A Follow-up Study of Industrial Technology Graduates of Old Dominion University 1987-1995

Michael A. McCammon
Old Dominion University

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A FOLLOW-UP STUDY OF
INDUSTRIAL TECHNOLOGY
GRADUATES
OF
OLD DOMINION UNIVERSITY
1987-1995

Michael A. McCammon
July 31, 1996
A FOLLOW-UP STUDY OF
INDUSTRIAL TECHNOLOGY GRADUATES
OF OLD DOMINION UNIVERSITY
1987-1995

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
Master of Science in Secondary Education Degree

By
Michael A. McCammon

July 31, 1996
This research paper was prepared by Michael A. McCammon 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 Master of Science in Secondary Education.

Approval By: 

Dr. John M. Ritz
Advisor and Graduate Program Director

Date 7-27-96
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Michael A. McCammon
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CHAPTER I
INTRODUCTION

Industrial Technology is a field of study designed to prepare technical and/or technical management-oriented professionals for employment in business, industry, education, and government. Old Dominion University entered this field in 1985 with a curriculum leading to a Bachelor of Science in Secondary Education-Industrial Education Major with an Industrial Option Emphasis (ODU, 1984, p. 68). In 1987, the curriculum was revised to lead to a Bachelor of Science in Secondary Education-Technology Education Major with an Industrial Technology Emphasis (1987, p. 85). A 1989 curriculum revision lead to a Bachelor of Science in Occupational and Technical Studies with an Industrial Technology Emphasis (1989, p. 89). The current curriculum was within the guidelines of the Industrial Technology Accreditation Handbook for Associate and Baccalaureate Degree Programs published by NAIT (1994). This study was formulated to use the feedback from the graduates of the Industrial Technology program at Old Dominion University to assess the effectiveness of the program based on post-graduate experiences in business and industry.

Statement of the Problem

The problem of this study was to assess the graduates of the Old Dominion University Industrial Technology program from 1987 to 1995 to determine the graduates' current
employment status, employment positions, current typical salary, and recommendations for Industrial Technology program improvements.

Research Goals

Through the follow-up study, data was compiled toward answering the following questions:

1. What was the current employment status of the Industrial Technology graduates?
2. What types of employment have been held by the Industrial Technology graduates?
3. What was the typical salary for the Industrial Technology graduates?
4. What were the recommendations of the graduates for Industrial Technology program improvements?

Background and Significance

As part of the evaluation phase of curriculum development, post-graduation follow-up is a cornerstone of feedback into the development system ensuring that the curriculum is kept up-to-date, prepares graduates to meet the needs of prospective employers, and maintains high standards. "Follow-up studies of graduates of the curriculum and/or their associates is very important if a summative evaluation (of the curriculum) is to have any real validity" (Zais, 1976, pp. 389-390). Given the massive changes in the work place and the technological changes over
the past decade, all curricula associated with technology and/or the work environment should be evaluated for its applicability to the real world work situation today. Although the Industrial Technology program at Old Dominion University began in 1987, there was no record of any type of formal post-graduate follow-up to solicit feedback that could be used for Industrial Technology program improvement. Therefore, this study could provide data that could be analyzed for possible programmatic/curriculum improvements.

Limitations

The following limitations were recognized to have an effect on this study:

1. The study was limited to those Industrial Technology program graduates of Old Dominion University.
2. The study was limited to graduates from 1987 to 1995.
3. The study was limited to data gathered through a survey.

Assumptions

The results of this 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. Non-respondents were employed in some business or industrial field.
Procedures

A survey, consisting of open and closed questions, was developed with the intentions of answering the research goals previously listed. The surveys, including a cover letter and a self-addressed envelope, were mailed to all graduates with known addresses, using a list provided by the Alumni Affairs Office. The data collected was then analyzed to determine whether changes in the Industrial Technology program were needed.

Definition of Terms

The following terms are defined to ensure the readers of this study and researcher are using equivalent terms and definitions:

Industrial Technology

Industrial Technology is a field of study designed to prepare technical and/or technical management-oriented professionals for employment in business, industry, education, and government (NAIT, 1994, p. 1).

Industrial Technology Program

The curriculum followed by a university student to obtain a degree in Industrial Technology.

National Association of

The national body for the
Industrial Technology (NAIT) professionals in industrial technology (Kicklighter, 1989, p. 1).

Summary and Overview

Chapter I dealt with the introduction to the Industrial Technology program and its origins. The study was a descriptive study and was designed to identify graduate demographics and possible programmatic improvements through use of a survey. Chapter II provides a review of relevant literature on the field of Industrial Technology. Chapter III explains the methods and procedures that were used in collecting the data. Chapter IV provides a summary of the findings that were obtained from the survey. The final chapter, Chapter V, provides a summary of the study, conclusions, and recommendations for future study.
CHAPTER II
REVIEW OF LITERATURE

To provide background and relevance to this study, this chapter has been organized into three sections of concentration. The first section addresses the history of the Industrial Technology field and the National Association of Industrial Technology (NAIT). The second section addresses the history of the Industrial Technology program at Old Dominion University (ODU). The third section addresses the relevant research studies of the Industrial Technology field.

History of the Industrial Technology Field

Industrial technology degree programs developed in the early 1960s in response to the specialization of the engineering and engineering technology degree programs emphasizing design, research and development. These university programs were formulated to prepare individuals to be technical managers who could interpret and communicate theories of science and management to the production side of enterprises. The programs were heavily based in industrial materials, manufacturing processes, principles of distribution, economics, industrial management, and human relations. Graduates of the programs were employed in business and industry as production supervisors, quality assurance supervisors, material managers, cost estimators,
operations managers, inventory control planners, estimators, purchasing managers, and production controllers. As the number of individuals employed in the field of industrial technology grew, these individuals and their associated universities began to organize.

In 1967, the National Association of Industrial Technology (NAIT) was organized as a national body for the professionals in industrial technology (Kicklighter, 1989, p. 1). The NAIT consisted of members from industry and the faculty of the colleges and universities that had industrial technology degree programs. The newly-formed NAIT recognized early on that to achieve widespread acceptance as an organization that it must have high standards for its members and a lofty goal. With this in mind the membership determined that the primary goal of the organization would be to ensure that industrial technology degree programs at colleges and universities were of the highest caliber. This goal was then pursued by committees working on accreditation standards. In 1974, the National Association of Industrial Technology completed curricular guidelines for four-year baccalaureate programs and accredited the Industrial Technology programs at three universities (Keith, 1986, p. 7).

From 1974 into the 1980s, various NAIT committees worked on the accreditation standards and accrediting several more colleges and universities. In 1988, NAIT issued the first
Accreditation Handbook for the Industrial Technology baccalaureate programs, which centralized the requirements for achieving and maintaining accreditation for colleges and universities in one book. Three of the major elements contained in the handbook were:

a. The definition of Industrial Technology was simply stated as college and university degree programs designed to prepare management-oriented professionals.

b. The role of Industrial Technology was defined as those areas in which Industrial Technology degree programs and professionals in Industrial Technology careers were typically involved such as: the application of significant knowledge of theories, concepts, and principles found in the humanities and the social and behavioral sciences, including a thorough grounding in communication skills; the understanding of the theory and application of the principles and concepts of mathematical and physical sciences and computer fundamentals; and the application of concepts derived from, and current skills developed in, a variety of technical disciplines including, but not limited to, materials and production processes, industrial management and human relations, marketing, communications, electronics and graphics. The field of specialization may be included, for example, electronic data processing, computer integrated design and manufacturing, construction, energy, polymers, printing, safety or transportation (NAIT, 1988, p.
c. The accreditation requirements for the major educational elements within the Industrial Technology Degree program were provided and addressed six major areas of concentration as shown in Table 1.

Table 1

<table>
<thead>
<tr>
<th>Program</th>
<th>Content</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>Humanities, English, History, Economics, Sociology, Psychology, Speech, etc.</td>
<td>18-38 semester hours.</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Algebra, Trigonometry, Analytical Geometry, Calculus, Statistics, Computer Science, etc.</td>
<td>6-18 semester hours.</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>Physics, Chemistry, etc.</td>
<td>6-18 semester hours.</td>
</tr>
<tr>
<td>Management</td>
<td>Quality Control, Production Planning and Control, Industrial Supervision, Industrial Finance and Accounting, Industrial Safety Management, Facilities Layout and Materials Handling, Time and Motion Study, Industrial Communications, Business Law, Marketing, etc.</td>
<td>12-24 semester hours.</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>6-18 semester hours</td>
</tr>
</tbody>
</table>

(NAIT, 1988, p. 16)

In 1989, NAIT was recognized by the U.S. Department of Education as the accrediting agency for Industrial Technology baccalaureate degree programs in America (NAIT, 1989, p. 1). This gave significant credence both to the
organization and to the colleges and universities with NAIT accredited Industrial Technology programs. NAIT continued to increase the number of colleges and universities that were accredited. As accreditation occurred, problems were noted and resolution of those problems led to changes that could be used to improve the process. In 1994, the NAIT Accreditation Handbook was revised to include:

a. A new definition for the field -- Industrial Technology is a field of study designed to prepare technical and/or technical management-oriented professionals for employment in business, industry, education, and government (NAIT, 1994, p. 1).

b. Accreditation standards for Associate Degree programs at community colleges and technical institutes, which are shown in Table 2.

The NAIT continued to pursue improvements within the accreditation program and communication among the various divisions (i.e., industry, community college and technical institute, student, and university) of the organization in order to increase the awareness of the national organization and to improve the industrial technology programs response to industry needs. The most current directory of NAIT accredited Industrial Technology programs lists 42 accredited baccalaureate programs and 7 accredited community college or technical institute programs in the United States (NAIT, 1996). Although Old Dominion University has not
sought accreditation, its Industrial Technology Program has met the standards described in this section. The Industrial Technology program evolution at Old Dominion University is described in the following section.

Table 2

1988 NAIT Industrial Technology Major Program Accreditation Standards for Associates Degree

<table>
<thead>
<tr>
<th>Program</th>
<th>Content</th>
<th>Credits Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications</td>
<td>Must include one course in written communication and one course in oral communication.</td>
<td>6-8 semester hours.</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Algebra, Trigonometry, Analytical Geometry, Calculus, Statistics, Computer Science, etc.</td>
<td>4-12 semester hours.</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>Physics, Chemistry, etc.</td>
<td>4-12 semester hours.</td>
</tr>
<tr>
<td>Management</td>
<td>Management - Quality Control, Production Planning and Control, Industrial Supervision, Industrial Finance and Accounting, Industrial Safety Management, Facilities Layout and Materials Handling, Time and Motion Study, Industrial Communications, Business Law, Marketing, etc., and/or</td>
<td>36-42 semester hours.</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>0-10 semester hours.</td>
</tr>
</tbody>
</table>

(HNAIT, 1994, p. 30)

History of the Industrial Technology Program at Old Dominion University

In the early 1980s, Old Dominion University recognized the need for graduates that could become technical managers in business and industry. To respond to this need, a
curriculum was developed by the Vocational Education Department of the College of Education in 1985 based on the principles of business, technology, and education that would best equip the graduate for managerial related occupations in industry. The concentration areas of the program were as shown in Table 3. Graduates were awarded a Bachelor of Science in Secondary Education - Industrial Education Major with an Industrial Option Emphasis (ODU, 1984, p. 68).

As the program started to evolve toward today's Industrial Technology program, changes were made to further define and refine the program. In 1986, the curriculum was revised by deleting ECI 321 (Audio-Visual Technology) and ELS 489 (Adult Education and Training); adding the phrase: "or other courses, by permission of advisor" to the last paragraph; adding VTE 404 (Curriculum Development) and SPCH 101 (Public Speaking); and Industrial Education was changed to "Technology" Education in the name of the degree (ODU, 1986, p. 76). In 1987, the curriculum was changed again: changed title of VTE 496 to Computer Graphics; added "U" to course number PSYC 303 (Industrial/Organizational Psychology); changed MGMT 300 to MGMT 325 (Contemporary Business Issues); changed ELS 343 (Human Service Counseling Methods) to COUN 343 (COUN - Counseling); added "/industrial-related" after business in last paragraph; and the name Industrial Option Emphasis was changed to Industrial Technology Option Emphasis in the name of the
degree (ODU, 1987, p. 85).

Table 3

**Areas of Concentration for Bachelor of Science in Secondary Education - Industrial Education Major with an Industrial Option Emphasis**

This program is designed to prepare students for managerial-related occupations in industry. Technical and professional education courses are included, as follows:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Course Number</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>VTE 111</td>
<td>Introduction to Drafting and Design</td>
<td>VTE 495</td>
<td>(Industrial Tours) Topics in Vocational Education</td>
</tr>
<tr>
<td>VTE 202</td>
<td>Personnel Management in Distribution</td>
<td>VTE 495</td>
<td>(Basic Microcomputers) Topics in Vocational Education</td>
</tr>
<tr>
<td>VTE 221</td>
<td>Metals Technology</td>
<td>VTE 496</td>
<td>(Microcomputer Programming) Topics in Vocational Education</td>
</tr>
<tr>
<td>VTE 231</td>
<td>Materials and Processes Technology</td>
<td>ACCT 201</td>
<td>Principles of Accounting</td>
</tr>
<tr>
<td>VTE 241</td>
<td>Energy Systems: Basic Electricity</td>
<td>ECI 321</td>
<td>Audio-Visual Technology</td>
</tr>
<tr>
<td>VTE 242</td>
<td>Energy Systems: Electronic Communication</td>
<td>BLS 343</td>
<td>Human Service Counseling Methods</td>
</tr>
<tr>
<td>VTE 243</td>
<td>Energy and Power</td>
<td>BLS 489</td>
<td>Adult Education and Training</td>
</tr>
<tr>
<td>VTE 321</td>
<td>Manufacturing and Construction</td>
<td>ENGL 235</td>
<td>Technical Writing</td>
</tr>
<tr>
<td>VTE 351</td>
<td>Communication Technology</td>
<td>MKTG 311</td>
<td>Marketing Principles and Problems</td>
</tr>
<tr>
<td>VTE 3700</td>
<td>Technology and Society</td>
<td>MGMT 300</td>
<td>Contemporary Business Issues</td>
</tr>
<tr>
<td>VTE 402</td>
<td>Techniques for Training in Business and Industry</td>
<td>PSYC 303</td>
<td>Industrial/Organizational Psychology</td>
</tr>
</tbody>
</table>

In addition, 15 hours of business courses are required from accounting, economics, finance, management, marketing, speech, or management information systems.

VTE - Vocational and Technical Education  
BLS - Educational Leadership  
ECI - Education Curriculum and Instruction  
ACCT - Accounting  
MKTG - Marketing  
PSYC - Psychology  

(ODU, 1984, pp. 67-68)

In 1989, the curriculum was significantly changed as a result of a departmental review of the program and a change
in the name of the department: all VTE course designations were changed to OTS (Occupational and Technical Studies) or OTED (Occupational and Technical Education); changed first paragraph of section to read: "This 126-hour program is designed to prepare students to enter industry as supervisors and industrial trainers. Required courses include: (the text changes are indicated by gray background shading); OTS 440 (Microcomputers in Occupational and Technical Studies) replaced VTE 495 (Basic Microcomputers); OTS 441 (Microcomputer-Based Graphics) replaced VTE 496; OTS 450 was listed in requirements on page 89, however course was not named or offered; course names were changed for OTS 111 (Drafting and Design), 202 (Supervision of Personnel, 221 (Industrial Materials), 321 (Manufacturing Technology), and OTED 404 (Instruction Design and Development); ENGL 235 (Technical Writing) course number was changed to ENGL 334; deleted last paragraph of the catalog section, which began: "In addition, 15 hours..."; and the graduates were awarded a Bachelor of Science in Occupational and Technical Studies with an Industrial Technology Emphasis (ODU, 1989, p. 89).

The 1991-92 catalog announced only a small number of changes to the program: courses OTS 440 (Microcomputers in Occupational and Technical Studies) and OTS 450 (not named) were deleted and courses OTS 471-475 Industrial Tours (Communication, Construction, Manufacturing, Service Industries, Transportation) were added (ODU, 1991, p. 87).
The current program was based on the 1993-94 catalog and its requirements were shown in Table 4 with the changes since 1991 indicated by gray background shading.

### Table 4

**Areas of Concentration for Bachelor of Science - Occupational and Technical Studies Major with an Industrial Technology Emphasis**

This 120-hour program is designed to prepare students to enter industry as supervisors and industrial trainers. Required courses include:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Course Number</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTS 111</td>
<td>Drafting and Design</td>
<td>OTED 404</td>
<td>Instruction Design and Development</td>
</tr>
<tr>
<td>OTS 202</td>
<td>Supervision of Personnel</td>
<td>OTS 471</td>
<td>Industrial Tours (Communications)</td>
</tr>
<tr>
<td>OTS 221</td>
<td>Industrial Materials</td>
<td>OTS 472</td>
<td>Industrial Tours (Construction)</td>
</tr>
<tr>
<td>OTS 231</td>
<td>Materials and Processes Technology</td>
<td>OTS 473</td>
<td>Industrial Tours (Manufacturing)</td>
</tr>
<tr>
<td>OTS 241</td>
<td>Energy Systems: Basic Electricity</td>
<td>OTS 474</td>
<td>Industrial Tours (Service Industries)</td>
</tr>
<tr>
<td>OTS 242</td>
<td>Energy Systems: Electronic Communication</td>
<td>OTS 475</td>
<td>Industrial Tours (Transportation)</td>
</tr>
<tr>
<td>OTS 243</td>
<td>Energy and Power</td>
<td>ACCT 201</td>
<td>Principles of Accounting</td>
</tr>
<tr>
<td>OTS 321</td>
<td>Manufacturing Technology</td>
<td>COUN 343</td>
<td>Human Service Counseling Methods</td>
</tr>
<tr>
<td>OTS 322</td>
<td>Production Technology</td>
<td>ENGL 334</td>
<td>Technical Writing</td>
</tr>
<tr>
<td>OTS 351</td>
<td>Communication Technology</td>
<td>MKTG 311</td>
<td>Marketing Principles and Problems</td>
</tr>
<tr>
<td>OTS 3700</td>
<td>Technology and Society</td>
<td>MGMT 325</td>
<td>Contemporary Business Issues</td>
</tr>
<tr>
<td>OTS 402</td>
<td>Training Methods</td>
<td>PSYC 3030</td>
<td>Industrial/Organizational Psychology</td>
</tr>
</tbody>
</table>

(ODU, 1993, pp. 95)

Although the industrial technology program at Old Dominion University began in 1984, there was no record of any type of
formal graduate follow-up to determine if there was any feedback that might have been used for industrial technology program improvement. As will be seen from the following section, follow-up studies have provided valuable information for program improvements at other educational institutions.

Relevant Research on Studies of Industrial Technology Field

Rapidly occurring changes in the world wide work place require curriculum changes to keep pace. Research to determine needed change in Industrial Technology programs was a key element in keeping the curriculum current regarding the needs of industry and graduates. This research involved studies of industrial needs and required competencies, follow-up of graduates, and program assessments. The results of the studies were instrumental in focusing curriculum development toward the goal of satisfying both industry and graduate needs.

One of the key questions asked by the quality movement in industry was "Who is the customer?" Industry generally defines the customer, both internal and external, as those who receive goods and services from your company. Colleges and universities have also asked themselves the same question regarding the Industrial Technology program and found that there are two customers: the graduate and the graduate's employer (that is, business and industry). Some
might argue that, in the case of college students, there is a third customer--the student's parents who want them employed. To meet the needs of the customer(s), colleges and universities have had to find out what the customer wants and that has been done through research studies.

As industry has reshaped itself to meet the changing marketplace, downsizing has flattened the management pyramid within most organizations resulting in more and more graduates placed in supervisory positions following a short training period. These events placed a greater importance on ensuring that graduates had solid foundations in management and supervision. More recent studies of industrial needs and competencies identified, as "somewhat lacking", certain management skills and competencies in current Industrial Technology programs.

The study of the Technical Competencies as Perceived by Industrial Technology Program Graduates and Department Chairs concluded that the management of processes, personnel, inventory, and quality control were not up to task. On the basis of a survey of 176 graduates, the researcher determined that the basic Industrial Technology curriculum was adequate to meet the graduates' needs as they entered industry. However, it was noted that 26% of the respondents made suggestions for improvement of the curriculum. The majority of the suggestions were generally associated with management skills or management-related
skills (e.g., quality control, people skills, production control and scheduling, and inventory management). Which Routhapt suggests leads to questions regarding curriculum content for management and supervision skills (Routhapt, 1995).

Industrial supervision competency has also been the subject of several studies in the past. In his recent study of Industrial Supervision Competencies for Industrial Technology Programs, Shaw identified 39 competencies for a first-line supervisor. This study used the results of previous studies as a foundation to compile a list of competencies for an industrial supervisor. A survey of recent Industrial Technology graduates validated the list and established a rank order of the competencies. The list of competencies identified in the study encompassed team building and management, empowering workers, motivating workers for quality and productivity, and problem solving. Shaw noted that all the areas identified in the 39 competencies are not generally included in the Industrial Technology curriculum at NAIT accredited institutions, and argued that the list should certainly be used for review of the curriculum content at any institution that has an Industrial Technology program (1995, pp. 16-20).

The quality movement in the United States, sparked by Deming, Juran, Crosby and many others, caused a greater emphasis on quality in the work place. Quality of service
and/or product has become the task of management and worker alike. To support this move for quality, there must be professionals to train others in the quality systems. There are but very few institutions that offer a baccalaureate degree in quality due to the differing opinions of all involved to establish such a curriculum. In Hilkert and Sinn's (1994) study of education for quality, the researchers found that, although quality is of importance to everyone, it is extremely difficult to get consensus on the topics and content of a quality curriculum. The American Society for Quality Control (ASQC) and Society of Manufacturing Engineers (SME) members in northern Ohio were surveyed to determine what, if any, priorities could be established regarding subject content relevant to education for quality, subject content areas relevant to education for quality, and emphasis of a baccalaureate degree about quality. The study concluded that ASQC and SME placed slightly different priorities both on content and areas relevant to education for quality (consensus on priority in 8 of 28 topics) and both agreed that a baccalaureate degree in quality would be valuable (p. 39-43).

Program evaluation has always been an important part of education and to that end most educational institutions have struggled to find an assessment model that can document performance and accountability. In relation to the Industrial Technology programs, NAIT accreditation
guidelines discuss use of assessments in preparation for accreditation or re-accreditation and offers Value Added Assessment (VAA) as an assessment option. VAA has been used extensively by industry since the beginnings of the quality revolution in the 1980s. The prominent quality program proponents (for example, W. Edward Deming, Joseph Juran, Philip Crosby, etc.) endorse some form of VAA as a means of continuous improvement. VAA has only been implemented in education for the past few years, but it has gained followers and users on the merits of its simplicity of design. In VAA, measurements are taken before and after the educational process, and then it can be determined if the process was effective. The use of VAA in education has both proponents and detractors with some sound reasoning for their respective positions. Many educational institutions have implemented VAA, in spite of the detractors, since it is a readily available model that can be modified and implemented in a relatively short time and it promotes continuous improvement when properly used. Boser and Loepp reported in their study that use of VAA to develop the assessment model for their Industrial Technology program has paid off and that the resources allocated for the assessment program are well used and continuous improvement is, in fact, in place and incremental changes can be documented. They further report that data collected from the assessment has been used for a multitude of purposes from recruiting to
justification of additional resources. In this assessment program, pre-assessment occurs during a required introductory course for freshmen or transfers. Exit assessment is conducted through focus groups of last semester seniors; and a follow-up survey is sent one year after graduation to graduates and their supervisors (1994, pp. 34-38). The use of this type of assessment model with both internal and external evaluations was seen as an effective method of gathering data for programmatic changes and records.

As described previously, follow-up surveys of program graduates and their supervisors were necessary to determine, not only what the graduate felt were the program's strengths and weaknesses, but, also, the supervisor's feelings about the graduate's preparation for work. A slightly different approach in follow-up surveys determined career paths, levels of success and job satisfaction, and the success of their educational preparation for their career. Surveys of this type collected demographic data that could be used by the program as a recruitment tool and a motivator, since the data is representative of and reflects what happens in the field both in positions available and salaries obtainable by graduates of Industrial Technology degree programs. These surveys also have featured questions regarding educational preparation for the careers. The data from this type of question was then analyzed to determine possible
programmatic strengths and weaknesses. The work of Stephens and Landaw illustrated the importance of this type of follow-up. Stephens and Landaw surveyed female Industrial Technology graduates. Their data showed graduate's career paths, salaries, job satisfaction, and level of preparation for the work force. Since the data collected was only from the graduates of their university, it should not be used to make inferences outside that population, but it inferred that their university program was preparing all Industrial Technology graduates for the work force (1995, pp. 16-20).

Summary

This chapter presented an overview of the history of Industrial Technology both nationally and locally at Old Dominion University. Old Dominion University has a viable Industrial Technology program that has sought to make positive changes as evidenced by their history of curricular improvements. Real world work places demand well prepared graduates and this chapter also discussed relevant research studies of the Industrial Technology field which illustrated that research studies validate the use of graduate follow-up surveys to determine curricular improvements. Chapter III describes the methods and procedures used in this research study. The findings gathered by the survey instrument are reviewed in Chapter IV. Finally, Chapter V summarizes this research study and provides conclusions and recommendations.
CHAPTER III

METHODS AND PROCEDURES

This chapter describes the methods and procedures used in conducting this study. The study was to follow-up the Old Dominion University industrial technology graduates to determine career paths, average salaries, and recommendations for industrial technology program improvement. This chapter contains a description of the population, instrument design, methods of data collection, statistical analysis, and summary.

Population

The population of this study consisted of Old Dominion University industrial technology graduates from 1987 to 1995. In this nine year period, there were 23 industrial technology graduates, whose names and addresses were obtained from the Office of Alumni Affairs and Department of Occupational and Technical Studies.

Instrument Design

Since the purpose of this study was to conduct a follow-up study of graduates, design of the instrument was critical to both gather information and maximize response. The instrument was designed as a questionnaire using closed and open format questions to minimize the time required to complete the instrument and to simplify the interpretation of the results. The questions were developed to collect
data from the graduates to answer the research goals of this study which were:

1. What was the current employment status of the Industrial Technology graduates?
2. What types of employment have been held by the Industrial Technology graduates?
3. What was the average salary for the Industrial Technology graduates?
4. What were the recommendations of the graduates for Industrial Technology program improvements?

A sample of the survey instrument is found in Appendix A.

Methods of Data Collection

To collect the data, the instrument, a cover letter, and a postage-paid return envelope were mailed to the selected population on May 15, 1996. The cover letter explained the purpose of the survey and why the participant's responses were important to the study. A sample of the cover letter is found in Appendix B.

A follow-up letter was sent on May 30, 1996, to those people who had not responded by that date. This letter served as a reminder that each completed questionnaire was important to the study. A sample of the follow-up letter is found in Appendix C. A copy of the questionnaire was included with the follow-up letter.
Statistical Analysis

The data collected by the study was analyzed using percentiles and the statistical methods of mean and mode. The resultant data was formatted into appropriate tables or charts to illustrate the results in accordance with the goals of this study.

Summary

The methods and procedures used in this study were outlined in this chapter. The results of the study are presented in Chapter IV, Findings. The summary, conclusions, and recommendations are presented in Chapter V, Summary, Conclusions, and Recommendations.
CHAPTER IV

FINDINGS

Introduction

This chapter presents the findings of the follow-up study of Old Dominion University Industrial Technology graduates. The problem of this study was to conduct a follow-up of graduates of the Old Dominion University industrial technology program from 1987 to 1995. The research goals established in Chapter I were:

1. What was the current employment status of the Industrial Technology graduates?
2. What types of employment have been held by the Industrial Technology graduates?
3. What was the typical salary for the Industrial Technology graduates?
4. What were the recommendations of the graduates for Industrial Technology program improvements?

The sections of this chapter are graduate response to the survey, employment, salary, and program improvement.

Graduate Response to the Survey

The total population of industrial technology graduates from 1987 to 1995 was used. The initial mailing on May 15, 1996, sent survey instruments to the 22 graduates for whom an address was obtained. A current address could not be obtained for 1 graduate. The initial mailing resulted in 3
responses received. The response rate to the initial mailing was 13 percent. A follow-up letter was mailed on June 1, 1996 to the 19 non-respondents. This follow-up resulted in 8 responses received. The response rate to the follow-up was 42 percent. The combined responses were 11 of 22 graduates responded for a final response rate of fifty percent for the study.

Table 5

Percentage of Graduate Response

<table>
<thead>
<tr>
<th>Event</th>
<th>Number Mailed</th>
<th>Number of Respondents</th>
<th>Percent Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Mailing</td>
<td>22</td>
<td>3</td>
<td>13.6%</td>
</tr>
<tr>
<td>Follow-up Mailing</td>
<td>19</td>
<td>8</td>
<td>42.1%</td>
</tr>
<tr>
<td>Total Respondents</td>
<td></td>
<td>11</td>
<td>50%</td>
</tr>
</tbody>
</table>

Employment

The findings presented in this section are the compilation of the employment data obtained by questions 1 and 2 of the survey instrument (Appendix A).

Question 1 of the survey instrument was designed to determine the current employment status of the graduates. As shown in Table 6, 10 of the 11 respondents were currently employed. One respondent was in graduate school at the time of the study.

Question 2 of the survey instrument was designed to determine the career path of graduates by requesting a list
of other positions held. As shown in Table 7, responses varied from no other positions held prior to current position to 5 different positions held prior to assuming current position.

Table 6

Current Employment Status of Graduates

<table>
<thead>
<tr>
<th>Position</th>
<th>Company</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Officer</td>
<td>United States Navy</td>
<td>2</td>
</tr>
<tr>
<td>Aerobics Instructor</td>
<td>United States Navy</td>
<td>1</td>
</tr>
<tr>
<td>President</td>
<td>Gradient-Systems</td>
<td>1</td>
</tr>
<tr>
<td>Senior Production Supervisor</td>
<td>Reader's Digest</td>
<td>1</td>
</tr>
<tr>
<td>Manager Information Systems</td>
<td>LifeNet</td>
<td>1</td>
</tr>
<tr>
<td>Banquet Manager</td>
<td>Sheraton Hotels</td>
<td>1</td>
</tr>
<tr>
<td>Installer/Maintainer</td>
<td>Allied Signal Technical Service</td>
<td>1</td>
</tr>
<tr>
<td>Physical Science Technician</td>
<td>U. S. Navy Public Works Center</td>
<td>1</td>
</tr>
<tr>
<td>Injection Molding Set-Up Technician</td>
<td>SouthTech, Inc.</td>
<td>1</td>
</tr>
<tr>
<td>Graduate Student</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>
Table 7

Other Positions Held by Graduates

<table>
<thead>
<tr>
<th>Position (Positions listed in order from survey instrument)</th>
<th>Company</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same as current position</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Asst. Manager Academic TV Loan Pool</td>
<td>Old Dominion Univ.</td>
<td>1</td>
</tr>
<tr>
<td>Adjunct Instructor</td>
<td>Old Dominion Univ.</td>
<td></td>
</tr>
<tr>
<td>High School Technology Teacher</td>
<td>Deep Creek H. S.</td>
<td></td>
</tr>
<tr>
<td>Project Coordinator and Education Grants</td>
<td>Pensacola Junior College</td>
<td></td>
</tr>
<tr>
<td>Employment Specialist</td>
<td>Southeastern Vocational Services</td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>Memory Bank</td>
<td>1</td>
</tr>
<tr>
<td>Account Executive</td>
<td>Humphrey Grimes Printing</td>
<td></td>
</tr>
<tr>
<td>Management Trainee</td>
<td>Apicata Graphics Reader's Digest</td>
<td></td>
</tr>
<tr>
<td>Production Supervisor</td>
<td>Reader's Digest</td>
<td></td>
</tr>
<tr>
<td>Global Supervisor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate School</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Logistics Technician</td>
<td>Allied Signal Technical Service</td>
<td>1</td>
</tr>
</tbody>
</table>

Salary

The findings presented in this section are the compilation of the salary data obtained by questions 3 and 4 of the survey instrument (Appendix A).

Question 3 of the survey instrument was designed to collect data regarding salary of first job obtained by graduates. As shown in Table 8, starting salaries fell into only one of three categories. Three respondents, 27 percent, indicated a starting salary of $10,000-19,999.
$20,000-29,999. One respondent, 9 percent, indicated a current salary of $30,000-39,999. One respondent, 9 percent, indicated a current salary of $40,000-49,999. Two respondents, 18 percent, indicated a current salary of greater than $60,000. The mode for respondents who graduated from 1991-1995 was 5 which indicated a salary of $20,000-29,999. The mode for respondents who graduated from 1987-1990 was 2 which indicated a salary of >$60,000.

Table 9
Current Salaries of Graduates

<table>
<thead>
<tr>
<th>Salary Range</th>
<th>Number of Graduates</th>
<th>Year Graduated</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10,000-19,999</td>
<td>2</td>
<td>1987 1995</td>
<td>18.18</td>
</tr>
<tr>
<td>$20,000-29,999</td>
<td>5</td>
<td>1991 1993 1994 1995(2)</td>
<td>45.45</td>
</tr>
<tr>
<td>$30,000-39,999</td>
<td>1</td>
<td>1992</td>
<td>9.09</td>
</tr>
<tr>
<td>$40,000-49,999</td>
<td>1</td>
<td>1989</td>
<td>9.09</td>
</tr>
<tr>
<td>$50,000-59,999</td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>&gt;$60,000</td>
<td>2</td>
<td>1988 1990</td>
<td>18.18</td>
</tr>
</tbody>
</table>

Program Improvement

The findings presented in this section are the compilation of the data obtained by questions 5 through 8 of the survey instrument (Appendix A).

Question 5 of the survey instrument was designed to measure the graduates' attitude regarding their preparation
Seven respondents, 63 percent, indicated a starting salary of $20,000-29,999. One respondent, 9 percent, indicated a starting salary of $30,000-39,999. The typical starting salary and salary up to four years after graduation was in the range of $20,000-29,999 based on the mode (for respondents who graduated from 1991-95) of the distribution shown in Table 8. The typical salary from five to seven years after graduation was greater than $40,000 based on the distribution (for respondents who graduated from 1987-90) shown in Table 8.

Table 8

<table>
<thead>
<tr>
<th>Salary Range</th>
<th>Number of Graduates</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10,000-19,999</td>
<td>3</td>
<td>27.27</td>
</tr>
<tr>
<td>$20,000-29,999</td>
<td>7</td>
<td>63.63</td>
</tr>
<tr>
<td>$30,000-39,999</td>
<td>1</td>
<td>9.09</td>
</tr>
<tr>
<td>$40,000-49,999</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>$50,000-59,999</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&gt;$60,000</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Question 4 of the survey instrument was designed to collect data regarding salary of the current job held by graduates. As shown in Table 9, current salaries fell into one of five categories. Two respondents, 18 percent, indicated a current salary of $10,000-19,999. Five respondents, 45 percent, indicated a current salary of
for their first job based on their studies in industrial technology. Their attitude was measured using a five-point Likert scale. The responses, as shown in Table 10, were from 3 indicating "neither agree or disagree"; 1 indicating midpoint between "neither agree or disagree" and "agree; 2 indicating "agree"; 2 indicating "strongly agree"; and 1 indicating the question was not applicable. The mean for the responses was 3.73 on a scale of 1 to 5. The mode of the responses was "strongly agree", which had 4 respondents select this response.

Table 10

Graduates' Attitudes Regarding Program's Preparation for First Job

<table>
<thead>
<tr>
<th></th>
<th>Number of Responses</th>
<th>Point Value</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Applicable</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Neither Agree or Disagree</td>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Agree</td>
<td>2</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>4</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td>Totals</td>
<td>11</td>
<td>41</td>
<td>Mean=3.73</td>
</tr>
</tbody>
</table>

Question 6 asked for suggestions for improvement in the Technical Courses section of the industrial technology curriculum. Two respondents had no suggestions for improvement. The other 9 respondents provided 12
suggestions for improvement. Those suggestions are listed below:

1. Keep as much or increase hands-on experience.
2. Create a course in "specifications" (i.e., how to write them, what they mean, why you need them).
3. Increase emphasis on electronics.
4. Make the student keep a profile of accomplishments.
5. Increase emphasis on computers and computer skills to include a telecommunications course (e.g., voice, data, etc.) and soft skills (use of software such as Excel, Word, Windows, e-mail).
6. Add inventory management.
7. Increase emphasis on computer aided drafting (CAD), de-emphasize pencil and paper drafting.
8. Offer additional in-depth technical courses for students who want to pursue greater depth in an area.
9. Include more projects in courses.
10. Include more visits to companies.
11. Shorten classes.
12. Include more guest speakers.

Question 7 asked for suggestions for improvement in the Business Cognate section of the industrial technology curriculum. Five respondents had no suggestions for improvement. The other 6 respondents provided 3 suggestions
for improvement. Those suggestions are listed below:

1. Increase requirements in Business Cognate and offer additional support while taking business courses due to differences in approach in management between education and business. Additional requirements should include more accounting, personnel management/counseling (dealing with bosses, employees), finance (to include how the government budget works and debt management), marketing, statistical analysis, negotiating, influencing.

2. Do away with them all.

3. Consider adding "Stress" management course.

Question 8 asked for suggestions for improvement in the Training Courses section of the industrial technology curriculum. Five respondents had no suggestions for improvement. The other 6 respondents provided 4 suggestions for improvement. Those suggestions are listed below:

1. Delete requirement for general speech course and require courses in technical speaking.

2. Increase emphasis on technical writing.

3. Emphasize group involvement as much as possible.

4. Make the student keep a profile of accomplishments.

Summary

In this chapter, the responses to the follow-up survey
were reported. The research objectives were again stated and the data was reported in accordance with them. Chapter V will provide a summary, conclusions, and recommendations for further study. In the conclusion section of Chapter V, inference(s) will be drawn from the data collected and analyzed in this chapter.
CHAPTER V
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The problem of this study was to assess the graduates of the Old Dominion University Industrial Technology program from 1987 to 1995 to determine the graduates' current employment status, employment positions, current average salary, and recommendations for Industrial Technology program improvements.

The goals set forth at the beginning of the study were:

1. What was the current employment status of the Industrial Technology graduates?

2. What types of employment have been held by the Industrial Technology graduates?

3. What was the typical salary for the Industrial Technology graduates?

4. What were the recommendations of the graduates for Industrial Technology program improvements?

These goals were designed to help guide the research toward its purpose.

This study was the first formal follow-up of Industrial Technology program graduates to solicit feedback that could be used for Industrial Technology program improvement.

No study is 100 percent accurate unless everyone associated with the study is included in the survey and responds. One hundred percent response is rarely possible
due to limitations identified prior to the commencement of the study. This study had three such limitations:

1. The study was limited to those Industrial Technology program graduates of Old Dominion University.

2. The study was limited to graduates from 1987 to 1995.

3. The study was limited to data gathered through a survey.

The Old Dominion University Industrial Technology program had 23 graduates from 1987 through 1995. A valid mailing address could not be identified for one graduate, therefore the sample population was reduced to 22 graduates. Data was collected from the graduates by constructing a survey that used open and closed form questions to solicit responses toward answering the research goals. The survey instrument and a cover letter explaining the intent of the study were mailed to the sample population by U. S. mail. A follow-up letter and survey instrument was sent to non-respondents about two weeks after the initial mailing as a reminder and again requested their participation in the survey. Fifty percent of the total persons surveyed responded. Percentiles, means and modes were used to analyze the data collected after the surveys were returned.

Conclusions

The conclusions of this study were based on the findings of the survey as presented in Chapter IV and are
addressed in the order of the research goals.

What was the current employment status of the Industrial Technology graduates? It was concluded that the majority of respondents were currently employed in a wide range of jobs. The types of current employment were:

a. Technically-oriented (e.g., installer/maintainer, injection molding setup technician, physical science technician, etc.)

b. Marketing and/or supervision (e.g., president of company, banquet manager, senior production supervisor, manager information systems, naval officer, etc.)

c. Aerobics instructor.

What types of employment have been held by the Industrial Technology graduates? It was concluded that there was not a "typical" career pattern for the majority of respondents, which would infer that the same would be true for all graduates in Industrial Technology. The respondents' career paths (for those who were past initial employment after graduation were extremely varied as illustrated in Table 7 of Chapter IV.

What was the typical salary for the Industrial Technology graduates? It was concluded that the typical salary for respondents from 1991-95 was $20,000-29,999 and that the typical salary for respondents from 1987-90 was >$40,000. It should be noted that two respondents from 1987-90 indicated salaries >$60,000, but with such a limited
response to the survey, this salary was not concluded to be
typical for that group of graduates.

What were the recommendations of the graduates for
Industrial Technology program improvements? It was
concluded that respondents were satisfied that the
curriculum adequately prepared them for their first job.
The respondents provided 18 suggestions for improvement:

1. Keep as much or increase hands-on experience.
2. Create a course in "specifications" (i.e., how to
write them, what they mean, why you need them,
 i.e., technical writing.).
3. Increase emphasis on electronics.
4. Make the student keep a profile of
accomplishments.
5. Increase emphasis on computers and computer skills
to include a telecommunications course (e.g.,
voice, data, etc.) and soft skills (use of
software such as Excel, Word, Windows, e-mail).
6. Inventory management.
7. Increase emphasis on computer aided drafting
(CAD), de-emphasize pencil and paper drafting.
8. Offer additional in-depth technical courses for
students who want to pursue greater depth in an
area.
9. Include more projects in courses.
10. Include more visits to companies.
11. Shorten classes.
12. Include more guest speakers.
13. Increase requirements in Business Cognate and offer additional support while taking business courses. Additional requirements should include more accounting, personnel management/counseling (dealing with bosses, employees), finance (to include how the government budget works and debt management), marketing, statistical analysis, negotiating, and influencing.
14. Do away with business cognate requirements.
15. Consider adding "Stress" management course.
16. Emphasize group involvement as much as possible.
17. Delete requirement for general speech course and require courses in technical speaking.
18. Increase emphasis on technical writing.

The majority of the suggestions for improvement dealt with bringing the current work environment into the curriculum. A significant number of business and personnel related skills were addressed by the respondents as needing increased emphasis.

Recommendations

Based on the findings and the conclusions of this study, the following recommendations were made:

1. The Old Dominion University Industrial Technology curriculum should include increased emphasis in computer
skills including telecommunications and business related software. This has been added to the OTS 351, Communications Technology, over the years by the faculty.

2. The Old Dominion University Industrial Technology curriculum should include increased emphasis in technical speaking and writing. Students are required to make technical presentations in OTS 241, OTS 242, OTS 402, and other courses in addition to taking ENGL 334, Technical Writing.

3. The Old Dominion University Industrial Technology curriculum should include increased emphasis in group involvement/team work.

4. The Old Dominion University Industrial Technology curriculum should include increased emphasis in personnel management, counseling, negotiating and influencing. Many of these skills are covered in OTS 202, Supervision of Personnel, and COUN 343, Counseling Methods.

5. Follow-up studies of Industrial Technology program graduates be conducted at not more than five year intervals to ensure timely feedback.
References


APPENDICES

Appendix A. Sample of the Survey Questionnaire
Appendix B. Sample of the Initial Cover Letter
Appendix C. Sample of the Follow-up Letter
APPENDIX A

Sample of the Survey Questionnaire
The purpose of this study is to conduct a follow-up of graduates of the Old Dominion University's Industrial Technology program. The information collected through this study will be used for program improvement and recruitment of future students.

Name________________________ Year of Graduation_____

1. What is your current employment position:
   Position____________________ Company________________________

2. Please list the other positions you have held since graduation:
<table>
<thead>
<tr>
<th>Position</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Please indicate the salary of your first job:
   □$10,000-19,999 □$20,000-29,999 □$30,000-39,999
   □$40,000-49,999 □$50,000-59,999 □>$60,000

4. Please indicate the salary of your current job:
   □$10,000-19,999 □$20,000-29,999 □$30,000-39,999
   □$40,000-49,999 □$50,000-59,999 □>$60,000

5. Your studies in Industrial Technology at ODU were adequate to prepare you for your first job.

| . . . . . . | . . . . . . | . . . . . . | . . . . . . | . . . . . . |
| Strongly Disagree (1) | Disagree (2) | Neither (3) | Agree or (4) | Strongly Agree (5) |

OVER>>
6. What are your suggestions for improvement in the **Technical Courses** section of the curriculum? (This includes: courses in electrical, electronics, drafting, materials, manufacturing, communications, etc.)

7. What are your suggestions for improvement in the **Business Cognate** section of the curriculum? (This includes: courses in economics, finance, accounting, marketing, etc.)

8. What are your suggestions for improvement in the **Training Courses** section of the curriculum? (This includes: courses in technical writing, speech, personnel management, psychology, counseling, techniques of training, instructional design, etc.)
APPENDIX B

Sample of the Initial Cover Letter
Dear ________________,

As an Old Dominion University Industrial Technology graduate, we are seeking your assistance in a follow-up survey of our former Industrial Technology students. This survey collects information that can be used for program improvement and recruitment of other majors by the Department of Occupational and Technical Studies.

Your name is asked so that we can follow-up with non-respondents to improve our sample size. However, your responses will be kept anonymous.

Only you have the information we need to provide the department with the tools it needs to recruit people into and improve the industrial technology program. Your candid response to this survey is crucial to its success. With the results, we will be able to determine possible changes that can be made to the undergraduate program that would better prepare graduates for entry into the work force and to provide information regarding future careers to prospective students.

Please respond and return the enclosed survey in the self-addressed envelope provided. If you have any questions regarding the survey, please feel free to call me at work (804-683-3639) or home (804-467-4996).

Sincerely,

Michael A. McCammon
APPENDIX C

Sample of the Follow-up Letter
Dear _______________.

Recently I mailed you a survey and requested your participation in follow-up survey of Old Dominion University industrial technology graduates and I have not received a response from you.

Your response is important to me and the success of the study, since you are the only one with the information I need.

If you have already mailed the response, thank you for your support. If you have not returned the survey, please take a few moments to answer the questions and put it in the mail. If you have any questions regarding the survey, please feel free to call me at work (804-683-3639) or home (804-467-4996).

Sincerely,

Michael A. McCammon