7-1982

Industrial Arts Education: 1976 to 1981 Follow-up of Graduates

Kieth M. Anderle

Industrial Arts Education: 1976 to 1981 Follow-up of Graduates

INDUSTRIAL ARTS EDUCATION:

1976 TO 1981 FOLLOW-UP OF GRADUATES

A Research Paper for Presentation
to the Graduate Faculty
of the
Department of Industrial Technology
University of Northern Iowa

In Partial Fulfillment of the Requirements for
the Non-Thesis Master of Arts Degree

by

Kieth Anderle
Summer, 1982

Approved by:

Dr. Patrick W. Miller, Advisor — Date 7/28/82

Dr. M. Roger Betts, Graduate Committee Member — Date 7-28-82

INDUSTRIAL ARTS EDUCATION:
1976 TO 1981 FOLLOW-UP OF GRADUATES

A Research Paper

Submitted

In Partial Fulfillment

of the Requirements for the

Non-Thesis Master of Arts Degree

Kieth M. Anderle

University of Northern Iowa

July 1982

ACKNOWLEDGEMENTS

I would like to acknowledge Dr. Patrick Miller, my advisor, for instilling in me a standard of excellence in the field of research, for his guidance and direction in this study, and even for the frustrating moments that strengthened my perseverance. In addition, many thanks go to Dr. Roger Betts with whom I worked to complete this study for the Industrial Technology Department. Dr. Betts was especially helpful and patient with my research efforts in Industrial Arts Education, an area with which I was very unfamiliar prior to the study. Also, I wish to recognize Terry Ward from Academic Computing Services for his assistance in analyzing the survey data. And last, but not least, I want to thank Mike and Heidi Moore for their friendship, for the inspiring words, "How's the paper coming?" and especially Heidi for typing this report.

VITA

1974-1977.....	Carthage College - no degree, Kenosha, Wisconsin.
1977-1979.....	Earned BBA - Production Management and worked as a Resident Assistant for the Housing Department, University of Wisconsin - Whitewater.
1979-1980	Production Supervisor and Manpower Supervisor for the Quaker Oats Company, Cedar Rapids, Iowa.
1980-1982	Graduate Assistant for the Industrial Technology Department and Engineer for the John Deere Des Moines Works while working on Master's degree in Industrial Technology, University of Northern Iowa, Cedar Falls, Iowa.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

The 1966 Schmitt and Pelley study found that industrial arts was perceived by secondary principals and teachers as developing student skill in the use of common tools and machines. Seventeen years later a study completed by the Standards for Industrial Arts Programs Project at Virginia Polytechnic Institute (VPI) and State University (Blame & Miller, 1980) reported the same viewpoint was held nationwide by administrators and guidance coordinators. However, according to a study by Sinn (1980) the majority of industrial arts teacher educators place the emphasis on the study of industry, industrial technology, and technology in general. It appears that the schools perceive industrial arts from a traditional viewpoint while the universities perceive it from a contemporary standpoint. Therefore, it might be suggested that industrial arts teachers coming out of universities with a contemporary philosophy must learn to teach in a traditional environment.

Within the Industrial Technology Department (ITD) at the University of Northern Iowa (UNI), industrial arts is viewed from a contemporary standpoint. However, many of the ITD faculty understand the dilemma facing graduates. As a result, the ITD faculty were interested in finding out more about the teaching environment of the graduates and their perceptions of the UNI industrial arts program.

The ITD faculty are in the process of reviewing the Industrial Arts Education (IAE) curriculum in an effort to better prepare future graduates to meet the needs of industrial arts programs in secondary schools. In order to accomplish this there was a need to conduct a

follow-up of Industrial Arts Education graduates in regards to career decisions, teaching environment, professional involvement, and perceptions of the preparation received at UNI.

Problem Statements

The following problems were addressed in this study:

1. What career decisions did Industrial Arts Education (IAE) graduates make after graduation?

2. What was the teaching environment of IAE graduates who were currently teaching and who formerly taught industrial arts?

3. How did graduates who were currently teaching and who formerly taught industrial arts perceive the preparation they received at UNI?

4. To what extent were graduates, who were currently teaching industrial arts, involved in professional teaching organizations?

Purpose of the Study

The purpose of the study was to survey IAE majors who graduated from 1976 through 1981 from the ITD. Specifically, graduates were asked to indicate if they had ever held a full-time industrial arts teaching position. Those who did teach were asked to identify if they were currently teaching industrial arts. Graduates who were currently teaching and graduates who formerly taught were asked to provide information regarding their teaching environment and their perceptions of the preparation they received while at UNI. Those who were currently teaching were asked to provide more detailed information about their teaching environment and indicate if they had changed schools. In addition, graduates were asked to indicate the degree of their involvement in professional teaching organizations.

Significance of the Study

The ITD will use the information to help determine if the present program is adequately preparing students to enter the industrial arts teaching profession. The information will also be used to help restructure the present curriculum and to correct any deficiencies that may be indicated.

Research Questions

The following research questions are divided into four sections. The first section applies to all industrial arts (IA) graduates, while the second and third apply to graduates who were currently teaching and formerly taught industrial arts. The last section applies only to graduates who were currently teaching industrial arts. These four sections directly correspond to the four problem questions.

Career Decisions

1. What percentage of industrial arts graduates entered the IA teaching profession and what percentage entered a non-teaching profession after graduation?

2. Of those graduates who entered the teaching profession, what percentage were still teaching and what percentage left the teaching profession after teaching one, two, three, four, or five years?

3. Was there a relationship between the time when graduation requirements were completed and whether or not graduates entered the teaching profession?

4. What percentage of the graduates, who were currently teaching, stayed in the same school they entered after graduation?

5. What were the primary reasons for changing schools for those graduates who taught in more than one school?

Teaching Environment

Current and former industrial arts teachers

1. What grade levels did graduates teach?

2. How many faculty members were in the IA departments?

3. What type of labs were provided for instruction?

4. What content areas were taught?

Current industrial arts teachers

1. What was the maximum allowable class size?

2. What was the average class size?

3. What kind of activities (e.g. instruction, preparation, study hall supervision) were common during the daily teaching schedules?

UNI Preparation

1. In light of their teaching experience, how did graduates perceive the preparation received while at UNI?

2. Would graduates recommend the Industrial Technology Department at UNI to students interested in pursuing a career in industrial arts education?

3. Did graduates feel it would have been helpful during the student-teaching experience to have had a supervisor from the Industrial Technology Department?

Professional Involvement

1. What percentage of graduates were members of professional teaching organizations?

2. What percent of the graduates attended professional conferences?

Limitations

The study was based on the following limitations:

1. The questionnaires were not tested for content validity, although they were reviewed for clarity.

2. Instrument reliability was not established.

3. Although the researcher had previous follow-up experience, there was little familiarity with industrial arts education prior to the study.

Delimitations

This study is based on the following delimitation:

1. The population was delimited to IAE graduates from 1976 through 1981.

Definition of Terms

Follow-up is one part of an evaluation system designed for obtaining information from graduates of an education program (Headrick, 1977, p.2).

"Industrial arts is a comprehensive educational program concerned with technology, its evolution, utilization, and significance; with industry, its organization, personnel, systems, techniques, resources, and products; and their social/cultural impact." (Snyder & Hales, 1981, p.2)

CHAPTER II

REVIEW OF THE LITERATURE

There appears to be two general philosophies behind industrial arts education today. One is a traditional view which places the primary emphasis on the use of tools, machines, and materials. The other view is contemporary and while utilizing tools, machines, and materials, the emphasis is on the study of industry and technology.

Industrial arts educators at many universities of today hold a contemporary philosophy (Sinn, 1980). On the other hand, industrial arts in many of the secondary schools reflect a traditional view (Blame & Miller, 1980). Therefore, educators must prepare future teachers to enter traditional environments with the ability to change school curriculums to reflect contemporary viewpoints.

Program evaluation at universities is essential in order to adequately prepare industrial arts teachers. An effective tool in program evaluation is the follow-up study. Follow-up of graduates can provide the necessary data to establish proper goals and decide on the right plan of action to meet the needs of future industrial arts teachers.

Traditional View of Industrial Arts

The traditional view of industrial arts stems from the manual training programs of the nineteenth century. These programs were developed to provide a general education in manipulative skills to compliment the mental skills practiced in other classes. The nature

of these programs was a combination of three movements from other parts of the world. These included the Russian system, the Scandinavian sloyd movement, and the English arts and crafts movement. The Russian influence emphasized strict adherence to formal procedures in learning about tools and making abstract products. The sloyd movement emphasized individual creativity in project selection and construction while the arts and crafts movement emphasized aesthetic craftsmanship in projects. The combination of these three movements provided the basis for manual training in the nineteenth century.

At the turn of the century and with the influence of World War I, more interest was created in developing manual skills for vocational purposes. Schools were established to teach students manipulative skills they could use in mechanical occupations.

Manual training for general education and manual training for vocational awareness is the foundation for many present-day traditional IA programs. The traditional views consider industrial arts as part of general education where tools, machines and materials are used for making well-crafted projects. The basic areas of study include wood, metals, drafting, automotives, and electricity and electronics. Although, through the years, the tools, machines and materials have changed dramatically, the basic educational concepts have not (Andrews & Erickson, 1976, pp. 25-34; Roberts, 1965, pp. 72-78).

Contemporary View of Industrial Arts

The contemporary view of industrial arts began when leaders in the field saw the need to move away from the emphasis on manual skill to the understanding of industrial processes used in transforming raw materials into products. The term "industrial arts" was first coined at

this time to describe the change in philosophy. Frederick Bonser, in 1913, established a program where students developed a deeper understanding of industrial methods used in meeting human needs, through the use of tools, machines and materials (Andrews, 1976, p. 32). Around the same time, James E. Russell developed an industrial-arts course in which "the stages of production, manufacture, distribution and consumption of such raw materials as foods, textiles, woods, metals and clays" were studied. It included self-expression in the manual arts as well as a greater awareness of society and industry (Roberts, 1965, p.77).

Through the years, these basic ideas have developed into the present day contemporary view of industrial arts. These views are probably best described in The Iowa Guide for Curriculum Improvement in Industrial Arts (1975, p. 10). It states that industrial arts is the study of industry and technology through learning experiences involving experimenting, planning, designing, constructing, evaluating and using tools, machines, materials, and processes. The ultimate purpose is to provide students with a wide range of experiences to enable them to succeed as effective producers and consumers in our technological society. Snyder and Hales (1981) add that industrial arts can provide students with a better awareness of industry and technology so they can properly assess the use of new technologies to avoid damaging or destructive affects on individuals, society and the environment.

More specifically, the study of industry and technology should center around four systems important to every society. These systems are communication, construction, manufacturing and transportation. In

this context, technology is the development of tools, machines, materials and techniques for each of these systems. Industry is, therefore, the use of technology to provide goods and services for these four systems to meet the needs of individuals and society (Snyder & Hales, 1981).

The Popular View of Industrial Arts

The Standards for Industrial Arts Programs Project at the Virginia Polytechnic Institute recently completed a three-year project to develop standards for industrial arts in the United States (Dugger, 1980). The study included the philosophical views of public school principals, industrial arts chairpersons and guidance coordinators in a nation-wide survey of the perceptions of the current and ideal purposes of industrial arts (Blame & Miller, 1980). The instruments used in this study were taken from a similar study by Schmitt and Pelley in 1966. When the results of both studies were compared, they showed that the purposes of industrial arts changed very little during the 17 years between the two studies. The highest ranked purpose in both studies was developing student skill in the use of common tools and machines. The lowest ranked purpose was the understanding of the relationship between technology and culture. In addition, there were no real differences between the current perceptions and the ideal perceptions of the respondents. In other words, the current nation-wide view of the purpose of industrial arts is a traditional one. The ideal purpose of industrial arts is also viewed traditionally. The contemporary view of industrial arts as a general study of industry and technology is basically not being observed.

Program Evaluation

Whether a university views their industrial arts curriculum as traditional or as contemporary, it should have a good evaluation system in order to prepare future teachers to meet the needs of industrial arts students from elementary through high school. Those in the public schools may perceive the purpose of industrial arts differently than the university. Therefore, the university may need to revise their curriculum to adequately prepare future teachers to function in traditional IA environments with the ability to develop contemporary curriculums.

Lent (cited in Feasley, 1980, p.34) divides program evaluation into three categories: program planning, program improvement, and program justification. Ball (cited in Feasley, 1980 p.35) takes a slightly different view and describes program evaluation as needs assessment, formative evaluation, and summative evaluation. However, a better definition of program evaluation is presented by Morris and Fitz-Gibbons (1978, p.8). They divide program evaluation into four stages of development: needs assessment, program planning, formative evaluation and summative evaluation. This system is designed for implementing a new program or for restructuring an existing program. Due to this nature, it is many times referred to as a program development model.

Needs Assessment

In this first stage, the needs of students participating in the program are determined. These can be determined through departmental staff expertise, expert opinion, national and state surveys, or through follow-up surveys of departmental graduates. Needs should be defined

as they relate to curriculum, course and lesson planning, demonstration and lecture presentation, knowledge of content areas and skill in using related machines and equipment, management of students, and facility layout, among other areas of concern.

When needs are determined, then goals should be set for the program. These goals may be for an entirely new curriculum, for restructuring part of an existing curriculum, or for adding only a new course to an existing curriculum (Morris & Fitz - Gibbons, 1978, p. 8).

Program Planning

In this stage, those involved in directing the program prioritize the goals. Then a plan is drawn up for attaining goals with emphasis placed on top priority items. This plan may include a sequence of courses to be taken by a student to complete a newly developed degree, or a change in course content for an existing degree, or the requirements to be met by a student taking a new course. When tentative plans are completed, the program is ready to be implemented and developed (Morris & Fitz - Gibbons, 1978, p. 8).

Formative Evaluation

This is the stage where a program is implemented. Evaluation is necessary to get the program "on its feet." Thus program directors need feedback from an objective source. This may be a formal program evaluator or faculty involved in the program. It is essential that this individual be involved enough in the implementation to be able to tell the director how progress is being made. The evaluator also works with the director to adjust the program to its setting. In general, formative evaluation helps to effectively attain goals and meet the needs of students (Morris & Fitz - Gibbons, 1978, p. 8).

Summative Evaluation

At this stage of evaluation, the program should be well established and running smoothly. Evaluation is essential to determine if the program should be eliminated, reduced, maintained, expanded, or even recommended to other schools. It all depends on whether needs are being met. There may be an increase in the demand for industrial-arts teachers or there may be a need to change a philosophy. The follow-up study is a very effective tool at this level. No one knows better than the graduates if they have the necessary educational background to be successful teachers. Surveys of school principals or department heads may also prove helpful. Whatever the source, shortcomings need to be identified and improved upon. Thus any improvement to an existing program involves constant recycling of the evaluation process (Morris & Fitz-Gibbons, 1978, p. 9).

Advantages of Follow-Up Studies

In program evaluation, need assessment leads to planning. When plans are installed, then there is need for summative evaluation for program improvement. According to Headrick (1977, p.4), these are two of the areas where follow-up studies prove to be most advantageous. In addition, follow-up studies are helpful in program justification.

Program Planning and Decision Making

Follow-up studies provide a current data base around which goals can be assessed. Changes in goals lead to changes in plans. On the other hand, goals may stay the same, but a need for planning changes may occur. Either way, several new alternative plans may be developed. Deciding on the best alternative also requires solid data gathered from follow-up studies.

Program Improvement

One of the main purposes of follow-up studies is program improvement. Follow-up studies help point out shortcomings as well as the positive aspects of a program. Follow-up studies reporting negative findings may lead to program elimination, reduction, expansion or revision. Positive findings may lead to the same and can be used to improve other programs or be recommended to other schools.

Program Justification

Many times educators are called upon to justify new or improved programs to the general public and to administrators. As budgets grow leaner, justification becomes even more important. Follow-up studies can prove very helpful in this regard. A good data base can support the need for changes that can result in program expansion or revision.

Disadvantages of Follow-Up Studies

According to Morell (1979, p.14-18), there are three main disadvantages or shortcomings of follow-up studies. The first has to do with the number of graduating classes that are surveyed. The longer a person is out of school, the harder it is to determine if success or failure is due to education or "something else" (e.g., experience). It is much easier to determine if outstanding performance is due to a strong educational program in the first year of teaching than it is to relate outstanding performance in the fifth year of teaching. The performance of the latter may be due to experience. Therefore, responses from "older" graduates will not always provide realistic information for program evaluation. A second shortcoming has to do with the cost and difficulty of identifying, locating and collecting data from graduates. Again, the farther back a study extends in time, the harder

it is to identify graduates and get current addresses. Finally, Morell (1979) connects the third disadvantage to the second. Because graduates may be difficult to locate, a biased sample may result. This may cause a misunderstanding of needs which may result in improper goal setting and planning.

CHAPTER III

METHODOLOGY

This chapter describes the methods used in conducting the survey of graduates. The population of IAE majors is described as well as the survey instrumentation. In addition, the mailing procedures are explained along with the follow-up procedures.

Population

One hundred and twenty-eight graduates were surveyed. This population consisted of all Industrial Arts Education majors who graduated between 1976 and 1981 inclusive. The initial frame was obtained from the University of Northern Iowa Alumni Office. It included the name, address, phone number, and year of graduation for each member of the population.

Instrumentation

The first instrument sent to each member of the population was a postcard. It asked for the month and year that all graduation requirements were completed, a current name and address, and the teaching status of each graduate (see Appendix A).

Two additional instruments were also developed based on the research questions. The first was a survey questionnaire developed for graduates who were currently teaching industrial arts (see Appendix B). The second was a questionnaire for graduates who formerly taught industrial arts (see Appendix C). The second questionnaire was a shorter version of the first. It contained only those questions that could be answered by former teachers.

The instrument for graduates that were currently teaching was submitted to ten UNI industrial technology faculty to review for clarity. Seven were returned with comments. The comments were used to make a final draft of the two instruments.

Mailing and Follow-up Procedure

Postcard

Each graduate was sent a postcard with two weeks allowed for return. Those that did not return it were called and asked to answer the questions over the telephone. From the 128 graduates, 113 (88.3%) usable responses were received. The information from these responses was used to develop a new frame using the form in Appendix D.

New Frame and Population

The new frame included a current name and address for each of the 113 respondents and also indicated whether or not each graduate entered the teaching profession. For each graduate who did enter the teaching profession, the frame included the month and year in which the graduate entered full-time teaching. It also indicated whether or not the graduate was currently teaching. If the graduate was no longer teaching, the frame indicated the month and year in which the graduate last taught industrial arts. Using this frame, the population was delimited to 77 graduates -- 49 who were currently teaching industrial arts and 28 who formerly taught industrial arts.

First Mailing

The first questionnaire was sent to the current industrial arts teachers while the second questionnaire was sent to the former industrial arts teachers. A cover letter was sent with each questionnaire (see Appendix E). To enhance the return rate, a UNI pencil and a

stamped, return envelope were also enclosed. The graduates were asked to return the questionnaire within two weeks.

Follow-up

All non-respondents were sent another questionnaire along with a different cover letter (see Appendix F) and another stamped, return envelope. They were asked to return it within eleven days. The remaining non-respondents were telephoned. They were encouraged to return the questionnaire as soon as possible. The acceptance of returned questionnaires was terminated one week after the last non-respondent was called. Of the 77 subjects in the population, 41 current teachers and 20 former teachers responded. The total response rate was 79.2%. All of the responses were recorded using the forms in Appendix G.

CHAPTER IV

ANALYSES OF THE DATA

In this chapter the four original problem statements will be presented along with the responses from Industrial Arts Education (IAE) graduates. Each major problem statement (career decisions, teaching environment, UNI preparation, and professional involvement) is reported, along with supporting research questions and findings. In addition, discussion of how the findings relate to each problem statement is summarized. The final section of this chapter discusses the additional comments made by graduates about the IAE program at UNI.

One hundred and thirteen of the 128 IAE graduates responded to a postcard that defined the population. Of these graduates, 36 entered a non-teaching profession while 77 entered the IA teaching profession. The 77 IA teachers were sent a questionnaire of which 41 out of 49 current IA teachers and 20 out of 28 former IA teachers responded.

Responses were analyzed using the Statistical Package for the Social Sciences (SPSS). Frequencies, Crosstabs, and Breakdown were the names of the sub-programs used to establish frequencies, percentages, means, standard deviations, and a chi-square analysis.

Career Decisions

Problem Statement #1

What career decisions did IAE graduates make after graduation?

Research Questions and Findings

1. What percentage of industrial arts graduates entered the IA teaching profession and what percentage entered a non-teaching profession after graduation?

Of the 113 responses to the postcard, 68% entered the IA teaching profession while 32% entered a non-teaching profession.

2. Of those graduates who entered the teaching profession, what percentage were still teaching and what percentage left the teaching profession after teaching one, two, three, four, or five years?

Of the 77 graduates who entered the teaching profession, 64% were currently teaching industrial arts while 36% had left the teaching profession. Table 1 shows that, of the 28 graduates who left the teaching profession, 39% stayed in teaching one year, 21% stayed in teaching two years, and 21% stayed in teaching three years.

Table 1

Number of Years Graduates Taught

Before Leaving the Profession

Number of Years	Number of Graduates	Percent of Graduates
1	11	39.3
2	6	21.4
3	6	21.4
4	4	14.3
5	1	3.6
TOTAL	28	100.0

3. Was there a relationship between the time all graduation requirements were completed and whether or not graduates entered the teaching profession?

The value obtained when a chi-square analysis was applied to the data was 0.050. This value was less than the critical value (3.840) at the .05 level of significance with one degree of freedom. Therefore there was no relationship between the time of graduation and whether or not graduates entered the teaching profession (see Table 2).

4. What percentage of the graduates, who were currently teaching, stayed in the same school they entered after graduation?

Of the 41 graduates currently teaching, 26 (63.4%) were at the same school they entered after graduation.

5. What were the primary reasons for changing schools for those graduates who taught in more than one school?

Of the 41 currently teaching graduates, 15 (36.6%) changed schools. Table 3 shows that the two primary reasons for changing schools were to teach in a better laboratory facility and to earn a higher salary.

Summary

The findings show that 68% (77) of the graduates responding (113) made career decisions to enter the teaching profession. It was found that the month of graduation had no bearing on whether the graduates entered the teaching profession. Of the graduates who left teaching, nearly 40% taught only one year. Finally, 36.6% of the current teachers changed schools. The primary reasons were to work in better facilities and to receive a higher salary.

Teaching Environment

Problem Statement #2

What was the teaching environment of IAE graduates who were currently teaching and who formerly taught industrial arts?

Table 2

Relationship Between Completion Time of Graduation Requirements and Career Decisions

	May, July August	October, December March	Total
Number of Graduates That Entered Teaching	52	23	75
Number of Graduates That Did Not Enter Teaching	25	10	35
Total	77	33	110[a]

[a] Three respondents did not designate their month of graduation

Table 3

Reasons Given by Graduates for Changing Schools

Reason	Number of Responses	Percent of Responses
To teach in a better lab facility	8	22.9
For a better salary	7	20.0
Laid off due to a staff reduction	4	11.4
To specialize in some area of IA	4	11.4
To change grade levels	4	11.4
To teach several different IA courses	0	0.0
To change content area(s)	0	0.0
Other[a]	8	22.9
TOTAL	35	100.0

[a] See Appendix H for these reasons

Research Questions and Findings

The questions on the instrument sent to former teachers were all taken from the questionnaire sent to current teachers. Data collected from both questionnaires that pertained to the teaching environment will be presented first. Then data about the teaching environment collected from just the current teachers will be discussed. It should be recognized that the data collected from the current teachers were not collected from the former teachers because the latter may not have accurately remembered certain aspects of their former teaching environment.

Current and Former Teachers

1. What age groups did graduates teach?

Table 4 reports that the majority of the graduates taught in either a junior/senior high (45.9%) or a senior high school (42.6%).

Table 4

Age Groups Taught by Graduates (Former and Current IA Teachers)

Age Group	Number	Percent
Elementary	0	0.0
Middle School or Junior High	5	8.2
Junior/Senior High	28	45.9
Senior High	26	42.6
Other	2	3.3
TOTAL	61[a]	100.0

[a] This value represents the total number of graduates who responded to the questionnaire - 41 out of the 49 current teachers and 20 out of the 28 former teachers

2. How many faculty members were in the industrial arts departments in which graduates taught?

Table 5 shows that most of the graduates taught in small one (32.8%) or two (21.3%) teacher departments or in larger departments with five or more teachers (24.6%).

3. In what types of labs did graduates teach?

According to Table 6, graduates taught in all three types of labs. However, the comprehensive general lab (36.1%) and the area lab (39.3%) were slightly more popular than the multi-area lab.

Table 5

Number of Teachers in IA Departments

Number of Teachers	Number	Percent
1	20	32.8
2	13	21.3
3	8	13.1
4	5	8.2
5 or more	15	24.6
TOTAL	61 [a]	100.0

[a] Number of respondents - 41 current teachers, 20 former teachers

Table 6

Types of Labs

Type of Lab	Number	Percent
Area Lab	24	39.3
Comprehensive General Lab	22	36.1
Multi-Area Lab	15	24.6
TOTAL	61 [a]	100.00

[a] Number of respondents - 41 current teachers, 20 former teachers

4. In what content areas did graduates teach?

Several traditional content areas and several contemporary content areas were identified by respondents. Table 7 shows these content areas with the number and percent of graduates teaching in these areas.

The three most popular content areas were woods (72.1%), metals (60.7%), and drafting (72.1%).

Current Industrial Arts Teachers

1. What was the maximum allowable class size at the schools in which graduates taught?

Table 8 reports that 39% of the graduates indicated that the largest class size allowed by the school ranged from 16 to 20 students, while 22% indicated 21-25 students. The mean maximum class size was 20 students.

2. What was the average class size that graduates taught?

The average class size taught by graduates was slightly less than the maximum allowable size. Table 8 shows that 39% of the graduates reported that 10 to 15 students was the average class size while 26.8% reported 16-20 students. The mean average class size was 15.

3. What kind of activities were common among the daily schedules of all graduates who were currently teaching?

The data were collected through an open-ended question on the instrument where graduates were asked to provide a typical daily schedule. Graduates listed the periods of the day and the class or activity that filled each period. Ninety percent of the graduates had from six to eight periods per day in which industrial arts instruction was held, study hall was supervised, or preparation was accomplished.

Table 7

Content Areas Taught by Graduates

Content Area	Number	Percent
Traditional		
Drafting	44	72.1
Woods	43	70.5
Metals	37	60.7
Electricity/Electronics	20	32.8
Automotive	19	31.1
Plastics	14	23.0
Graphic Arts	3	4.9
Contemporary		
Power	16	26.2
Construction	14	23.0
Manufacturing	13	21.3
Material Processing	8	13.1
Graphic Communication	4	6.6
Other[a]	13	21.3

Note. Sixty-one out of the 77 teaching graduates made 248 responses for an average of four content areas per graduate.

[a] See Appendix I for these content areas.

Table 9 shows that over one half of the graduates (51.6%) had five instruction periods while nearly one-fourth (24.4%) had six periods. Over half (56.1%) had one preparatory period, 26.8% had no preparatory periods, and 95.1% had zero or one study hall (61% had no study hall).

Table 8

Maximum Allowable and Average Class Sizes

Taught by Graduates Currently Teaching

	Maximum Allowable		Average	
	Number	Percent	Number	Percent
Less than 10 students	1	2.4	5	12.2
10-15 students	7	17.1	16	39.0
16-20 students	16	29.0	11	26.8
21-25 students	9	22.0	8	19.5
26-30 students	4	9.8	0	0.0
Over 30 students	1	2.4	1	2.4
No specific limit	3	7.3	NA	NA
TOTAL	41[a]	100.0	41[a]	100.0

[a] Represents 41 out of 49 current teachers who responded to the questionnaire

Summary

The teaching environment of graduates was in either a junior/senior high or a senior high setting. The IA departments were either small with one or two teachers or large with five or more teachers. Graduates taught in all three types of labs: comprehensive general, multi-area, and area. Wood, metals, and drafting were the most frequently taught

Table 9

Number of Periods and Daily Activities Of IAE Graduates

Activity and Number of Periods	Number	Percent
IA Instruction		
3	1	2.4
4	1	2.4
5	23	56.1
6	10	24.4
7	6	14.6
Preparatory		
0	11	26.8
1	23	56.1
2	7	17.1
Study Hall		
0	25	61.0
1	14	34.1
2	2	4.9

content areas. The maximum allowable class size was 20 with the average class size being 15. Finally, graduates had five or six class periods with either one or no preparatory period and sometimes one study hall.

UNI Preparation

Problem Statement #3

How did graduates who were currently teaching and who formerly taught industrial arts perceive the preparation they received from UNI?

Research Questions

1. In light of their teaching experience, how did graduates perceive the preparation received while at UNI?

The questionnaire listed fifteen areas of study and the graduates were asked to rate each either as inadequate, adequate, good, or excellent. Table 10 shows that most of the areas received an adequate to good rating with an overall mean of 2.286.

Areas that received the highest percentage of inadequate ratings were machine and equipment maintenance (49.2%) and working with special needs students (57.4%). Inventory control and budgets, and specifying and ordering equipment were also rated low. Four areas received relatively high ratings (the Good and Excellent categories were combined). These included presenting demonstrations (59.0%), general technical knowledge (70.5%), machine and equipment operation (67.3%) and facility layout and equipment arrangement (80.3%).

2. Would graduates recommend the Industrial Technology Department at UNI to students interested in pursuing a career in industrial arts education?

Almost all of the graduates (90.2%) would recommend the Industrial Technology Department to industrial arts education oriented students.

3. Did graduates feel that a supervisor from the Industrial Technology Department would have been helpful during the student-teaching experience?

A four-point Lickert scale indicating strongly agree, agree, no opinion, and strongly disagree was used for graduates to respond to a statement about student-teaching supervision. Table 11 shows that very few (16.4%) disagreed with having an Industrial Technology Department supervisor. The majority (67.2%) thought it was a good idea.

Table 10

Graduate Perceptions of the Preparation Received in Selected Areas of Study

Area of Study	Graduate Ratings (in Percent)					
	Inadequate	Adequate	Good	Excellent	Mean[a]	S.D.
Total industrial arts curriculum planning	16.4	31.1	45.9	6.6	2.426	0.846
Course planning	18.0	41.0	27.9	13.1	2.361	0.932
Lesson planning	16.4	31.1	39.3	13.1	2.492	0.924
Presenting lectures	24.6	37.7	34.4	3.3	2.146	0.840
Presenting demonstrations	13.1	27.9	50.8	8.2	2.541	0.828
Utilizing audio/visual media	24.6	42.6	27.9	4.9	2.131	0.846
Management of students in the lab	32.8	36.1	23.0	8.2	2.066	0.946
General technical knowledge of tools, materials, machines, and processes	13.1	16.4	45.9	24.6	2.820	0.958
Machine and equipment operation	16.4	16.4	44.3	23.0	2.738	0.998
Machine and equipment maintenance	49.2	31.1	9.8	9.8	1.803	0.980

Table 10 (cont.)

Area of Study	Graduate Ratings (in Percent)					
	Inadequate	Adequate	Good	Excellent	Mean[a]	S.D.
Facility layout and equipment arrangement	4.9	14.8	49.2	31.1	3.066	0.814
Inventory control and budgets	36.1	37.7	23.0	3.3	1.934	0.854
Specifying and ordering supplies	36.1	32.8	26.2	4.9	2.000	0.913
Specifying and ordering equipment	26.2	36.1	32.8	4.9	2.164	0.879
Working with special needs students	57.4	29.5	9.8	3.3	1.590	0.804
OVERALL MEAN	25.7	30.8	32.7	10.8	2.286	0.891

[a] One (1) represents inadequate and four (4) represents excellent ratings from respondents

Summary

Overall, graduates perceived their UNI preparation as adequate to good. In particular, graduates reported a low rating regarding preparation in machine and equipment maintenance, working with special needs students, inventory control and budgets, and specifying and ordering equipment. Good ratings were given to presenting demonstrations, general technical knowledge, machine and equipment operation, and facility layout and equipment arrangement. Almost all of the

Table 11

Graduate Responses to Having An Industrial Technology Department Supervisor for the Student-Teaching Experience

Category	Number	Percent of Graduates
Strongly Agree	15	24.6
Agree	26	42.6
No Opinion	10	16.4
Strongly Disagree	10	16.4
TOTAL	61[a]	100.0

[a] Total respondents - 41 current teachers, 20 former teachers

graduates would recommend the Industrial Technology Department to students and they felt an Industrial Technology Department supervisor would have been helpful in their student-teaching experience.

Professional Involvement

Problem Statement #4

To what extent were graduates who were currently teaching industrial arts involved in professional teaching organizations?

Research Questions

1. What percentage of graduates were members of professional teaching organizations?

Table 12 shows that 63.4% of the 41 current teachers were members of the National Education Association (NEA) while 58.5% were members of their local teacher association. As far as industrial arts organizations were concerned, 12 (29.3%) of the 41 current teachers were members

of the American Industrial Arts Association (AIAA) and 12 (29.3%) were members of the Iowa Industrial Education Association (IIEA).

2. What percent of graduates attended professional conferences?

Of the 41 graduates that were currently teaching 10 (24.4%) attended the IIEA conference (see Table 12). In addition the Industrial Education Exposition (IEE) at UNI was attended by 15 (36.6%) of the current teachers.

Summary

Overall, it appears that the current teachers were members of professional teaching organizations, but in general did not attend many conferences. The most popular organizations for membership were the NEA, the local teacher associations, the AIAA, and the IIEA. Of the graduates who attended conferences, the IIEA conference and the Iowa Education Exposition were the most popular.

Additional Comments

An open-ended question on both instruments gave graduates the opportunity to make personal comments about the IAE program at UNI. As a group, they made several similar remarks. First of all, many indicated that more preparation was needed to teach in traditional environments. Comments also supported the low rating received in the selected areas of study (Table 10). In particular, graduates commented that more preparation was needed in machine maintenance and in ordering supplies. In addition, they felt the need for more background in automotives and managing students. Appendix K gives examples of the comments made by the current and former teachers.

Table 12

Graduates Who Were Members of Professional Teaching Organizations and Attended the Associated Conferences

Organization	Member		Attended Conference	
	Number	Percent	Number	Percent
American Industrial Arts Association (AIAA)	12	29.3	2	4.9
Iowa Industrial Education Association (IIEA)	12	29.3	10	24.4
American Vocational Association (AVA)	0	0.0	0	0.0
Iowa Vocational Association (IVA)	0	0.0	0	0.0
National Education Association (NEA)	26	63.4	1	2.4
Local Teacher Association	24	58.5	3	7.3
Industrial Education Conference (Ames, Iowa)	NA	NA	4	9.8
Industrial Education Exposition (UNI)	NA	NA	15	36.6
Other[a]	6	14.6	4	9.8

[a] See Appendix J for these organizations.

CHAPTER V

SUMMARY, CONCLUSIONS, DISCUSSION, RECOMMENDATIONS

Summary and Conclusions

In today's universities, industrial arts teacher educators must prepare future teachers to function in traditional IA environments with the ability to develop contemporary curriculums in secondary schools. As a result, teacher educators must be more cognizant of the real needs of their graduates. To do this, the Industrial Technology Department at UNI conducted a follow-up study of Industrial Arts Education graduates to assess their career decisions, teaching environment, professional involvement, and their opinions concerning the preparation from UNI.

One hundred and twenty-eight IAE majors who graduated from 1976 through 1981 were sent a postcard that asked for the month and year all graduation requirements were completed, a current name and address, and the teaching status of each graduate. Of the 113 (88.3%) who responded, 77 made career decisions to enter the IA teaching profession, while 36 entered a non-teaching profession. Of the 77 who entered teaching, 49 graduates indicated they were currently teaching and 28 reported they formerly taught IA. Of the former teachers, 23 left the profession after three years. By combining this figure with the 36 who never entered teaching, it was found that after three years 52.2% of the graduates were not in the IA teaching profession. It was assumed that students who graduated after the start of the regular school year (graduated in October, December, or March) would not be able to find a

teaching position until the start of the following year and as a result would not enter the teaching profession. However, it was found that the month of graduation had no significant bearing on whether graduates entered the teaching profession.

Two questionnaires were developed with one sent to graduates who were currently teaching and one to those who formerly taught industrial arts. It was found that the average class size was 15 in either a junior/senior high or a senior high. Over half of the graduates were teaching in small departments with one or two instructors while about one-fourth were in large departments of five or more teachers. Over 60% of the graduates taught in labs incorporating more than one content area (either comprehensive or multi-area labs). On the average, graduates taught four different content areas. Woods, metals, and drafting were the content areas most frequently taught. In addition, graduates had five to six class periods per day with over one-fourth having no preparatory periods.

Graduates in general perceived their UNI preparation as adequate to good. Specifically, graduates gave low ratings to preparation in machine and equipment maintenance, working with special needs students, inventory control and budgets, and specifying and ordering equipment. Good ratings were given to presenting demonstrations, general technical knowledge, machine and equipment operation, and facility layout and equipment arrangement. Almost all of the graduates would recommend the Industrial Technology Department to students and they felt an Industrial Technology Department supervisor would have been helpful in their student-teaching experience.

Finally, it was found that graduates were not very involved in professional teaching organizations. Although membership was relatively

high in NEA and the local teacher associations, it was less than desirable in the IA-related organizations. In addition, only two conferences showed any measure of attendance, the IIEA conference and the Industrial Education Exposition.

Discussion

The graduates reported that the most common content areas were woods, metals, and drafting -- areas reflecting a traditional philosophy. This supports the findings of the Standards for Industrial Arts Programs Project (SIAPP) (Blame & Miller, 1980) regarding the philosophical views held in secondary schools nationwide. They found that a traditional view of IA was held and that this view had changed very little during the time since the Schmidt and Pelley (1966) study. It appears that IAE graduates from UNI are teaching in schools similar to those surveyed by the SIAPP.

During the period from 1976 through 1981 when the IAE graduates were receiving preparation to enter teaching, many changes occurred in the Industrial Technology Department. These changes may have had an affect on the graduates, faculty, and the educational process. First of all, the class of 1976 was the first to graduate from the new facility, the Industrial Technology Center. Both the students and the faculty were involved in the move from Latham Hall. Secondly, a new industrial arts curriculum was implemented in 1976 requiring some of the graduates to change from the old to the new curriculum. Finally, the size of the department and the number of faculty grew considerably during the period. A number of new faculty members came, some faculty members left and a change in department heads occurred during this time. It is impossible to determine how much of an affect these changes

had on the graduates, but it is important that results of this study be interpreted in light of the many changes that have taken place over the years.

Recommendations

The following recommendations are divided into two categories. The first section is designed for researchers attempting to duplicate this research effort or investigate a related problem area. The second section suggests recommendations for IA practitioners at the university level and in the field.

Researchers

1. Instrument validity and reliability should be established before completing another study of this nature.

2. A survey should be conducted to determine why IA graduates entered a non-teaching profession.

3. A survey of former IA teachers should be conducted to identify the reasons for leaving the teaching profession.

4. A study of the schools in which graduates teach should be conducted to specifically identify the philosophy of IA held by teachers and administrators. The findings could be compared to the results from the Standards for Industrial Arts Programs Project (Blame & Miller, 1980).

Industrial Arts Teacher Educators

1. Industrial Arts Education students should be informed of the type of environment in which they will most likely be teaching.

2. Consideration should be given to the IA course content and instruction based upon the teaching environment identified in this study.

3. Student preparation should be improved in certain IA related areas. Machine and equipment maintenance needs more attention. In addition, better preparation is necessary in inventory control and budgets, specifying and ordering equipment, and in working with special needs students.

4. More emphasis should be placed on the importance of professional teaching organization involvement. Conference attendance and membership in IA professional organizations should be strongly encouraged by teacher educators.

Appendix A

Survey Postcard

The Industrial Technology Department at UNI is interested in your employment decision(s) as an Industrial Arts Education (BA) graduate. Will you please answer the following questions and drop this card in the mail before March 31, 1982.

Thank you. Dr. M. Roger Betts

Month and year you completed all graduation requirements: ___/___

Name Current Address

City State Zip

Have you ever had a full-time industrial arts teaching position?

Yes No Please return this card.

Month and year you started your first full-time industrial arts teaching position: ___/___

Month and year you last taught industrial arts (give today's date if you are currently teaching): ___/___

Dr. M. Roger Betts
Industrial Technology Department
University of Northern Iowa
Cedar Falls IA 50614

Appendix B

Questionnaire for Current Teachers

DEPARTMENT OF INDUSTRIAL TECHNOLOGY
UNIVERSITY OF NORTHERN IOWA

☐☐☐☐☐

INDUSTRIAL ARTS FOLLOW-UP QUESTIONNAIRE

DIRECTIONS: Please answer the following questions in view of your current industrial arts teaching position by placing an "X" in the appropriate box.

1. What age group do you teach?

1 ☐ Elementary
2 ☐ Middle School or Junior High
3 ☐ Junior/Senior High
4 ☐ Senior High
5 ☐ Other (please specify) _____

2. How many industrial arts teachers are in your department?

☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 or more

3. In what kind of lab (shop) do you teach?

1 ☐ COMPREHENSIVE GENERAL LAB. This is a self-contained laboratory in which provision is made for instruction in four or more content areas of industrial arts education. (If only one industrial arts lab is used, it is usually this type.)

2 ☐ MULTI-AREA LAB. This facility provides for instruction in two or three of the major content areas in industrial arts education; for example, a material processing lab or a drafting and electricity lab. (There may be one or more of these labs in a school.)

3 ☐ AREA LAB. This facility provides for instruction in several phases of one particular area of study; for example, a metals lab where different metals and the associated machine tools are studied (a separate lab for each area of study).

4. What is the maximum allowable class size in industrial arts at your school?

1 ☐ less than 10 students
2 ☐ 10-15 students
3 ☐ 16-20 students
4 ☐ 21-25 students
5 ☐ 26-30 students
6 ☐ over 30 students
7 ☐ no specific limit

5. What is the average class size in industrial arts at your school?

1 ☐ less than 10 students
2 ☐ 10-15 students
3 ☐ 16-20 students
4 ☐ 21-25 students
5 ☐ 26-30 students
6 ☐ over 30 students

6. What content area(s) do you teach? (Check all that apply)

☐ Woods
☐ Metal
☐ Drafting
☐ Automotive
☐ Electricity/Electronics
☐ Plastics
☐ Other (please specify) _____

☐ Graphic Arts
☐ Material Processing
☐ Manufacturing
☐ Construction
☐ Power
☐ Graphic Communication

7. Please fill in your daily schedule below. If it varies from day to day, provide your "typical" schedule.

PERIOD	CLASS OR OTHER ACTIVITY

8. Are you teaching in the same school as you did for your first teaching position?

☐ Yes ——→ Go to question 10, skip question 9

☐ No ——→ Go to question 9

9. What was the primary reason(s) for moving to a different position? (Check all that apply)

☐ To specialize my teaching (for example, to teach just woods or just automotives)

☐ To generalize my teaching (for example, to teach several different courses such as woods, metals, drafting and automotives)

☐ To change the content area(s) of teaching responsibility (I changed from teaching _____ (content area) to teaching _____ (content area))

☐ To change to a different grade level (I changed from teaching grade(s) _____ to teaching grade(s) _____)

☐ To teach in a better industrial arts facility

☐ For a better salary

☐ Due to a reduction in teaching staff I was forced to find another position

☐ Other (please specify) _____

10. Please check all the following organizations of which you are a member. In the right column indicate the number of annual conferences you have attended during your teaching career.

	Member	Attended Conference
American Industrial Arts Association (AIAA)	☐	☐
Iowa Industrial Education Association (IIEA)	☐	☐
American Vocational Association (AVA)	☐	☐
Iowa Vocational Association (IVA)	☐	☐
National Education Association (NEA)	☐	☐
Local Teacher Association	☐	☐
Industrial Education Conference (Ames, Iowa)	Not Applicable	☐
Industrial Education Exposition (UNI)	Not Applicable	☐
Other (please specify) _____	☐	☐

11. In view of your experience in teaching industrial arts, how do you perceive the preparation you received at UNI in the following areas (please check the appropriate box on the right):

	1 Inadequate	2 Adequate	3 Good	4 Excellent
a. Total industrial arts curriculum planning	☐	☐	☐	☐
b. Course planning	☐	☐	☐	☐
c. Lesson planning	☐	☐	☐	☐
d. Presenting lectures	☐	☐	☐	☐
e. Presenting demonstrations	☐	☐	☐	☐
f. Utilizing audio/visual media	☐	☐	☐	☐
g. Management of students in the lab	☐	☐	☐	☐
h. General technical knowledge of tools, materials, machines and processes	☐	☐	☐	☐
i. Machine and equipment operation	☐	☐	☐	☐
j. Machine and equipment maintenance	☐	☐	☐	☐
k. Facility layout and equipment arrangement	☐	☐	☐	☐
l. Inventory control and budgets	☐	☐	☐	☐
m. Specifying and ordering supplies	☐	☐	☐	☐
n. Specifying and ordering equipment	☐	☐	☐	☐
o. Working with special needs students	☐	☐	☐	☐
p. Other (please specify) _____ _____	☐	☐	☐	☐

12. Please indicate your opinion of the following statement:

"It would be helpful if industrial arts student teachers were supervised by someone from the Industrial Technology Department as well as the UNI coordinator."

☐ 1 Strongly Agree ☐ 2 Agree ☐ 3 No Opinion ☐ 4 Strongly Disagree

13. Would you recommend the Industrial Technology Department at UNI to students interested in pursuing a career in Industrial Arts Education?

1 ☐ Yes

2 ☐ No

Please use the space below to add any additional comments you can offer that will help us in the review and revision of the Industrial Arts Program.

THANK YOU FOR YOUR HELP! Please put this questionnaire in the stamped return-addressed envelope and drop it in the mail before May 14, 1982.

Appendix C

Questionnaire for Former Teachers

DEPARTMENT OF INDUSTRIAL TECHNOLOGY

UNIVERSITY OF NORTHERN IOWA

☐☐☐☐☐

INDUSTRIAL ARTS FOLLOW-UP QUESTIONNAIRE

DIRECTIONS: Please answer the following questions in view of your most recent industrial arts teaching position by placing an "X" in the appropriate box.

1. What age group did you teach?

   1 ☐ Elementary
   2 ☐ Middle School or Junior High
   3 ☐ Junior/Senior High
   4 ☐ Senior High
   5 ☐ Other (please specify) _____

2. How many industrial arts teachers were in your department?

   ☐ 1
   ☐ 2
   ☐ 3
   ☐ 4
   ☐ 5 or more

3. In what kind of lab (shop) did you teach?

   1 ☐ COMPREHENSIVE GENERAL LAB. This is a self-contained laboratory in which provision is made for instruction in four or more content areas of industrial arts education. (If only one industrial arts lab is used, it is usually this type.)

   2 ☐ MULTI-AREA LAB. This facility provides for instruction in two or three of the major content areas in industrial arts education; for example, a material processing lab or a drafting and electricity lab. (There may be one or more of these labs in a school.)

   3 ☐ AREA LAB. This facility provides for instruction in several phases of one particular area of study; for example, a metals lab where different metals and the associated machine tools are studied (a separate lab for each area of study).

4. What content area(s) did you teach? (Check all that apply)

- ☐ Woods
- ☐ Metal
- ☐ Drafting
- ☐ Automotive
- ☐ Electricity/Electronics
- ☐ Plastics
- ☐ Other (please specify) _____
- ☐ Graphic Arts
- ☐ Material Processing
- ☐ Manufacturing
- ☐ Construction
- ☐ Power
- ☐ Graphic Communication

5. In view of your experience in teaching industrial arts, how do you perceive the preparation you received at UNI in the following areas (please check the appropriate box on the right):

	1 Inadequate	2 Adequate	3 Good	4 Excellent
a. Total industrial arts curriculum planning	☐	☐	☐	☐
b. Course planning	☐	☐	☐	☐
c. Lesson planning	☐	☐	☐	☐
d. Presenting lectures	☐	☐	☐	☐
e. Presenting demonstrations	☐	☐	☐	☐
f. Utilizing audio/visual media	☐	☐	☐	☐
g. Management of students in the lab	☐	☐	☐	☐
h. General technical knowledge of tools, materials, machines and processes	☐	☐	☐	☐
i. Machine and equipment operation	☐	☐	☐	☐
j. Machine and equipment maintenance	☐	☐	☐	☐
k. Facility layout and equipment arrangement	☐	☐	☐	☐
l. Inventory control and budgets	☐	☐	☐	☐
m. Specifying and ordering supplies	☐	☐	☐	☐
n. Specifying and ordering equipment	☐	☐	☐	☐
o. Working with special needs students	☐	☐	☐	☐
p. Other (please specify) _____ _____	☐	☐	☐	☐

6. Please indicate your opinion of the following statement:

"It would be helpful if industrial arts student teachers were supervised by someone from the Industrial Technology Department as well as the UNI coordinator."

1 ☐ Strongly Agree 2 ☐ Agree 3 ☐ No Opinion 4 ☐ Disagree 5 ☐ Strongly Disagree

7. Would you recommend the Industrial Technology Department at UNI to students interested in pursuing a career in Industrial Arts Education?

1 ☐ Yes

2 ☐ No

Please use the space below to add any additional comments you can offer that will help us in the review and revision of the Industrial Arts Program.

THANK YOU FOR YOUR HELP! Please put this questionnaire in the stamped return-addressed envelope and drop it in the mail before May 14, 1982.

Appendix D

Form for New Frame

Student Name	Current Address	Grad Mo/Yr	Held Teaching Position	Mo/Yr Started Full-Time	Mo/Yr Last Taught (C = current)

Appendix E

First Cover Letter

University of Northern Iowa

Department of Industrial Technology
(319) 273-2561

Cedar Falls, Iowa 50614

Industrial arts teachers know the best way to learn is "by doing." It follows then, that you have learned from your teaching experience--"by doing." As an industrial arts graduate of UNI, you have gained something special that I need. I need the benefit of your expertise!

The Department of Industrial Technology has a new department head, Dr. John Fecik, and with him a renewed interest in developing an even better industrial arts education program. A coordinator has been appointed to be responsible for the program and constantly seek to improve it. A committee is currently studying the entire industrial arts curriculum. A major component of this study is to obtain feedback from graduates of the program. The information, which only you can provide, is very valuable to the committee.

Recently you returned a postcard or told us over the phone about your teaching status. Enclosed you will find a questionnaire on which you can tell us about your experience. Please take about five to ten minutes to complete it and return to us by May 14, 1982, in the stamped, return envelope. In fact, why not use the enclosed pencil and do it right now? You may keep the pencil as a token of our appreciation.

In no way will your individual responses be identified in the results of this study. The code numbers on the questionnaire will only be used for follow-up purposes.

Thank you for your assistance. I look forward to hearing from you.

Sincerely,

Dr. Roger Betts, Coordinator
Industrial Arts Education Program

RB:es

Enclosures

Appendix F

Second Cover Letter

University of Northern Iowa

Department of Industrial Technology
(319) 273-2561

Cedar Falls, Iowa 50614

Industrial arts teachers know the best way to learn is "by doing." It follows then, that you have learned from your teaching experience--"by doing." As an industrial arts graduate of UNI, you have gained something special that I need. I need the benefit of your expertise!

The Department of Industrial Technology has a new department head, Dr. John Fecik, and with him a renewed interest in developing an even better industrial arts education program. A coordinator has been appointed to be responsible for the program and constantly seek to improve it. A committee is currently studying the entire industrial arts curriculum. A major component of this study is to obtain feedback from graduates of the program. The information, which only you can provide, is very valuable to the committee.

Recently you returned a postcard or told us over the phone about your teaching status. Enclosed you will find a questionnaire on which you can tell us about your experience. Please take about five to ten minutes to complete it and return to us by May 14, 1982, in the stamped, return envelope. In fact, why not use the enclosed pencil and do it right now? You may keep the pencil as a token of our appreciation.

In no way will your individual responses be identified in the results of this study. The code numbers on the questionnaire will only be used for follow-up purposes.

Thank you for your assistance. I look forward to hearing from you.

Sincerely,

Dr. Roger Betts, Coordinator
Industrial Arts Education Program

RB:es

Enclosures

Appendix G

Questionnaire Response Forms

Current IA Teachers

D.	Student Name	Address	Follow-up (Date sent or called)			Co pl
			1	2	Called	

Former IA Teachers

	Student Name	Address	Follow-up (Date sent or called)			Com-plet
			1	2	Called	

Appendix H

Other Reasons Given by Graduates for Changing Schools

1. To work on an advanced degree - masters.
2. Semester replacement.
3. Left teaching for one year.
4. Coaching duties.
5. Change in locality of residence of the United States.
6. Closed junior high school and moved to high school.
7. Family medical problems.
8. Job location.

Appendix I

Other Content Areas Taught by Graduates

Current IA Teachers

1. Blue print reading - construction.
2. Photography I and II.
3. Leather.
4. Welding, independent study.
5. Small engines.
6. Junior high woods, metals, electricity, power.
7. General shop class.
8. On the job training (coop class).
9. Projects.

Former IA Teachers

1. Machine shop - toolmaking.
2. Auto body.
3. Trade and Industrial Machining.
4. Vocational welding.

Appendix J

Other Professional Teaching Organizations and Conferences Indicated by Graduates

1. Wisconsin Industrial Arts Association.
2. Minnesota Education Association.
3. American Foundrymen's Society.
4. Iowa State Education Association (ISEA).
5. Area 7/DPI Industrial Education Meeting.
6. Washington Industrial Arts Association.
7. Washington Educational Association.
8. Vocational Industrial Clubs of America (VICA).
9. Society of Automotive Engineers.

Appendix K

Examples of Additional Comments Made by Graduates

Current IA Teachers

1. In leaving UNI, I felt that I had a good background in the "new" curriculum of Industrial Arts. It became apparent to me though, when looking for a teaching job, that this "new" curriculum had only been implemented in a few high schools and middle schools in Iowa. I became frustrated in my search for a job where I could apply the concepts of the cluster approach when only few existed. Since that time, I still have yet to see a big change in trying to get schools to move away from the "traditional" approach of teaching Industrial Arts. I feel well qualified to teach the cluster approach but was unqualified to teach in the traditional department which I have come to realize is the more realistic situation which exists in Iowa schools. Hopefully, I can get my department changed to the cluster approach totally but I am sure that many new teachers experienced this same problem and won't be able to get their departments changed because of declining enrollments, budget cuts, etc.

2. I feel I had very little knowledge of the mechanical skill involved in the areas of woods, drafting, and metals, which has greatly hindered my teaching profession.

3. I would recommend UNI IA program only for its reputation status. I personally was disappointed with the cluster concept of teaching. I gained very little in this method and certainly did not learn equipment maintenance. All machines were preset by the Assistant Professor and we had instructions to run everything through in a mass production method. Don't worry about set up just turn the machine on and let it do its thing.

4. Your department did a fine job in preparing an individual to teach at the junior high level. We take our high school students further in depth than your curriculum provided for. My suggestion is to spend more of the structured time in labs gaining "hands-on" experience, rather than theory in classroom which a student can get on his own time. Secondly, the educational courses at the university were aimed at elementary teaching, I feel, and were totally irrelevent to industrial arts at any level.

5. I feel that UNI students would benefit if they had more knowledge of laboratory maintenance and the ordering of supplies and materials.

I would like to see the three (33:005, 33:020, 33:032) systems courses dropped from required core. An addition of 6 hours of credit to the 'elective' area would allow students to take additional classwork in an area of emphasis and/or obtain a second area of emphasis.

6. I feel that there needs to be an improvement in the automotive area. I never took an automotive course at UNI and when I took this teaching position I had no choice about teaching automechanics.

7. Should introduce student to big engine overhaul. Especially industrial arts teacher. The different areas of the teaching phase.

8. In my first year of teaching I had alot of problems with classroom control. Also I had to do alot of maintenance on machines. I'm also lacking in organizational skills. I'm hoping I will get better with more experience, but I feel some of this can be covered better in college.

9. Thanks for the pencil, how about a sharp one next time?

Former IA Teachers

1. In regards to questions #6 - In my own student teaching experience, I found that my supervising instructors were amply qualified to provide objective constructive criticism of teaching performance.

I feel machine maintenance should be a required course for all education majors and could perhaps be implemented in all intermediate and advanced classes.

Keeping in mind that I was caught up in the transition from old program to new, I felt in some cases, theory was stressed too strongly at the expense of "hands on" skills that could be passed on to more advanced high school students or curriculum.

2. In response to question #6 I feel that the supervision of a student teacher by someone from the Industrial Technology Department would be a duplication of effort that is not necessary.

The Industrial Technology Department needs to place more emphasis on the teaching methods that are directly related to teaching industrial arts than a 3 hour course. The course work that the education department provided was geared primarily to theory and elementary level teaching.

A person entering the profession of teaching industrial arts should be made aware that they are not entering into a utopia. They should be aware of students that can't function at or anywhere near grade level. Administrators that feel all students that don't have it in their heads have it in their hands will be placed into industrial arts classes. The industrial arts instructor may not have any budget and may be required to "beg" for materials.

3. I would recommend UNI to students in spite of its apparent weaknesses. Much improvement is needed in providing students with a general background in industrial arts areas. Students should also practice more presentations and demonstrations to students and receive more in the area of maintenance of equipment. UNI has a good facility but it needs to be better utilized.

4. The education department in general at UNI needs to deal more with discipline and control of students who believe the Industrial Arts classes are easy outs and ways to get an "A", then create trouble in the class when they find this is not true. Also if things can be changed so teachers can use more forceful control over students without worrying about lawsuits.

REFERENCES

Andrews, R.C., & Ericson, E.E. Teaching industrial education, principals and practices (rev. ed.). Peoria, Ill.: Chas. A. Bennett Co., Inc., 1976.

Blame, E.A., & Miller, C.D. Philosophical views. Journal of Industrial Teacher Education, 1980, 18(1), 14-21.

Dugger, W.E., Jr. Introduction: the status of industrial arts education. Journal of Industrial Teacher Education, 1980, 18(1), 3.

Dyrenfurth, M.J., & Householder, D.L. Industrial arts education: a review and synthesis of the research 1968-1979 (NIE-C-400-76-0122). Washington, D.C.: National Institute of Education, U.S. Department of Health, Education, and Welfare, 1979.

Feasley, C.E. Program Evaluation: AAHE/Higher Education Research Report No. 2, 1980. Washington, D.C.: The American Association for Higher Education, 1980.

Headrick, M.L. Making effective use of educational follow-up information. The University of West Florida, Pensacola, Department of Technical and Vocational Studies, May, 1977.

The Iowa guide for curriculum improvement in industrial arts, K-12; A study of industrial technology (3rd printing). Des Moines, Iowa: Iowa State Department of Public Instruction, 1975.

Morell, J.A. Program evaluation in social research. New York: Pergamon Press, 1979.

Morris, L.L., & Fitz-Gibbons, C.T. Program evaluation kit: evaluator's handbook (vol. 1). Beverly Hills: Sage Publications, 1978.

Roberts, R.W. Vocational and practical arts education (2nd ed.). New York, Evanston, London: Harper and Row, 1965.

Schmitt, M.L. & Pelley, A.L. Industrial arts education, survey of programs, teachers, students and curriculum. Washington, D.C.: Office of Education, U.S. Department of Health, Education, and Welfare, 1966 (ERIC Document Reproduction Service No. ED 017 667).

Sinn, J.W. Content emphasis in industrial arts. A report of survey results. Epsilon Pi Tau, 1980, 6 (2), 71-76.

Snyder, J.F., & Hales, J.A. Jackson's Mill industrial arts curriculum theory. Charleston, West Virginia: West Virginia Department of Education, 1981.