response

**TABLE 3**

**DEGREE EMPHASIS AT INSTITUTIONS INTERVIEWED**

INSTITUTION	GEN ED	IND ARTS	IND TECH	TECH ED	VOC ED	OTHER
Ball St. U				X		
Bowling Gr.				X		
CA U of PA				X		
Central MO						IND VOC
CO St U			X			
E. MI U			X			
IN St U				X		
Kent St U				X		
Miller U PA				X		
Norf St U			X			
NCSU NC				X		
ODU VA				X		
Purdue U						VOC IND
U of N. IA						MA TECH
U of WI ST				X	X	
VA ST U						VTE
VA TECH						VTE
Wayne St U			X			

Course concentration sheets were received from ten or 56 percent of the useable responses (Table 4). Five or 50 percent of the responses revealed a program emphasis in the professional development core. Three or 30 percent of the institutions indicated a program emphasis in technological specialization. California University of Pennsylvania requires equal emphasis in the professional development and technical specialization cores. The University of Northern Iowa indicated a requirement of 12 credit hours in both research and technological specialization cores. Even though there were commonalities as noted in program emphases, each institution was unique in allowing for its own mixture of professional development, research and technological specialization courses and whether or not a thesis option was available.

## **SUMMARY**

This chapter reported and analyzed the results of the telephone interviews of 24 NCATE accredited institutions. Conclusions and recommendations will be made in Chapter V.

Table 4

**PHILOSOPHICAL FOCUS OF GRADUATE PROGRAMS  
IN TECHNOLOGY TEACHER EDUCATION**

INSTITUTIONS	PROFESSIONAL DEVELOPMENT	RESEARCH CORE	TECHNOLOGICAL SPECIALIZATION
CA U of PA	11-12 cr/hr	8 cr/hr	9-12 cr/hr
Central MO	18 cr/hr	3 cr/hr	12 cr/hr
E. MI U	14 cr/hr	2-6 cr/hr	10 cr/hr
IN St U	15 cr/hr	6-9 cr/hr	8 cr/hr
Miller U PA	9 cr/hr	6 cr/hr	15 cr/hr
Norf St U	18 cr/hr	9 cr/hr	12 cr/hr
NCSU NC	6 cr/hr	12 cr/hr	18-24 cr/hr
ODU VA	15 cr/hr	6 cr/hr	12 cr/hr
U of N.IA	6-9 cr/hr	12 cr/hr	12 cr/hr
Wayne St U	3 cr/hr	9 cr/hr	24 cr/hr

## **CHAPTER V**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

This chapter reports the summary, conclusions and recommendations of this study as a result of the research data. The data reviewed and analyzed in Chapter IV will be used to draw conclusions in Chapter V.

#### **SUMMARY**

Chapter I identified the need for reviewing the philosophical focus of technology teacher education programs at different institutions. Due to the variations in programs and individual needs, students pursuing a masters degree in technology teacher education need to choose the institution with care. Chapter II reviewed literature related to the graduate program emphases in technology teacher education programs. Findings relate that a transition has taken place from an industry to a technology content base. Developments for the future are only limited to findings of further research, curriculum development, and leadership opportunities. Chapter III outlined the procedures for obtaining data through the use of a telephone interview and course concentration sheets sent to the researcher. Chapter IV documented the results of the findings. Even though half of the institutions reported a program emphasis in the professional development core, each allowed for its own variations in degree requirements.

## **CONCLUSIONS**

Based on the findings, the following conclusions are made:

1. To identify the philosophical focus of technology teacher education graduate programs at institutions approved by NCATE.

- The institutions surveyed revealed that 50 percent of the graduate programs focused on professional development. Graduate program emphases in technological specialization were reported by 30 percent of the institutions.

2. To determine the program emphasis at different institutions approved by NCATE for a graduate technology teacher education program.

- Of the eighteen useable responses, 44 percent offered a graduate degree emphasis in Technology Education, 22 percent in Industrial Technology, and 11 percent in Vocational Education. A program emphasis different from those mentioned in the questionnaire was reported from 28 percent of the responders.

## **RECOMMENDATIONS**

Predicated upon the results and conclusions of this study, the following recommendations can be made:

- Institutions holding NCATE accreditation should provide more emphasis on the professional development and technology education cores at the graduate level. Emphasis on technical studies usually takes place at the undergraduate level. A greater emphasis on research, professional development, and technological studies is needed at the graduate level to prepare individuals for doctoral teaching and administrative positions.

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## **APPENDIX A**

### **INSTITUTIONS CONTACTED**

Ball State University, IN  
Bowling Green State University, OH  
California University of Pennsylvania, PA  
Central Missouri State University, MO  
Colorado State University, CO  
Eastern Michigan University, MI  
Elizabeth City State University, NC  
Indiana State University, IN  
Kent State University, OH  
Millersville University, PA  
Norfolk State University, VA  
North Carolina State University, NC  
Old Dominion University, VA  
Purdue University, IN  
Rhode Island College, RI  
Saint Cloud State University, MN  
Trenton State College, NJ  
University of Nebraska at Kearney, NE  
University of Northern Iowa, IA  
University of Wisconsin at Platteville, WI  
University of Wisconsin at Stout, WI  
Virginia State University, VA  
Virginia Polytechnic Institute, VA  
Wayne State University, NE

**APPENDIX B**  
**TELEPHONE SURVEY**

*A Study of  
Technology Teacher Education  
Graduate Programs  
and Their  
Philosophical Focus*

**Purpose:** This telephone interview is designed to provide specific information concerning the graduate program emphasis and the philosophical focus of graduate studies in technology teacher education programs at institutions with NCATE accreditation.

**Directions:** Answers to section one will be given verbally to the researcher during a telephone interview. It will be requested that information for section two be sent via FAX or mail.

**Section One:**

- Do you offer a graduate program in Technology Teacher Education?

Yes

No

- What is the program option that guides a graduate degree emphasis in Technology Teacher Education at your institution?

General Education

Industrial Arts

Industrial Technology

Technology Education

Vocational Education

Other - (please explain)

**Section Two**

- Please forward by FAX or mail a program study concentration sheet indicating the courses students are required to take for completion of your graduate program of study in Technology Teacher Education.
- A university catalog description of course offerings would also be appreciated.