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Recruitment practices influencing enrollment of four-year undergraduate students who specialize in graphic arts

Gindele, Joseph George, D.I.T.

University of Northern Iowa, 1989

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RECRUITMENT PRACTICES INFLUENCING ENROLLMENT OF FOUR-YEAR UNDERGRADUATE STUDENTS WHO SPECIALIZE IN GRAPHIC ARTS

A Dissertation

Submitted

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Industrial Technology

Approved:

Dr. Ervin A. Dennis, Advisor

Dr. Charles D. Johnson, Co-Advisor

Dr. Ronald D. Bro, Committee Member

Dr. David R. Duncan, Committee Member

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May 1989

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1989

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DEDICATION

This dissertation is dedicated to

my loving parents,

Mary Cadova Gindele, and

Otto Gindele, Sr.

and to my best friend and scholar,

Duane A. Bingham

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To my twin brother John, who is also completing his Doctor of Industrial Technology degree at this university, I would like to express my gratitude. John has shown care and encouragement, not only during the completion of our doctoral studies, but throughout the years.

I would like to take this opportunity to make one additional comment concerning my mentor, Dr. Dennis. It was 18 years ago this summer that I completed my master's degree at the University of Wisconsin--Stout. Dr. Dennis was the thesis advisor assigned to me. After reviewing my completed manuscript he stated that he thought the quality of the thesis was doctoral level. Up to that point I had never even considered pursuing a doctoral degree. Had it not been for his

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nurturing, for planting that "seed" of encouragement and the advice given to me almost two decades ago, this dissertation would never have been completed. He deserves the thanks for the document before you.

Gratitude must also be extended to Dr. Jack Simich, Education Director at the Graphic Arts Technical Foundation, and to Dr. Virgil R. Pufahl, professor of communications at the University of Wisconsin--Platteville, and past president of the International Graphic Arts Education Association, for their endorsements and support in this study. A thank you is also extended to the nine jurors who evaluated the instruments, and those who pilot-tested them. They all did a fine job.

This research most certainly could not have been completed without the assistance of the participating college/university graphic arts faculty members and students throughout the United States of America. They are the ones who completed the opinionnaires and furthered the profession by "sharing their knowledge." Their assistance is deeply appreciated.

In addition, I wish to thank my parents, Mary and Otto Gindele, for instilling in me a love of learning, and for teaching me about hard work, sacrifice, and the merits of obtaining a good education. As immigrants to this country from Czechoslovakia and West Germany, respectively, they never had the educational opportunities that so many of us in this country have and sometimes take for granted. With only a primary education, they were able to see each of their five children obtain a college/university education. In my mind, they have "Ph.D's" in parenting!

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RECRUITMENT PRACTICES INFLUENCING ENROLLMENT OF FOUR-YEAR UNDERGRADUATE STUDENTS WHO SPECIALIZE IN GRAPHIC ARTS

An Abstract of a Dissertation

Submitted

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Doctor of Industrial Technology

Approved:

Faculty Advisor

Dean of the Graduate College

Joseph George Gindele

Department of Industrial Technology

University of Northern Iowa

May 1989

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ABSTRACT

The purpose of this study was to identify recruitment practices and other selected factors that could be utilized to increase undergraduate student enrollment in three types of graphic arts programs: education, technology, and management. The study involved graphic arts faculty and students in 76 colleges and universities in the United States.

Six instruments were used to secure data. These included two preliminary devices, three faculty opinionnaires, and one student opinionnaire. Each faculty opinionnaire focused on one of three graphic arts programs and contained a list of 32 recruitment practices. The student opinionnaire consisted of a similar list, an additional listing of 28 other influential factors, and demographic information. Faculty and students were asked to indicate those recruitment practices they used and experienced and then to rate them for effectiveness. Students also identified and rated other influential factors in their program selection process.

Instruments were received from 75 of 76 faculty members each representing one institution with 23 in education, 25 in technology, and 27 in management programs. Opinionnaires were received from 901 students with 112 in education, 244 in technology, and 545 in management programs.

Descriptive statistical methods and content analysis were used in studying the data relating to frequencies, percents, means and ranks. The t-test for independent means (two-tailed, $p = .05$) was used to determine the differences in the perceived effectiveness between faculty and students of 32 recruitment practices used in attracting students into graphic arts.

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Male students dominate the enrollments in the three graphic arts programs. They represented 79% of education, 55% of technology, and 60% of management students. The education students were the oldest with an average age of 23.6 years and a greater percentage of them were reared in smaller communities than technolgy and management students. Among the three groups, 57% to 67% of graphic arts students decided to specialize in their programs while in college/university. Seventy-seven percent of education students indicated they most likely would teach after completing baccalaureate degrees. Enrollment in graphic arts education courses has been declining, but it has been stable in technology and increasing in management programs.

Significant differences were found between faculty and students concerning their perceptions of effectiveness with recruitment practices. Three differences were found both in education and technology and four in management areas.

When combining the recruitment practices experienced by the students and those perceived as being effective by students the following top three practices were found effective: offering related general education courses through the graphic arts or industrial education/technology department, indicating to non-majors in the institution the advantages of graphic arts careers, and recruitment packets distributed to those expressing interest. The most effective influential factor besides direct recruitment in attracting students into graphic arts was their personal interests and hobbies. Work experiences were also a top influence.

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CHAPTER I

OVERVIEW OF THE PROBLEM

College and university enrollments are expected to decline overall as the traditional supply of 18 year old high school graduates decrease. This decrease is expected to make it more difficult to recruit graphic arts college educated graduates into industry and education. The situation is compounded by the closing of many secondary school graphic arts programs, programs that no longer will be able to introduce or influence students to acquire further education in the graphic arts as they once did. In addition, technological change is occurring so rapidly in the graphic arts industry that there is growing demand for more and better educated professionals especially on the technical and managerial levels; thus there is a strong need for college/university graduates holding baccalaureate degrees. There is a shortage of qualified graphic arts teachers on the secondary and college/university levels, and early retirements of graphic arts educators exacerbate this problem. Both employers and managers in industry and educational personnel are vitally concerned with increasing the quantity and quality of their future graphic arts employees.

Statement of the Problem

The primary objective of this study was to determine ways to increase enrollment of four year undergraduate students who concentrate, specialize, or major in graphic arts. To accomplish this, recruitment practices that had influenced enrollment of students who specialized in

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graphic arts were investigated. A secondary objective was to investigate selected factors other than direct recruitment practices that also influenced students to enroll in graphic arts programs.

Statement of Purpose

The purpose of this study was to identify recruitment practices and other selected factors that might be utilized to increase undergraduate enrollment of students specializing in graphic arts, and to increase knowledge of the recruitment process so that future graphic arts recruitment efforts could be more effectively designed, focused, and applied. Once effective recruitment practices and other influential factors are identified, they may be used as tools to increase the number of students enrolling in and graduating from undergraduate graphic arts programs. Knowledge of these practices and factors could assist in meeting the needs of the graphic arts industry and graphic arts education.

Statement of Need

There was a need to determine ways to increase the enrollment of undergraduate students specializing in graphic arts. This need was supported by personnel in industry and education, and reported in major studies and the literature.

In correspondence with Dr. Jack Simich, Education Director of the Graphic Arts Technical Foundation (GATF), a need was established for recruiting students for graphic arts programs. Simich stated, "A formal study to determine the types of recruiting methods, effectiveness of recruiting, problems of recruiting, etc., at a state, regional, or

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national level needs to be further explored" (J. Simich, personal communication, October 9, 1987, Appendix A). Dr. Virgil R. Pufahl, 1987-88 president of the International Graphic Arts Education Association (IGAEA) and professor of communications at the University of Wisconsin--Platteville, also concurred with the need and importance of undertaking such a study. Pufahl stated (V. Pufahl, personal communication, March 17, 1988, Appendix A):

> The study is vitally needed as the printing industry continues to depend on graduates of four-year institutions to help fill their need for employees.
>
> Due to the declining population of high school and university graduates, the printing industry is presently facing a critical shortage of qualified manpower. This issue is of such significance that the topic for the 1988 Spring Education Conference [March 28-29] of GATF is recruitment for the graphic arts industry.

Authorities in the industry also supported Pufahl's remarks and the concerns of these two leaders. In addition to various published articles, two major studies had been conducted concerning human resource needs of the graphic arts industry. Authors of the 1973 Kodak Graphic Arts Industry Manpower Study indicated that colleges and universities must expand their efforts in developing new sales and management personnel for the industry (Kodak, 1973). In a more recent study, Education and Training in the Graphic Arts 1985-1990: The GATF Manpower Study, GATF personnel used the Kodak Manpower study as a guide in a comprehensive review of education and training practices and needs in the graphic arts (Eldred, 1985). GATF personnel reported that printers and teachers must initiate or increase efforts to recruit top students because a shortage of qualified applicants was a major recruitment problem facing the printer.

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The expected growth of printing throughout the 1980s will require the increased availability of skilled and professional teaching personnel (U.S. Department, 1988). Yet, a shortage of qualified graphic arts secondary and post-secondary trade and industry teachers exists (Greenan, 1988), and it is likely that the situation will continue. Shortages of graphic arts faculty presently exist on the college and university level. An informal survey was completed in mid-February, 1988, in the Department of Industrial Technology at the University of Northern Iowa. The survey revealed that college and university positions available in industrial teaching areas in the United States were disproportionately higher for graphic arts faculty members for the 1988-89 academic year. Out of the total list of 34 postings available, and dating from December through the first week of February, eight of them (24%) indicated a specific need for graphic arts or graphic communication faculty.

There was support from industrial education scholars for a national study of recruitment practices which influenced specific populations such as students who specialized in graphic arts. Hullman (1971) made three recommendations in his dissertation. One stated that "additional research is recommended to ascertain the relative effectiveness of recruitment programs within occupational areas" (p. 124). In another dissertation, Devier (1981) concurred with Hullman. Devier stated, "studies of the effectiveness of various recruitment practices in recruiting into industrial arts specific populations, i.e., women, minorities, etc., need to be made" (p. 142). It may be reasonable to

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assume that students who conceenttrate, specialize, or major in graphic arts may be described as being within one such occupational area or specific population.

If recruitment practices employed by faculty are not effective, wasted time, energy, and taxpayer money would be expended that could be put to better use in the department or college/university. Potentially wasted money that might be saved could further support those recruitment practices shown to be more effective in increasing enrollment. Also, there may be other effective approaches for increasing enrollment besides direct recruitment practices. Other factors that are effective in influencing students to enroll in graphic arts programs could be identified and possibly tapped to increase enrollment.

Questions and Hypotheses to be Answered

This study considered questions and hypotheses that assisted in solving the problem. To determine ways to increase enrollment of four year undergraduate students in graphic arts, an investigation of perceptions of recruitment practices used by faculty and the perceptions of recruitment practices and other factors experienced by students was undertaken. The following questions and hypotheses were used to investigate the problem of this study:

1. What are the demographic characteristics of four year undergraduate students in the United States who specialize in one of three different types of graphic arts programs: (a) graphic arts education, (b) graphic arts technology, and (c) graphic arts management?

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2. What recruitment practices do college and university graphic arts faculty members or others use to attract students into the three different undergraduate baccalaureate degree graphic arts programs?

3. What is the perceived effectiveness of recruitment practices used by college and university graphic arts faculty members or others for each type of graphic arts program?

4. What recruitment practices have been experienced by currently enrolled students specializing in each type of graphic arts program?

5. What is the perceived effectiveness of recruitment practices experienced by students specializing in each type of graphic arts program?

6. What recruitment practices used by faculty and experienced by students show differences in perceptions of effectiveness?

7. What recruitment practices deserve to be applied by graphic arts faculty members in each type of graphic arts program?

8. What recommendations can be made regarding graphic arts faculty recruitment practices used to influence students to enroll or specialize in the three types of graphic arts undergraduate programs in the United States?

9. What problems are experienced by college and university graphic arts faculty members in recruiting students into graphic arts programs?

10. What other selected factors besides direct recruitment have been experienced by currently enrolled students specializing in each type of graphic arts program?

11. What is the perceived effectiveness of these other factors experienced by students specializing in each type of program?

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12. What recommendations can be made in regard to other factors that influence students to enroll or specialize in the three types of graphic arts undergraduate programs in the United States?

The following three hypotheses relate to question six and involve education, technology, and management programs. These hypotheses are:

1. There is no difference ($p < .05$) between the perceptions of graphic arts faculty members, as reported for the graphic arts education program or department by a graphic arts faculty member, and graphic arts education students concerning the effectiveness of 32 recruitment practices.

2. There is no difference ($p < .05$) between the perceptions of graphic arts faculty members, as reported for the graphic arts technology program or department by a graphic arts faculty member, and graphic arts technology students concerning the effectiveness of 32 recruitment practices.

3. There is no difference ($p < .05$) between the perceptions of graphic arts faculty members, as reported for the graphic arts management program or department by a graphic arts faculty member, and graphic arts management students concerning the effectiveness of 32 recruitment practices.

Assumptions

In conducting a research study certain factors are generally taken for granted or assumed. The following assumptions were made in undertaking this study:

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1. One college or university graphic arts faculty member from each institution would provide accurate data requested by the investigator for purposes of this study. Also, this person would represent only one graphic arts program in that institution.

2. Graphic arts faculty members would be willing to solicit assistance from graphic arts students in completing the student opinionnaire.

3. The judgement of a jury of graphic arts experts would be adequate for determining content validity of the instruments.

4. The sampled student population would be representative of the general population of students concentrating, specializing, or majoring in graphic arts throughout the United States.

5. The student opinionnaire would be adequate to clearly identify recruitment practices and other influential factors responsible for students being attracted into graphic arts programs.

6. Students would be able to recall which recruitment practices they experienced and could judge the effectiveness of those practices that were influential in their decision to enroll in their graphic arts program.

7. Students would be able to recall other factors besides direct recruitment that they experienced and could judge the effectiveness of those other factors that were influential in their decision to enroll in their graphic arts program.

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Limitations

Certain limitations are generally imposed in research studies. This study was limited to:

1. Students currently concentrating, specializing, or majoring in graphic arts education, technology, or management in industrial-technical public and private four year undergraduate college/university programs in the United States.

2. Those industrial-technical graphic arts programs which were identified as graphic arts, printing, graphic communications, graphics, communications, or visual communications or some minor variation. A few programs were listed under departments of communication/design, journalism/mass communications, graphic arts and advertising, and industrial management.

3. Those enrolled students concentrating, specializing, or majoring in graphic arts during the Fall, 1988 term, and a few who completed responses in early 1989.

Definition of Terms

Most studies define terms used that may have various meanings. The following terms were defined to clarify their use in the context of this study:

College/University: An educational institution with a graphic arts program leading to a four year undergraduate degree.

College/University Faculty: Graphic arts or other industrial education/technology faculty, college/university recruiters, or others.

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Concentration: A college/university student's program of focused study or emphasis that may be less than actually declaring a major in graphic arts, but much more than a passing involvement with the subject.

ECGAI: An acronym for the Education Council of the Graphic Arts Industry.

Effectiveness: Perceptions of students and/or faculty members of how successful recruitment practices and/or other influences had been in recruiting students into the graphic arts concentration, specialty, or major.

Emphasis: "A related degree with a graphic arts specialty (e.g., Industrial Education, Industrial Technology, Industrial Management, etc." [J. Simich, personal meeting, August 3, 1988]), with two or more courses in graphic arts.

Enrolled: A student who is completing a concentration, major, or emphasis in a specialized program of graphic arts.

GATF: An acronym for the Graphic Arts Technical Foundation.

Graphic Arts: "The technical area of producing printed products. The term covers design and layout, copy preparation, photoconversion, image carriers, image transfer, and binding and finishing" (Dennis & Jenkins, 1983, p. 575).

Graphic Arts Education: A program of study involving the subject areas of graphic arts and education with the focus on the student eventually teaching graphic arts in a secondary school, community college, or college/university.

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Graphic Arts Faculty Member: A graphic arts educator who teaches college/university students enrolled in a four year undergraduate program leading to a baccalaureate degree.

Graphic Arts Management: A program of study involving the subject areas of graphic arts technology and management with focus on the student eventually applying his/her skills in a managerial function in business or industry.

Graphic Arts Program: An undergraduate program leading to a baccalaureate degree with specialization in either graphic arts education, graphic arts technology, or graphic arts management.

Graphic Arts Student: An undergraduate student principally concentrating, specializing, or majoring in either graphic arts education, graphic arts technology, or graphic arts management.

Graphic Arts Technology: A program of study involving the subject areas of graphic arts and technology with focus on the student eventually applying his/her skills in a technical function in business or industry.

Graphic Arts Technology/Management: A combination program of graphic arts technology and graphic arts management that exists in some colleges/universities. A student in this program was considered a management student for this study.

IGAEA: An acronym for the International Graphic Arts Education Association.

Industrial Education: "A generic term which encompasses all educational programs emphasizing industry and technology" (Baird, 1972, p. 6).

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Industrial-Technical Programs: "Those curricula which present various industrial concepts related to the industrial world. Such programs are intended to bridge the gap between the general educational interests and the occupational preparation emphasized by vocational education. Industrial-technical programs include industrial arts teacher education and non-industrial arts teacher education" (Strong & Schaefer, 1975, p. 56).

Major: "Designating a field of study in which a student specializes and receives his degree" (Webster's, 1966, p. 885).

Other Factors: Those influencers other than direct recruitment practices which also attract students into graphic arts.

PDR: An acronym for the Preliminary Data Report.

PRQ: An acronym for the Preliminary Research Questionnaire.

Recruitment: A process that attempts to influence and attract students to a particular educational institution and/or program of study.

Recruitment Practices (or Techniques): Those activities purposely undertaken by college/university faculty to increase student enrollment in four year undergraduate graphic arts programs.

Service Courses: One or two graphic arts courses offered to students of other majors such as design, journalism, and business.

Specialize: To concentrate, major or emphasize study in only one part or branch of a subject, such as graphic arts education, graphic arts technology, or graphic arts management.

Technology: The practical application of scientific research. It may take the form of either inventions or innovations (Kearsley, 1984).

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It is the use of human knowledge and activity to design products and processes to extend capabilities of human beings and to modify the environment.

Undergraduate Student: "A student at a university or college who has not yet received the first, or bachelor's, degree" (Webster's, 1966, p. 1585).

Time Schedule

The management of time was essential in completing this study since certain tasks had to be accomplished before other tasks could begin. The study evolved over a 19 month period and required planning, scheduling, and organization. The time schedule (Appendix B) was adjusted periodically when unforeseen delays arose.

Dissertation Budget

The completion of this dissertation required considerable capital expenditures. Funds were needed to purchase the necessary office supplies, postage, telephone, printing, transportation, motels, housing, and other contracted services. It was necessary to obtain memberships and subscriptions, tuition, photoduplication, dissertation binding, books and other literature, and a host of other items and services. In preparing to conduct this study it was necessary to determine anticipated expenses beforehand. To accomplish this a budget was developed at the proposal stage in which the anticipated expenses were listed. The final dissertation budget of $ 3,874.00 is found in Appendix C.

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CHAPTER II

REVIEW OF RELATED LITERATURE

Recruitment studies are reported in this chapter. Studies involving other factors that influence student enrollment are also described.

Recruitment Studies

Many studies involving college/university recruitment have been undertaken. Some of these investigations focused on general studies, others targeted related industrial studies, and a few studies involved graphic arts.

General Studies

A number of major studies on undergraduate recruitment have been conducted, focusing primarily on the overall general recruitment of students at two and four year public and private colleges and universities in the United States. These studies are reported chronologically.

Van Pelt (1958) investigated recruitment practices and procedures that could be used by personnel in college teacher education programs and public schools to encourage young people to enter programs in teacher education. His study included officials at 50 colleges and 120 public schools as well as 175 students in teacher education programs. Two general conclusions revealed recruitment activities between colleges and public schools lacked coordination, and students were influenced to enter the teaching profession primarily as a result of teacher and

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parental influence, in that order. The most effective recruitment techniques were the personal contact with the prospective student, and the most effective material for recruitment makes an emotional appeal. Van Pelt reported that teachers were the most important influence on young people to enter or not enter the profession. However, his study indicated that too few (54%) teachers were accepting this responsibility (p. 29). His findings also indicated that 54.8% of students decided to become teachers while in high school, 27.4% while in college, and 16% in elementary school, with 1.7% not indicating a time period (p. 54). Van Pelt insisted that recruitment programs take into account those people who were influential in helping young people make their vocational decisions. Van Pelt (1958) made the following recommendation:

> It is essential that colleges and public schools consider the opinions of students in developing a sound recruitment program. . . . Concentration in the areas in which the students indicate as being most influential should produce a larger number of more capable prospective teachers. (p. 64)

Campbell (1972) compared recruitment practices in different types of liberal arts four year colleges/universities in 13 states. He surveyed 78 admissions officers and 420 freshmen students and had them rate 16 of the most common recruitment practices used. He concluded that every recruitment program should utilize: (a) campus tours, (b) general information brochures, (c) on-campus interviews, (d) high school visitations by college admissions officers as well as college student representatives, (e) personal letter writing, (f) program/ department or school specific college brochures, and (g) college catalogs (pp. 113-114). He also found that alumni were not very effective in recruitment. Campbell recommended further study be

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undertaken into other factors besides direct recruitment which affected students choice of college/university.

Gorman (1974) indicated his belief in the marketing approach to promoting student enrollment in higher education. His findings suggested that personal contacts with students, carried out by other currently enrolled students or university recruiters, were the most effective recruiting methods in higher education. Gorman placed great value on prospective students visiting the campus or individual contacts with these students at home.

Lockard (1974) investigated freshmen recruitment practices and their effectiveness in seven selected small private colleges in Iowa. Fifty current practices actually experienced were rated by 459 entering freshmen. Four practices were found effective throughout the seven institutions, including "an individual campus visit or tour, individual department or program brochures, general information brochures, and visits to high schools by admissions counselors" (p. 145). Student responses suggested that current college students, alumni, and faculty played an increased role in recruitment.

Barber (1980) studied promotional efforts for recruiting students at four selected Illinois community colleges. He attempted to determine the effect of college funded promotional materials of news media, college publications, and personal selling, as they related to reported perceptions of currently enrolled students. Ratings by 440 students suggested that the college catalog and class schedules and special flyers had a minimal effect on recruitment. He recommended that dollars spent for recruitment be spent on radio and television presentations,

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posters, billboards, and special notices sent home with public school children, and on professional admissions officers. Barber (1980) further recommended: "Community college administrators should analyze the types of programs they plan to or are currently offering, consider the types of students most likely to enroll in those programs, and design specific types of promotional activities that research and experience indicate will appeal to those specific types of students" (pp. 124-125). He suggested that other factors affecting enrollment also be investigated.

Merante (1983) studied the adaptation of the corporate world's marketing process for education. He developed guidelines based upon 1,767 student surveys that could be used to recruit undergraduate students in a post-secondary institution. He found that a blend of several forms of promotion were necessary to communicate, including advertising, personal contact, sales promotion and public relations or publicity. Merante stated: "Direct mail is personal but is not a dialog in its effort like personal selling" (p. 102), admitting, "the human presence becomes much more important in the later phases of the recruitment effort" (p. 103).

Milo (1985) examined faculty and administrator attitudes toward, and involvement with, marketing and student recruitment. His 299 public and private college faculty revealed major differences between the involvement of the two faculty groups. His study found faculty from independent colleges were much more involved with marketing and student recruiting than faculty in public institutions.

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Related Industrial Studies

A review of the literature revealed that many student recruitment studies related to industrial education had been conducted. These state, regional, and national studies are described chronologically:

State studies. Jahrman (1964) conducted a study in northwestern Arkansas to recruit prospective industrial education teachers. This study was to recommend devices and content to be used by a teacher education institution for recruiting industrial education students. He concluded, in rank order, that: "Visitations are significantly more important as a recruiting device than are career day, mailed publicity, film slides, radio and television, and news releases" (p. 87). He recommended that: (a) recruiting should be oriented toward a student's interests rather than lack of knowledge, (b) the content of a recruiting program should be a discussion of the required training and qualifications necessary to be employed in jobs associated with the areas of electricity and electronics, drafting and general shop, and (c) a representative from a teacher education institution conduct the recruiting program. As part of his final recommendations for further study, Jahrman (1964) stated: "An evaluative study should be made of the results of using various recruiting devices and types of recruiting content" (p. 88).

Ressler (1966) investigated the recruitment of industrial arts teachers in seven higher education institutions in Ohio. He found the industrial arts teacher-recruiter to be in the profession longer, with one-third being 50 or more years of age; had more teaching experience, with one-third having 20 years or more of such experience;

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and had a permanent teaching license, in half of the cases. This teacher-recruiter was also a career person and not a transfer from another field, had more contacts with the teacher education institution, and held more professional memberships finding industrial arts clubs and conventions to be the most helpful in recruitment. Some of the more striking findings with reference to the 310 industrial arts majors who responded were:

1. Forty-two percent did not enter college with industrial arts teaching as a career goal.

2. Twenty-nine percent of the respondents did not enter college directly from high school; this group came mainly from industry, some from the military.

3. The industrial arts teacher far outweighed all others as a career influence with this population of industrial arts majors; parents, friends and counselors followed.

4. Eighty-one percent of the respondents had had industrial arts courses in high school; approximately 25 percent more than the average secondary school graduates.

5. Ninety-five percent of the high schools of the respondents offered some guidance experience such as the Future Teachers of America Clubs, industrial arts clubs, career days, or field trips to teacher education institutions--participation was light.

6. Ninety percent of the respondents had had some contact with a teacher education institution prior to their enrollment. (pp. 179-180)

Ressler thought that high school teachers who were good recruiters should be acknowledged and rewarded by industrial arts teacher educators with a free course, football tickets, a letter of appreciation, certificate or gift.

Eversoll (1971) conducted a study in Missouri to determine what effect career information, with and without audio distraction, had on

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the attitudes and knowledge of eleventh graders whose interests were similar to or different from those persons who were successful in teaching industrial arts. Significant differences for attitude and knowledge were shown between his experimental and control groups, leading Eversoll to conclude that slide-tape presentations could be a very effective method of conveying recruitment information.

Hullman's (1971) study attempted to measure the exposure and influence of recruitment techniques and other sources and factors which influenced student selection of vocational-technical education. After studying 578 community college students in Oregon, some of his conclusions revealed that the use of career days, conferences with community college guidance counselors, and literature (brochures, flyers, leaflets and booklets) were the three most influential recruitment techniques, in that order. He also concluded that students living in urban, suburban, and rural geographical areas responded differently to various recruitment practices. Also, more recruitment contacts and techniques were used with high school students while transfer and out-of-school students were exposed to less recruitment contacts and techniques.

Jenkins (1975) studied the role of the industrial arts teacher as a recruiting agent for industrial education in Louisiana. He surveyed 258 high school industrial arts teachers and 669 college and university industrial education students, 174 of whom were in the industrial education teaching program and 476 of whom were in the non-teaching technology program. The following conclusions were derived from this study:

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1. People who influenced industrial education students career decisions were, in descending order: (1) Parents and other relatives; (2) students' peers; (3) teachers--elementary, high school and college; (4) representatives from business or industry; and (5) counselors--elementary, high school and college.

2. The high school industrial arts teacher was the most influential person in the career decisions of industrial education majors who had industrial arts courses in high school; however, he was considered influential by a minority of students.

3. Approximately half of the industrial education majors entered college in a curriculum other than industrial education; one fourth made their career decision after the college freshman year.

4. One out of five high school industrial arts teachers did not have a degree in industrial arts.

5. The three most effective recruitment practices influencing students to enter industrial education were: (1) encouraging students to pursue hobbies leading to interests in industrial education; (2) encouraging students to consider entering the field of industrial education; and (3) participation in industrial arts fairs or contests.

6. A direct correlation was found between the total number of recruitment practices employed by the high school industrial arts teachers and the number of college originated recruitment practices utilized by the high school industrial arts teachers. College recruitment efforts utilizing the high school industrial arts teacher are not as extensive as they might be.

7. High school industrial arts teachers who were most active in the use of recruitment practices tended to be younger, less experienced in teaching, better certified, and more active in professional education organizations than the less active teachers.

8. The three major deterrents inhibiting student entry into the field of industrial education as judged by the industrial education majors were: (1) poor high school industrial arts facilities; (2) students oriented to this field are not inclined to enter college; and (3) poor college industrial education facilities.

9. The three major deterrents inhibiting student entry into the field of industrial education as judged by high school industrial arts teachers were: (1) low salary prospects;

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(2) students oriented to this field are not inclined to enter college; and (3) poor high school industrial arts facilities.

10. Industrial education majors who had industrial arts courses in high school had a stronger tendency to major in industrial education upon entering college; and to enroll in the education curriculum, rather than the technology curriculum, than the industrial education majors who did not have industrial arts courses in high school. (pp. 118-119)

It was reported in the study that the high school industrial arts teacher was ranked less influential by students enrolled in the technology curriculum than by those students enrolled in the teacher preparation program. A significant finding also revealed that students majoring in education were older than those majoring in technology.

Craft (1979) reported on a study of 356 freshmen students in industrial education and technology programs in Kentucky colleges. His aim was to determine basic demographics of this group and factors that influenced these students to choose their majors. He found:

1. 68.1 percent indicated that they had taken industrial arts in middle school or high school,

2. the persons they judged most influential were parents and their industrial arts teachers,

3. the persons they judged less influential were guidance counselors and principals,

4. more than 40 percent indicated that they were influenced by a visit to the college or university department or a departmental tour, and

5. a large number indicated being influenced by a letter received from the college or university (42 percent) or a program brochure (49.6 percent). (p. 7)

Devier (1981) studied the problem of recruiting students into the eight industrial arts teacher education programs in Ohio. He attempted to determine recruitment practices used and experienced, their perceived

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and actual effectiveness by faculty and students, and other factors attracting students into industrial arts teacher education programs. He surveyed eight chairpersons and 392 undergraduate students. His findings revealed that the use of various recruitment practices by industrial arts teacher education personnel varied in degree between institutions. This indicated a lack of uniformity in methods and efforts. He further found "college personnel contacts with industrial arts teachers, especially alumni" and "college industrial arts department [sic] offering general education courses which stimulate the interests of non-industrial arts majors" ranked the highest when exposure and actual effectiveness were combined, and these evolved as the two top practices to use for off-campus and on-campus recruitment (p. 136). He also found 25% of these teacher education students did not plan to teach upon graduation (p. 107). Studies by others revealed similar findings of 27% of teacher education students not planning to teach (Sharpe & Householder, 1984, p. 44).

Some of Devier's recommendations were as follows: (a) make a greater and different effort to recruit females, (b) recruitment efforts should not only pursue similar populations, but underepresented ones as well, (c) because college personnel were found to be lacking in understanding of the effectiveness of their various recruitment practices, recommendations of this study should be implemented, (d) industrial arts teachers continue to be the best recruitment source in current use for these students, and (e) on-campus industrial education department general education courses continue to have a strong recruiting influence (pp. 139-141).

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Devier (1987) presented a paper at the International Technology Education Association (ITEA) Conference on recruitment techniques for attracting students into the profession. He suggested using the following additional recruitment practices that have shown effectiveness or promise:

1. display and recruitment at annual industrial arts/technology conventions . . . .
2. university coaches representing the industrial arts/technology program to athletic recruits.
3. career days, open house, or conference activities on college campus for high school students.
4. community college visits by college industrial arts/technology department faculty, as well as 2 + 2 programs.
5. recruitment packet provided upon request or sent directly to teacher/student.
6. college-sponsored industrial arts/technology contests for high school students.
7. college industrial arts/technology students recruiting other college and high school students in a systematic way.
8. contacts with high school teachers, counselors and students through student teaching visitations.
9. writing letters to undeclared students on campus outlining the advantages of industrial arts/technology . . . . (pp. 10-11)

McClung (1987) studied the role of the industrial arts teacher as a recruiter for industrial education in Arkansas. He attempted to determine the recruitment practices used by industrial arts teachers to recruit students into the teaching profession, what factors initially influenced these practicing teachers to enter their profession, and what efforts these teachers were making to influence their students to enter the profession. McClung concluded that the industrial arts teacher

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exerted more influence than parents, counselors or peers, and that all industrial arts teachers were potential recruiters regardless of their background and/or experiences with high school industrial arts programs. He found 71% of the people who chose industrial education as their major field did so before their sophomore year in college (p. 74). McClung recommended that college industrial education faculties encourage all their students to recruit, address recruiting techniques as part of their coursework in industrial education, and make their resources available to all industrial arts teachers for the purpose of recruiting.

Regional studies. Goto's (1977) study investigated the problems in recruiting minority people into industrial arts for the western states of Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming. Goto sought answers to the practices used and their effectiveness in recruiting minority people to enter the industrial arts field, as well as other information. Of the 84 minority industrial arts teachers who participated in the study, Goto found: (a) the number of minority teachers in industrial arts was increasing, (b) recruiting efforts should be concentrated on the high school level minority student, (c) the high school industrial arts teacher was most influential in recruiting and provided the most information to the subjects, (d) minorities should be better informed about the opportunities of industrial arts teaching by having college and university personnel working more closely with high school personnel. He also found that attitudes of parents and peer pressure increased the negative connotation of industrial arts, and suggested that school personnel

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should inform parents, relatives and peers of the advantages and opportunities available to minorities into industrial arts.

Edmunds (1980) studied recruitment relevant to attracting students into the industrial arts teacher education program. He surveyed 102 industrial arts administrators in 20 colleges and universities in the Mississippi Valley region to identify and present current and/or emerging techniques which were used in the recruitment of industrial arts teacher education candidates, and determine effective methods of recruiting them. The administrators were requested to identify recruiting techniques used for these students and to rate the effectiveness of these practices. Respondents were also asked to indicate additional recruitment practices used which were not previously listed. Described in Table 1 is the extent of use of 19 recruitment practices and the perceived effectiveness of those practices. It is interesting to note that some of the recruitment techniques used extensively were not considered very effective. Conversely, some of the recruitment practices identified as being effective were not used to any great extent. Edmunds (1980) made the following observations as a result of this study:

1. In general, industrial arts teacher education units have a sufficient variety of successful teacher recruitment techniques available to them. These techniques are also used by other teacher education disciplines and business and industry.

2. Review of current literature in the field and results of this survey have given no indication of a systematic or continuous program of recruitment for industrial arts teacher education programs.

3. Considerable inconsistency exists in reference to the techniques most commonly employed for recruitment and those that are

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Table 1

Extent of Use and Rank Order by Total of the Use and Effectiveness of Recruitment Techniques

Percentage of Use	Rank Order of Use	Methods of Recruitment	Rank Effectiveness Order	Mean Score
95.4	1	Contacts with industrial arts teachers, especially alumni.	1	3.85
82.6	2	Distribution of brochures to high school and community college students.	16	2.69
79.1	3	Personal letters to interested high school pupils.	8	3.24
77.9	4	High school visits by college industrial arts department faculty.	6	3.35
68.6	5-6	College industrial education faculty indicating advantages of industrial arts teaching to non-majors in the department.	9	3.20
68.6	5-6	Contacts with high school supervisors and administrators through student teaching programs.	12	2.90
66.3	7	College industrial arts students recruiting other college and high school students.	2	3.80
65.1	8	Contacts with high school guidance counselors.	19	2.00
61.6	9	Contacts with own college freshmen and counselors.	4	3.64
58.1	10	Career days, open house, or conference activities for high school pupils on campus.	13	2.84
55.8	11	Impact of modern facilities and programs attracting high school pupils and their parents during visits to college.	7	3.33
53.5	12	College industrial arts department offering general education courses which stimulates the interests of non-industrial arts majors.	5	3.48
50.0	13	Filmed presentation (slides and tape recorder) of the departmental offerings.	17	2.67
48.8	14	College paid recruiters traveling the state and country.	14-15	2.71
47.7	15	Scholarships for industrial arts college programs.	11	2.95
43.1	16	Community college visits by college industrial arts department faculty.	10	3.19
39.5	17	College-sponsored industrial arts contests for high school pupils.	3	3.76
27.9	18	Industrial arts teachers associations bringing secondary school pupils to visit the college.	14-15	2.71
22.1	19	College conducting annual recruitment conference on campus for secondary school industrial arts teachers and counselors.	18	2.37

Note. From "Effective recruiting--A tool to replenish, sustain, and improve the profession" by Niel A. Edmunds, Spring, 1980, The Journal of Epsilon Pi Tau, 6(1), 19-20.

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believed to be most effective in the process. Those most commonly used are not considered to be effective.

4. Effective recruitment involves techniques utilizing personal contact by key individuals actively and directly involved with teacher education programs.

5. Such techniques as media, college paid recruiters, teacher associations and recruitment conferences are not effective in the recruitment process. (pp. 21-22)

National studies. Senteney (1955) investigated factors influencing men to enter an industrial teacher education program, and retention in the profession. Students at 64 institutions completed 1,356 usable questionnaires. Senteney found significant differences between teaching and non-teaching graduates in respect to size of community in which they were reared, highest school grade completed by their mothers, chief occupation of their fathers, whether or not they had teaching experience in the military service, type of institution from which they were graduated, year of graduation from college, degree held, gross annual salary, and job adjustment. Based upon conclusions of his study, Senteney suggested those responsible for recruiting prospective industrial education teachers should " . . . encourage more of the promising high school graduates who come from rural communities, and from families engaged in agricultural or kindered occupations, to enter and complete an industrial teacher education program" (p. 76).

Foley (1967) investigated current practices of college and university personnel in recruiting and selecting potential industrial arts teachers. He also sought to identify those factors which influenced students to decide on an industrial arts teaching major. Foley surveyed industrial education college department chairpersons

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as well as 270 freshmen students in 12 colleges and universities. He found the most frequently used recruitment practices to include: "(a) conducting visits of college campuses and industrial arts facilities; (b) sending booklets describing industrial arts teacher education, teaching careers, and college activities; and (c) making speeches about industrial arts teaching" (pp. 154-155). Department heads were found to have diverse opinions regarding which recruitment practices were most effective.

Weir's (1970) experimental study involved the evaluation of the use of different selected printed graphic communication brochures for recruiting industrial arts and technology freshmen in general at Central Missouri State College. Weir found that personal newsletters were preferable over no media for recruiting undecided freshmen for the industrial education program.

Aagaard (1975) investigated the present status of the recruitment of women into industrial arts programs. He found that television and radio programs ranked first and second, respectively, as the most influential recruitment techniques for women. Relatives (parents or guardians or others) and college faculty members ranked first and second, respectively, as being the most influential in offering personal advice. Industrial arts was not the first choice of major for the women in this study. Many women stated that administrators, supervisors, teachers and students were prejudiced against the presence and abilities of the women in this field. Aagaard believed that women who wished to major in industrial arts be offered a special beginning course to help

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them overcome the lack of previous technical experience they have been denied.

Sharpe (1981) collected and analyzed data about the recruitment and retention of students preparing to become industrial arts teachers. Students at 24 colleges and universities completed 668 usable surveys. The recruitment practices most influential for these students were visits to university facilities, talking or corresponding with university personnel, and recruitment literature. Industrial arts teachers, parents, and university personnel were cited as being most influential in the recruitment process. He reported that for those students transferring from one major department into the industrial education department, the majority of these transferees: " . . . are most likely to be from business, liberal arts, physical education, engineering, or technology programs" (p. 155).

Smith (1983) reported on a study by the American Industrial Arts Association on recruitment practices used to attract students into industrial arts teacher preparation programs. Faculty from 79 institutions reported on their use of ten practices. The numbers preceeding each practice indicate the number of institutions using the practice, numbers in parentheses following each practice indicates percents of very successful and moderately successful ratings, respectively:

66 High school students visit to campus (38%, 51%)
61 Cooperation with university recruitment efforts (15%, 65%)
59 On-campus advertising (27%, 61%)
59 Visits to schools (27%, 56%)
50 Contact with key alumni (44%, 44%)
47 Annual conferences for teachers and students (30%, 47%)
44 High school career fairs (11%, 57%)

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40 Advertising to non-traditional students (5%, 68%)
39 Cooperative programs with community colleges (13%, 69%)
33 Scholarships for incoming freshmen (24%, 52%). (p. 13)

Dean (1985) conducted a study on recruiting practices as related to factors which influenced individuals to become industrial arts teachers. Findings in the study of 300 industrial arts teachers indicated significant differences in the use of recruiting practices and the educational attainment level of these teachers, the average number of students enrolled in each class, and the college curricula from which the industrial arts teacher graduated. Dean concluded that recruitment practices most used by industrial arts teachers included talking with counselors and providing pamphlets about industrial education programs. Dean found industrial arts teachers were most influenced to enter their profession by their middle or junior or senior high school industrial arts teacher. He also found that students who chose to major in industrial education made the choice prior to their college sophomore year. Most teachers chose their profession prior to entering college. Dean recommended that recruiting practices for attracting industrial education students should be implemented before the student graduates from high school.

Graphic Arts Studies

A number of important studies were completed in the graphic arts, such as the Kodak study (1983), the National Printing Equipment and Supply Association (NPES) study (Magee, 1984), and the GATF study by Eldred (1985). The Kodak Graphic Arts Industry Manpower Study established a benchmark for the industry. It was used subsequently to

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compare and measure changes and developments in graphic arts education. Personnel conducting the Kodak study (1973) made the following recommendations, which are briefly summarized:

1. New people must be prepared for production and management positions.
2. Education programs should develop students' interest in the graphic arts industry.
3. A broad industrial arts-type program, designed to explore technology underlying the graphic arts, should be utilized. Good work habits should be stressed.
4. Graphic arts curriculum emphasis should not be in the area of letterpress, but should focus on photocomposition, offset printing, and other contemporary processes.
5. Science and mathematics should be part of the graphic arts curriculum.
6. Vocational/technical programs must emphasize skill development in offset, screen, flexographic printing, and other related areas.
7. A need exists for industry education and retraining programs.
8. Colleges and universities must expand their efforts in developing sales and management personnel.
9. Safety and environmental control programs, as well as computer applications, should be part of the college and university graphic arts curriculum.
10. Colleges and universities must offer updated programs for new sales personnel.
11. Colleges and universities with graphic arts management programs should offer continuing education. (pp. 35-37)

NPES personnel (Magee, 1984) conducted a study to better define the status of graphic communications education. Graphic arts teachers in 840 secondary and post-secondary schools in the United States were surveyed, resulting in a 46% return. Since student enrollment in graphic communications classes had been decreasing, teachers were

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questioned regarding the methods they used to recruit students. NPES researchers (Magee, 1984) found:

> Ten percent of the teachers indicated that they make presentations to clubs and organizations such as PTA groups, Boy Scouts, Girl Scouts, etc. Fourteen percent of the teachers invited industry representatives to talk to their classes, 19% sponsor graphic arts clubs, and 44% use career literature to promote their programs. The survey results indicate that more career and recruitment emphasis is needed. (p. 5)

The GATF Manpower Study edited by Eldred (1985) was the first significant effort to measure the human resource requirements of the graphic arts industry since the 1973 Kodak report. The GATF study surveyed printers, educators, and suppliers. Eldred (1985) discussed student considerations. Selected considerations revealed: (a) graphic communications programs tend to attract more mature students, as the number of years between graduation from high school and applying for graphic communications programs increases; (b) there is a decreasing interest by younger students as the 18 year old population interested in higher education graphic communications programs decreases, therefore recruitment must be intensified; (c) a wider diversity of backgrounds can be expected of more mature graphic communications students, requiring educators to become better acquainted with the needs of such diverse populations; (d) there will be an increasing number of women enrollees in the labor force; (e) there will be a greater need to attract junior college transfers into four year programs as the 18-22 year old population decreases, requiring greater cooperation of community colleges and four year institutions; (f) graphic communications undergraduate curricula will allow more choices for students to select programs meeting their professional needs; (g) there

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will be pressure to combine liberal arts with career education as preparation for graphic communications students; and (h) programs having modern laboratory facilities will attract more students than programs having obsolete laboratories or none at all (p. 1-11).

When looking at faculty and staff considerations, Eldred (1985) expects a growing emphasis on advanced degrees for those teaching graphic communications in colleges/universities, and a need to recruit graphic arts students. He further elaborated on this need:

> Four-year colleges and universities will increase their recruiting efforts to attract more students into graphic communications programs. The decine in the 18-22 year old population over the next ten years will increase competition for undergraduate students in all disciplines. Those in the graphic communications discipline will have to work harder to retain their share of students. New programs will have to be developed to ensure that the printing industry can cope with a reduced intake of younger people into the profession. (p. 1-13)

In considering the needs of the profession, Eldred (1985) saw a need for more professionals with advanced degrees. He also saw a need for increased visibility of graphic communications programs in primary and secondary schools in order to attract attention of prospective students into the industry.

Printers returned 380 usable surveys (25.3%) in the GATF study. When they were asked about their sources of employees, Eldred (1985) reported:

> Generally speaking, printing companies fill openings in their workforce either by promoting within their own company or from other graphic arts companies. . . . This suggests that relevant background knowledge is a major consideration when looking for staff. Some 66% of respondents indicated their own or other graphic arts companies as a common source of staff but there was considerable variation based on company size. (p. 2-5)

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Eldred discussed minority enrollment. He indicated that printing has been slower in attracting minorities into technical and management positions than other industries.

Educators returned 354 usable surveys (46%). When asked about the problems graphic arts educators had in obtaining students and maintaining graphic arts programs, Eldred (1985) reported the following ones in ranked order: (1) competition with other courses; (2) lack of guidance counselor and administration support; (3) poor industry image and lack of career information; (4) student selection; (5) inadequate or out of date equipment; (6) lack of graphic communications programs at earlier levels; (7) poor placement service; (8) lack of sound "Basics;" (9) low entry level salaries; (10) lack of qualified teachers and limited curriculum; (11) decreasing student population; (12) limited scholarships and awards; and (13) other (pp. 3-29 to 3-30).

Suppliers completed 50 usable surveys (23%). They agreed on the need for greater technical knowledge, especially knowledge of electronics, computers, and mechanics, for printers' production personnel.

Mertz (1988) reported that The GATF Manpower Study was GATF's poorest selling* Techno-Economic Forecast [TEF 26], and cites Eldred as accusing the industry of a " . . . lax attitude toward education and training" (p. 1). Mertz further reported: "In spite of the need for industry involvement in education, TEF 26 data reports that of 370 companies responding to the survey, 287 [78%] have made no effort to recruit high school or college students" (p. 1). Eldred argues: "Mark Twain said that everybody complains about the weather but nobody does

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anything about it. This observation is analogous to graphic arts education" (p. 1). [*The reader should be informed that the member price for purchasing this study was $ 1,425, and the non-member price $ 1,975. The cost may have adversely affected sales.]

In 1986 a national graphic arts conference was held in Los Angeles. Graphic arts teacher attendees engaged in informal group discussions concerning graphic communications enrollment. High school teachers had many suggestions for recruiting students into their programs. These teachers (Hohman, 1986) reported on utilizing the following recruitment techniques:

> . . . articulation, or interrelation between high schools and community colleges, and between community colleges and four-year colleges; program promotion such as writing articles for trade journals and distributing brochures; creating community awareness through the use of displays, jackets, and calendars; creating high school awareness by giving information packets and printed gifts to counselors and other teachers (packets should include information on scholarships, schools and colleges, and careers); program name changes to try to draw more students (many students at the high school level don't know what "graphic arts" really means); integration of photography into the graphic communications classes; and having high school students attend a "Graphic Arts Encounter" during the summer at a college or university. (p. 4)

Professor Mark Sanders investigated and helped develop recruitment strategies for the industrial arts teacher education program at Virginia Polytechnic Institute and State University. He and his colleagues increased enrollment in a four course graphic communications sequence by increasing communication and activities toward on-campus and local clientele, and by conducting promotional activities. Effects of these strategies were so successful that enrollment tripled in the graphic communications courses. As a result, Sanders (1986) reported:

" . . . a conscious effort was made to curtail this recruitment strategy

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because demand became too great" (p. 65). Sanders (1986) concluded: "Public relations is perhaps the weakest link in most industrial arts recruitment plans. To be effective, promotional materials must be produced and distributed regularly, a task that undeniably requires significant allocation of time and resources" (p. 62). Floyd B. Walgren (1980), coordinator of industrial arts in the School of Technology at Kent State University, also reported a tripling of enrollment of the industrial arts freshmen class through utilization of an active recruitment program. Walgren drew a similar conclusion with Sanders: "The most important ingredient of our recruitment efforts is the envolvement [sic] of our total staff and their willingness to commit time and energies towards these ends" (p. 234).

In utilizing recruitment practices to increase enrollments, King, Noriko, and Bigler (1986) thought that colleges/universities would do well to determine which sources of information students rely most heavily on in selecting their major and devote primary recruiting efforts in these areas to conserve budgetary allocations. In studying recruitment, King et al. (1986) further advised:

> . . . students with different intended majors represented different types of prospective students. While an admissions staff would be hard pressed to devise a separate recruiting strategy for every major, it might be well to assess whether one particular major . . . was an unique group that merited special recruiting attention. . . . (p. 111)

The study before the reader, in part, attempted to devise such a separate recruiting strategy for students in the graphic arts major, but was further developed to investigate recruitment strategies for graphic arts students who specialize in three different types of programs.

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According to industry and education personnel, recruitment demands special attention now in graphic arts education, graphic arts technology and graphic arts management to increase the number of employees with these special skills.

Graphic arts students as a group appear different in composition by gender from the larger industrial arts and technology group of students. Devier (1982) reported that females made up about 6% of industrial arts education students in Ohio colleges/universities in 1982 (p. 22). Dillon (1985) reported a 10% female population in industrial arts and technology college/university programs in North Carolina in 1985 (p. 134), and Cecere (1980) reported about a 12% female population for industrial technical students in Texas in 1980 (p. 54). These figures are probably representative of industrial education college/university students nationally and are probably not too different today, although one might expect these figures to be a bit higher today due to a greater proportion of the population accepting employment in non-traditional occupational roles than in the past. However, in the specific subject area of graphic arts, a much higher percentage of female students has generally been observed in secondary and higher education, compared with the other industrial education and technology subject areas. Truitt (1986) reported that about 30% of Ferris State College graphic arts students were women (p. 10). Eldred (1985) reported the percentage of women enrolled in two year and four year graphic communications programs was approaching 50% at many colleges (p. 1-9). This would be in agreement with reports indicating females accounted for more than 50% of college students in general (Scott, 1980, p. 1).

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The aforementioned studies have raised certain questions dealing with recruitment. What are these graphic arts male and female enrollment figures nationally, and are they different between graphic arts education, graphic arts technology, and graphic arts management undergraduate students? Do students in these graphic arts specialty areas differ as groups in their exposure and perceived effectiveness of recruitment practices? Do college/university faculty use different recruitment practices to attract these different groups of students? Some faculty believe different recruitment practices should be used to attract different types of students. Fox (1961) found that certain factors influenced women more strongly than men in their decision to teach. Sharpe and Householder (1984) argued that: "A wide variety of recruitment techniques should be employed, since different sub-groups of the population show a preference for, and selective reactions to, specific techniques" (p. 51). Which faculty recruitment practices are most effective for each of the three graphic arts student groups? How effective are other influential factors in attracting these students into their graphic arts specialty areas of study? Perhaps there is a difference between graphic arts students in general and the widely studied larger industrial arts and technology group of students. A comparison between these two groups, however, was not the focus of this study. The focus was to learn which recruitment practices and other factors seem to achieve the greatest effect in attracting students into their graphic arts programs.

A review of the literature indicated that no current or comprehensive studies were conducted involving recruitment practices

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attracting students to enroll, major, or specialize in graphic arts. Also, when queried whether or not he had any knowledge of recruitment studies conducted in the graphic arts field, Simich reported: "There have been studies that included a question or two [underline added] regarding the recruiting of students for graphic arts programs" (J. Simich, personal communication, October 9, 1987).

Recruitment efforts may also be enhanced and made more effective if it is found that the current graphic arts recruitment techniques practiced by college/university faculty are deemed not effective by students. Reed (1962) found: "There are differences between those factors emphasized in a program of recruitment by a college and those reported by students to be effective" (p. 187).

Other Factors Influencing Student Enrollment

A number of related industrial education studies were completed involving factors other than direct recruitment practices that influenced college/university students to select their major. A few of these studies dealt exclusively with these other factors, while some studies investigated other factors as part of and in addition to the study of direct recruitment.

Foley's (1967) study reported that most students became interested in teaching industrial arts while in junior high school or earlier (7%), high school (41%), college (39%), or as out-of-school adults (13%). However, they made their decisions to prepare for their career while in junior high school (2%), high school (34%), college (50%), or as an out-of-school adult (14%) (pp. 148-149). Foley also found that parents

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and high school industrial arts teachers influenced the career decisions of the majority of students. He reported that personal interests or hobbies, high school industrial arts courses, and visits to industrial arts facilities were experiences which also influenced the majority of students.

In Hullman's (1971) study, relatives (parents, guardians or others) and the community college guidance counselor were ranked first and second, respectively, as being most influential in offering personal career advice to students. His other findings were previously reported in the recruitment section of this study.

Jenkins (1975) also investigated other factors influencing students to enter their industrial teaching or technology curriculum. He found that 51% of students made career choices before entering college. One-fourth of them had not yet made a career choice prior to the end of the freshman year (p. 112). Jenkins found that about half of the students had entered college in a curriculum other than industrial education. Thirty percent had previously been in engineering (p. 112).

Su (1975) analyzed the decision-making of 340 industrial education graduates to determine the factors associated with occupational choice. Findings revealed that approximately 75% of the respondents made their occupational choices during or before high school, while 25% made their decision while in college (p. 74). People were most often the influential source. The peer friend, counselor, father and teacher were the four groups influencing students occupational choice, rather than tests or literature. Creativity and independence played a strong role in choosing a major.

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Fisher (1976) sought to identify those factors which influenced enrollment in selected post-secondary industrial education programs in Oklahoma. He found that junior college and university students considered their parents to be the most influential people, while college professors or representatives ranked second, and high school industrial arts teachers in grades 10-12 ranked third. Junior college students also ranked their parents first, but other persons second, and their brothers and sisters third. University students ranked personal interests and hobbies as being the most influential factor, followed by industrial arts coursework in grades 10-12, and by visitations to college industrial arts facilities. Junior college students also ranked personal hobbies and interests first, with visitations to college industrial arts facilities second, and college technical courses third. University students decided to enroll in an industrial education program in grades 11 or 12. Junior college students made this decision either when they were out of school and employed, or in grades 11 or 12. Fisher found that on the high school level, the industrial arts course and the industrial arts teacher have positive influences on the student when the student selects a college or university major. This finding was supported by others.

Cecere (1980) investigated factors which influenced Texas industrial-technical college/university students when selecting their major area of study, and attempted to determine if certain areas were more influential for these students selecting a major. The study involved 240 teaching majors and 534 non-teaching majors in 15 Texas colleges/universities. It was found over half the students had been

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enrolled in high school industrial arts classes, and many had changed their majors in college before majoring in an industrial-technical program. An important finding revealed: "The majority of teaching majors who changed majors indicated they transferred from liberal arts and business. The majority of non-teaching majors indicated the fields from which they transferred were business and engineering" (p. 87). Most of the students were single white males coming from large urban populations of over one million. They also had some type of work experience. The student's choice of major was influenced on the advice of a former industrial arts teacher, self-satisfaction found in the field, anticipated job advancement opportunities, enjoyment derived from working with one's hands, and technical skills found in industrial arts. Cecere recommended that a nationwide study be made of factors influencing industrial-technical students in the selection of a major area of study.

Devier (1981) found that given the strong career choice influence of "personal interests and hobbies" and "secondary school industrial arts courses without direct teacher recruitment," recruitment should be focused upon students with these characteristics (p. 136). Other recommendations by Devier involving direct recruitment were previously reported.

Harden (1981) completed a national study of factors affecting adult students' choice of industrial education as a certification field. Usable responses from 242 adult students over age 25 were received from 89 colleges in 34 states. Harden found that as a group, the non-traditional adult student does not perceive recruitment practices used

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by colleges to be effective. Harden also concluded that other selected factors such as personal contact with industrial arts professionals were considered effective. Harden found these adult students who majored in teacher certification programs did not necessarily plan to teach. Eleven percent stated they would not be teaching upon completion of their program and 21% were undecided about teaching (p. 45). Harden recommended that: "Recruitment strategies designed to attract specific target groups . . . must be developed" (p. 70). He further urged faculty in individual departments within industrial education (i.e., graphic arts faculty) to identify characteristics of adult students in their own own programs.

Sharpe (1981) indicated the three most influential sources of recruitment information received by students majoring in industrial arts education were visits to college or university facilities, talking or corresponding with university personnel, or receiving recruitment literature. He found the most influential persons in the recruitment process were industrial arts teachers, parents, and university personnel.

Orr (1983) investigated factors influencing participation of females in the industrial technology degree program at Southern Illinois University at Carbondale. Forty-three currently enrolled female students responded to this study, as well as 55 female students previously enrolled at the same university. Respondents believed the most important way to increase female enrollment in industrial technology programs was to provide more general types of publicity and better informed high school counselors.

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Dillon (1985) studied factors that effected a person's decision to major in industrial arts and technology programs in North Carolina. He used John Holland's model to test the classification of industrial arts and technology students as realistic-investigative-social types. Dillon also attempted to identify common characteristics of industrial arts personnel, such as family background, exposure to industrial arts, and academic preparation. He found that fewer than half of these students decided to major in industrial arts while in high school, and most of the newer graduates had completed industrial arts classes while in junior high school. In considering these participants as a group, Dillon found 42.5% chose their school first and then their major, while 57.5% chose their major first and then their university (p. 84).

A review of the literature indicated that no current or comprehensive study was found which addressed the issue of other factors influencing students to enroll, major, or specialize in graphic arts. Graphic arts education, technology, and management students may be unique when viewed as distinct groups between themselves, or together as a general composite group in comparison with students in the larger industrial arts and technology population.

Recruitment efforts may be enhanced and made more effective if it is found that graphic arts education, graphic arts technology, and graphic arts management students were influenced differently in regard to their enrollment and specialization in each type of program. Other selected influential factors were an important but secondary objective of this research.

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Chapter Summary

Many college/university educators agreed that the use of certain recruitment practices seemed to be more effective than others in attracting students into their programs. However, inconsistencies in use and perceived effectiveness of recruitment practices were also reported by many faculty. It was found that some of the practices used extensively by faculty to recruit students into specific programs were not considered to be effective, while other practices identified as being effective were not used to any great extent.

Many college/university industrial education faculty appear to believe there is little evidence of a systematic or continuous program of recruitment for their students. This situation exists even in the face of stronger competition for students due to declining birth rates and today's economy.

Between a quarter to a half of college/university students did not decide on their majors until they were in college. Therefore, the potential exists to influence and recruit students for graphic arts programs who are already on-campus, but who have not yet declared a major in graphic arts. Many of these potential graphic arts majors may be reached through general education courses offered in departments of industrial studies. Also, some students transfer into the industrial studies or graphic arts programs from other fields, such as engineering, business, and liberal arts. Parents and high school industrial studies teachers appeared to be an important influence in attracting the student, who has not yet graduated from high school, into industrial studies and/or graphic arts.

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It is not known whether or not college/university faculty recruit students into their graphic arts education, technology, and management programs using the same or different recruitment practices for each program, or whether faculty perceptions of the effectiveness of these practices are in agreement with those of the students. It is also not known whether students in each of these three programs experience the same recruitment practices and other influential factors, or whether students perceive recruitment practices and other factors to be equally effective for each group.

This chapter was concerned with recruitment studies and other factors influencing student enrollment in college/university programs, especially those in industrial studies, but specifically in graphic arts. Very little has been written in the literature that identifies effective graphic arts recruitment practices. The objective of Chapter II was to gain insight into the problem addressed in this study and to build a base for further research. The current and comprehensive study of recruitment practices and other factors influencing the enrollment of four year undergraduate students who specialize in graphic arts attempts to address these concerns, and more.

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CHAPTER III

METHODS AND PROCEDURES

Surveying a sample of a population through the design and administration of a mailed opinionnaire is both a science and an art, utilizing the principles of applied psychology along with creative effort in attempting to maximize the return of completed surveys. Much has been written about effective questionnaire design and the management strategy that accompanies the delivery and return of the survey. This chapter is concerned with the process, methods, and procedures used in conducting this study. The contents of this chapter include a description of the (a) population, (b) sample and sampling techniques, (c) instrumentation, (d) jury critique and validation, (e) pilot-testing, (f) strategies utilized in obtaining data, (g) anticipated faculty response rates, (h) instrument design, and (i) coding and tabulating the data.

Population

Two major populations participating in this study were graphic arts college/university faculty and students. The students were further classified into three sub-populations specializing in graphic arts education, graphic arts technology, or graphic arts management. This section includes graphic arts programs and faculty, and the student population.

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Graphic Arts Programs and Faculty

The study was generally limited to those industrial-technical graphic arts programs identified in the 1987-1988, 26th edition of the Industrial Teacher Education Directory (ITED) (Dennis, 1987). In addition, graphic arts education, technology, and management programs were identified in the 1988 edition of GATF's Technical Schools Colleges and Universities Offering Courses in Graphic Communications (Education Council of the Graphic Arts Industry, 1988 [ECGAI]). It was found that 16 potential graphic arts programs listed in the ECGAI were not found in the ITED. A few of these 16 programs were listed under departments of journalism/mass communication, communication/design, graphic arts and advertising, or industrial management.

Between the ITED and the ECGAI, 133 public and private colleges/ universities in the United States were identified as potentially offering graphic arts programs. The graphic arts program in the Department of Industrial Technology at the University of Northern Iowa was identified as being part of this group. However, faculty and student opinionnaires from this institution were not included in the main study due to potential bias. A graphic arts faculty member in each of the remaining 132 institutions recieved the Preliminary Research Questionnaire (PRQ) in March, 1988 (Appendix D). PRQ's were addressed to the graphic arts faculty member identified by name in the ECGAI or ITED. In some cases telephone calls were made to further identify or update faculty names. College/university catalogs were also referenced.

The PRQ was developed to gather preliminary information including program data from faculty. An attempt was made to update this data with

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the Preliminary Data Report (PDR) mailed to department chairpersons in September, 1988 (Appendix D). Information obtained from these two instruments helped to identify potential institutions, programs, faculty, and the number of students to be sampled in the study. One hundred PRQ's (76%) and 93 PDR's (70%) were returned from each of 132 mailings. Personnel in 94 institutions indicated their programs were eligible to be included in the total study. However, during and after conducting the study, 88 were actually found to be eligible with six ineligible. Eighty-one of 88 eligible faculty/institutions (92%) responded to the total study. Part of the 88 were four educators serving as juror/pilots and five other educators serving as pilots. Four juror/piloted and one piloted instruments were not part of the main study. Four piloted instruments were part of the main study. Seventy-six of 83 eligible institutions (92%) were part of the main study, representing 39 states and the District of Columbia.

Graphic Arts Students

Faculty reported enrollment data for their graphic arts students and programs in 94 institutions. These data are listed in Table 2. Column "e" includes the percent of students attempted to be surveyed from the population. Because of low enrollment numbers of education students, a higher sampling percentage of these students was attempted than for those in technology and management programs.

The main study involved 76 institutions and programs. Nine-hundred and one students were identified in Table 3 as returning usable surveys in three programs. Column "e" includes the percent of actual students

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Table 2

Student Enrollment and Program Data Reported in 94 Institutions

Graphic Arts Programs	Enrollment & Programs Reported by Faculty		Students & Programs Attempted to be Sampled		
	Number of Students a	Distinct Programs b	Number of Students c	Distinct Programs d	Survey % Attempted e
Education (E)	458	52	332	31	72.5
Technology (T)	1430	56	573	31	40.1
Management (M)	3186	52	625	32	19.6
	5074	160	1530	94	30.2

Note. e = (c/a)x100.

Table 3

Students Responding and Programs Sampled in 76 Institutions in the Main Study

Graphic Arts Programs	Faculty Reported in their PRQ or PDR		Usable Student Surveys Received		
	Number of Students a	Distinct Programs b	Number of Students c	Distinct Programs d	Actual % Surveyed e
Education (E)	393	40	112	23	28.5
Technology (T)	1200	42	244	25	20.3
Management (M)	2786	45	545*	28	19.6
	4379	127	901	76	20.6

Note. *Students indicating enrollment in combined technology/management programs were listed with students enrolled in management programs.
e = (c/a)x100.

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surveyed. Column "d" represents the programs faculty were asked to respond to in their opinionnaires.

Sample and Sampling Techniques

Census and sampling procedures were used to select institutions/faculty, programs and students. Census is defined as the inclusion of 100% of a given group, population, or entity. Sample is defined as the representative selection and inclusion of part of a given group, population, or entity. Sampling involved systematic and proportional stratification techniques. Census and sampling are further described as follows:

Institutions and Programs

For institutions and programs to be included in the study, certain eligibility criteria had to be met. Eligibility was determined through use of the PRQ and PDR. A census was made of all 94 colleges/universities who had a faculty member indicate whether his/her program met eligibility criteria. However, only a portion of the 160 identified graphic arts programs in all of the institutions were sampled. An attempt was made to have approximately one-third of each of the faculty report on recruitment practices in education (E), technology (T), and management (M) programs. Some institutions offered only one program while others offered a combination of two or three. Forty-one single programs consisting of seven education, 20 technology, and 14 management programs were sampled as a census. The remaining 53 program/institutions of 24 education, 11 technology, and 18 management programs were selected by lot without replacement from program combinations of 15

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education/technology (ET), 17 education/management (EM), 9 technology/management (TM), and 12 education/technology/management (ETM) on an approximately 4E:2T:3M ratio. By including the single programs, an attempt was made to have 31 education, 31 technology, and 32 management programs (94) represented. In consultation with Dr. Harley E. Erickson, statistician and professor emeritus at the University of Northern Iowa, it became apparent that a combination of census and sampling techniques were considered reasonable and appropriate in selecting the 94 programs to be utilized in the study.

Faculty

Data provided in item seven of the PRQ and item six of the PDR were utilized to target the person identified whose teaching responsibility in graphic arts was either 100% or close to it. If faculty indicated their programs were eligible to be involved in the study, the individuals were asked for their cooperation to participate in the study. An affirmative response indicated the faculty member and institution would be part of the study. If a negative response was given, an attempt was made to contact another individual listed and considered to be the next best candidate. In some cases the original faculty member was recontacted again at a later time for reconsideration in the affirmative.

One graphic arts faculty member represented each institution and a preselected graphic arts program. That same person was later asked to complete a faculty opinionnaire focusing in on that one program.

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Before faculty and students were asked to complete their opinionnaires, authorization to conduct research involving human subjects had to be obtained. Permission to carry out this research was granted by an assistant to the dean of the graduate college at the University of Northern Iowa on June 27, 1988 (Appendix E).

Students

The 94 faculty members received 1,530 student opinionnaires to distribute to their students, averaging 16.3 per institution. A total of 1,051 student surveys were returned (69%). From these, 73 were determined not to be usable; therefore, 978 of the 1,530 (64%) were deemed usable in the total study. This included 77 student surveys from four institutions where the faculty member served as a juror. Subtracting these 77 resulted in 901 student surveys that were part of the main study which included 112 surveys from students in graphic arts education, 244 surveys from students in graphic arts technology, and 545 surveys from students in graphic arts management programs.

Each of the three student sub-populations were sampled by the faculty member through proportional stratified random sampling and census. This was necessary in order to obtain greater representation of students in the smaller programs in each institution. Each faculty member sampled a certain number of students from each graphic arts program offered. These numbers were provided to the faculty member based upon enrollment data previously obtained in the PRQ and PDR or through telephone communication. In consultation with the statistician, it was decided that if a particular program (education, technology, or

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management) had an enrollment of 10 or less, all the students in that program were to be sampled. In this case sampling would not be random but would be a census. If 11 or more students were enrolled in a program, random sampling would take place in that particular program. Depending upon enrollment, for 11 to 64 students, 10 were sampled; for 65 to 99 students, 15 were sampled; for 100-200 students, 20 were sampled; for 201 or more, at least 10% of that number were sampled. There was a concern and attempt to keep the number of surveys being distributed by the faculty down to a reasonable and manageable level of 30 or less, especially if the faculty member was asked to distribute surveys to students in three different programs. In a few cases faculty received more than 30 student surveys. There was a concern that overburdening the faculty member might discourage him/her from participating in the study altogether. This almost certainly would have also precluded their students from returning completed surveys.

Instrumentation

Six instruments were used to conduct this study. Besides the PRQ and PDR, three versions of the faculty opinionnaire and one of the student opinionnaire were developed. Some of the procedures followed in the research by Edmunds (1980) and Devier (1981) were used as a pattern for much of the remaining investigations. The remaining opinionnaire listings and formats were guided by a review of the literature as well as a personal meeting with Dr. Jack Simich in August, 1988. The opinionnaires also included items listed in previous research by Cecere (1980), Dean (1985), Devier (1981, 1982, 1987), Dillon (1985), Edmunds

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(1980, 1983), Fischer (1976), Foley (1967), and Orr (1983). Devier and Cecere gave permission to use some of their material and procedures in this study (Appendix A). Content validation of the opinionnaires were provided by a jury of graphic arts experts before the instruments were released for pilot-testing. Each of the six instruments are described below.

Preliminary Research Questionnaire (PRQ)

PRQ's with cover letters were mailed with appropriate follow-ups in March, 1988 (Appendix D). This questionnaire was designed and developed as a tool to obtain initial direction and design of the study. Eight questions were listed in the instrument. Question one was designed to request information on whether or not a concentration, major or emphasis program in graphic arts education, graphic arts technology, or graphic arts management was offered students with more than one or two courses in graphic arts. This was the criteria for eligibility to be included in the study. Those faculty who indicated they offered one, two, or three of these eligible programs were then asked to indicate enrollment in each program. They were then asked to indicate their willingness to participate in the study. Questions two through four were designed to request information on enrollment trends in the program(s), the title of their program(s), and their institution and department enrollment. Question five served as a management tool in constructing a time frame as to when the opinionnaires were to be mailed out in Fall, 1988. Question six indicated faculty willingness to participate in the study and whether or not they preferred having students mail the completed

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surveys back in individually provided self-addressed stamped envelopes, or having the students return completed surveys to the faculty member to mail back in one bulk package. A higher rate of return was expected from students if they were requested by their professor to turn the completed surveys directly back to this same professor. Of those faculty responding that they would participate in the survey, 81% indicated they would be willing to collect the surveys from their students. Question seven sought data on those professional staff in the graphic arts programs or department and requested an indication of their level of involvement in teaching graphic arts. Optional question eight solicited names and addresses regarding potential jurors to validate the instruments before they were pilot-tested and distributed. Fifty-nine potential juror names were submitted in response with some names appearing more than once.

Preliminary Data Report (PDR)

This instrument was designed in part as a follow-up to the PRQ and to update and verify information about graphic arts programs, enrollment, and personnel (Appendix D). It was mailed in September, 1988. Item #1d was included to determine those programs that were considered unique technology/management programs. This instrument sought current information on the beginning and ending of the school term and information on faculty who taught graphic arts at that institution, along with their program involvement. It was found that some faculty had left various programs/institutions during the summer or since the PRQ was completed. The student enrollment numbers solicited

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were compared with those provided in the PRQ to obtain a more accurate count on the number of student surveys needed to be distributed.

Faculty Opinionnaire

The final faculty opinionnaire was a revised and combined version of two previously developed surveys. The combination and change in format were suggested by jurors to facilitate data collection. Three versions of the final faculty opinionnaire were developed (Appendix F). Except for the wording of item #41, the questions were identical in each but the focus was different. Each version of the opinionnaire was designed to have a faculty member respond to recruitment practices used to attract students into either graphic arts education, graphic arts technology, or graphic arts management. The faculty opinionnaire listed 32 recruitment practices along with a few other questions. As the spokesperson for each institution, the faculty member was asked to indicate whether or not particular recruitment practices were or were not used by members of that institution to recruit graphic arts students. If the practice was not used, they were asked to respond by circling a "1." If the practice was used, they were asked to rate their perceptions of the effectiveness of that practice in attracting students into that particular program by rating these practices "2" to "5" to indicate no effect to great effect. Space was also provided for faculty members to list and rate recruitment practices used in their institution that were not part of the preprinted list of practices provided in the opinionnaire.

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Faculty were also asked open-ended questions concerning recruitment problems and other general concerns. They had an additional opportunity to indicate any comments regarding the study on the back cover of the opinionnaire.

Student Opinionnaire

Students in all three graphic arts programs completed the same generic opinionnaire. Part I of the student opinionnaire (Appendix G) contained the same list of recruitment practices as provided in the faculty opinionnaire but written in a style more conducive for use by the student. Besides providing general information, the student was asked to categorize himself/herself as specializing in either graphic arts education, technology, or management or a combination technology/ management program. They were then asked to check the 32 item recruitment list reflecting practices used to attract them into their graphic arts program. After reading the list and identifying each of the recruitment practices they actually experienced, they were asked to evaluate their perceptions of the effectiveness of those identified practices on a Likert-type scale.

There were two other major parts to the student opinionnaire. Part II contained a preselected list of 28 other factors besides direct recruitment practices that may have influenced students to enroll and specialize in graphic arts. Students were asked to respond to these other factors in a fashion identical to that used in the recruitment section by also rating them on a Likert-type scale. Part III of the opinionnaire was designed to request demographic data on the student.

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Students were also given the opportunity to list and rate additional recruitment practices or other influential factors that they experienced but did not appear in the lists of the printed opinionnaire. Space was also provided on the back cover soliciting questions or comments they might have regarding recruitment or anything else in the opinionnaire.

Jury Critique and Validation

Faculty and student opinionnaires were analyzed for content validity by a jury of nine graphic arts experts affiliated with education, business, and industry. The jurors were chosen from a list of over 50 responses in the PRQ. They were selected in combination by the number of times their name appeared on the list of potential jurors as well as their background. Those selected, whether initially self-nominated (40%) or nominated by others (60%), were formally invited to participate in the jury (Appendix H).

The jury members were asked to critique the faculty and student opinionnaires for: (a) content of recruitment practices, other factors, and questions, (b) phrasing of the recruitment practices, other factors, and questions, (c) clarity of instruction, and (d) importance of the practices, factors, and questions in relation to the purposes of the study. Demographics and formating of the instruments were also critiqued. Jurors recommended that certain items be rephrased in terms of the student and two faculty surveys be combined and reformatted. Jurors also suggested adding a few additional recruitment practices. Critiques in written form were requested from the jurors.

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Four of the nine jurors were professors in current graphic arts programs in colleges/universities. These four jurors and their students also participated a few weeks later in pilot-testing the instruments. Survey responses from them were excluded from the final study to minimize any potential bias that might occur since the faculty members were intimately involved in the final evaluation and changes in the opinionnaires. One other juror was a retired graphic arts professor, another formerly taught in a graphic arts program which had since been phased out, and the other three were owners or directors in graphic arts business and industry.

Pilot-Testing

The faculty and student opinionnaires were pilot-tested in nine institutions before they were used in the main study. All three graphic arts programs were offered in each of three of these institutions; only two of the programs were offered in each of three other institutions; and only one program was offered in each of the remaining three institutions. The programs were randomly selected from categories to be representative of each of the three program combinations. Pilot-testing was undertaken to improve the reliability of the instrument by identifying any confusing, misleading or unclear questions and directions. Reactions by graphic arts faculty members and students to a pilot-test of the opinionnaires could reveal some areas of concern or problems that were not identified or addressed previously. These problems could have been with the format or directions in administering the instruments.

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Pilot-tested data are generally not included in main studies due to changes usually being made in the instrument and possible potential bias on the part of the respondents knowing they are part of a pilot group. However, these non-jury pilot-tested opinionnaires from four of the five institutions were included in this study since no changes were made in the instruments between the time they were pilot-tested and then used in the main study, and no bias was created that differentiated this pilot group from those in the main study. Faculty and students in one institution, after returning opinionnaires, were found ineligible to have their data included in the main study. The faculty member indicated in the opinionnaire that his institution offered only one graphic arts course which was not previously indicated in the PRQ. Consequently, neither the faculty nor the student opinionnaires returned were used from this group.

Strategies Utilized in Obtaining Data

A number of strategies were utilized to encourage the completion and return of opinionnaires. They included a pre-notification announcement, cover letter, incentives to increase return rates, and other techniques which are described as follows:

Pre-Notification Announcement

In reviewing the literature on questionnaire design, several authors suggested that recipients of questionnaires receive an advanced notification in the form of a postcard or letter. Prenotification announcements are known to encourage significantly higher rates of response as opposed to not utilizing this technique (Parsons & Medford,

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1972; Linsky, 1975; Kerin & Peterson, 1977; Childers & Skinner, 1979). Dillman (1978) suggested, "The highest response rates, those over 90 percent, have only been obtained when respondents received a prior letter informing them that they would be called at a later time" (p. 51). Dillman recommended that this notice should arrive seven days before the opinionnaire arrives. The purpose of the prenotification postcard, according to Linsky (1975), was to identify and personalize the researcher to the targeted individual, discuss the study's purpose, and request the cooperation of those to be surveyed. Heaton (1965), Rucker, Hughes, Thompson, Harrison, and Vanderlip (1984), and Workman (1985), also supported its use in establishing an anticipatory mind-set with the recipient.

A prenotification postcard (Appendix I) was designed and sent out to targeted faculty in institutions seven days before the faculty and student opinionnaires were mailed. The first version of these personalized and dated postcards were addressed to those previously identified as willing to participate in the study. The second version was sent to those who had not previously indicated a willingness to participate. Colored postcards were used to further attract the attention of the potential respondent. Each card was individually typed with a computer printer and signed with a blue ball-point pen pressed into the card over soft paper. The address side was also typed and no label was used. The serrated edges from these continuous form cards were trimmed prior to mailing. It was anticipated that personalized techniques such as these would increase response rates as reported by others in the past.

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Cover Letter Accompanying Instruments

Cover letters were designed and mailed with the PRQ (Appendix D). Other cover letters were designed and mailed with the faculty opinionnaires (Appendix I). Dillman (1978) suggested the cover letter contain information addressing: (a) what the study is about and its social usefulness, (b) why the recipient is important, (c) promise of confidentiality and explanation of identification number, (d) usefulness of the study, (e) reward for participation, (f) what to do if questions arise, and (g) appreciation.

Heberlein and Baumgartner (1978) stated that the most potent factor motivating and influencing a person to respond in completing a survey is the importance of the survey topic. Studies have shown surveys judged to be highly salient to respondents obtained a 77% response rate (Baumgartner & Heberlein, 1984, p. 67). As a result, the importance of the topic to the respondent was described in the cover letter itself. Each letter was also personalized and contained a date with pressed blue ink ball-point signatures. It was reported that personalized salutations obtained a greater response then those not personalized (Druesne, Harvey, & Zavada, 1980). The letters were typed on official Department of Industrial Technology letterhead from the University of Northern Iowa. They also contained the advisor's original signature and title lending additional university sponsorship and credibility to the acceptance and importance of the study. Telephone numbers were part of the printed message and respondents were invited to call if they had any questions or comments about the study. Individual letters were typed using a personal computer and word-processing software, assuring that

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the inside name matched the text of the letter perfectly. The personalization techniques described above are established methods showing personal and positive regard for the potential respondent and are part of Dillman's (1978) "Total Design Method" to maximixe responses.

Incentives to Increase Return Rates

Dillman (1978) suggested that three things must be done to maximize survey responses: " . . . minimize the costs for responding, maximize the rewards for doing so, and establish trust that those rewards will be delivered" (p. 12). Incentive techniques in the form of perceived value, monetary, and non-monetary value were incorporated into this study.

Value. A special technique used was to give potential faculty respondents a gift certificate coupon (Appendix J) for a raffle. The individuals were informed that if they returned their certificates with the completed opinionnaires by a pre-established deadline, they would be eligible to have five chances to win their choice of either a complete copy of the dissertation study or $ 25.00. This added inducement was expected to speed up the return and increase the response rates of completed opinionnaires. Names of winners are listed in Appendix J.

Each faculty respondent was provided with an additional incentive to receive a complimentary copy of a summary of the study. This may also have had the effect of encouraging potential respondents to actively participate in the study and hopefully receive something of value in return which could be utilized in their program.

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Each faculty member was given additional copies of both the faculty and student opinionnaires to be filed for future reference. The faculty member hopefully perceived the materials listing recruitment practices and other factors to be of value. For those faculty who sometimes make copies of survey instruments sent to them, providing these materials saved them the trouble and cost of duplication.

Endorsements supporting the necessity of the study were solicited from well known and respected leaders in the graphic arts industry and in education (Appendix J). This sponsorship technique was designed to inform the potential respondent of the importance of completing and returning the survey instruments.

Monetary. Dillman (1978) reported empirical evidence suggested that techniques of follow-up and the use of monetary incentives were the only ones that really do improve response rates. Workman (1985) stated: "In general, money enclosed with the questionnaire seems to yield the most substantial increase in response" (p. 2). As a result, a new crisp $ 1.00 bill accompanied each cover letter and faculty opinionnaire package. This package also contained a number of student opinionnaires, endorsements, and directions and management aides for administering the student surveys (Appendix J). The dollar was indicated in the cover letter to be a gesture of appreciation for completing and returning the surveys. This incentive was utilized for recognizing that the respondent's time has value, albeit, much more than was represented by the enclosed token monetary gift. Dillman (1978) stated that financial incentives have been found to be successful in mail questionnaire

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research, not for their monetary value, but because " . . . they are a symbol of trust" (p. 16).

Other incentives. Other incentives were also likely to increase response rates. The cost and effort of responding to the PRQ, PDR, and faculty opinionnaires were minimized for the respondent by having self-addressed stamped envelopes enclosed with each mailing. This made it easier for each respondent to return the forms and surveys.

Explicit directions for administering the student surveys were provided the faculty in three versions. Version FR/PRQ-YF was sent to faculty who indicated a willingness to participate in the study and collect the completed student surveys. Version FR/PRQ-YS was sent to faculty who indicated a willingness to participate in the study but have students mail back completed surveys on their own. Version FR/PRQ-N was sent to faculty who had not previously indicated a willingness to participate in the study. Printed on the back sheet of each version were directions for the random selection of students. Management sheets for identifying students in various graphic arts programs and for tracking survey returns were printed back-to-back and provided each faculty member. Copies of all these instruments are contained in Appendix J. A special notice requesting support for the study from college/university graphic arts faculty nationwide was also published in the November, 1988 issue of the IGAEA newsletter (Appendix K).

Other Techniques Used

Techniques such as first follow-up letters or postcards were expected to increase response rates. Second, third, and fourth

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follow-up letters as well as telephone calls to potential respondents were expected to bring in even more responses. Lockhart (1984) stressed: "Reminders work, and more reminders work better" (p. 95).

Thank-you/reminder postcards. Single follow-up letters or postcards were expected to bring as much as 16% (Kephart & Bressler, 1958, p. 126) to 20% (Heberlein & Baumgartner, 1978, pp. 450-451) of the initial sample. Therefore, dated, personalized, and individually signed postcards (Appendix I) designed as a thank-you note for promptly returning the opinionnaires were mailed to each faculty member who received an opinionnaire. If they had not already returned the completed opinionnaires, the postcard acted as a friendly and courteous reminder to complete the task at this time. One version of the postcard was sent to those who previously agreed to participate in the study. A second version was sent to those who had not previously agreed to participate. Each postcard also contained a brief handwritten note asking the participant by name to please assist in the study. These first follow-up notices were mailed exactly one week after the initial mailing of the faculty and student opinionnaires as suggested by Dillman (1978, p. 183). Erdos and Morgan (1983) found that 90% of all returns that are going to come in will arrive less than three weeks after the original mailing (p. 129). These figures pertain to one opinionnaire being mailed to each person in the sample. It was expected that a longer period of time for the return of opinionnaires was necessary in this study because faculty were also being asked to distribute opinionnaires to their students, and in most cases to additionally collect these instruments from the students over a period of time and

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return them in one package. Some faculty members indicated a preference in the PRQ for having students return their surveys by mail without faculty involvement. In these cases individually stamped envelopes were provided to the faculty member to give to each student. Some other faculty were also given this option in managing the return of student surveys. Using envelopes with stamps on them were expected to increase response rates by at least 2% (Dillman, Dillman, & Makela, 1984, p. 50). Baumgartner and Heberlein (1984) were more optimistic in reporting that the use of first class postage stamps would provide a 6% increase in response rates as compared to business reply envelopes (p. 72).

Second follow-up notice. A second follow-up notice for the PRQ (Appendix D) and opinionnaire (Appendix I) with a different personalized letter was mailed to nonrespondents and appealed for their assistance in returning the completed instruments. Along with a cover letter concerning the PRQ, another copy of the PRQ was mailed. Along with the opinionnaire follow-up letter, a packet of coffee in lieu of another $ 1.00 bill was included. These materials were mailed approximately four weeks after the original mailing. Workman (1985) stated that: "Multiple follow-up letters (or post-cards) appear to make a dramatic difference in response rates" (p. 2). In fact, second and third follow-ups were expected to yield another 12% and 10%, respectively (Heberlein & Baumgartner, 1978, p. 450).

Third and fourth follow-up notices. A third follow-up notice (Appendix I) was sent four weeks after the original mailing. Dillman (1978) stated that this third notice should be sent seven weeks after the original mailing by certified mail which suggests the importance of

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the enclosed document. He indicated this technique could elicit about one-third of the remaining unanswered opinionnaires (p. 189). However, instead of sending certified letters seven weeks after the original mailing, due to cost and the approaching Christmas holiday and the ending of college/university classes before this holiday period, each of the remaining faculty nonrespondents were contacted by telephone in late November and early December urging their participation and answering any questions which they might have. A final fourth follow-up letter to nonrespondents was mailed in early January, 1989 and was accompanied with yet another telephone call.

Anticipated Faculty Response Rates

Sudman and Bradburn (1984) stated that response rates on mail surveys for teachers were expected to be in the range of 71% to 88% (p. 34). Due to the involvement of educators, timeliness of the study, industry and education endorsements, faculty incentives, and other techniques incorporated into the study, response rates for faculty were expected to be closer to the higher end of this range or even higher.

Instrument Design

According to investigators studying questionnaire design, certain design elements incorporated into questionnaire formats have been shown to increase the level of completed returns. Dillman (1978) suggested that the opinionnaire should be in the form of a printed and stapled booklet, should have no questions on the front or back cover, should be printed in photographically reduced form, and be reproduced on white or off-white paper, 16 or 20 weight. In consultation with the major

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advisor it was decided an 8 1/2 x 11 booklet containing two folded 11 x 17 stapled sheets would be appropriate and would be easier for the respondent to complete.

Other elements used in the design of the opinionnaires were graphic illustrations on the cover, colors differentiating the faculty surveys from the student surveys, code numbers clearly visible and explained, stated purpose and target audience of the survey instrument, estimated time for completion, assurance of confidentiality, and a request for assistance. The instruments also identified the person conducting the study along with the sponsoring institution as well as a notice of endorsements. The respondent had a chance to comment on the overall survey on the back cover of the survey form. Here, the respondent was also thanked for his/her cooperation, was given further direction in returning the instrument, and was given the name and address of the person to whom the instrument should be returned. The faculty instrument also had a due date stamped on the back cover for its return.

After completing the opinionnaire the faculty respondent was asked to indicate whether he/she desired a complimentary copy of a summary of the study. If so desired, the respondent was asked to write his/her name and address on a separate gold Information Form (Appendix J) provided on the back of the gift certificate coupon or to affix a business card and mail this form in the return envelope along with completed opinionnaires. Names were not to be placed on the opinionnaire form. This physical separation of name and opinionnaire also helped maintain and assure the anonymity and confidentiality of the respondent and his/her institution to the instruments.

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Coding and Tabulating the Data

Upon receipt of the faculty and student opinionnaires, instruments were examined to determine completion and useability. Data from instruments were then tabulated into two computer databases by personnel at the University of Northern Iowa Academic Computer Services. A program analyst used the Statistical Packages for the Social Sciences, SPSS (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975), for treatment of data.

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CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The purpose of this chapter is to report the findings relevant to answering the research questions. Treatment of the data are also described. Ten of the twelve questions to be answered in the study are addressed in this chapter and a discussion involving their findings follow each question. Questions eight and twelve concern recommendations for the study and are addressed in Chapter V.

Treatment of Data

Descriptive and statistical methods as well as content analysis were used in this study. Their use was determined through a literature review as well as consultation with the statistician. Frequencies, percents, means, and ranks were used to descibe the data. The *t*-test for independent means (two-tailed, $p = .05$) was used to determine differences between faculty and students perceptions of the effect of 32 recruitment practices used to attract students into graphic arts programs. If the calculated *t*-value was found to be greater than or equal to the table value, the null hypothesis was rejected. This test determined whether observed differences of recruitment practice means between faculty and students were large enough to be significant or simply due to chance. Three separate sets of *t*-tests were performed on each of the recruitment practices, one set for each program, to test the three null hypotheses which were described in Chapter I.

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When reporting other factors, responses from the three groups of graphic arts students were described using frequencies, percents, means and ranks. When describing demographic or personal data and other preliminary information, frequencies and percents were generally used.

Faculty responses to items other than recruitment practices and open-ended questions were usually described by the use of frequencies, percents, means and ranks. Responses to open-ended questions were reported in narrative form.

In most tables percents were calculated from frequencies and rounded to the nearest tenth of a percent. Because of this rounding, the numbers in these percent columns may not always total exactly 100%.

Survey response data from 976 students and faculty were included in the main study. Students submitted 901 surveys representing 112 graphic arts education students, 244 graphic arts technology students, and 545 graphic arts management students. Faculty members in 75 colleges and universities submitted 75 surveys representing 23 graphic arts education programs, 25 graphic arts technology programs, and 27 graphic arts management programs. One additional faculty member was expected to return a survey for his management program, but this form was not received.

In this chapter, the term graphic arts education will usually be referred to as education. Likewise, graphic arts technology and graphic arts management will be referred to as technology and management, respectively.

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Demographic Characteristics and Personal Data of Graphic Arts Students

Question one was concerned with the demographic characteristics of four year undergraduate students in the United States who specialize in one of three different types of graphic arts programs: (a) graphic arts education, (b) graphic arts technology, and (c) graphic arts management. This question is addressed in Tables 4 to 10, and Tables L-1 to L-13 in Appendix L. Each table contains personal data on students specializing in all three types of graphic arts programs.

Age of Students

Grouped ages of students are listed in Table L-1 in Appendix L. The majority of students are in the 20-24 age group. When considering the students who responded to the study, the oldest group was education students with a mean age of 23.6 years (N = 112), the youngest group was technology students with a mean age of 21.8 years (N = 244), and the middle group was management students with a mean age of 22.4 years (N = 545). A study by Jenkins (1975) also revealed a significant finding that industrial studies students majoring in education were older than those students majoring in technology.

Sex of Students

The sex of the student respondents is reported in Table 4. The percentages for male respondents were 79.2% for education students, 54.7% for technology students, and 60.0% for management students. The data indicated there were more than twice the percentage of females enrolled in graphic arts technology (45.3%) than in education (20.8%),

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and almost twice the percentage of females enrolled in management (40.0%) than in education.

Table 4

Sex of Student Respondents by Graphic Arts Program

Sex:	Education f	Education %	Technology f	Technology %	Management f	Management %
Female	22	20.8	106	45.3	211	40.0
Male	84	79.2	128	54.7	316	60.0
No response	6		10		18	
Total	112	100.0	244	100.0	545	100.0

Hometown Population

The hometown population of the student respondents is reported in Table 5. About 12.5% of students enrolled in education came from a hometown of over 100,000 people, whereas 24.5% of technology students and 29.8% of management students, respectively, indicated their hometown to have a population of over 100,000.

Over twice the percentage of education students (18.3%) came from small towns under 2,500 population than management students (8.9%). Senteney (1955) also found that the disproportionately higher number of students majoring in teacher education industrial studies programs came from smaller hometowns than the non-teacher education industrial studies

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students. He suggested that high school students who were the best potential sources to become industrial education teachers should be recruited from rural communities, from families engaged in agriculture or related areas.

Table 5

Population of the Student's Home Town by Graphic Arts Program

Hometown population:	Education f	Education %	Technology f	Technology %	Management f	Management %
Under 2,500	19	18.3	33	14.2	46	8.9
2,501-5,000	13	12.4	24	10.3	45	8.7
5,001-10,000	7	6.7	22	9.5	47	9.1
10,001-25,000	17	16.3	41	17.7	68	13.2
25,001-50,000	20	19.2	30	12.9	90	17.5
50,001-100,000	15	14.4	25	10.8	65	12.6
100,001-250,000	2	1.9	7	3.0	27	5.2
250,001-500,000	2	1.9	8	3.4	32	6.2
500,001-1,000,000	3	2.9	17	7.3	27	5.2
1,000,000 or more	6	5.8	25	10.8	68	13.2
No response	8		12		30	
Total	112	100.0	244	100.0	545	100.0

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Type of High School Attended

Students attended various types of high schools. These data are provided in Table L-2 in Appendix L. Although over 86-94% of the students attended public high schools, almost twice the percentage of technology students (8.2%) attended private school as opposed to education students (4.5%), and almost three times the percentage of management students (12.9%) attended private school as opposed to education students.

Eight students indicated an "other" response for this question. Three students attended vocational school, two attended technical schools, and three attended high schools that were both public and private.

Size of High School Graduating Class

The size of the student's high school graduating class is found in Table L-3 in Appendix L. It appears that the percent of students in each program was very consistent for each size category. The highest percentage of students in any of the three programs represented a high school graduating class of 251-500.

Marital Status

The marital status of the student respondents is presented in Table L-4 in Appendix L. Over 78-89% of the students were single. About twice the percentage of education students were married (19.1%) as compared to technology (9.9%) and management (8.7%) students.

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Student's Race

Student respondents' race is listed in Table L-5 in Appendix L. Over 84% of the graphic arts students were Caucasian. Black students represented 6.3% of the education students. In technology and management programs they represented about 9.5% and 9.0%, respectively.

Students also indicated an "other" category for their race. Nine stated they were Asians, two Eurasians, and four were not identified.

Student's Religion

Student respondents' religion data are reported in Table L-6 in Appendix L. About 46% of the students were Protestant, and this is consistent by program. About a third of the students were Catholic. Twenty-three education students selected the "other" category and specified: Mormon (7), not applicable (6), none (4), non-denominational (3), agnostic (1), atheist (1), or Christian Scientist (1). Forty-three technology students specified: Christian (6), none (5), not-applicable (5), Mormon (4), non-specified (4), non-denominational (3), Buddist (3), agnostic (2), atheist (2), Jehovah's Witness (2), Disciples of Christ (2), non-practicing (2), Taoist (1), Islam (1), or Hindu (1). Eighty-five management students specified: non-denominational (22), none (20), Christian (16), Mormon (8), Buddist (5), agnostic (5), Orthodox (4), Muslim (1), Eclectic (1), Unitarian (1), Fundamentalist (1), or Congregationalist (1).

Father's Highest Educational Level

Student responses for their father or male guardian's highest level of education is indicated in Table L-7 in Appendix L. More than 55% of

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their fathers or male guardians completed programs beyond high school. Education students (43.8%) had 9.1% more fathers/guardians complete bachelors, masters and doctorate degrees than technology students (34.7%), and 6.8% more than management students (37.0%).

Mother's Highest Educational Level

Student responses for their mother or female guardian's highest level of education is given in Table L-8 in Appendix L. More than 45% of their mothers or female guardians completed programs beyond high school. Education students (29.5%) had 5.5% more mothers/guardians complete bachelors, masters and doctorate degrees than technology students (24%), but 2.7% less than management students (32.2%).

Highest Educational Level Students Hope to Attain

Students were asked for the highest educational level they hoped to achieve. Their responses are found in Table 6. A few students indicated they hoped to achieve the associate degree while others did not answer this question at all. Students who did not indicate their intention to obtain either the bachelors, masters, or doctorate degree were purposely excluded from having their data included in this study. This study was aimed at those undergraduate students only who were enrolled in and pursuing a four year bachelors program. More than twice the percentage of education students (12.5%) hoped to complete the doctorate than technology (5.3%) or management (4.4%) students. More than half (54.5%) of the education students hoped to achieve the masters degree. Two-thirds (67%) of education students planned to achieve more than the bachelors degree, whereas 39.7% of technology students and

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43.7% of management students planned further formal education beyond the bachelors degree.

Table 6

Highest Level of Education Students Expect to Attain by Graphic Arts Program

Highest educational level students expect they will achieve:	Education f	Education %	Technology f	Technology %	Management f	Management %
Assoc. degree 2-yr college)	-	-	-	-	-	-
Bachelor's degree	37	33.0	147	60.2	307	56.3
Master's degree	61	54.5	84	34.4	214	39.3
Doctor's degree	14	12.5	13	5.3	24	4.4
No response	-		-		-	
Total	112	100.0	244	100.0	545	100.0

Father's Primary Occupation

Students were asked about their fathers' primary occupation. These data are presented in Table L-9 in Appendix L. About twice the percentage of education students (10.7%) had fathers who were engaged in agriculture/fishery/forestry related occupations than technology (4.6%) or management (5.7%) students. About half of each group of students had fathers who were engaged in professional, technical, or managerial occupations, and about one-fifth of education and management student

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fathers, and slightly over one-fourth of technology student fathers, were engaged in processing, machine trades, manufacturing, construction, transportation, or mining.

Students also specified the "other" category in answering this question. Four education students indicated their fathers were: self-employed (2), retired (1), or unspecified (1). Thirteen technology students indicated: non-specified (5), self-employment (4), military (3), or disabled (1). Of 30 management students, responses were: self-employment (9), various others (6), unspecified (4), military (4), retired (2), government (2), graphic arts (2), or disabled (1).

Mother's Primary Occupation

The respondents were asked to indicate their mothers' primary occupation. These data are listed in Table L-10 in Appendix L. About twice the percentage of education students (18.2%) had mothers working in the service sector than technology students (10.1%) and management students (8.8%). More than a third of management students (34.7%) had mothers holding professional/technical/managerial positions, whereas about a quarter of technology students (25.6%) and 30.0% of education students had mothers holding such positions.

Students also specified the "other" category when answering this question. Five education students indicated: not-applicable (3), self-employed (1), or education (1). Seven technology students indicated: self-employed (3), education (1), model (1), seamstress (1), or artist-potter (1). Twenty management students indicated: educational (5), not applicable (4), unspecified (3), retired (2),

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printing (2), artist (1), social service (1), medical (1), or laboratory (1).

Father's Occupation Related to Graphic Arts

Students were asked whether or not their father's occupation was related to the graphic arts field. These data are reported in Table L-11 in Appendix L. Education students (18.8%) and management students (18.7%) indicated about 7% more of their fathers working in a field related to graphic arts than technology students (12.0%).

Mother's Occupation Related to Graphic Arts

Students were asked whether or not their mother's occupation was related to the graphic arts field. These data are indicated in Table L-12 in Appendix L. About twice the percentage of education students (12.5%) reported their mothers working in the graphic arts field than technology students (6.2%) or management students (7.8%).

Students Planning to Teach Graphic Arts

Students were asked to indicate whether or not they planned to teach graphic arts. Their responses are given in Table 7. More than three-fourths (76.8%) of graphic arts education students planned or probably planned to teach compared to 10.3% of technology and 6.9% of management students. In studying industrial education teacher education students, Devier (1981, p. 85) also found 74.8% planned to teach, while Householder and Sharpe (1984, p. 44) found 73% planned to teach. About a tenth (9.8%) of education students were undecided about teaching, but slightly over a quarter (27.5%) of the management students were

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undecided about teaching. This suggests the possibility that three times the percentage of undecided management students have the potential to be pursuaded to teach graphic arts than undecided education students.

Table 7

Students Planning to Teach Graphic Arts by Graphic Arts Programs

Do you plan to teach graphic arts?	Education f	Education %	Technology f	Technology %	Management f	Management %
Yes	44	39.3	6	2.5	9	1.7
Probably	42	37.5	19	7.8	28	5.2
Undecided	11	9.8	41	16.8	149	27.5
Not likely	9	8.0	69	28.3	157	29.0
No	6	5.4	109	44.7	199	36.7
No response	-		-		3	
Total	112	100.0	244	100.0	545	100.0

Student's Program of Study

Students indicated the type of program in which they were concentrating, majoring, or enrolled. This information is found in Table L-13 in Appendix L. Students who indicated they specialized in management had their data combined in the study with those indicating their specialization in a combined technology/management program. It seems reasonable to state that those specializing in graphic arts

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management were either previously involved in a program of graphic arts technology or were concurrently involved in such a program.

Student's Grade Level

Students were asked what grade level they were at in their college/university. These data are presented in Table 8. The data indicated an

Table 8

Student's Grade Level by Graphic Arts Program

Student's grade level:	Education f	Education %	Technology f	Technology %	Management f	Management %
Freshman (0-29 Sem cr) (0-44 Qtr cr)	6	5.4	21	8.6	61	11.2
Sophomore (30-59 Sem cr) (45-89 Qtr cr)	18	16.1	43	17.6	117	21.5
Junior (60-89 Sem cr) (90-134 Qtr cr)	35	31.3	72	29.5	163	29.9
Senior (90+ Sem cr) (135+ Qtr cr)	53	47.3	108	44.3	204	37.4
No response	-		-		-	
Total	112	100.0	244	100.0	545	100.0

uneven distribution with expected higher numbers in the later years because these students were more readily available and identifiable in

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their graphic arts program. Many students waited until their sophomore, junior and senior years before they decided to specialize in graphic arts. This included 40% of the education students, 49% of technology students, and 38.9% of management students. The reader is referred to Table 9 for the educational level when students decided to specialize in their graphic arts program. Students who did not indicate that they were freshmen, sophomores, juniors or seniors were excluded from having their opinionnaires included in this study.

Educational Level when Decision was Made to Specialize in Graphic Arts

Students were asked at what educational level they decided to specialize in their graphic arts program. Their responses are listed in Table 9. About a third of education students (32.8%), over a quarter of technology students (27.6%), and over a third of management students (35.7%) made this decision prior to leaving high school. Well over half the students (60% in education, 66.6% in technology, and 57.3% in management) made their decisions to specialize in their graphic arts program while in college/university. During their college/university sophomore years, 17.3% of education students made this decision while 33.1% of the technology students and 26.5% of the management students decided at this time. During the junior and senior years, 22.7% of education students, 15.9% of technology students, and 12.4% of management students decided on their area of specialization. These data suggest that graphic arts recruitment efforts directed at college/ university students have the potential to increase enrollment in graphic

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Table 9

Educational Level when Students Decided to Specialize in Graphic Arts by Graphic Arts Programs

Decision to specialize in graphic arts was made in:	Education f	Education %	Technology f	Technology %	Management f	Management %
Middle school or junior high school	6	5.5	4	1.7	16	2.9
High school	30	27.3	62	25.9	178	32.8
Voc/Tech (post-h.s.)	6	5.5	8	3.3	20	3.7
Freshman	22	20.0	42	17.6	100	18.4
Sophomore	19	17.3	79	33.1	144	26.5
Junior	15	13.6	27	11.3	47	8.7
Senior	10	9.1	11	4.6	20	3.7
Other (specify)	2	1.8	6	2.5	18	3.3
No response	2		5		2	
Total	112	100.0	244	100.0	545	100.0

arts programs because many students arrive at college/university undecided about their major.

Students also indicated "other" responses. Some decided to specialize in graphic arts after attending community college, summer work after high school, after working in the graphic arts field for a few years, and while receiving specialized military training.

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Time of First Completion of Graphic Arts Course

Students were asked when they first completed a graphic arts course. Their responses are reported in Table 10. Slightly more than

Table 10

Time when Student First Completed a Graphic Arts Course by Graphic Arts Programs

First graphic arts course student completed was (in):	Education f	Education %	Technology f	Technology %	Management f	Management %
grade 6 or before	3	2.7	5	2.0	6	1.1
grades 7 or 8	14	12.6	19	7.8	35	6.5
grades 9 or 10	16	14.4	42	17.2	117	21.6
grades 11 or 12	13	11.7	43	17.6	98	18.1
Military service	1	0.9	1	0.4	5	0.9
During college or post-secondary educ.	57	51.4	124	50.8	252	46.5
Out of high school and employed adult	3	2.7	-	-	12	2.2
Other (specify)	4	3.6	10	4.1	17	3.1
No response	1		-		3	
Total	112	100.0	244	100.0	545	100.0

half of education students (51.4%) and technology students (50.8%), and slightly less than half of management students (46.5%) first completed a graphic arts course during college or post-secondary education. While

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in grades 7-12, 38.7% of education students, 42.6% of technology students, and 46.2% of management students first completed a graphic arts course.

Students also indicated "other" responses. The majority of them responded that they completed their first graphic arts course while in college. A few others said they completed a graphic arts course in high school, in vocational school, or in a community college.

Preliminary Faculty Data

Besides asking faculty members to respond to a section on direct recruitment practices, they were also requested to complete additional preliminary information. These data are presented in Tables 11 to 16 and Tables L-14 to L-16 in Appendix L.

Type of Graphic Arts Programs Offered by Institution

A program concentration or emphasis in graphic arts was offered in 74-87% of the institutions. Major programs were offered in graphic arts education (21.7%), graphic arts technology (32%), and graphic arts management (70.4%). Service courses in the graphic arts were offered for students of other majors in a majority of the institutions. This information is indicated in Table L-14 in Appendix L.

Two faculty members also indicated "other" programs were offered at their institutions, which were a BA degree in technology education plus a certificated printing management option (one and two year programs), and commercial design/graphics (art related). Another faculty member completing an opinionnaire for the technology program indicated that a

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two-year associate degree program in graphic arts technology was also offered at his institution. Two faculty members completing opinionnaires for their management programs indicated that graphic arts technology/management, about three-quarters graphic arts technology and one-quarter management for a 63 semester B.S. degree, and a technical illustration/graphic design program with courses related to both areas, were also offered at their institutions.

Fields of Study Offered at 75 Institutions in Graphic Arts

The fields of study offered at these institutions is listed in Table L-15 in Appendix L. More than one graphic arts program of study was offered at most of the colleges/universities.

Enrollment Trends

Graphic Arts enrollment trends in various programs are listed in Tables 11 and 12. Actual enrollment figures were listed in the beginning of Chapter III in Tables 2 and 3. Seventy percent of the faculty respondents in all institutions in the three programs indicated decreasing enrollment in the education programs, while 37.5% indicated increasing enrollment in technology programs and 63.3% indicated increasing enrollment in management programs. Faculty further reported increasing enrollment in combined technology/management programs (55.6%). Fifty percent of the faculty respondents indicated service courses were experiencing an increase in enrollment.

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Table 11

Program Enrollment Trends--Part I

Graphic arts enrollment trends:	Education f	Education %	Technology f	Technology %	Management f	Management %
Increasing	2	5.0	15	37.5	19	63.3
Decreasing	28	70.0	8	20.0	5	16.7
Remaining the Same	10	25.0	17	42.5	6	20.0
Total	40	100.0	40	100.0	30	100.0

Table 12

Program Enrollment Trends--Part II

Graphic arts enrollment trends:	Tech/Mgmt f	Tech/Mgmt %	Service f	Service %
Increasing	10	55.6	18	50.0
Decreasing	3	16.7	5	13.9
Remaining the Same	5	27.8	13	36.1
Total	18	100.0	36	100.0

Institutional Recruitment

Faculty responses to institutional recruitment efforts of graphic arts students are found in Table L-16 in Appendix L. The majority of

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recruiting for education students was accomplished through graphic arts faculty (65.2%), graphic arts faculty in conjunction with department faculty (65.2%), department faculty (52.2%), and college/university personnel (52.2%). The majority of recruiting for technology students was accomplished through college/university personnel (68.0%) and graphic arts faculty (60.0%). The majority of recruiting for management students was accomplished through graphic arts faculty (85.2%) and college/university personnel (74.1%).

Two faculty reporting for the education program who checked the "other" category also indicated that they did not recruit graphic arts students separately, but recruited for their broader technology education program, and faculty in the department of industrial studies were also used in recruiting. Four faculty reporting for the technology program also indicated they recruited by direct mail and word of mouth, through contacts with graduates and currently enrolled students, admissions personnel, and students at trade shows. Six faculty reporting for the management program also recruited personnel through industry by word of mouth, through reputation of the program, craftsman's club, advisory councils, former students, and the state printing association.

Overall Effectiveness of Recruitment Efforts

Data concerning effectiveness of recruitment efforts are presented in Tables 13 and 14. The overall effectiveness of total direct recruitment efforts had little (69.6%) effect for attracting students into education programs, moderate/average (62.8%) effect for attracting

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Table 13

Effectiveness of Direct Recruitment Overall--Part I

Recruitment Effectiveness:	Education f	Education %	Technology f	Technology %	Management f	Management %
No Effect	5	10.9	1	2.3	0	0.0
Little Effect	32	69.6	14	32.6	13	37.1
Mod/Average Effect	9	19.6	27	62.8	16	45.7
Great Effect	0	0.0	1	2.3	6	17.1
Total	46	100.0	43	100.0	35	100.0

Table 14

Effectiveness of Direct Recruitment Overall--Part II

Recruitment Effectiveness:	Tech/Mgmt f	Tech/Mgmt %	Service f	Service %
No Effect	0	0.0	1	2.3
Little Effect	10	41.7	8	18.6
Mod/Average Effect	13	54.2	25	58.1
Great Effect	1	4.2	9	20.9
Total	24	100.0	43	100.0

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technology students, and moderate/average (54.2%) effect for attracting combined technology/management program students. Recruitment effort effectiveness also had moderate/average (45.7%) effect for attracting management students, and moderate/average (58.1%) effect for attracting service program students. None of the faculty indicated that recruitment for technology and technology/management programs had no effect. On the other hand, none of the faculty indicated a great effect in recruiting students for education programs.

Effort Applied to Recruitment at the Institution

Institutional graphic arts recruitment efforts over the past five years have either increased, decreased, or remained the same for each program. Faculty responses to these efforts are listed in Tables 15 and 16. About 30% of all faculty indicated overall recruitment efforts were increasing for education students. Almost 43% indicated they were increasing for technology students, 44% indicated they were increasing for technology/management students, and nearly 56% indicated they were increasing for management students. Over 47% of responding faculty indicated recruitment efforts had also increased for students in the service courses. About twice the percentage of faculty indicated recruitment efforts were decreasing for education students (27.7%) as compared to technology (14.3%), technology/management (12.0%), and service students (14.7%). About four to five times the percentage of faculty indicated recruitment efforts were decreasing for education students (27.7%) as compared to management students (5.9%).

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Table 15

Recruitment Effort in the Institution Over a Five Year Period--Part I

Recruitment efforts over past five years:	Education f	Education %	Technology f	Technology %	Management f	Management %
Increasing	14	29.8	18	42.9	19	55.9
Decreasing	13	27.7	6	14.3	2	5.9
Remaining the Same	20	42.6	18	42.9	13	38.2
Total	47	100.0	42	100.0	34	100.0

Table 16

Recruitment Effort in the Institution Over a Five Year Period--Part II

Recruitment efforts over past five years:	Tech/Mgmt f	Tech/Mgmt %	Service f	Service %
Increasing	11	44.0	16	47.1
Decreasing	3	12.0	5	14.7
Remaining the Same	11	44.0	13	38.2
Total	25	100.0	34	100.0

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Faculty Recruitment Practice Use

Question two was concerned with recruitment practices that college and university graphic arts faculty members or others use to attract students into the three different undergraduate baccalaureate degree graphic arts programs. The findings to this question are described in three parts or one for each type of program. The recruitment practices used were reported on the left side of Tables 17 to 19 by percentage of use and rank order of use, while a list of its corresponding rank effectiveness order and mean score were listed on the right side of the tables. These rank effectiveness order data will be addressed by question three. At least eight (25%) of the top recruitment practices used by the faculty in each program are cited in the text below. The maximum utilization of recruitment practices used was 96% by education faculty, 84% by technology faculty, or 89% by management faculty.

Graphic Arts Education Programs

College/university faculty used certain recruitment practices to attract students into education programs. These practices are indicated in Table 17. The nine most used practices included: (1) recruitment packets for interested parties, (2) personal interviews with high school or college/university students, (3) contacts with high school graphic arts teachers, (4) offering related general education courses, (5) distribution of brochures to high school and community college students, (6) impact of modern facilities and programs, (7) visits to high schools, (8) faculty contacts with other high school (non-graphic arts) industrial education/technology teachers or alumni, and

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Table 17

Extent of Use and Rank Order by Total of the Use and Effectiveness of Recruitment Techniques by Faculty for Attracting Graphic Arts Education Students

Percentage of Use	Rank Order of Use	Methods of Recruitment Used by Faculty (Education)	Rank Effectiveness Order	Mean Score
95.7	1	Recruitment packet for any interested party.	7	3.77
87.0	2-4	Personal interviews with high school or coll/univ students.	1	4.25
87.0	2-4	Coll/univ faculty contacts with high school graphic arts teachers.	5	3.90
87.0	2-4	Offering related general education courses through the graphic arts or ind educ/tech department which stimulate the interest of coll/univ students who have not yet decided to concentrate or major in graphic arts.	10	3.70
82.6	5	Distribution of brochures to high school and community college students describing the coll/univ graphic arts program.	8	3.74
78.3	6-9	Impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the coll/univ.	6	3.78
78.3	6-9	Visits to high schools by coll/univ graphic arts or ind educ/tech faculty.	15	3.61
78.3	6-9	Coll/univ faculty contacts with other high school (non-graphic arts) ind educ/tech teachers or alumni.	17-19	3.50
78.3	6-9	Providing career days, open house, or conference activities on campus for high school students.	20	3.44
73.9	10	Encouraging graphic arts or other ind educ/tech teachers to bring their secondary school students (grades 7-12) to campus.	9	3.71
69.6	11-13	Coll/univ graphic arts students recruiting other coll/univ and high school students.	2	4.19
69.9	11-13	Indicating to non-majors in the institution advantages of graphic arts careers, by graphic arts or other ind educ/tech faculty.	3	3.94
69.9	11-13	Distribution of fliers to other coll/univ department faculty and advisors across campus (outside of graphic arts or ind educ/tech) with graphic arts course offerings.	26-27	3.25
65.2	14	Scholarships for graphic arts (or other ind educ/tech) coll/univ programs.	25	3.27

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Table 17 (continued)

Percentage of Use	Rank Order of Use	Methods of Recruitment Used by Faculty (Education)	Rank Effectiveness Order	Mean Score
60.9	15-20	Personal letters to interested high school students.	4	3.93
60.9	15-20	Coll/univ paid recruiters traveling the state and country.	17-19	3.50
60.9	15-20	Presentation to coll/univ freshmen--during freshman orientation.	17-19	3.50
60.9	15-20	Coll/univ faculty contacts with graphic arts alumni.	24	3.29
60.9	15-20	Coll/univ faculty contacts with high school supervisors and administrators through student teaching programs.	28	3.21
60.9	15-20	Coll/univ faculty contacts with high school guidance counselors.	30	3.00
56.5	21	Filmed presentation (slides/slides and audio, or videotape) of graphic arts program offerings.	11	3.69
52.2	22-24	Display and recruitment at annual graphic arts or ind educ/tech conventions/conferences.	12	3.67
52.2	22-24	Providing contests on campus for high school students.	16	3.58
52.2	22-24	Coll/univ faculty conducting annual recruitment conference on campus for secondary school counselors and/or (graphic arts or other ind educ/tech) teachers.	23	3.33
47.8	25	Visits to community colleges by coll/univ graphic arts or other ind educ/tech faculty.	13	3.64
43.5	26	Use of posters with tear-off cards advertising coll/univ graphic arts program to high school and community college students.	21	3.40
34.8	27-29	Coll/univ coaches representing the graphic arts program to athletic recruits.	14	3.63
34.8	27-29	Newsletters for high school graphic arts teachers from coll/univ graphic arts faculty.	22	3.38
34.8	27-29	Graphic arts display at shopping malls or other locations.	26-27	3.25
21.7	30	Advertisment of the graphic arts program on TV, the radio, in a newspaper or magazine.	29	3.20
13.0	31	Offering a coll/univ credit introductory type course in graphic arts for high school seniors.	31	2.33
4.3	32	Presentation to fraternity or sorority students.	32	2.00

Note. Faculty (N = 23).

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(9) providing career days, open house, or conference activities on campus for high school students. Items 2-4 and 6-9 were ranked the same, respectively. Faculty members did not consider items 7-9 above to be as effective as the first six, and ranked these last practices low (15, 17-19, and 20, respectively, out of 32) in the rank effectiveness order column of Table 17. The use of these nine recruitment practices ranged in percentage from 95.7% to 78.3%.

Graphic Arts Technology Programs

Recruitment practices used to attract students into technology programs are given in Table 18. The top eight practices included: (1) contacts with high school graphic arts teachers, (2) distribution of brochures to high school and community college students, (3) providing career days, open house, or conference activities on campus for high school students, (4) impact of modern facilities and programs, (5) recruitment packets for any interested party, (6) indicating to non-majors in the institution advantages of graphic arts careers, (7) contacts with other high school (non-graphic arts) industrial education/technology teachers or alumni, and (8) contacts with high school guidance counselors. Items 1-4 and items 5-8 were ranked the same, respectively. Although item eight above was a highly used practice, faculty did not consider contacts with high school guidance counselors to be very effective by rating it 18 out of 32 in order of effectiveness. Faculty members recruiting for the technology program did not make any presentations to fraternity or sorority groups of

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Table 18

Extent of Use and Rank Order by Total of the Use and Effectiveness of Recruitment Techniques by Faculty for Attracting Graphic Arts Technology Students

Percentage of Use	Rank Order of Use	Methods of Recruitment Used by Faculty (Technology)	Rank Effectiveness Order	Mean Score
84.0	1-4	Coll/univ faculty contacts with high school graphic arts teachers.	3	3.91
84.0	1-4	Distribution of brochures to high school and community college students describing the coll/univ graphic arts program.	7	3.52
84.0	1-4	Providing career days, open house, or conference activities on campus for high school students.	11	3.43
84.0	1-4	Impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the coll/univ.	13	3.33
80.0	5-8	Recruitment packet for any interested party.	4	3.85
80.0	5-8	Indicating to non-majors in the institution advantages of graphic arts careers, by graphic arts or other ind educ/tech faculty.	8	3.50
80.0	5-8	Coll/univ faculty contacts with other high school (non-graphic arts) ind educ/tech teachers or alumni.	12	3.40
80.0	5-8	Coll/univ faculty contacts with high school guidance counselors.	18	3.20
76.0	9-11	Coll/univ faculty contacts with graphic arts alumni.	9-10	3.47
76.0	9-11	Coll/univ paid recruiters traveling the state and country.	14	3.32
76.0	9-11	Encouraging graphic arts or other ind educ/tech teachers to bring their secondary school students (grades 7-12) to campus.	15	3.26
68.0	12-15	Personal interviews with high school or coll/univ students.	1	4.06
68.0	12-15	Personal letters to interested high school students.	6	3.65
68.0	12-15	Visits to high schools by coll/univ graphic arts or ind educ/tech faculty.	9-10	3.47
68.0	12-15	Visits to community colleges by coll/univ graphic arts or other ind educ/tech faculty.	16	3.24
64.0	16-17	Coll/univ graphic arts students recruiting other coll/univ and high school students.	2	3.94
64.0	16-17	Offering related general education courses through the graphic arts or ind educ/tech department which stimulate the interest of coll/univ students who have not yet decided to concentrate or major in graphic arts.	5	3.81

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Table 18 (continued)

Percentage of Use	Rank Order of Use	Methods of Recruitment Used by Faculty (Technology)	Rank Effectiveness Order	Mean Score
60.0	18	Distribution of fliers to other coll/univ department faculty and advisors across campus (outside of graphic arts or ind educ/tech) with graphic arts course offerings.	23	3.13
56.0	19-20	Coll/univ faculty conducting annual recruitment conference on campus for secondary school counselors and/or (graphic arts or other ind educ/tech) teachers.	17	3.21
56.0	19-20	Coll/univ faculty contacts with high school supervisors and administrators through student teaching programs.	26	3.07
52.0	21	Presentation to coll/univ freshmen--during freshman orientation.	21	3.15
48.0	22	Display and recruitment at annual graphic arts or ind educ/tech conventions/conferences.	20	3.17
44.0	23-25	Scholarships for graphic arts (or other ind educ/tech) coll/univ programs.	19	3.18
44.0	23-25	Filmed presentation (slides/slides and audio, or videotape) of graphic arts program offerings.	24-25	3.09
44.0	23-25	Use of posters with tear-off cards advertising coll/univ graphic arts program to high school and community college students.	24-25	3.09
28.0	26	Providing contests on campus for high school students.	22	3.14
24.0	27-28	Coll/univ coaches representing the graphic arts program to athletic recruits.	29-31	2.50
24.0	27-28	Graphic arts display at shopping malls or other locations.	29-31	2.50
16.0	29	Newsletters for high school graphic arts teachers from coll/univ graphic arts faculty.	28	2.75
8.0	30	Advertisment of the graphic arts program on TV, the radio, in a newspaper or magazine.	27	3.00
4.0	31	Offering a coll/univ credit introductory type course in graphic arts for high school seniors.	29-31	2.00
0.0	32	Presentation to fraternity or sorority students.	32	0.00

Note. Faculty (N = 25).

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students. The use of these eight recruitment practices ranged in percentage from 84% to 80%.

Graphic Arts Management Programs

Recruitment practices used to attract students into management programs are found in Table 19. The top 11 practices included: (1) college/university graphic arts students recruiting other college/university and high school students, (2) impact of modern facilities and programs, (3) contacts with graphic arts alumni, (4) contacts with high school graphic arts teachers, (5) college/university paid recruiters traveling the state and country, (6) contacts with high school guidance counselors, (7) personal interviews with high school or college/university students, (8) recruitment packets for any interested party, (9) scholarships for graphic arts (or other industrial education/technology) college/university programs, (10) distribution of brochures to high school and community college students, and (11) visits to high schools. Items 1-3, 4-6, and 7-11 above, were ranked the same, respectively. Although paid recruiters traveling the state and country plus faculty contacts with high school guidance counselors are each ranked 4-6 or very high in usage by faculty, these same faculty reported the effectiveness of the two recruitment practices to be low (23) and very low (29), respectively, in relation to the 32 practices. The use of these 11 recruitment practices ranged in percentage from 88.9% to 81.5%.

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Table 19

Extent of Use and Rank Order by Total of the Use and Effectiveness of Recruitment Techniques by Faculty for Attracting Graphic Arts Management Students

Percentage of Use	Rank Order of Use	Methods of Recruitment Used by Faculty (Management)	Rank Effectiveness Order	Mean Score
88.9	1-3	Coll/univ graphic arts students recruiting other coll/univ and high school students.	3	4.17
88.9	1-3	Impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the coll/univ.	5	4.04
88.9	1-3	Coll/univ faculty contacts with graphic arts alumni.	8	3.92
85.2	4-6	Coll/univ faculty contacts with high school graphic arts teachers.	6	4.00
85.2	4-6	Coll/univ paid recruiters traveling the state and country.	23	3.48
85.2	4-6	Coll/univ faculty contacts with high school guidance counselors.	29	3.13
81.5	7-11	Personal interviews with high school or coll/univ students.	2	4.23
81.5	7-11	Recruitment packet for any interested party.	4	4.14
81.5	7-11	Scholarships for graphic arts (or other ind educ/tech) coll/univ programs.	9-10	3.86
81.5	7-11	Distribution of brochures to high school and community college students describing the coll/univ graphic arts program.	12	3.82
81.5	7-11	Visits to high schools by coll/univ graphic arts or ind educ/tech faculty.	17	3.64
77.8	12-14	Providing career days, open house, or conference activities on campus for high school students.	7	3.95
77.8	12-14	Visits to community colleges by coll/univ graphic arts or other ind educ/tech faculty.	9-10	3.86
77.8	12-14	Offering related general education courses through the graphic arts or ind educ/tech department which stimulate the interest of coll/univ students who have not yet decided to concentrate or major in graphic arts.	13	3.76
74.1	15-17	Personal letters to interested high school students.	15	3.70
74.1	15-17	Presentation to coll/univ freshmen--during freshman orientation.	20-22	3.50
74.1	15-17	Coll/univ faculty contacts with other high school (non-graphic arts) ind educ/tech teachers or alumni.	30	3.05

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Table 19 (continued)

Percentage of Use	Rank Order of Use	Methods of Recruitment Used by Faculty (Management)	Rank Effectiveness Order	Mean Score
70.4	18-19	Encouraging graphic arts or other ind educ/tech teachers to bring their secondary school students (grades 7-12) to campus.	11	3.84
70.4	18-19	Indicating to non-majors in the institution advantages of graphic arts careers, by graphic arts or other ind educ/tech faculty.	14	3.74
66.7	20-21	Display and recruitment at annual graphic arts or ind educ/tech conventions/ conferences.	20-22	3.50
66.7	20-21	Distribution of fliers to other coll/univ department faculty and advisors across campus (outside of graphic arts or ind educ/tech) with graphic arts course offerings.	27	3.22
59.3	22-23	Filmed presentation (slides/slides and audio, or videotape) of graphic arts program offerings.	16	3.69
59.3	22-23	Coll/univ faculty conducting annual recruitment conference on campus for secondary school counselors and/or (graphic arts or other ind educ/tech) teachers.	20-22	3.50
48.1	24-25	Use of posters with tear-off cards advertising coll/univ graphic arts program to high school and community college students.	19	3.54
48.1	24-25	Graphic arts display at shopping malls or other locations.	25	3.31
44.4	26	Coll/univ faculty contacts with high school supervisors and administrators through student teaching programs.	32	2.75
33.3	27-28	Advertisment of the graphic arts program on TV, the radio, in a newspaper or magazine.	18	3.56
33.3	27-28	Coll/univ coaches representing the graphic arts program to athletic recruits.	31	2.78
25.9	29-30	Offering a coll/univ credit introductory type course in graphic arts for high school seniors.	1	4.29
25.9	29-30	Newsletters for high school graphic arts teachers from coll/univ graphic arts faculty.	24	3.43
18.5	31	Providing contests on campus for high school students.	28	3.20
14.8	32	Presentation to fraternity or sorority students.	26	3.25

Note. Faculty (N = 27).

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Further Discussion

Faculty listed a few additional recruitment practices they used in attracting students into their education and management programs. No additional practices were listed for technology programs. Faculty also rated the effectiveness of these practices. These data are presented in Table L-17 in Appendix L. Education program faculty reported a "great effect" in working with student clubs along with students encouraging other students to enter the program. Education faculty reported "no effect" for distributing brochures and posters to secondary school counselors. In recruiting students, management program faculty utilized college testing scores with follow-up, student internships, active graphic arts industry association membership, strong use of alumni contacts, displays at national and regional trade shows, field trips, and presentations to graphic arts clubs and associations. All of these techniques were rated as having a "great effect" by faculty in attracting management students.

Faculty Perceptions of Recruitment Practice Effectiveness

Question three was concerned with the effectiveness of recruitment practices used by college and university graphic arts faculty members or others for each type of graphic arts program. The findings to this question are described in three parts or one for each program. At least the top eight (25%) practices that faculty perceived to be most effective in each program are cited in the text below. The reader is referred back to Tables 17 to 19 for the rank effectiveness order of these practices, listed in the right hand columns.

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Graphic Arts Education Programs

The top eight most effective recruitment practices perceived by faculty for education programs are listed in Table 17. They included, in rank order: (1) personal interviews with high school or college/university students, (2) college/university graphic arts students recruiting other college/university and high school students, (3) indicating to non-majors in the institution advantages of graphic arts careers, (4) personal letters to interested high school students, (5) contacts with high school graphic arts teachers, (6) impact of modern facilities and programs, (7) recruitment packets for any interested party, and (8) distribution of brochures to high school and community college students. Items 2-4 cited above were not used by faculty as much as they indicated their effectiveness to be.

Faculty also indicated and rated additional practices they used for their education programs. These are listed in Table L-17 in Appendix L.

Graphic Arts Technology Programs

The top eight most effective recruitment practices perceived by faculty for technology programs are reported in Table 18. They included the following in rank order: (1) personal interviews with high school or college/university students, (2) college/university graphic arts students recruiting other college/university and high school students, (3) contacts with high school graphic arts teachers, (4) recruitment packets for any interested party, (5) offering related general education courses, (6) personal letters to interested high school students, (7) distribution of brochures to high school and community college

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students, and (8) indicating to non-majors in the institution advantages of graphic arts careers. Items 1, 2, 5 and 6 above were not used by faculty as much as they indicated their effectiveness to be.

Graphic Arts Management Programs

The top eight most effective recruitment practices perceived by faculty for graphic arts management programs are indicated in Table 19. They included: (1) offering a college/university credit introductory type course in graphic arts for high school seniors, (2) personal interviews with high school or college/university students, (3) college/university graphic arts students recruiting other college/university and high school students, (4) recruitment packets for any interested party, (5) impact of modern facilities and programs, (6) faculty contacts with high school graphic arts teachers, (7) providing career days, open house, or conference activities on campus for high school students, and (8) contacts with graphic arts alumni. Item one above, offering a college/university credit introductory type course in graphic arts for high school seniors, was ranked 29-30 out of 32 for usage by management faculty and used by only 25.9% of them. Yet it was rated the highest in effectiveness by faculty for attracting students into the graphic arts management program.

Faculty also indicated and rated additional practices they used for their management programs. These are found in Table L-17 in Appendix L.

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Recruitment Practices Experienced by Graphic Arts Students

Question four was concerned with recruitment practices that have been experienced by currently enrolled students specializing in each type of graphic arts program. The findings to this question are described in three parts or one part for each type of program. At least eight (25%) of the top practices experienced by students for each program are cited in the text. The experience of recruitment practices on students varied widely. No given practice was experienced by more than 65% of education students, 55% of technology students, or 50% of management students.

Students also listed and rated over 276 additional recruitment practices and other factors that they experienced which helped to attract them into graphic arts programs. A content analysis was made of these practices and factors. They are presented in Tables L-18 to L-20 in Appendix L.

Graphic Arts Education Programs

College/university students experienced certain recruitment practices which attracted them into education programs. These practices are listed in Table 20 by percent of experience and are rank ordered. The eight practices most experienced by education students included: (1) offering related general education courses, (2) indicating to non-majors in the institution advantages of graphic arts careers, (3) distribution of brochures to high school and community college students, (4) providing career days, open house, or conference activities on campus for high school students, (5) graphic arts displays

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Table 20

Extent of Experience and Rank Order by Total of the Experience and Effectiveness of Recruitment Techniques on Students for Graphic Arts Education Programs

Percent of Experience	Rank Order of Experience	Recruitment Practices Experienced by Students (Education)	Rank Effectiveness Order	Mean Score
64.3	1	Offering related general education courses through the graphic arts or ind educ/tech department which stimulate the interest of coll/univ students who have not yet decided to concentrate or major in graphic arts.	2	3.90
56.3	2	Indicating to non-majors in the institution advantages of graphic arts careers, by graphic arts or other ind educ/tech faculty.	9	3.65
44.6	3	Distribution of brochures to high school and community college students describing the coll/univ graphic arts program.	10	3.64
43.8	4	Providing career days, open house, or conference activities on campus for high school students.	7-8	3.71
40.2	5	Graphic arts display at shopping malls or other locations.	23-24	3.13
38.4	6	Recruitment packet for any interested party.	5	3.81
33.9	7	Impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the coll/univ.	6	3.78
31.3	8	Distribution of fliers to other coll/univ department faculty and advisors across campus (outside of graphic arts or ind educ/tech) with graphic arts course offerings.	15	3.46
26.8	9	Visits to high schools by coll/univ graphic arts or ind educ/tech faculty.	19	3.27
25.9	10-11	Coll/univ graphic arts students recruiting other coll/univ and high school students.	14	3.48
25.9	10-11	Presentation to coll/univ freshmen--during freshman orientation.	21-22	3.14
24.1	12-13	Encouraging graphic arts or other ind educ/tech teachers to bring their secondary school students (grades 7-12) to campus.	4	3.82
24.1	12-13	Use of posters with tear-off cards advertising coll/univ graphic arts program to high school and community college students.	30	2.96

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Table 20 (continued)

Percent of Experience	Rank Order of Experience	Recruitment Practices Experienced by Students (Education)	Rank Effectiveness Order	Mean Score
23.2	14-15	Personal interviews with high school or coll/univ students.	12	3.54
23.2	14-15	Filmed presentation (slides/slides and audio, or videotape) of graphic arts program offerings.	16	3.42
22.3	16	Display and recruitment at annual graphic arts or ind educ/tech conventions/ conferences.	18	3.28
20.5	17	Coll/univ faculty contacts with other high school (non-graphic arts) ind educ/tech teachers or alumni.	11	3.61
18.8	18-19	Coll/univ faculty contacts with high school graphic arts teachers.	1	3.91
18.8	18-19	Coll/univ faculty conducting annual recruitment conference on campus for secondary school counselors and/or (graphic arts or other ind educ/tech) teachers.	21-22	3.14
17.0	20	Coll/univ faculty contacts with high school supervisors and administrators through student teaching programs.	32	2.84
15.2	21-25	Scholarships for graphic arts (or other ind educ/tech) coll/univ programs.	7-8	3.71
15.2	21-25	Coll/univ paid recruiters traveling the state and country.	17	3.41
15.2	21-25	Personal letters to interested high school students.	20	3.24
15.2	21-25	Newsletters for high school graphic arts teachers from coll/univ graphic arts faculty.	25-26	3.06
15.2	21-25	Coll/univ faculty contacts with high school guidance counselors.	27-29	3.00
14.3	26-27	Providing contests on campus for high school students.	13	3.50
14.3	26-27	Advertisment of the graphic arts program on TV, the radio, in a newspaper or magazine.	25-26	3.06
9.8	28	Offering a coll/univ credit introductory type course in graphic arts for high school seniors.	27-29	3.00
8.0	29	Visits to community colleges by coll/univ graphic arts or other ind educ/tech faculty.	27-29	3.00
7.1	30-31	Coll/univ coaches representing the graphic arts program to athletic recruits.	3	3.88
7.1	30-31	Coll/univ faculty contacts with graphic arts alumni.	23-24	3.13
6.3	32	Presentation to fraternity or sorority students.	31	2.86

Note. Students (N = 112).

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at shopping malls or other locations, (6) recruitment packets for any interested party, (7) impact of modern facilities and programs, and (8) distribution of fliers to other college/university department faculty and advisors across campus. Item 5 above, graphic arts displays at shopping malls or other locations, was ranked very high in order of experience, but ranked quite low (23-24 out of 32) for effectiveness by these same students. The percentage of students experiencing these eight recruitment practices ranged from 64.3% to 31.3%.

Graphic Arts Technology Programs

College/university students experienced certain recruitment practices which helped to attract them into technology programs. These practices are reported in Table 21 by percent of experience and are rank ordered. The eight practices most experienced by technology students included: (1) offering related general education courses, (2) indicating to non-majors in the institution advantages of graphic arts careers, (3) graphic arts displays at shopping malls or other locations, (4) providing career days, open house, or conference activities on campus for high school students, (5) distribution of fliers to other college/university department faculty and advisors across campus, (6) distribution of brochures to high school and community college students, (7) recruitment packets for any interested party, and (8) impact of modern facilities and programs. Item three above, graphic arts displays at shopping malls or other locations, ranked third highest in student exposure, but 15 out of 32 for

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Table 21

Extent of Experience and Rank Order by Total of the Experience and Effectiveness of Recruitment Techniques on Students for Graphic Arts Technology Programs

Percent of Experience	Rank Order of Experience	Recruitment Practices Experienced by Students (Technology)	Rank Effectiveness Order	Mean Score
54.5	1	Offering related general education courses through the graphic arts or ind educ/tech department which stimulate the interest of coll/univ students who have not yet decided to concentrate or major in graphic arts.	1	4.06
45.5	2	Indicating to non-majors in the institution advantages of graphic arts careers, by graphic arts or other ind educ/tech faculty.	3	3.78
43.0	3	Graphic arts display at shopping malls or other locations.	15	3.42
34.4	4	Providing career days, open house, or conference activities on campus for high school students.	10	3.52
33.2	5	Distribution of fliers to other coll/univ department faculty and advisors across campus (outside of graphic arts or ind educ/tech) with graphic arts course offerings.	11-12	3.51
32.8	6	Distribution of brochures to high school and community college students describing the coll/univ graphic arts program.	8-9	3.53
31.6	7	Recruitment packet for any interested party.	2	3.79
23.4	8	Impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the coll/univ.	14	3.44
21.3	9	Coll/univ graphic arts students recruiting other coll/univ and high school students.	4	3.77
20.5	10	Presentation to coll/univ freshmen--during freshman orientation.	17	3.34
18.4	11	Advertisment of the graphic arts program on TV, the radio, in a newspaper or magazine.	8-9	3.53
18.0	12	Visits to high schools by coll/univ graphic arts or ind educ/tech faculty.	20	3.23
17.2	13	Newsletters for high school graphic arts teachers from coll/univ graphic arts faculty.	6	3.62
16.8	14-15	Personal interviews with high school or coll/univ students.	11-12	3.51
16.8	14-15	Display and recruitment at annual graphic arts or ind educ/tech conventions/ conferences.	19	3.27

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Table 21 (continued)

Percent of Experience	Rank Order of Experience	Recruitment Practices Experienced by Students (Technology)	Rank Effectiveness Order	Mean Score
16.4	16	Filmed presentation (slides/slides and audio, or videotape) of graphic arts program offerings.	13	3.48
15.2	17-18	Providing contests on campus for high school students.	18	3.30
15.2	17-18	Use of posters with tear-off cards advertising coll/univ graphic arts program to high school and community college students.	26	2.97
12.3	19	Offering a coll/univ credit introductory type course in graphic arts for high school seniors.	5	3.70
11.9	20-21	Personal letters to interested high school students.	21	3.17
11.9	20-21	Coll/univ faculty contacts with high school guidance counselors.	24-25	3.00
10.7	22	Coll/univ faculty contacts with high school graphic arts teachers.	16	3.39
10.2	23	Coll/univ paid recruiters traveling the state and country.	29	2.80
9.8	24	Coll/univ faculty conducting annual recruitment conference on campus for secondary school counselors and/or (graphic arts or other ind educ/tech) teachers.	24-25	3.00
8.6	25	Coll/univ faculty contacts with other high school (non-graphic arts) ind educ/tech teachers or alumni.	27	2.95
8.2	26-27	Encouraging graphic arts or other ind educ/tech teachers to bring their secondary school students (grades 7-12) to campus.	22-23	3.15
8.2	26-27	Scholarships for graphic arts (or other ind educ/tech) coll/univ programs.	22-23	3.15
7.4	28-29	Coll/univ coaches representing the graphic arts program to athletic recruits.	7	3.56
7.4	28-29	Visits to community colleges by coll/univ graphic arts or other ind educ/tech faculty.	28	2.89
6.6	30	Coll/univ faculty contacts with high school supervisors and administrators through student teaching programs.	31	2.63
5.7	31	Coll/univ faculty contacts with graphic arts alumni.	32	2.50
4.5	32	Presentation to fraternity or sorority students.	30	2.64

Note. Students (N = 244).

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effectiveness by technology students in relation to other practices. The percentage of students experiencing these eight recruitment practices ranged from 54.5% to 23.4%.

Graphic Arts Management Programs

College/university students experienced certain recruitment practices in being attracted into management programs. These practices are listed in Table 22 by percent of experience and are rank ordered. The eight practices most experienced by technology students included: (1) offering related general education courses, (2) recruitment packets for any interested party, (3) distribution of brochures to high school and community college students, (4) indicating to non-majors in the institution advantages of graphic arts careers, (5) providing career days, open house, or conference activities on campus for high school students, (6) distribution of fliers to other college/university department faculty and advisors across campus, (7) graphic arts displays at shopping malls or other locations, and (8) impact of modern facilities and programs. Item seven above, graphic arts displays at shopping malls or other locations, was rated 19 out of 32 for effectiveness by these same students in relation to other practices. The percentage of students experiencing these eight recruitment practices ranged from 49.7% to 29.4%.

Student Perceptions of Recruitment Practice Effectiveness

Question five was concerned with the effectiveness of recruitment practices experienced by students specializing in each type of graphic

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Table 22

Extent of Experience and Rank Order by Total of the Experience and Effectiveness of Recruitment Techniques on Students for Graphic Arts Management Programs

Percent of Experience	Rank Order of Experience	Recruitment Practices Experienced by Students (Management)	Rank Effectiveness Order	Mean Score
49.7	1	Offering related general education courses through the graphic arts or ind educ/tech department which stimulate the interest of coll/univ students who have not yet decided to concentrate or major in graphic arts.	4	3.89
47.0	2-3	Recruitment packet for any interested party.	5	3.87
47.0	2-3	Distribution of brochures to high school and community college students describing the coll/univ graphic arts program.	6	3.78
40.9	4	Indicating to non-majors in the institution advantages of graphic arts careers, by graphic arts or other ind educ/tech faculty.	1-2	3.95
39.8	5	Providing career days, open house, or conference activities on campus for high school students.	9-10	3.61
36.3	6	Distribution of fliers to other coll/univ department faculty and advisors across campus (outside of graphic arts or ind educ/tech) with graphic arts course offerings.	13	3.50
30.8	7	Graphic arts display at shopping malls or other locations.	19	3.37
29.4	8	Impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the coll/univ.	12	3.54
23.5	9	Coll/univ graphic arts students recruiting other coll/univ and high school students.	8	3.65
23.1	10	Newsletters for high school graphic arts teachers from coll/univ graphic arts faculty.	11	3.57
22.4	11	Personal interviews with high school or coll/univ students.	9-10	3.61
21.8	12	Presentation to coll/univ freshmen--during freshman orientation.	15	3.44
21.1	13	Visits to high schools by coll/univ graphic arts or ind educ/tech faculty.	23	3.23
20.6	14	Use of posters with tear-off cards advertising coll/univ graphic arts program to high school and community college students.	27	3.13
16.1	15	Scholarships for graphic arts (or other ind educ/tech) coll/univ programs.	3	3.91

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Table 22 (continued)

Percent of Experience	Rank Order of Experience	Recruitment Practices Experienced by Students (Management)	Rank Effectiveness Order	Mean Score
16.0	16	Coll/univ faculty contacts with high school graphic arts teachers.	7	3.76
15.8	17	Filmed presentation (slides/slides and audio, or videotape) of graphic arts program offerings.	16	3.43
15.4	18	Personal letters to interested high school students.	22	3.25
14.9	19	Advertisment of the graphic arts program on TV, the radio, in a newspaper or magazine.	21	3.26
14.1	20	Coll/univ faculty contacts with high school guidance counselors.	24	3.21
13.9	21	Display and recruitment at annual graphic arts or ind educ/tech conventions/ conferences.	20	3.32
13.8	22	Offering a coll/univ credit introductory type course in graphic arts for high school seniors.	1-2	3.95
12.5	23	Providing contests on campus for high school students.	14	3.46
11.7	24	Coll/univ faculty conducting annual recruitment conference on campus for secondary school counselors and/or (graphic arts or other ind educ/tech) teachers.	26	3.19
10.5	25-26	Encouraging graphic arts or other ind educ/tech teachers to bring their secondary school students (grades 7-12) to campus.	17-18	3.40
10.5	25-26	Coll/univ paid recruiters traveling the state and country.	28	3.12
9.5	27-28	Coll/univ faculty contacts with other high school (non-graphic arts) ind educ/tech teachers or alumni.	29	3.10
9.5	27-28	Coll/univ faculty contacts with high school supervisors and administrators through student teaching programs.	31	2.87
8.6	29	Coll/univ faculty contacts with graphic arts alumni.	17-18	3.40
7.5	30	Visits to community colleges by coll/univ graphic arts or other ind educ/tech faculty.	25	3.20
6.1	31	Coll/univ coaches representing the graphic arts program to athletic recruits.	30	3.09
4.6	32	Presentation to fraternity or sorority students.	32	2.64

Note. Students (N = 545).

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arts program. The findings are described in three parts or one for each type of program. At least eight (25%) of the top practices that students perceived to be most effective in each program are cited in the text. The reader is referred back to Tables 20 to 22 for the rank effectiveness order of these practices listed in the right hand columns.

Graphic Arts Education Programs

The top eight recruitment practices perceived to be effective by students for education programs are also given in Table 20. They were: (1) faculty contacts with high school graphic arts teachers, (2) offering related general education courses, (3) college/university coaches representing the graphic arts program to athletic recruits, (4) encouraging graphic arts or other industrial education/technology teachers to bring their secondary school students (grades 7-12) to campus, (5) recruitment packets for any interested party, (6) impact of modern facilities and programs, (7) providing career days, open house, or conference activities on campus for high school students, and (8) scholarships for graphic arts (or other industrial education/ technology) college/university programs. Items 7 and 8 above were ranked the same. Item 8 above, scholarships, was ranked low in experience (15.2%). Item 3 above, athletic coaches representing the graphic arts department, was experienced by a very low number (7.1%) of education students, yet students rated this practice the third highest.

Graphic Arts Technology Programs

The top nine recruitment practices perceived to be effective by students for technology programs are also found in Table 21. These

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practices were: (1) offering related general education courses, (2) recruitment packets for any interested party, (3) indicating to non-majors in the institution advantages of graphic arts careers, (4) college/university graphic arts students recruiting other college/university and high school students, (5) offering a college/university credit introductory type course in graphic arts for high school seniors, (6) newsletters for high school graphic arts teachers, (7) college/university coaches representing the graphic arts program to athletic recruits, (8) distribution of brochures to high school and community college students, and (9) advertisement of the graphic arts program on TV, the radio, in a newspaper or magazine. Items 8 and 9 above were ranked the same. Item 7 above, athletic coaches representing the graphic arts department, was ranked very low in experience (7.4%), yet this practice was rated highly effective. Item 5 above, offering a college credit introductory type graphic arts course to high school seniors, was experienced by a low number (12.3%) of the technology students, yet they rated this practice highly effective.

Graphic Arts Management Programs

The top eight recruitment practices perceived to be effective by students for management programs are also presented in Table 22. These practices were as follows: (1) indicating to non-majors in the institution advantages of graphic arts careers, (2) offering a college/university credit introductory type course in graphic arts for high school seniors, (3) scholarships for graphic arts (or other industrial education/technology) college/university programs, (4) offering related

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general education courses, (5) recruitment packets for any interested party, (6) distribution of brochures to high school and community college students, (7) faculty contacts with high school graphic arts teachers, and (8) college/university graphic arts students recruiting other college/university and high school students. Items 2, 3 and 7 above, offering college credit introductory type graphic arts courses for high school seniors, scholarships, and faculty contacts with high school graphic arts teachers, were experienced by a low number (13.8%, 16.1%, and 16.0%, respectively) of management students, yet they rated these practices to be very highly or highly effective.

Further Discussion

Students also listed and rated additional recruitment practices on effectiveness in attracting them into the three graphic arts programs. A content analysis was made of 276 items that students rated having a "great effect," a "5" rating only. The practices are reported in Tables L-18 to L-20 in Appendix L, combined with a listing and rating of other influential factors.

Analysis of these written responses revealed that students were attracted mainly to education programs through self-interest/experience, through an introductory, required or elective class, through a graphic arts course/program, or others. Technology students indicated being attracted by self-interest/experience, an introductory, required or elective class, relatives, friends, industry representatives or shows, and others. Management students were attracted primarily by friends, work experience or internship, self-interest/experience, career

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opportunity/guidance, and others. It seems that self-interest/ experience and orientation/stimulation through some type of class play a very important role in attracting students into graphic arts programs.

Differences in Perceptions of Effectiveness of Recruitment Practices Used by Faculty and Experienced by Students

Question six was concerned with the recruitment practices used by faculty and experienced by students which showed differences in perceptions of effectiveness. The findings to this question are reported in three parts in data found in Tables L-21 to L-23 in Appendix L. The findings were arrived at by testing three sets of hypotheses or one for each type of program. Only those recruitment practices found to be significantly different in perception of effectiveness between faculty and students are cited in the text below. Faculty and student frequencies of rated effectiveness, their means, and their t-ratio values are listed in the tables for each program.

Graphic Arts Education Programs

Whether or not there is a difference ($p < .05$) between the perceptions of graphic arts faculty members, as reported for the graphic arts education program or department by a graphic arts faculty member, and graphic arts education students concerning the effectiveness of 32 recruitment practices, is investigated in this part. These data are indicated in Table L-21 in Appendix L. Three significant differences were found in perceptions of effectiveness of recruitment practices between faculty and students. They included: (a) personal letters to interested high school students, (b) personal interviews with high

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school or college/university students, and (c) college/university graphic arts students recruiting other college/university and high school students. Faculty rated each of these practices significantly higher in effectiveness than did the students.

Graphic Arts Technology Programs

Whether or not there is a difference ($p < .05$) between the perceptions of graphic arts faculty members, as reported for the graphic arts technology program or department by a graphic arts faculty member, and graphic arts technology students concerning the effectiveness of 32 recruitment practices, is investigated in this part. These data are given in Table L-22 in Appendix L. Three significant differences were found in perceptions of effectiveness of recruitment practices between faculty and students. They included: (a) personal interviews with high school or college/university students, (b) contacts with graphic arts alumni, and (c) graphic arts displays at shopping malls or other locations. Faculty rated items 1-2 above significantly higher in effectiveness than did students. Students rated item 3 above significantly higher in effectiveness than did faculty.

Graphic Arts Management Programs

Whether or not there is a difference ($p < .05$) between the perceptions of graphic arts faculty members, as reported for the graphic arts management program or department by a graphic arts faculty member, and graphic arts management students concerning the effectiveness of 32 recruitment practices, is investigated in this part. These data are found in Table L-23 in Appendix L. Four significant differences were

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found in perceptions of effectiveness of recruitment practices between faculty and students. They included: (a) personal interviews with high school or college/university students, (b) visits to community colleges by college/university graphic arts or other industrial education/ technology faculty, (c) college/university graphic arts students recruiting other college/university and high school students, and (d) impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the college/university. Faculty rated each of these practices significantly higher in effectiveness than did students.

Recruitment Practices Suggested to be Applied by Graphic Arts Faculty Members in Each Type of Graphic Arts Program

Question seven was concerned with recruitment practices that could be applied by graphic arts faculty members in each type of graphic arts program. The findings to this question are presented in Table 23 in three parts or one for each type of program. Each of the columns convey a composite rank order of the recruitment practices as determined by combining their rank order of student experience and rank order of student effectiveness. This ordering would seem to convey the most effective practices in terms of those practices students experienced and the effect those practices had on attracting them into their graphic arts program. The reader should understand that in applying this method it is possible that an extremely low experience rank combined with an extremely high effectiveness rank, or vice-versa, could place the newly formed composite rank of the practice somewhat toward the middle of the

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list, "averaging it out." The recruiter might prefer to use only rank effectiveness order from Tables 20 to 22. Only the top eight (25%) recruitment practices that faculty are encouraged to apply are cited in the text.

Graphic Arts Education Programs

Recruitment practices suggested to be applied from Table 23 for attracting graphic arts education students are indicated in the following rank order: (1) offering related general education courses through the graphic arts or industrial education/technology department which stimulate the interest of college/university students who have not yet decided to concentrate or major in graphic arts, (2-3) recruitment packets for any interested party, (2-3) indicating to non-majors in the institution advantages of graphic arts careers, (4) providing career days, open house, or conference activities on campus for high school students, (5-6) distribution of brochures to high school and community college students describing the college/university graphic arts program, (5-6) impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the college/university, (7) encouraging graphic arts or other industrial education/technology teachers to bring their secondary school students (grades 7-12) to campus, and (8) contacts with high school graphic arts teachers.

Graphic Arts Technology Programs

Recruitment practices suggested to be used from Table 23 for attracting graphic arts technology students are indicated in the

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following rank order: (1) offering related general education courses through the graphic arts or industrial education/technology department which stimulate the interest of college/university students who have not yet decided to concentrate or major in graphic arts, (2) indicating to non-majors in the institution advantages of graphic arts careers, (3) recruitment packets for any interested party, (4) college/university graphic arts students recruiting other college/university and high school students, (5) providing career days, open house, or conference activities on campus for high school students, (6) distribution of brochures to high school and community college students describing the college/university graphic arts program, (7) distribution of fliers to other college/university department faculty and advisors across campus (outside of graphic arts or industrial education/technology) with graphic arts course offerings, and (8) graphic arts displays at shopping malls or other locations.

Graphic Arts Management Programs

Recruitment practices suggested to be used from Table 23 for attracting graphic arts management students are indicated in the following ranked order: (1) offering related general education courses through the graphic arts or industrial education/technology department which stimulate the interest of college/university students who have not yet decided to concentrate or major in graphic arts, (2) indicating to non-majors in the institution advantages of graphic arts careers, (3) recruitment packets for any interested party, (4) distribution of brochures to high school and community college students describing the

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college/university graphic arts program, (5) providing career days, open house, or conference activities on campus for high school students, (6) college/university graphic arts students recruiting other college/university and high school students, (7) scholarships for graphic arts (or other industrial education/technology) college/university programs, and (8) distribution of fliers to other department faculty and advisors across campus (outside of graphic arts or industrial education/technology) with graphic arts course offerings.

Further Discussion

The number one recruitment practice students experienced in each of the graphic arts programs and the one receiving the highest rating for student experience and effectiveness combined, was the practice of offering general education courses through the graphic arts or industrial education/technology department which stimulate the interest of college/university students who have not yet decided to concentrate or major in graphic arts. Of the 32 practices rated, this is the only one that received identical ratings in all three programs. However, faculty rated the effectiveness of this practice a 10 for attracting students into education, and a 5 and 13, respectively, for attracting students into technology and management programs.

For the most part, comparing the combined student rank order of experience and effectiveness for each recruitment practice between each of the three programs showed very similar and consistent results. For instance, in recruitment practice 29 (Table 23), students in each of the programs indicated that career days, open house or conference activities

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Table 23

Student Rank Order of Combined Experience and Effectiveness of Recruitment Practices in Being Attracted into Graphic Arts Education, Technology, and Management Programs

Recruitment Practices	Student Rank Order of Experience and Effectiveness Combined (Educ)	(Tech)	(Mgmt)
Personal Communication			
1. Personal letters to interested high school students.	24	21	19-20
2. Personal interviews with high school or coll/univ students.	11	13	10
3. Contacts with high school guidance counselors.	26	23	24
4. Contacts with high school graphic arts teachers.	8	20	12
5. Contacts with graphic arts alumni.	29	32	25
6. Contacts with other high school (non-graphic arts) industrial education/ technology teachers or alumni.	12-13	27-28	29
7. Contacts with high school supervisors and administrators through student teaching programs.	27-28	30	30
8. Visits to high schools by coll/univ graphic arts or industrial education/technology faculty.	12-13	16	17
9. Visits to community colleges by coll/ univ graphic arts or other industrial education/technology faculty.	31	29	28
10. Coll/univ paid recruiters traveling the state and country.	21-22	27-28	27
11. Coll/univ graphic arts students recruiting other coll/univ and high school students.	10	4	6.
12. Presentation to coll/univ freshmen-- during freshman orientation.	17	14	15
13. Presentation to fraternity or sorority students.	32	31	32

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Table 23 (continued)

Recruitment Practices	Student Rank Order of Experience and Effectiveness Combined (Educ)	(Tech)	(Mgmt)
14. Coll/univ coaches representing the graphic arts program to athletic recruits.	18	18-19	31
Literature and Media			
15. Graphic arts display at shopping malls or other locations.	14	8	14
16. Display and recruitment at annual graphic arts or industrial education/ technology conventions/conferences.	19	17	21-22
17. Distribution of brochures to high school and community college students describing the coll/univ graphic arts program.	5-6	6	4
18. Distribution of fliers to other coll/ univ department faculty and advisors across campus (outside of graphic arts or industrial education/technology) with graphic arts course offerings.	9	7	8
19. Use of posters with tear-off cards advertising coll/univ graphic arts program to high school and community college students.	23	22	21-22
20. Recruitment packet for any interested party.	2-3	3	3
21. Filmed presentation (slides, slides and audio, or videotape) of graphic arts program offerings.	15-16	15	16
22. Newsletters for high school graphic arts teachers from coll/ univ graphic arts faculty.	25	9	11
23. Advertisement of the graphic arts program on TV, the radio, in a newspaper or magazine.	27-28	10	19-20
Coll/Univ Program and Facilities			
24. Indicating to non-majors in the institution advantages of graphic arts careers, by graphic arts or other ind educ/tech faculty.	2-3	2	2

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Table 23 (continued)

Recruitment Practices	Student Rank Order of Experience and Effectiveness Combined (Educ)	(Tech)	(Mgmt)
25. Encouraging graphic arts or other industrial education/technology teachers to bring their secondary school students (grades 7-12) to campus.	7	25-26	23
26. Impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the coll/univ.	5-6	11	9
27. Offering related general education courses through the graphic arts or industrial education/technology department which stimulate the interest of coll/univ students who have not yet decided to concentrate or major in graphic arts.	1	1	1
28. Providing contests on campus for high school students.	20	18-19	18
29. Providing career days, open house, or conference activities on campus for high school students.	4	5	5
30. Coll/univ faculty conducting annual recruitment conference on campus for secondary school counselors and/or (graphic arts or other industrial education/technology) teachers.	21-22	24	26
31. Offering a coll/univ credit introductory type course in graphic arts for high school seniors.	30	12	13
Other			
32. Scholarships for graphic arts (or other industrial education/technology) coll/univ programs.	15-16	25-26	7

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on campus for high school students to be almost identical (rankings 4, 5, and 5). However, this type of consistency was not always the case, as was reported for recruitment practices 4, 6, 14, 22, 23, 25, 31, and 32. For instance, technology and management students ranked the offering of a college/university credit introductory type course in graphic arts for high school seniors (practice 31) fairly high (12 and 13, respectively). Education students, however, ranked this practice to be almost the least effective (30).

Problems Experienced by Faculty when Recruiting Students into Graphic Arts Programs

Question nine was concerned with the problems experienced by college and university graphic arts faculty members in recruiting students into graphic arts programs. The findings to this question are described in three parts or one for each type of program. The number in the parentheses following each problem indicates the frequency with which that problem was mentioned. Selected statements from the faculty concerning problems they have encountered in recruiting for each of the three programs are found in Appendix M. Listed below is a content analysis of these statements concerning faculty recruitment problems in graphic arts.

Graphic Arts Education Programs

Faculty reported their most frequent problems in recruiting education students concerned money (14) and time (5). Of the concern expressed for money, money was needed most for the replacement of outdated laboratory equipment (5), facilities (1), travel (1), student

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scholarships (1), staffing (1), and unspecified (5). There also seemed to be a problem with college recruitment admissions personnel (2) who were reported uninterested in recognizing the graphic arts department, and uninterested deans (2) and a chairperson (1). Other problems mentioned were having no program for recruitment (3), competition from other programs and curriculum (1), not letting students know about the graphic arts program (1), having a difficult time selling students on the teaching aspect of graphic arts (1), secondary schools with weak graphic arts programs (1), and uninterested secondary school guidance counselors (1).

The faculty were further asked: "If your institution also offers programs in graphic arts technology and/or management, are the recruitment problems different in these fields than they are in graphic arts education?" Twenty-one of 23 faculty responded. Four indicated the statement was not applicable to their situation (they only offered graphic arts education), two said yes, and 15 said no. Comments included:

1. Yes. "Students don't need to be 'talked into' the management side, like they do into teaching. An 'awareness' approach is generally all that is necessary."

2. "The recruitment problem is the same, but the non-teaching graphic arts programs are generally increasing in numbers, while the teaching program is decreasing in numbers."

3. No. "The students select technology programs because of salary, stature, growth and benefits. These students do not want to teach, particularly at the elementary, junior high or high school level

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because they remember the hassles their teachers encountered when they were in school."

Graphic Arts Technology Programs

Faculty reported their most frequent problems in recruiting technology students concerned money (20) and time (8). Of the concern expressed for money, money was needed for replacing outdated laboratory equipment (5), adding faculty (2), improving facilities (1), and unspecified (12). Among concerns cited, there was a concern that the requirements for high ACT and SAT scores prevented many students with lesser abilities from entering a college/university, and consequently, graphic arts programs (2), a lack of students interested in graphic arts (1), retention of students in graphic arts technology programs (1), no advisory board for the technology program (1), the graphic arts curriculum needed updating (1), and a lack of industry support (1).

The faculty were further asked: "If your institution also offers programs in graphic arts education and/or management, are the recruitment problems different in these fields than they are in graphic arts technology?" Twelve of 25 faculty responded: Three indicated the question was not applicble (they only offered graphic arts technology), three said yes, and six said no. The following comments were made:

1. Yes. "Educational enrollment is directly proportional to the availability of jobs. The secondary experience of the student has a great effect on the decisions made by the student concerning area of study and choice of institution. High school industrial arts teachers exert a bit of influence on a student in the decision making process."

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2. Yes. "It is very hard to find students who are interested in any part of the teaching field. They know that there are [but] a few jobs in industrial education in the state of ___."

3. Yes. "There are a number of 'related' programs--The ___ School of Management; the supervision department in technology; the creative arts department that offers visual communications or a program and technical graphics which offers illustration technology."

Graphic Arts Management Programs

Faculty reported their most frequent problems in recruiting management students also concerned money (23) and time (7). Of the concern expressed for money, money was needed for travel (6), obtaining additional personnel (3), advertising/producing brochures/AV materials (2), newsletters/doing mailings (2), replacing outdated equipment (1), improving laboratory facilities (1), public relations (1), and unspecified (7). There was a concern that more recruiting should take place (2), increased graduation requirements were negatively affecting student enrollment in graphic arts in secondary schools (3) with some programs actually closing down (1), high school public relations from colleges/universities had decreased (2), counselors were not helping (2) by not being receptive to anything technical and having a negative understanding of what graphic arts is, there was a need for better quality students (1), a need for college/university graphic arts staff updating (1), the powers in higher education were unsupportive (1), college/university representatives did not encourage students into non-liberal arts programs (1) and would not allow faculty from

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individual programs to recruit off campus (1), a lack of industry support in playing a major role in graphic arts recruitment (1), and the graphic arts industry was not considered a glamorous one (1).

The faculty were further asked: "If your institution also offers programs in graphic arts technology and/or education, are the recruitment problems different in these fields than they are in graphic arts management?" Twenty-one of 27 faculty responded: Nine faculty said the question was not applicable (they only offered graphic arts management), three said yes, and nine said no. Comments included:

1. Yes. "The State of ___ has minimal requirements for secondary graphic arts teachers; recruiting must be done on broader industrial education or industrial technology basis. Many schools in ___ [state] do not have graphic arts and therefore do not have students with a ready interest in the field. Our 2-yr AS degree program, graphic arts technology, is recruited mainly 'by accident.' Most of these students eventually go on to 4-year."

2. Yes. "No problem getting graphics management and technology students--no interest in teaching these days. We're so busy keeping up that added recruitment isn't on the front burner--it could be and it concerns us if the trend of growth turns down."

3. Yes. "Technology attracts students from technical and vocational high schools. Management attracts students from academic, and technical high schools."

4. "Probably not--finding time for recruiting is difficult for us all!"

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Further Discussion

Faculty reporting for all three types of graphic arts programs consistently reported problems in recruiting graphic arts students to be time and money related. Faculty for education and technology programs most frequently cited that money was needed for replacing outdated laboratory equipment. Faculty for management programs most frequently cited that money was needed for travel in order to carry out recruitment efforts.

Other Influential Factors Experienced by Students that Attracted them into their Graphic Arts Programs

Question ten was concerned with selected factors besides direct recruitment that have been experienced by currently enrolled students specializing in each type of program. The findings to this question are described in three parts or one for each type of program. Data for these parts are found in Tables 24 to 26. At least seven (25%) of the other influential factors experienced in each program are cited in the text. Students also indicated additional other influential factors they experienced in being attracted into the three programs. A content analysis was made of these factors. If they were rated "great effect" they were listed in Tables L-18 to L-20 in Appendix L combined with ratings of additional recruitment practices.

Graphic Arts Education Programs

The other top influential factors for attracting education students, in ranked order of experience, are presented in Table 24. These factors were: (1) personal interests/hobbies, (2) college

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industrial education/technology faculty (other than graphic arts), (3) graphic arts course in college/university, but no direct teacher recruitment, (4) industrial education/technology course in secondary school (other than graphic arts) and no direct teacher recruitment, (5) secondary school industrial education/technology teachers (other than graphic arts), (6) work experiences (part or full time), and (7) parents or guardians. Items 6 and 7 above were equally ranked. A graphic arts course in secondary school, with no direct teacher recruitment, was ranked 18 out of 28 in experience, but received a 4 for rank effectiveness order. The experience of these seven influential factors by education students ranged in percentage from 90.2% to 62.5%.

Graphic Arts Technology Programs

The other top influential factors for attracting technology students, in ranked order of experience, are listed in Table 25. These factors were: (1) personal interests/hobbies, (2) graphic arts course in college/university, but no direct teacher recruitment, (3) newspaper or magazine articles about graphic arts careers, (4) friends and other college students not in graphic arts, (5) parents or guardians, (6) TV, films, videotape, slides and/or radio programs about graphic arts careers, and (7) secondary school extra curricular activities. The experience of these seven influential factors by technology students ranged in percentage from 88.5% to 52%.

Graphic Arts Management Programs

The other top influential factors in attracting management students, in ranked order, are reported in Table 26. They are:

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Table 24

Extent of Experience and Rank Order by Total of the Experience and Effectiveness of Other Influential Factors in Attracting Students into Graphic Arts Education Programs

Percentage of Experience	Rank Order of Experience	Other Influential Factors Attracting Students (Education)	Rank Effectiveness Order	Mean Score
90.2	1	Personal interests/hobbies	1	4.10
74.1	2	College ind educ/tech faculty (other than graphic arts)	8-9	3.47
72.3	3	Graphic arts course in coll/univ, but no direct teacher recruitment	2	3.77
70.5	4	Ind educ/tech course in Sec. school (other than graphic arts) and no direct teacher recruitment (7-12)	6-7	3.48
67.0	5	Sec. school industrial educ/tech teachers (other than graphic arts) (7-12)	6-7	3.48
62.5	6-7	Work experiences (part or full time)	3	3.70
62.5	6-7	Parents or guardians	8-9	3.47
60.7	8	Friends and other college students not in graphic arts	11	3.18
58.9	9	Sec. school course (other than graphic arts or other ind educ/tech courses) and no direct teacher recruitment (7-12)	14	3.08
58.0	10-11	Brothers and/or sisters	15-17	3.02
58.0	10-11	Other college faculty (besides graphic arts or ind educ/tech)	20-21	2.95
57.1	12	Sec. school extra curricular activities (7-12)	12	3.17
56.3	13	Newspaper or magazine articles about graphic arts careers	22	2.94
55.4	14	Other relatives	18-19	2.98

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Table 24 (continued)

Percentage of Experience	Rank Order of Experience	Other Influential Factors Attracting Students (Education)	Rank Effectiveness Order	Mean Score
53.6	15-16	Sec. school graphic arts teachers (7-12)	5	3.62
53.6	15-16	TV, films, videotape, slides and/or radio program about graphic arts careers	15-17	3.02
52.7	17	Sec. school teachers (other than graphic arts or ind educ/tech) (7-12)	18-19	2.98
51.8	18	Graphic arts course in Sec. school, but no direct teacher recruitment (7-12)	4	3.67
49.1	19	Neighbors and/or other adults	20-21	2.95
45.5	20	Sec. school guidance counselors (7-12)	24	2.77
44.6	21	Representatives from business or industry	13	3.14
41.1	22	Leaders in my community	26	2.67
37.5	23	Elementary school classwork (K-6)	28	2.45
36.6	24	Results of an interest survey or aptitude test	15-17	3.02
34.8	25	Sec. school adults (other than teachers or counselors) (7-12)	27	2.46
26.8	26	Community youth group membership	23	2.80
19.6	27	Camp experiences	25	2.68
14.3	28	Military experiences	10	3.19

Note. Students (N = 112).

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Table 25

Extent of Experience and Rank Order by Total of the Experience and Effectiveness of Other Influential Factors in Attracting Students into Graphic Arts Technology Programs

Percentage of Experience	Rank Order of Experience	Other Influential Factors Attracting Students (Technology)	Rank Effectiveness Order	Mean Score
88.5	1	Personal interests/hobbies	1	4.37
75.0	2	Graphic arts course in coll/univ, but no direct teacher recruitment	2	3.97
66.4	3	Newspaper or magazine articles about graphic arts careers	11	3.41
64.8	4	Friends and other college students not in graphic arts	8	3.47
63.1	5	Parents or guardians	6	3.64
55.3	6	TV, films, videotape, slides and/or radio program about graphic arts careers	7	3.49
52.0	7	Sec. school extra curricular activities (7-12)	13	3.35
51.6	8	Work experiences (part or full time)	3	3.86
51.2	9	Brothers and/or sisters	16	3.13
50.8	10	Other relatives	17-18	3.09
50.4	11	College ind educ/tech faculty (other than graphic arts)	9	3.46
49.6	12	Graphic arts course in Sec. school, but no direct teacher recruitment (7-12)	5	3.69
48.8	13	Other college faculty (besides graphic arts or ind educ/tech)	19	3.05
48.0	14	Neighbors and/or other adults	15	3.19
46.7	15	Sec. school graphic arts teachers	4	3.81

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Table 25 (continued)

Percentage of Experience	Rank Order of Experience	Other Influential Factors Attracting Students (Technology)	Rank Effectiveness Order	Mean Score
45.1	16	Representatives from business or industry	14	3.33
42.2	17	Results of an interest survey or aptitude test	20-21	2.98
41.8	18	Sec. school course (other than graphic arts or other ind educ/tech courses) and no direct teacher recruitment (7-12)	20-21	2.98
41.0	19	Ind educ/tech course in Sec. school (other than graphic arts) and no direct teacher recruitment (7-12)	12	3.39
40.2	20	Sec. school industrial educ/tech teachers (other than graphic arts) (7-12)	10	3.42
38.1	21	Sec. school teachers (other than graphic arts or ind educ/tech) (7-12)	17-18	3.09
36.5	22	Elementary school classwork (K-6)	23-24	2.82
32.0	23-25	Leaders in my community	25	2.80
32.0	23-25	Sec. school guidance counselors (7-12)	26-27	2.71
32.0	23-25	Sec. school adults (other than teachers or counselors) (7-12)	26-27	2.71
22.1	26	Camp experiences	28	2.61
20.1	27	Community youth group membership	23-24	2.82
9.4	28	Military experiences	22	2.96

Note. Students (N = 244).

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Table 26

Extent of Experience and Rank Order by Total of the Experience and Effectiveness of Other Influential Factors in Attracting Students into Graphic Arts Management Programs

Percentage of Experience	Rank Order of Experience	Other Influential Factors Attracting Students (Management)	Rank Effectiveness Order	Mean Score
88.3	1	Personal interests/hobbies	1	4.33
70.5	2	Parents or guardians	7	3.66
67.2	3	Work experiences (part or full time)	2	3.99
63.3	4	Friends and other college students not in graphic arts	10	3.41
60.9	5	Graphic arts course in coll/univ, but no direct teacher recruitment	5	3.86
60.7	6	Newspaper or magazine articles about graphic arts careers	8	3.46
56.0	7	Representatives from business or industry	6	3.67
55.0	8	TV, films, videotape, slides and/or radio program about graphic arts careers	9	3.43
54.7	9	Brothers and/or sisters	18	3.05
54.5	10	Neighbors and/or other adults	14-15	3.14
51.9	11	Sec. school graphic arts teachers (7-12)	4	3.89
51.7	12	Other relatives	17	3.08
50.8	13	Sec. school extra curricular activities (7-12)	11	3.35
48.1	14	Graphic arts course in Sec. school, but no direct teacher recruitment (7-12)	3	3.92
43.7	15	Sec. school guidance counselors	20-21	3.00

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Table 26 (continued)

Percentage of Experience	Rank Order of Experience	Other Influential Factors Attracting Students (Management)	Rank Effectiveness Order	Mean Score
42.6	16	College ind educ/tech faculty (other than graphic arts)	12	3.34
40.9	17	Sec. school teachers (other than graphic arts or ind educ/tech) (7-12)	20-21	3.00
40.4	18	Other college faculty (besides graphic arts or ind educ/tech)	14-15	3.14
38.9	19-20	Sec. school industrial educ/tech teachers (other than graphic arts) (7-12)	13	3.17
38.9	19-20	Results of an interest survey or aptitude test	19	3.02
38.0	21	Elementary school classwork (K-6)	26	2.66
37.6	22	Sec. school course (other than graphic arts or other ind educ/tech courses) and no direct teacher recruitment (7-12)	23	2.83
35.6	23-24	Ind educ/tech course in Sec. school (other than graphic arts) and no direct teacher recruitment (7-12)	16	3.11
35.6	23-24	Leaders in my community	27	2.64
32.3	25	Sec. school adults (other than teachers or counselors) (7-12)	28	2.63
24.6	26	Community youth group membership	25	2.74
20.4	27	Camp experiences	24	2.81
9.9	28	Military experiences	22	2.89

Note. Students (N = 545).

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(1) personal interests/hobbies, (2) parents or guardians, (3) work experiences (part or full time), (4) friends and other college students not in graphic arts, (5) graphic arts course in college/university, but no direct teacher recruitment, (6) newspaper or magazine articles about graphic arts careers, and (7) representatives from business or industry. The experience of these seven influential factors by management students ranged in percentage from 88.3% to 56%.

Student Perceptions of Effectiveness of Other Influential Factors they Experienced, for Each Type of Graphic Arts Program

Question eleven was concerned with the perceived effectiveness of those other factors experienced by students specializing in each type of program. The findings to this question are described in three parts or one for each type of program. Only the top seven (25%) of 28 influential factors that students experienced and perceived to be most effective in each program are cited in the text. The reader is referred to Table 27 for a summary of effectiveness for the ranked order of influence of these factors. These data were obtained from the rank effectiveness order columns of Tables 24 to 26.

Students listed and rated additional factors that attracted them into graphic arts. These additional factors are found in Tables L-18 to L-20 in Appendix L where the responses have been grouped and ranked.

Graphic Arts Education Programs

The seven top ranked influential factors perceived to be effective by education students are given in Table 27. These factors were indicated to be: (1) personal interests/hobbies, (2) graphic arts

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course in college/university, but no direct teacher recruitment, (3) work experiences (part or full time), (4) graphic arts course in secondary school, but no direct teacher recruitment, (5) secondary school graphic arts teachers, (6-7) industrial education/technology course in secondary school (other than graphic arts) with no direct teacher recruitment, and (6-7) secondary school industrial education/ technology teachers (other than graphic arts).

Graphic Arts Technology Programs

The seven top ranked influential factors perceived to be effective by technology students are also found in Table 27. These factors were: (1) personal interests/hobbies, (2) graphic arts course in college/ university, but no direct teacher recruitment, (3) work experiences (part or full time), (4) secondary school graphic arts teachers, (5) graphic arts course in secondary school, but no direct teacher recruitment, (6) parents or guardians, and (7) TV, films, videotape, slides and/or radio programs about graphic arts careers.

Graphic Arts Management Programs

The seven top ranked influential factors perceived to be effective by technology students are also presented in Table 27. These factors were identified as: (1) personal interests/hobbies, (2) work experiences (part or full time), (3) graphic arts course in secondary school, but no direct teacher recruitment, (4) secondary school graphic arts teachers, (5) graphic arts course in college/university with no direct teacher recruitment, (6) representatives from business or industry, and (7) parents or guardians.

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Table 27

Rank Order of Other Influential Factors Attracting Students into Graphic Arts Programs

Other Influential Factors	Rank Order of Influence (Educ)	(Tech)	(Mgmt)
People--Personal Influences			
1. Parents or guardians:	8-9	6	7
2. Brothers and/or sisters:	15-17	16	18
3. Other relatives:	18-19	17-18	17
4. Friends and other college students not in graphic arts:	11	8	10
5. Neighbors and/or other adults:	20-21	15	14-15
6. Leaders in my community:	26	25	27
7. Representatives from business or industry:	13	14	6
People--Educational Influences			
8. Sec. school graphic arts teachers (7-12):	5	4	4
9. Sec. school industrial educ/ tech teachers (other than graphic arts) (7-12):	6-7	10	13
10. Sec. school teachers (other than graphic arts or ind educ/ tech) (7-12):	18-19	17-18	20-21
11. Sec. school guidance counselors (7-12):	24	26-27	20-21
12. Sec. school adults (other than teachers or counselors) (7-12):	27	26-27	28
13. College ind educ/tech faculty (other than graphic arts):	8-9	9	12

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Table 27 (continued)

Other Influential Factors	Rank Order of Influence (Educ)	(Tech)	(Mgmt)
14. Other college faculty (besides graphic arts or ind educ/tech):	20-21	19	14-15
Work/Recreational Influences			
15. Community youth group membership:	23	23-24	25
16. Military experiences:	10	22	22
17. Camp experiences:	25	28	24
18. Work experiences (part/full time):	3	3	2
19. Personal interests/hobbies:	1	1	1
Educational Influences			
20. Graphic arts course in Sec. school, but no direct teacher recruitment (7-12):	4	5	3
21. Ind educ/tech course in Sec. school (other than graphic arts) and no direct teacher recruitment (7-12):	6-7	12	16
22. Sec. school course (other than graphic arts or other ind educ/ tech courses) and no direct teacher recruitment (7-12):	14	20-21	23
23. Elementary school classwork (K-6):	28	23-24	26
24. Sec. school extra-curricular activities (7-12):	12	13	11
25. Graphic arts course in coll/univ, but no direct tchr recruitment:	2	2	5
26. Results of an interest survey or aptitude test:	15-17	20-21	19

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Table 27 (continued)

Other Influential Factors	Rank Order of Influence (Educ)	(Tech)	(Mgmt)
Media Influences			
27. Newspaper or magazine articles about graphic arts careers:	22	11	8
28. TV, films, videotape, slides and/or radio program about graphic arts careers:	15-17	7	9

Note. Data in this table are taken from the rank effectiveness order columns of Tables 24 to 26.

Further Discussion

An analysis of influential factors between programs revealed that management students were more highly influenced than technology students by representatives from business or industry, and that technology and management students were more highly influenced than education students when newspaper or magazine articles, TV, films, videotape, slides and/or radio programs about graphic arts careers were experienced. Education students were more highly influenced than technology and management students when military experiences were considered, or an industrial education/technology course in secondary school (other than graphic arts) with no direct teacher recruitment.

The number one influential factor for students in each of the graphic arts programs was personal interest/hobbies. Also among the top seven influences for each program was a graphic arts course in college/

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university with no direct teacher recruitment, work experiences, and a graphic arts course in secondary school with no direct teacher recruitment.

Rank Order of Influence and Experience Combined for Other Influential Factors Attracting Students into Graphic Arts Programs

In investigating the combined rank order of the amount of influence of certain influential factors on students, along with the rank order of experience that students have had with these factors, several facts emerge. These are indicated in Table 28. Data for this table were obtained from the rank order of experience and rank effectiveness order columns of Tables 24 to 26. The two ranked columns were combined into one new composite ranked column for each education, technology, and management program. Data from Table 28 are described in each of the programs below. Only the top seven (25%) of these ranked orders of combined influence and experience are cited in the text for each program.

Graphic Arts Education Programs

The seven top other factors combined for influence and experience for attracting education students are given in Table 28. In rank order, these factors were: (1) personal interests/hobbies, (2) graphic arts course in college/university with no direct teacher recruitment, (3) work experiences (part or full time), (4-5) college industrial education technology faculty (other than graphic arts), (4-5) industrial education technology course in secondary school (other than graphic arts) and no direct teacher recruitment, (6) secondary school industrial

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education/technology teachers (other than graphic arts), and (7) parents or guardians.

Graphic Arts Technology Programs

The seven top other factors combined for influence and experience for attracting technology students are also given in Table 28. In rank order, these factors were described as: (1) personal interests/hobbies, (2) graphic arts course in college/university with no direct teacher recruitment, (3-4) parents or guardians, (3-4) work experiences (part or full time), (5) friends and other college students not in graphic arts, (6) TV, films, videotape, slides and/or radio programs about graphic arts careers, and (7) newspaper or magazine articles about graphic arts careers.

Graphic Arts Management Programs

The seven top other factors combined for influence and experience for attracting management students are also presented in Table 28. In rank order, these factors were: (1) personal interests/hobbies, (2) work experiences (part or full time), (3) parents or guardians (4) graphic arts course in college/university with no direct teacher recruitment, (5) representatives from business or industry, (6-7) friends and other college students not in graphic arts, and (6-7) newspaper or magazine articles about graphic arts careers.

Further Discussion

An analysis of combined influential factors and experience rankings between programs revealed that management students were more highly

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Table 28

Rank Order of Influence and Experience Combined for Other Influential Factors Attracting Students into Graphic Arts Education, Technology, and Management Programs

Other Influential Factors	Rank Order of Influence and Experience Combined (Educ)	(Tech)	(Mgmt)
People--Personal Influences			
1. Parents or guardians:	7	3-4	3
2. Brothers and/or sisters:	13	12	13
3. Other relatives:	16	13	15
4. Friends and other college students not in graphic arts:	8	5	6-7
5. Neighbors and/or other adults:	21	14	12
6. Leaders in my community:	24	23	25
7. Representatives from business or industry:	17	15-16	5
People--Educational Influences			
8. Sec. school graphic arts teachers (7-12):	9	9	8
9. Sec. school industrial educ/ tech teachers (other than graphic arts) (7-12):	6	15-16	16-17
10. Sec. school teachers (other than graphic arts or ind educ/ tech) (7-12):	19	20-21	19
11. Sec. school guidance counselors (7-12):	23	25-27	18
12. Sec. school adults (other than teachers or counselors) (7-12):	27-28	25-27	28

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Table 28 (continued)

Other Influential Factors	Rank Order of Influence and Experience Combined (Educ)	(Tech)	(Mgmt)
13. College ind educ/tech faculty (other than graphic arts):	4-5	10-11	14
14. Other college faculty (besides graphic arts or ind educ/tech):	14	18	16-17
Work/Recreational Influences			
15. Community youth group membership:	25	25-27	26-27
16. Military experiences:	20	24	24
17. Camp experiences:	27-28	28	26-27
18. Work experiences (part/full time):	3	3-4	2
19. Personal interests/hobbies:	1	1	1
Educational Influences			
20. Graphic arts course in Sec. school, but no direct teacher recruitment (7-12):	10	8	9-10
21. Ind educ/tech course in Sec. school (other than graphic arts) and no direct teacher recruitment (7-12):	4-5	17	21
22. Sec. school course (other than graphic arts or other ind educ/tech courses) and no direct teacher recruitment (7-12):	11	20-21	22
23. Elementary school classwork (K-6):	26	22	23
24. Sec. school extra-curricular activities (7-12):	12	10-11	11
25. Graphic arts course in coll/univ, but no direct tchr recruitment:	2	2	4

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Table 28 (continued)

Other Influential Factors	Rank Order of Influence and Experience Combined (Educ)	(Tech)	(Mgmt)
26. Results of an interest survey or aptitude test:	22	19	20
Media Influences			
27. Newspaper or magazine articles about graphic arts careers:	18	7	6-7
28. TV, films, videotape, slides and/or radio program about graphic arts careers:	15	6	9-10

influenced than education and technology students by representatives from business or industry, and that technology and management students were more highly influenced than education students when newspaper or magazine articles were concerned, and technology students were more highly influenced than education students when TV, films, videotape, slides, and/or radio programs about graphic arts careers were concerned. Education students were more highly influenced than technology and management students when (a) college industrial education/technology faculty (other than graphic arts) and (b) an industrial education/ technology course in secondary school (other than graphic arts) with no direct teacher recruitment was concerned.

The highest rated factor for students in each of the graphic arts programs was personal interest/hobbies. Also included among the top seven influences for each program was (a) a graphic arts course in

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college/university with no direct teacher recruitment, (b) work experiences (part or full time), and (c) parents or guardians.

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CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The contents of this chapter include a summary of the study, the conclusions, and recommendations. General and specific recommendations are made including those for further study.

General Summary

The primary purpose of this study was to identify recruitment practices that should be utilized to increase college/university undergraduate enrollment of graphic arts students. It was intended to increase knowledge of the recruitment process so that future graphic arts recruitment efforts could be more effectively designed, focused, and applied. A secondary purpose was to identify other influential factors that students experienced that attracted them into their graphic arts program.

The focus of the study involved perceptions of college/university faculty of the effectiveness of recruitment practices they used to attract students into four year undergraduate graphic arts education, technology, and management programs. In addition, the study involved the opinions of college/university graphic arts students regarding their experience and rating of these same recruitment practices. The study also involved other influential factors and perceptions of the effectiveness of other factors in attracting students into their graphic arts programs.

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Summary of Procedure

This nationwide study, conducted in the Fall of 1988, involved 75 graphic arts faculty and 901 students in 76 public and private colleges and universities. One hundred twelve graphic arts education students, 244 graphic arts technology students, and 545 graphic arts management students completed and returned usable opinionnaires. The study was endorsed by leadership personnel in the Graphic Arts Technical Foundation (GATF), the International Graphic Arts Education Association (IGAEA), and the Department of Industrial Technology at the University of Northern Iowa (UNI).

The list of college/university graphic arts faculty was developed through the use of the Industrial Teacher Education Directory (Dennis, 1987-88) and the 1988 Technical Schools Colleges and Universities Offering Courses in Graphic Communications (Education Council of the Graphic Arts Industry, 1988) publication. One faculty member from each institution was asked to participate in the study and represent one graphic arts program. Students in up to three graphic arts programs were selected by these faculty members to participate in the study through randomly selected proportional stratification procedures based upon program enrollment. Enrollment figures had previously been obtained from faculty through the use of preliminary data gathering instruments.

Six instruments were designed and used to obtain data in this study. The Preliminary Research Questionnaire was used to gather initial information about colleges and universities offering graphic arts programs, types and scope of programs offered, student enrollment

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data, and faculty identification and willingness to participate in the study. The Preliminary Data Report was a follow-up to the PRQ. Three versions of the Faculty Opinionnaire were designed and used, one focusing on each type of graphic arts program. The Student Opinionnaire was generic in nature and used by students in each of the three types of graphic arts programs.

Before the faculty and student instruments were used in the main study, a panel of jurors critiqued the content of the instruments for validation purposes. Changes were made when necessary before the opinionnaires were pilot-tested. Pilot-testing revealed that no additional changes were necessary in the instruments. Appropriate incentives were utilized to maximize return of the survey instruments.

The faculty opinionnaire had one major part consisting of 32 recruitment practices. Faculty were asked to indicate which practices they used to attract students into a particular graphic arts program and then rate those practices for perceived effectiveness. The student opinionnaires, distributed by faculty, consisted of three major parts. Listed in Part I were 32 recruitment practices matching those in the faculty instrument. Students were asked to indicate which practices they experienced and to rate their perception of the effectiveness of those practices in attracting them into their selected graphic arts program emphasis. Opinions were solicited in Part II concerning other influential factors, besides direct recruitment, which also influenced the students' decision to enroll in graphic arts. Personal demographic data were requested in Part III. Faculty and students were given the opportunity to list and rate additional recruitment practices they used

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or experienced that were not part of the printed lists in the opinionnaires. Students also had the additional opportunity to list and rate other factors they experienced that influenced them to enter their programs.

Summary of Major Findings

College/university graphic arts students are predominantly male, single, and attended public high schools. Their race is predominantly Caucasian, and about half of them are Protestant (46%) and a third Catholic (30-35%). Although over-three fourths (79.2%) of graphic arts education students are male, a smaller percentage of them comprise graphic arts technology students (54.7%) and graphic arts management students (60%). Graphic arts education students are, on the average, the oldest of the three groups (23.6 years); followed by management students (22.4 years), and technology students (21.8 years). A greater number of education students come from smaller communities (18.3%) than management students (8.9%). The size of the high school graduating class made insignificant differences with student selection of specific graphic arts programs. Two-thirds of education students (67%) planned to achieve more than the bachelors degree, whereas about two-fifths of technology students (39.7%) and management students (43.7%) planned further formal education beyond the bachelors degree.

More than three-fourths of education students (76.8%) planned or probably planned to teach graphic arts, whereas one-tenth or less of the technology (10.3%) and management (6.9%) students planned to teach. About one-tenth of the education students (9.8%) and almost one-fifth of

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the technology students (16.8%) were undecided about teaching. Slightly more than a quarter of the management students (27.5%) reported they were undecided about teaching.

The greatest percentage of the total number of students indicated they were seniors (37-44%), followed by juniors (30-31%), sophomores (16-22%), and freshmen (5-11%). About one-third of education (32.8%) and management (35.7%) students and about a quarter of technology students (27.6%) decided to specialize in their graphic arts programs prior to leaving high school. Well over half, however, of the students in graphic arts education (60%), technology (66.6%), and management (57.3%) made this decision while in college/university.

About half of the students (47-51%) completed their first graphic arts course while in college/university. In secondary school, 38.7% of the education students and 42.6% of the technology students and almost half of the management students (46.2%) first completed such a course.

Faculty indicated graphic arts student enrollment in the 76 colleges/universities to be 393 for education students (9.0%), 1,200 for technology students (27.4%), and 2,786 for management students (63.6%), for a total of 4,379 students. Over two-thirds (70%) of the faculty reported that enrollment in graphic arts education courses was declining while enrollment in technology programs was basically remaining the same (42.5%). Management (63.3%) and technology/management (55.6%) enrollments were reported to be growing.

Overall recruiting for education programs was reported to have little effect (69.6%). For technology programs, recruiting efforts had a moderate/average effect (62.8%). For management programs, it had a

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moderate/average effect (45.7%), and for technology/management programs, recruitment also had a moderate/average effect (54.2%).

During the past five years, over half (55.9%) of the faculty had increased recruitment efforts to attract management students, about two-fifths (42.9%) had increased efforts to attract technology students, and less than one-third (29.8%) had increased efforts to attract education students. Recruitment efforts in technology/management programs had shown an increased effort of 44%.

The recruitment practices that faculty used most frequently to attract students into their graphic arts program(s) were not always those that faculty perceived to be the most effective. Likewise, some of the practices that faculty rated very effective were not used by these faculty to any great extent. Faculty in some graphic arts programs used the same recruitment practices more or less frequently than faculty in other graphic arts programs. Faculty in some graphic arts programs rated the effectiveness of the same recruitment practices differently than faculty in other graphic arts programs. Faculty recruiting for education and technology programs rated personal interviews with high school or college/university students to be the most effective recruitment practice. Those recruiting for management programs, however, rated the offering of a college/university credit introductory type course in graphic arts for high school seniors to be the most effective.

Recruitment practices that students experienced most frequently in being attracted into their graphic arts programs were not always those that they perceived to be the most effective. Likewise, some of the

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practices that they rated very effective were not experienced by themselves to any great extent. Students in some graphic arts programs experienced the same recruitment practices with different frequency than students in other graphic arts programs. Students in some graphic arts programs rated the effectiveness of the same recruitment practices differently than students in other graphic arts programs.

Graphic arts education students rated the most effective recruitment practice that they experienced to be college/university faculty contacts with high school graphic arts teachers. Graphic arts technology students indicated the most effective practice was offering related general education courses through the graphic arts or industrial education/technology department which stimulate the interest of college/university students who have not yet decided to concentrate or major in a particular program. Graphic arts management students indicated a tie for the two most effective practices. These were: (a) indicating to non-majors in the institution the advantages of graphic arts careers by graphic arts or other industrial education/technology faculty, and (b) offering a college/university credit introductory type course in graphic arts for high school seniors.

Significant differences in perceptions of recruitment practice effectiveness between faculty and students were found in three of 32 practices in graphic arts education programs. They are: (a) personal letters to interested high school students, (b) personal interviews with high school or college/university students, and (c) college/university graphic arts students recruiting other college/university and high

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school students. Faculty rated each of these practices significantly higher in perception of effectiveness than did education students.

There were significant differences between faculty and students in perceptions of recruitment practice effectiveness in three of 32 practices in graphic arts technology programs. They are: (a) personal interviews with high school or college/university students, (b) contacts with graphic arts alumni, and (c) graphic arts displays at shopping malls or other locations. Faculty rated the first two items significantly higher in perception of effectiveness than did technology students. Students rated the last item significantly higher in perception of effectiveness than did faculty.

Significant differences in perceptions of recruitment practice effectiveness between faculty and students were found in four of 32 practices in graphic arts management programs. They are: (a) personal interviews with high school or college/university students, (b) visits to community colleges by college/university graphic arts or other industrial education/technology faculty, (c) college/university graphic arts students recruiting other college/university and high school students, and (d) impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the institution. Faculty rated each of these practices significantly higher in perception of effectiveness than did management students.

Each of the following top three recruitment practices should be applied by faculty in attracting students into any of the three graphic arts program areas. This determination was made by combining the rank

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order of student experience with the rank order of student perceived effectiveness for each recruitment practice. The three most effective recruitment practices in rank order are: (1) offering related general education courses through the graphic arts or industrial education/ technology department; these courses stimulate the interest of college/university students who have not yet decided to concentrate or major in graphic arts, (2) indicating to non-majors in the institution the many advantages of graphic arts careers; this can be done by graphic arts or other industrial education/technology faculty, and (3) recruitment packets for any interested party.

Many faculty members indicated they experienced problems when recruiting students into their graphic arts programs. These problems were concerned primarily with not having enough time or money to carry out an effective recruitment program. Faculty for education and technology programs frequently cited that money was needed for replacing outdated laboratory equipment. Faculty for management programs frequently cited that money was needed for travel expenses for accomplishing recruitment activities.

Influential factors, besides direct recruitment, which students experienced most in being attracted into their graphic arts program were not always those that they perceived to be the most effective. Likewise, some of the factors that they rated effective were not experienced by themselves to a large extent. Students in some graphic arts programs experienced the same influential factors to different degrees than students in other graphic arts programs. Students in some graphic arts programs rated the effectiveness of the same influential

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factors differently than students in other graphic arts programs. Graphic arts students in each of the three programs, however, rated the most effective influential factor to be the same. This factor was personal interests/hobbies. Work experiences (part/full time) were also indicated to be one of the top influences.

When considering the combined rank order of the effectiveness of influential factors on students, along with the rank order of experience that students have had with these factors, additional information emerged. The most effective and experienced influential factor in all three programs was personal interest/hobbies. Graphic arts education students were also influenced by (a) a graphic arts course in college/university with no direct teacher recruitment, and (b) work experiences (part/full time). Education students were not as highly influenced as technology and management students were with newspaper or magazine articles. Education students, however, were more highly influenced than technology and management students when college industrial education/technology faculty (other than graphic arts) were concerned. Education students were also more highly influenced than technology and management students when an industrial education/technology course in secondary school (other than graphic arts) with no direct teacher recruitment was concerned. Graphic arts technology students were also most influenced by (a) a graphic arts course in college/university, than with direct teacher recruitment, (b) parents or guardians, and (c) work experiences (part/full time). These last two influences were tied for third place. Technology students were more highly influenced than education students with TV, films, videotape, slides, and/or radio programs about graphic

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arts careers. Graphic arts management students were also influenced by work experiences (part/full time) and parents/guardians. Management students were more highly influenced than education or technology students by representatives from business and industry.

Conclusions

Subject to the stated assumptions and limitations of this study and to the extent that the data gathered were accurate, the following conclusions are presented. These conclusions are based upon the analyses of the obtained data from this research.

1. The current lack of females within the graphic arts education population and the lack of minorities in the graphic arts education, technology, and management populations, indicates the need to increase efforts in recruiting these segments of the population into college/university graphic arts programs.

2. A greater proportion of potential graphic arts education students come from smaller communities than do management students. Potential graphic arts management students, on the other hand, come from larger populated areas in greater proportion than do education students.

3. The potential exists for pursuading a greater percentage of undecided graphic arts management students to enter graphic arts teaching than undecided graphic arts education students.

4. The potential exists to recruit between half to two-thirds of prospective graphic arts education, technology, and management students at the college/university level who are already enrolled and on campus.

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5. The effect of recruiting graphic arts education students was very poor, although the effects were very good for attracting students enrolled in management and service courses.

6. Enrollment has been decreasing in the vast majority of education programs. It has remained the same or increased in technology programs and it has increased in management and service courses over the past five years. It appears that recruitment efforts for graphic arts education students have not been taken very seriously by college/ university faculty.

7. Faculty recruitment efforts have generally not changed over the past five years for attracting education students. For technology students, it has either remained the same or increased and for students in management and service courses, recruitment efforts have increased.

8. The size of the high school graduating class made no difference in the number of students who finally decided to specialize in graphic arts education, technology, or management in college/university.

9. Recruitment practices frequently used by college/university faculty to attract graphic arts students are not necessarily rated the most effective by these same faculty, and some of the practices faculty indicate to be effective are not highly used by them.

10. Recruitment practices that faculty considered effective were not necessarily rated the most effective by students.

11. Many of the recruitment practices rated highly effective by students have not been experienced to any great extent by these same students.

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12. Some recruitment practices seemed to be more effective in attracting students into some types of graphic arts programs than others.

13. Significant differences were found in perceptions of recruitment practice effectiveness between faculty and students in about 10% of the practices in each program.

14. Student experiences with other influential factors revealed differences in the percentage of those factors they experienced and the effect of those factors in attracting them into graphic arts.

15. Some influential factors, such as newspaper or magazine articles about graphic arts careers, seemed to be more effective in attracting students into some types of graphic arts programs than others.

16. Lack of time and money are perceived as the two major problems that restrict college/university faculty from conducting recruitment in graphic arts.

17. High school guidance counselors have not been very helpful or effective in the recruiting effort in directing secondary students towards graphic arts programs or careers.

General Recommendations

These recommendations are based upon a review of the related literature, the reporting of the data, and the conclusions of this study. Hopefully, these 14 recommendations will improve recruitment effectiveness for graphic arts students.

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1. Based upon demographic and other findings, recruitment efforts need to be targeted toward students being attracted into graphic arts education, technology, and management programs on the college/university level.

2. Faculty in colleges/universities need to review the findings and conclusions of this study in an effort to build and expand their graphic arts recruitment efforts.

3. College/university faculty should re-examine and possibly reconsider the use of particular recruitment practices in attracting students into their graphic arts programs. This is stated in view of the perceived effectiveness of these practices, as well as the experience and effect the practices have on students in the different graphic arts programs.

4. College/university faculty should make a greater effort to offer related general education courses through the graphic arts or industrial education/technology departments of which they are associated. This should stimulate the interest of college/university students who have not yet decided to concentrate or major in graphic arts.

5. Administrators in graphic arts or industrial education/ technology departments should allocate the appropriate time and financial resources for faculty in order to accomplish recruitment activities.

6. Recruitment efforts need to be increased to attract students, especially minorities, into all graphic arts programs.

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7. Recruitment efforts need to be increased to attract students, especially females, into graphic arts education programs.

8. College/university faculty should conduct a major portion of their recruiting on the college/university campus for graphic arts students.

9. Greater effort needs to be made to educate high school guidance counselors about the graphic arts industry and career opportunities for students in this field and to garner guidance counselor support in this recruitment effort.

10. Greater effort should be made in attracting potential graphic arts education students from smaller communities.

11. College/university faculty should make greater effort, whenever possible, to attempt to influence students through channels that students consider effective such as personal interests/hobbies and work experiences.

12. Recruitment practices indicated to be highly effective by students, but which students did not have much exposure, should be considered for increased use by faculty.

13. College/university faculty should encourage graphic arts management students to consider a career in teaching graphic arts.

14. It is recommended that faculty in graphic arts departments keep complete, accurate, and up to date records on their graphic arts students in terms of demographic information. This will help establish a student profile for recruitment efforts.

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Recommendations for Further Study

Additional recommendations are warranted in extending and improving upon this study. Four such recommendations are made and ranked as follows:

1. Replication of this study in specific states or regions of the country is recommended with the aim of refining recruitment efforts.

2. This study should be repeated in five years to ascertain whether changes have occurred in recruitment practice use and effectiveness.

3. Further development of recruitment strategies designed to attract specific targeted groups (females, minorities, and non-traditional students) into graphic arts programs should be made with the aim of refining and focusing recruitment efforts.

4. A study of the personalities of graphic arts education, technology, and management students as three distinct groups might be warranted to determine what role their personalities play in their occupational choice.

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REFERENCES

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REFERENCES

Aagaard, A. A. (1975). A study for the recruitment of women in industrial arts (Doctoral dissertation, University of Northern Colorado). Dissertation Abstracts International, 36, 4310A. (University Microfilms No. 76-177)

Baird, R. J. (1972). Contemporary industrial teaching, solving everyday problems. South Holland, IL: Goodheart-Wilcox.

Barber, J. L. (1980). A study of promotional efforts involved in student recruitment at selected Illinois community colleges (Doctoral dissertation, Northern Illinois University). Dissertation Abstracts International, 41, 2901A.

Baumgartner, R. M., & Heberlein, T. A. (1984). Recent research on mailed questionnaire response rates. In D. C. Lockhart (Ed.), Making effective use of mailed questionnaires (pp. 65-76). San Francisco, CA: Jossey-Bass.

Campbell, W. L. (1972). A comparison of recruitment practices in private liberal arts colleges and universities (Doctoral dissertation, George Peabody College for Teachers). Dissertation Abstracts International, 33, 1456A.

Cecere, J. J. (1980). Factors influencing Texas industrial-technical college or university students when selecting their major area of study (Doctoral dissertation, North Texas State University). Dissertation Abstracts International, 41, 1557A. (University Microfilms No. 80-21888)

Childers, T. L., & Skinner, S. J. (1979). Gaining respondent cooperation in mail surveys through prior commitment. Public Opinion Quarterly, 43(4), 558-561.

Craft, C. O. (1979, November). Industrial teacher student recruitment. Paper presented at the meeting of the 66th Mississippi Valley Industrial Education Conference. Chicago: Author.

Dean, H. R. (1985). Recruiting practices as they relate to the factors which influenced individuals to become industrial arts teachers (Doctoral dissertation, University of Arkansas). Dissertation Abstracts International, 46, 2947A.

Dennis, E. A. (Ed.) (1987). Industrial teacher education directory 1987-1988 (26th ed.). Sponsored by the Council on Technology Teacher Education and National Association of Industrial and Technical Teacher Educators. University of Northern Iowa, Cedar Falls, IA.

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Dennis, E. A., & Jenkins, J. D. (1983). Comprehensive graphic arts (2nd ed.). Indianapolis: Bobbs-Merrill.

Devier, D. H. (1981). Industrial arts teacher education, student recruitment practices and their effectiveness in the state of Ohio (Doctoral dissertation, The Ohio State University). Dissertation Abstracts International, 42, 2001A.

Devier, D. H. (1982). Recruitment for industrial arts teacher education: Ohio status. Man/Society/Technology, 41(4), 21-22.

Devier, D. H. (1987, March 26). The best and brightest to teach technology. Paper presented at the meeting of the International Technology Education Association Conference, Tulsa, Oklahoma.

Dillman, D. A. (1978). Mail and telephone surveys: The total design method. New York: John Wiley and Sons.

Dillman, D. A., Dillman, J. J., & Makela, C. J. (1984). The importance of adhering to details of the total design method (tdm) for mail surveys. In D. C. Lockhart (Ed.), Making effective use of mailed questionnaires (pp. 49-64). San Francisco, CA: Jossey-Bass.

Dillon, D. A. (1985). Factors that effect a person's decision to major in industrial arts/technology (Doctoral dissertation, North Carolina State University). Dissertation Abstracts International, 47, 446A.

Druesne, B., Harvey, J., & Zavada, M. (1980). College mailings: What works. The College Board Review, No. 116, 12-17.

Edmunds, N. (1980). Effective recruiting--A tool to replenish, sustain, and improve the profession. Journal of Epsilon Pi Tau, 6(1), 17-22.

Edmunds, N. (1983). Recruitment: A shared responsibility. Man/Society/Technology, 42(8), 23-24.

Education Council of the Graphic Arts Industry (ECGAI). (1988). Technical schools colleges and universities offering courses in graphic communications. Pittsburgh, PA: Graphic Arts Technical Foundation.

Eldred, N. R. (Ed.) (1985). Education and training in the graphic arts 1985-1990: The GATF manpower study (Techno-Economic Forecast No. 26). Pittsburgh, PA: Graphic Arts Technical Foundation.

Erdos, P. L., & Morgan, A. J. (1983). Professional mail surveys (Rev. ed.). Malabar, FL: Robert E. Krieger.

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Eversoll, R. I. (1971). The effect of occupational information upon secondary school youth with varying interests regarding a teaching career in the field of industrial arts (Doctoral dissertation, University of Missouri). Dissertation Abstracts International, 32, 5006A.

Fischer, J. F. (1976). An identification of factors which influence enrollment in selected post-secondary education programs (Doctoral dissertation, Oklahoma State University). Dissertation Abstracts International, 37, 5654A. (University Microfilms No. 77-5070)

Foley, D. J., Jr. (1967). Recruitment and selection of potential industrial arts teachers (Doctoral dissertation, New York University). Dissertation Abstracts, 28, 4509A. (University Microfilms No. 68-6179)

Fox, R. B. (1961). Factors influencing the career choice of prospective teachers. Journal of Teacher Education, 12(4), 427-432.

Gorman, W. P. (1974). Marketing approaches for promoting student enrollment in higher educational institutions. College and University, 49(3), 242-250.

Goto, K. A. (1977). A study of problems in recruiting minority people into industrial arts for the western states of Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming (Doctoral dissertation, University of Northern Colorado). Dissertation Abstracts International, 38, 4625A.

Greenan, J. P. (1988, February). T & I teachers: Supply and demand. Industrial Education, pp. 9-11.

Harden, T. K. (1981). A national study of factors affecting adult students' choice of industrial arts as a certification field (Doctoral dissertation, University of Cincinatti). Dissertation Abstracts International, 42, 3473A.

Heaton, E. E., Jr. (1965). Increasing mail questionnaire returns with a preliminary letter. Journal of Advertising Research, 5, 35-39.

Heberlein, T. A., & Baumgartner, R. (1978). Factors affecting response rates to mailed questionnaires: A quantitative analysis of the published literature. American Sociological Review, 43(4), 447-462.

Hohman, J. L. (Ed.) (1986, May). Graph expo '86 west. Teachers Report (Report No. 20). Pittsburgh, PA: Graphic Arts Technical Foundation.

Hullman, D. H. (1971). A study of recruitment techniques which influence student selection of vocational-technical education (Doctoral dissertation, Oregon State University). Dissertation Abstracts International, 31, 4508A.

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Jahrman, Q. K. (1964). Recruiting prospective teachers of industrial education (Doctoral dissertation, University of Arkansas). Dissertation Abstracts, 25, 5630. (University Microfilms No. 65-1525)

Jenkins, R. (1975). The role of the industrial arts teacher as a recruiting agent for industrial education in the state of Louisiana (Doctoral dissertation, University of Arkansas). Dissertation Abstracts International, 36, 3471A. (University Microfilms No. 75-27631)

Kearsley, G. P. (1984). Training and technology: A handbook for HRD professionals. Reading, MA: Addison-Wesley.

Kephart, W. M., & Bressler, M. (1958). Increasing the responses to mail questionnaires. Public Opinion Quarterly, 22(2), 126.

Kerin, R. A., & Peterson, R. A. (1977). Personalization, respondent anonymity, and response distortion in mail surveys. Journal of Applied Psychology, 62(1), 86-89.

King, K. P., Noriko, K., & Bigler, L. G. (1986). Factors influencing students' perceptions of college recruitment activities. College and University, 61(2), 99-113.

Kodak graphic arts industry manpower study (1973). Rochester, NY: Eastman Kodak Company.

Linsky, A. S. (1975). Stimulating responses to mailed questionnaires: A review. Public Opinion Quarterly, 39(1), 82-101.

Lockard, J. A. (1974). A study of freshmen recruitment practices and their effectiveness in selected small private colleges in Iowa (Doctoral dissertation, Iowa State University). Dissertation Abstracts International, 35, 2724A.

Lockhart, D. C. (Ed.) (1984). Making effective use of mailed questionnaires. San Francisco, CA: Jossey-Bass.

Magee, B. (Ed.) (1984, April). Teacher conference addresses impact of technology on education. Teachers Report (Report No. 16). Pittsburgh, PA: Graphic Arts Technical Foundation.

McClung, X. V. (1987). The role of the industrial arts teacher as a recruiter for industrial education for the state of Arkansas (Doctoral dissertation, University of Arkansas). Dissertation Abstracts International, 48, 1183A.

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Merante, J. A. (1983). Guidelines for marketing procedures which could be utilized for the recruitment of undergraduate students in a post-secondary institution (Doctoral dissertation, University of Pittsburgh). Dissertation Abstracts International, 44, 2378A.

Mertz, A. L. (Ed.) (1988, May). The 1988 education and training conference: Recruiting employees for the graphic arts industry. Productivity and Training Report (Report No. 42). Pittsburgh, PA: Graphic Arts Technical Foundation.

Milo, K. J. (1985). A study of college faculty and administrator attitudes toward, and involvement with, educational marketing and student recruiting (Doctoral dissertation, The University of Tennessee--Knoxville). Dissertation Abstracts International, 46, 3213A.

Nie, N. H., Hull, C. H., Jenkins, J. G., Steinbrenner, K., & Bent, D. E. (1975). Statistical packages for the social sciences (2nd ed.). New York: McGraw-Hill.

Orr, J. P. (1983). Factors influencing participation of females in the industrial technology program at Southern Illinois University-Carbondale (Doctoral dissertation, Southern Illinois University-Carbondale). Dissertation Abstracts International, 44, 2070A.

Parsons, R. J., & Medford, T. S. (1972). The effect of advance notice in mail surveys of homogeneous groups. Public Opinion Quarterly, 36(2), 258-259.

Reed, B. A. (1962). A study of college choice: An analysis of factors and experience in applying for admission to colleges (Doctoral dissertation, New York University). Dissertation Abstracts, 25, 2382A. (University Microfilms No. 63-6692)

Ressler, R. (1966). Recruitment of industrial arts teachers in the state of Ohio (Doctoral dissertation, The Ohio State University). Dissertation Abstracts, 27, 2926A. (University Microfilms No. 67-2521)

Rucker, M., Hughes, R., Thompson, R., Harrison, A., & Vanderlip, N. (1984). Personalization of mail surveys: Too much of a good thing? Educational and Psychological Measurement, 44(4), 893-905.

Sanders, M. (1986). Recruitment strategies for industrial arts teacher education. The Journal of Epsilon Pi Tau, 12(1), 59-65.

Scott, R. A. (1980). The evolution of roles and aspirations: Burgeoning choices for females. Panel presentation at the Annual Forum of Indiana Health Centers, Inc. (ERIC Document Reproduction Service No. ED 200 110)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Senteney, G. W. (1955). Factors relating to the choice of industrial education teaching as a career and the retention of these teachers in the profession (Doctoral dissertation, University of Missouri). Dissertation Abstracts, 16, 503. (University Microfilms No. 14,952)

Sharpe, D. B. (1981). The recruitment and retention of potential industrial arts teachers (Doctoral dissertation, Texas A & M University). Dissertation Abstracts International, 42, 3042A.

Sharpe, D. B., & Householder, D. L. (1984). Profiling potential industrial arts teachers. Journal of Industrial Teacher Education, 21(2), 39-53.

Smith, D. F. (1983). A survey of recruitment practices used by teacher education programs. The Technology Teacher, 43(2), 13-14.

Strong, M. E., & Schaefer, C. J. (1975). Introduction to trade, industrial, and technical education. Columbus, OH: Merrill.

Su, F. T. (1975). Analysis of occupational decision-making of the industrial education graduates (Doctoral dissertation, Iowa State University). Dissertation Abstracts International, 36, 6524A.

Sudman, S., & Bradburn, N. (1984). Improving mailed questionnaire design. In D. C. Lockhart (Ed.), Making effective use of mailed questionnaires (pp. 33-47). San Francisco: Jossey Bass.

Truitt, R. C. (1986, November). Printing schools. Presstime, pp. 8-10.

U.S. Department of Commerce (USDC). (1988). Printing and publishing. U.S. Industrial Outlook: 1988. Washington, DC: Author.

Van Pelt, R. D. (1958). A determination of the practices and procedures to be used in the recruitment of young people for teacher education programs (Doctoral dissertation, University of Nebraska--Lincoln). Dissertation Abstracts, 18, 1734.

Walgren, F. B. (1980). Recruitment of I.A. teachers--which methods produce. Addresses and Proceedings of the Annual Convention. Reston, VA: American Industrial Arts Association.

Webster's new world dictionary of the American language (College ed.). (1966). New York: World Publishing.

Weir, E. L. (1970). An experimental evaluation of selected printed graphic communication media for recruiting industrial arts and technology students (Doctoral dissertation, Arizona State University). Dissertation Abstracts International, 31, 4511A. (University Microfilms No. 71-5986)

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Workman, J. A. (1985, December). The effective use of mail surveys. Market Research Newsletter (Report No. 8). Pittsburgh, PA: Graphic Arts Technical Foundation.

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APPENDICES

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APPENDIX A

LETTERS OF SUPPORT:

DR. JACK SIMICH

DR. DAVID H. DEVIER

DR. JOSEPH J. CECERE

DR. VIRGIL R. PUFAHL

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GRAPHIC ARTS
TECHNICAL FOUNDATION

GRAPHIC ARTS TECHNICAL FOUNDATION • 4615 FORBES AVENUE • PITTSBURGH, PENNSYLVANIA 15213-3796 • (412) 621-6941 • TELEX: 9103509221 • CABLE: GATFWORLD

October 9, 1987

Mr. Joseph Gindele
3540 Yates Avenue, North
Crystal, MN 58422

Dear Joe,

Your letter to the reference librarian at GATF has been forwarded to my attention. You and John are progressing toward the end of a doctorate program and, of course, the dissertation is a major project. This is an extremely important stage as you must focus your energies developing and completing your research requirement.

In answer to your questions as posed in your letter:

1. There is not a listing of public high school graphic arts teachers in the U.S. The only way we know that you can obtain a fairly good list is to write to each of the State Departments of Education. In some instances, you may find (as we have) that a list of graphic arts teachers is not available. Just developing a list is a major time-consuming process.

2. We are not certain as to how many high school programs there are in the U.S. As far as the number of teachers is concerned, our guess is that there may be up to 10,000 teachers who are involved in graphic arts; however, somewhere around 3,000 to 4,000 may be involved solely in graphic arts. This is merely a guess. There are programs that are not classified as graphic arts, but rather graphic arts-design, journalism, communications, etc., that are being taught by these departments, and graphic arts subjects are included. Thus, it is extremely difficult to determine how many teachers are really involved in the study of graphic arts.

3. There have been studies that included a question or two regarding the recruiting of students for graphic arts programs. And, we know that more of a recruiting effort is being made today than ever before because the old "farm system" of students going from junior high to high school graphic arts programs is not necessarily the case. This was a topic that we discussed at three different Teacher Conferences that were held on the West Coast, mid-West, and the East Coast. We know that enrollment is a problem in many places, and we know there is more recruiting taking place. The types of recruiting programs will vary. A formal study to determine the types of recruiting methods, effectiveness of recruiting, problems of recruiting, etc., at a state, regional, or national level needs to be further explored.

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4. As you know, GATF and IGAEA are different organizations; GATF is merely acting as a mailing headquarters for IGAEA, and we forward mail to the addressed IGAEA officers; thus, we do not have any IGAEA records at GATF. Perhaps your best source for past membership directories is Bill White or the present secretary, Kenneth Kulakowsky, 15 Cedar Drive, Willow Street, PA 17584; (717) 464-3044. All IGAEA history and past records are maintained in a special library established at Illinois State University in Normal, IL.

5. Concerning past conference attendees, again, perhaps Bill or Ken may have records; or you may write to the schools where the conferences were held.

6. Here again, no IGAEA records are maintained at GATF.

7. GATF's library hours are Mondays through Fridays, 8:30 AM-5:00 PM; however, the library does not maintain IGAEA records.

8. Enclosed is information concerning fellowship grants for students pursuing graduate study on a full-time basis. The competition for this year has started; selections for the 1988-89 school year will be made in the Spring.

Joe, please give my very best to John. It was a pleasure seeing you at IGAEA. As you know, I do not call out the names of Joe or John because, to date, I have not been able to figure out who is who!

I wish you the very best as you pursue your topics for your dissertation. My advice is do not become so involved in trying to solve all the graphic arts problems. You have an excellent advisor and leader: work very closely with Dr. Dennis. His guidance and direction will help you and John to recognize the need to identify limitations of a study. One of the major problems in starting a dissertation is not recognizing the limits of a study from the very beginning.

Sincerely,

Jack Simich
Education Director

JS/db
enc.

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OHIO NORTHERN UNIVERSITY
ADA, OHIO 45810 • Telephone (419) 772-2168
The Getty College of Arts and Sciences
Department of Industrial Technology

March 28, 1988

Mr. Joseph G. Gindele
1939 College St., #235
Cedar Falls, Iowa 50613

Dear Mr. Gindele:

I am writing in response to your request to use parts of my research in your study. You have my permission to replicate and adapt any parts of my dissertation for your use.

Best of luck to you in your research efforts and if I can be of any help please let me know. I ouwld also be interested in reviewing a copy of your major findings if possible.

Sincerely,

David H. Devier

David H. Devier

DHD:kjs

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PENNSTATE
Harrisburg
1855
The Capital College
(717) 948-6000
U.S. Route 230
Middletown, PA 17057

June 22, 1988

Mr. Joseph G. Gindele
1939 College Street #235
Cedar Falls, Iowa 50613

Dear Mr. Gindele:

Please accept this letter as my permission to use part of my dissertation for your doctoral study. I wish you luck. If ther is any other way in which I might assist you, please let me know.

Sincerely,

Joseph J. Cecere, Chairman
Civil Engineering Technology

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APPENDIX B

TIME SCHEDULE

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Table B-1

Time Schedule for the Study

Date	Action Taken
Preliminary work:	
1. October/December, 1987	Search for topic
2. January 18, 1988	Topic selection approved
3. January 25, 1988 on	Collect literature, review same
4. January 27, 1988	Establish planning schedule
5. January 30, 1988	Establish budget
6. February 1-March 14, 1988	Develop chapter 1 outline proposal
7. February 15-April 25, 1988	Develop chapter 2 prelim proposal
8. February, 1988 on	Meet with statistician, committee members periodically
9. March, 1988	Seek endorsements for study
10. March 10-April 30, 1988	Identify populations, PRQ & cover letter mailed
11. March 21-April 25, 1988	Develop chapter 3 prelim methods
12. April 8, 1988	Follow-up letter for PRQ
13. May, 1988	Application for review of research
14. May 11, 1988	Committee proposal meeting, proposal accepted w/revisions
15. May 11-June 25, 1988	Revise/refine proposal
16. June 13-July 28, 1988	Design instruments
17. July 29, 1988	Print preliminary instrument
18. July, 1988	Jury selection
Jury critique and validation:	
19. July/August, 1988	Jury evaluates instruments
20. August, 1988	Revise instruments
21. August 8-29, 1988	Design mock-up tables
22. September 27, 1988	Preliminary Data Report (PDR)
Pilot testing:	
23. September, 1988	Prepare for mailings
24. September, 1988	Design faculty direction sheets, gift certificates, mgmt sheet
25. September 16, 1988	Preliminary notification postcard
26. September 22, 1988	Instrument pilot copies printed
27. September 23, 1988	Cover letter and surveys mailed
28. September 30, 1988	Thank-you/reminder postcard, follow-up #1
29. October 14, 1988	Follow-up #2 letter

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Table B-1 (continued)

	Date	Action Taken
Main survey:		
30.	October, 1988	Prepare for mailings
31.	October 18, 1988	Pre-notifcation postcard
32.	October 24, 1988	Main survey copies printed
33.	October 25, 1988	Cover letter and survey packages mailed
34.	October, 1988	Computer programmer writes program for analyzing data
35.	November 3, 1988	Thank-you/reminder postcard, follow-up #1
36.	November 22, 1988	Follow-up #2 letter
37.	November-February, 1989	Data entry from surveys
38.	November 22, 1988	IGAEA reader memo published
39.	Nov 30-Dec 6, 1988	Telephoned non-respondents, follow-up #3
Alternate personnel surveyed:		
40.	November 22, 1988	Pre-notification postcard
41.	November 29, 1988	Cover letter for new people
42.	December 6th week	Thank-you/reminder postcard, follow-up #1
43.	December 12, 1988	Telephone calls, follow-up #2
44.	January 12, 1989	Follow-up #3 letter
45.	January 13-18, 1989	Telephone calls/non-respondents, follow-up #3+#4, main/alternate
46.	January 30, 1989	Survey return deadline
47.	February, 1989	Submit chapters 1, 2, 3, revise as necessary
48.	February-March, 1989	Analyze data
49.	March, 1989	Write chapter 4 & 5 & submit
50.	March 27, 1989	Complete appendices
51.	March-April, 1989	Committee review
52.	April, 1989	Chapter corrections completed
53.	April 14th week	Oral defense
54.	April 28, 1989	Dissertation to graduate college
55.	May 13, 1989	Graduate

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APPENDIX C

DISSERTATION BUDGET

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Table C-1

Dissertation Budget

	Expenditure Items	Total
1.	Books, photoduplication, other materials	707.00
2.	Postage	943.00
3.	Contracted services, including computer searches, consultation with statistician, printing and finishing surveys	684.00
4.	Supplies, including envelopes, computer paper, paper, ribbons, disks, labels, postcards, letterhead stationary, incentive literature, misc.	344.00
5.	Gift Incentives, including gift certificates, coffee packets, crisp dollar bills	377.00
6.	Dissertation finalization, including paper, printing, duplicating, binding, microfilm, copyright	144.00
7.	Telephone	175.00
8.	Travel, motel, misc. food	200.00
9.	Memberships, subscriptions, post-comprehensive fees	300.00
	TOTAL	$ 3,874.00

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APPENDIX D

PRELIMINARY RESEARCH INSTRUMENTS AND NOTICES:

COVER LETTER

PRELIMINARY RESEARCH QUESTIONNAIRE (PRQ)

FOLLOW-UP LETTER

PRELIMINARY DATA REPORT (PDR)

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University of Northern Iowa
Department of Industrial Technology

Industrial Technology Center
Cedar Falls, Iowa 50614
Phone (319) 273-2561

March 10, 1988

Dear

A national study, Recruitment Practices Influencing Four-Year Undergraduate Students to Specialize in Graphic Arts, is being developed. This research study will be the basis for my doctoral dissertation here at the University of Northern Iowa. The need and importance of this study is supported by leaders in both graphic arts education and industry, and the literature.

The problem of this study is to determine ways to increase enrollment of undergraduate students in graphic arts programs. The purpose for conducting this research is to identify factors that can be utilized by graphic arts faculty members, like yourself, to increase undergraduate enrollment of students concentrating or majoring in graphic arts, and to increase knowledge of the recruitment process so that future graphic arts recruitment efforts can be more effectively designed, focused, and applied.

Hopefully, this study will be beneficial to you and your program, as well as the graphic arts industry itself. There are indications that in the future it will be more difficult to recruit graphic arts college-educated graduates into teaching, as well as technology and management positions in industry, especially as the undergraduate enrollment of 18 year old students decrease. Personnel in both education and industry are vitally concerned with increasing the quantity and quality of their future employees, and greater efforts in this area must continue to be addressed.

Would you please take a few minutes to complete the enclosed questionnaire and return it to me postmarked on or before April 1st in the enclosed, self-addressed stamped envelope? This preliminary data is needed from you to assist me in the direction and design of the study. Please call if you have questions or comments. Thank you very much!

Professionally yours,

Joseph G. Gindele, Ed.S.,
Candidate,
Doctor of Industrial Technology
(319) 277-4247

Ervin A. Dennis, Ed.D.,
Professor of Industrial Technology
& Graduate Programs Coordinator
(319) 273-2753

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PRELIMINARY RESEARCH QUESTIONNAIRE

(This CODE is merely for follow-up purposes): _____
(Individuals/Institutions will NOT be identified in any report)

Recruitment Practices Influencing Four-Year Undergraduate Students to Specialize in Graphic Arts
--a National Research Study--

Some graphic arts programs are called and taught under such titles as communications, graphic communications, printing, and visual communications. Graphic Arts is defined here as the technical area of producing printed products. The term covers design and layout, copy preparation, photoconversion, image carriers, image transfer, and binding and finishing (Dennis/Jenkins, 1983). With this in mind, please respond to the following seven or eight questions.

1) Does your department offer students a "concentration, major, or emphasis" in the specialty area of graphic arts (more than just merely one or two courses in graphic arts) leading toward the baccalaureate degree--in any or all of the following programs? PLEASE CHECK YES OR NO. IF YES, PLEASE GIVE NUMBER OF CURRENTLY ENROLLED STUDENTS WHO HAVE A "CONCENTRATION, MAJOR, OR EMPHASIS" IN EACH OF THESE PROGRAMS:

	YES	NUMBER	NO
_____ a. graphic arts education (leading to a teaching certificate):	_____	_____	_____
_____ b. graphic arts technology (non-teaching program--for industry):	_____	_____	_____
_____ c. graphic arts management (non-teaching program--for industry):	_____	_____	_____

2) IN # 1 ABOVE, TO THE LEFT OF THE "a." and "b." and "c.", PLEASE PLACE THE LETTER(s) "I" or "D" or "RS" if any of these programs have been "INCREASING," "DECREASING," or "REMAINING THE SAME" in the number of students concentrating or majoring in that program at your institution over the past five years.

3) Please CIRCLE BELOW the title of your "graphic arts" program:

a. Communications c. Graphic Communications e. Visual Communications

b. Graphic Arts d. Printing f. Other (Specify) _____

4) How many undergraduate students in all areas of study (not just graphic arts), are enrolled in your:

a. College/Univ. (your specific geographical site): _____ (Approx.)

b. Industrial Technology Dept. (Ind Arts/Ind Educ., etc.): _____ (Approx.)

5) In reference to your college/university calendar, when is your:

a. Last class day this Spring? _____

b. First class day next Fall? _____

6) If your name or institution was randomly selected, would you be willing to (a) participate in completing a survey (10-15 minutes) on recruitment practices that you have used in attempting to attract students into your graphic arts program, and (b) distribute five or ten similar surveys* to graphic arts students in each group who have declared majors/concentrations in one of the graphic arts programs that your institution offers? (Confidentiality will be assured to you, your students, and your institution.) PLEASE CHECK "YES" OR "NO" BELOW:

a. I would be willing to participate in your study: _____ YES

b. I would not be willing to participate in your study: _____ NO

*please continue on other side . . .

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*I would like to get a representative sample of student responses and need to first know the number of your students who "specialize in graphic arts" in each of the three program areas described in Question # 1. I am hoping for about 500 student participants nationally. I will make this activity as quick, easy and as painless for you and your students as possible. Your randomly selected students can complete these questionnaires at home in about 15-20 minutes--using NO class time. They can (1) return the completed questionnaires to you during the next class period if you would be willing (you will be supplied with a large, self-addressed stamped return envelope to mail back the surveys), or, if you prefer, (2) I would be happy to furnish each of them with their own self-addressed stamped envelope for their return of the completed questionnaire. In this latter case (2), you would not have to collect the surveys--however, it may also mean less surveys may be returned. PLEASE CIRCLE "(1)" OR "(2)" BELOW TO INDICATE YOUR PREFERENCE (even in the event that you may not participate):

a. Students may return completed questionnaires to me, their professor: (1)

b. Students should mail completed questionnaires back on their own: (2)

[CIRCLE # 1 or # 2]

By faculty members like yourself, offering support through participation in this study, it is anticipated that benefits will be derived for graphic arts faculty members and their programs, as well as the graphic arts industry in general, through anticipated increased enrollments and increased number of students graduating with specialization in the graphic arts.

7) Please TYPE or LETTER the names (with your name included first) of those faculty members in your department who teach "graphic arts." NEXT TO EACH NAME PLEASE CIRCLE WHETHER OR NOT HIS/HER PRIMARY RESPONSIBILITY IN TEACHING GRAPHIC ARTS IS CLOSER TO: a) 100%; b) 75%; c) 50%; or d) 25%.

_____ 100% 75% 50% 25%

_____ 100% 75% 50% 25%

_____ 100% 75% 50% 25%

_____ 100% 75% 50% 25%

_____ 100% 75% 50% 25%

_____ 100% 75% 50% 25%

_____ 100% 75% 50% 25%

8) OPTIONAL: A jury of five to ten experts in graphic arts will be invited to validate the recruitment questionnaires on content before they are pilot-tested. What one person, including yourself, would you recommend to be on this jury? (If this person is not in higher education, please also provide their education/company address.)

_____ (potential juror)

_____ (education/company address)

_____

_____

PLEASE USE THE ENCLOSED SELF-ADDRESSED STAMPED-ENVELOPE TO RETURN THIS COMPLETED SHEET POST-MARKED ON OR BEFORE APRIL 1, 1988 TO: Joseph G. Gindele, 1939 College Street, # 235, Cedar Falls, IA 50613.

"Thank you very much for your professional consideration!"

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University of Northern Iowa
Department of Industrial Technology

Industrial Technology Center
Cedar Falls, Iowa 50614
Phone (319) 273-2581

April 8, 1988

Dear

We've been tabulating the returns of our preliminary research questionnaire on recruitment practices influencing enrollment of four-year undergraduate students who specialize in graphic arts (either in education, technology, or management), and we noted that we had not received a reply from you. We know that we are asking you to do us a favor, but we really would appreciate hearing from you.

Does it really matter if you complete the survey? Yes, definitely! You are part of a census group of one faculty member per department in graphic arts undergraduate studies in the United States. If we are to get a clear picture of student enrollment and attraction in graphic arts education, graphic arts technology, and graphic arts management, we need input from your department, and we need to hear from one spokesperson from each department that offers a concentration, major (or minor), or emphasis in the three types of graphic arts programs. If your department does not offer an emphasis in any of these programs, we also need to know that.

We are attempting to study perceptions of the effects of graphic arts faculty recruitment practices on attracting students into different graphic arts programs. It is our goal to increase knowledge of the recruitment process so that future graphic arts recruitment efforts can be more effectively designed, focused, and applied to the three types of majors. We intend to make this information available to you and your department, free of charge, but we cannot do so without your help. The need for this study is supported by Dr. Jack Simich, Education Director of the Graphic Arts Technical Foundation (GATF), Dr. Virgil R. Pufahl, President of the International Graphic Arts Education Association (IGAEA) and Graphic Arts Professor, University of Wisconsin--Platteville, and others, as well as the literature. This issue is of such significance that the topic for the 1988 Spring Education Conference of GATF (March 28-29, 1988) was recruitment of students for graphic arts education programs and the graphic arts industry.

Thus, we hope that you will spend a few minutes to complete this survey and return it to us postmarked on or before April 29th. Again, you can be assured that we will keep your responses completely confidential.

We would be happy to talk to you about the study if you wish to call (collect) at (319) 277-4247. Thanks again for your cooperation.

Professionally yours,

Joseph G. Gindele, Ed.S.
Candidate,
Doctor of Industrial Technology
(319) 277-4247

Ervin A. Dennis, Ed.D.,
Professor of Industrial Technology
& Graduate Programs Coordinator
(319) 273-2753

P.S.: It is possible that our original request went astray in the mail or was misplaced. Therefore we are enclosing another survey form with a self-addressed stamped envelope.

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September 27, 1988

PRELIMINARY DATA REPORT (Please return by October 10, 1988)

(This CODE is merely for follow-up purposes): _____
(Individuals/Institutions will NOT be identified in any report)

Recruitment Practices Influencing Four-Year Undergraduate Students
Who Specialize in Graphic Arts
--a National Research Study--

Hello, Professor and Department Chair! I am involved in dissertation research through the Department of Industrial Technology, University of Northern Iowa (Dr. Ervin A. Dennis is my Major Advisor). Would you please furnish the following information to me? This will help greatly in my study. Thank you very much for your professional assistance! Joseph G. Gindele

Some graphic arts programs are called and taught under such titles as communications, graphic communications, printing, and visual communications. Graphic Arts is defined here as the technical area of producing printed products. The term covers design and layout, copy preparation, photoconversion, image carriers, image transfer, and binding and finishing (Dennis/Jenkins, 1983). With this in mind, please respond to the following questions.

1) Does your department offer students a "concentration, major, or emphasis" in the specialty area of graphic arts (more than just merely one or two courses in graphic arts) leading toward the baccalaureate degree in any or all of the following programs? PLEASE CHECK YES OR NO TO EACH PROGRAM. IF YES, PLEASE GIVE NUMBER OF CURRENTLY ENROLLED STUDENTS WHO HAVE A "CONCENTRATION, MAJOR, OR EMPHASIS" IN EACH OF THESE FOUR PROGRAMS:

	YES	NUMBER	NO
a. graphic arts EDUCATION (leading to a teaching certificate):	_____	_____	_____
b. graphic arts TECHNOLOGY (non-teaching program--for industry):	_____	_____	_____
c. graphic arts MANAGEMENT (non-teaching program--for industry):	_____	_____	_____
d. graphic arts TECHNOLOGY/MANAGEMENT (a distinct combination program):	_____	_____	_____

2) In reference to your college/university, what term are you on?: (Please circle one letter)

a. Semester b. Quarter c. Other (please specify:) _____

3) In reference to your college/university calendar, when is your:

a. Last class day for students this term? _____

b. First class day for students next term? _____

O V E R , P L E A S E

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4) Please CIRCLE BELOW the title of your "graphic arts" program:

a. Communications c. Graphic Communications e. Visual Communications

b. Graphic Arts d. Printing f. Other (specify: _____)

5) How many undergraduate students in all areas of study (not just graphic arts), are enrolled in your:

a. College/Univ. (your specific geographical site): _____ (Approx.)

b. Industrial Tech. Dept. (Ind Arts/Ind Educ., etc.): _____ (Approx.)

6) Please TYPE or LETTER the names of those faculty members in your department who teach "graphic arts." NEXT TO EACH NAME PLEASE CIRCLE WHETHER OR NOT HIS/HER PRIMARY RESPONSIBILITY IN TEACHING GRAPHIC ARTS IS CLOSER TO: a) 100%; b) 75%; c) 50%; or d) 25%.

_____ 100% 75% 50% 25%

_____ 100% 75% 50% 25%

_____ 100% 75% 50% 25%

_____ 100% 75% 50% 25%

_____ 100% 75% 50% 25%

7) The above information was completed by:

Name: _____

Title: _____

Institution: _____

Department: _____

Address: _____

City/State/Zip: _____

Telephone: (_____) _____

THANK YOU VERY MUCH! Please use the enclosed pre-addressed envelope to return this completed sheet POST-MARKED ON OR BEFORE OCTOBER 10, 1988 TO: Joseph G. Gindele, Doctoral Candidate, 1939 College Street, Apt. 235, Cedar Falls, IA 50613.

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APPENDIX E

AUTHORIZATION TO CONDUCT RESEARCH INVOLVING HUMAN SUBJECTS

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The Graduate College

UNIVERSITY OF NORTHERN IOWA • CEDAR FALLS, IOWA 50614 • 138 LATHAM HALL • OFFICE OF THE DEAN • 319-273-2748

June 27, 1988

Joseph G. Gindele
Department of Industrial Technology
University of Northern Iowa

Dear Mr. Gindele:

Your project, "Recruitment practices influencing enrollment of four-year undergraduate students who specialize in graphic arts," which you submitted for human subjects review on June 18, 1988, has been determined to be exempt from further review under the guidelines stated in the UNI Subjects Handbook. You may commence participation of human research subjects in your project.

Your project need not be submitted for continuing review unless you alter it in a way that increases the risk to the participants. If you make any such changes in your project, you should notify the Graduate College Office.

If you decide to seek federal funds for this project, it would be wise not to claim exemption from human subjects review on your application. Should the agency to which you submit the application decide that your project is not exempt from review, you might not be able to submit the project for review by the UNI Institutional Review Board within the federal agency's time limit (30 days after application). As a precaution against applicants being caught in such a time bind, the Board will review any projects for which federal funds are sought. If you do seek federal funds for this project, please submit the project for human subjects review no later than the time you submit your funding application.

If you have any further questions about the Human Subjects Review System, please contact me. Best wishes for your project.

Sincerely,

Ruth Ratliff

Ruth Ratliff
Assistant to the Dean
for Faculty and Grants Services

cc: Dr. John C. Downey
Dr. E. A. Dennis

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APPENDIX F

FACULTY OPINIONNAIRES:

EDUCATION

TECHNOLOGY

MANAGEMENT

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Code: FE

Recruitment Practices Used in Graphic Arts EDUCATION*

Faculty Opinionnaire

Your opinion is needed regarding the effectiveness of recruitment practices used to attract students into the graphic arts EDUCATION program at your institution.

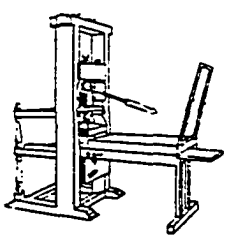
This opinionnaire is part of a doctoral research project to identify recruitment practices that are effective in increasing student enrollment in undergraduate graphic arts programs in colleges and universities in the United States.

Please answer all of the questions. This opinionnaire should take approximately 15 minutes to complete.

Your responses will be kept strictly confidential. The code identifies you as a participant in this study, and will be removed from the opinionnaire after recording it as being received.

Your assistance in completing this opinionnaire will be very valuable for my research!

Joseph G. Gindele, Research Director
Candidate, Doctor of Industrial Technology
Department of Industrial Technology
University of Northern Iowa
Cedar Falls, Iowa 50614-0178



*Endorsed by the International Graphic Arts Education Association (IGAEA) and the Graphic Arts Technical Foundation (GATF)

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Definitions

For the purposes of this opinionnaire, the following definitions are provided:

College/University Faculty -- Unless otherwise stated, it generally means graphic arts (or other industrial education/technology) faculty. It may also include other personnel, such as those from the coll/univ recruitment office, and perhaps others.

Graphic Arts -- The area of technology in which printed products are produced. Sometimes it is referred to as GRAPHIC COMMUNICATIONS, PRINTING, VISUAL COMMUNICATIONS, or COMMUNICATIONS.

Recruitment Practices -- Those activities purposely undertaken by coll/univ faculty to increase student enrollment in 4-yr. undergraduate graphic arts programs. Some of these practices may include high school visitation days, distribution of promotional literature, etc.

1. Please indicate the type(s) of graphic arts program(s) offered at your institution, for students pursuing baccalaureate degrees: (Circle all that apply)

   (1) Service -- one or two courses offered to students of other majors (e.g., design, journalism, business, etc.).

   (2) Concentration or Emphasis -- A related degree with a graphic arts specialty (e.g., Industrial Technology, Industrial Education, Industrial Management, etc., with a concentration--more than two courses--in graphic arts).

   (3) Major -- A graphic arts program in which a specific graphic arts degree is provided.

   (4) Other -- (Please explain) _____

   _____

2. Please identify the [4 yr. specialized] field(s) of study offered at your institution: (Circle all that apply)

   (1) Graphic Arts EDUCATION -- A program of study involving the subject areas of graphic arts and education, with focus on the student eventually "teaching" graphic arts in a secondary school, community college, or college/university.

   (2) Graphic Arts TECHNOLOGY -- A program of study involving the subject areas of graphic arts and technology, with focus on the student eventually applying his/her skills in a technical function in business or industry.

   (3) Graphic Arts MANAGEMENT -- A program of study involving the subject areas of graphic arts and management, with focus on the student eventually applying his/her skills in a managerial function in business or industry.

   (4) Graphic Arts TECHNOLOGY/MANAGEMENT -- A combination program.

3. Please provide information related to enrollment in graphic arts program(s), leading to a baccalaureate degree, that apply to your institution: (Circle and number all that apply)

Type of Program	Not Applicable (1)	Number of Students Currently Enrolled (2)	Circle a number [3-5] representing the enrollment trend over past five years: Enrollment Increasing (3)	Enrollment Decreasing (4)	Enrollment Remaining the Same (5)
1) Graphic Arts EDUCATION	1	_____	3	4	5
2) Graphic Arts TECHNOLOGY	1	_____	3	4	5
3) Graphic Arts MANAGEMENT	1	_____	3	4	5
4) Graphic Arts TECH/MGMT	1	_____	3	4	5
5) Gr. Arts Service Courses	1	_____	3	4	5

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4. Recruitment for your graphic arts EDUCATION program is accomplished by: (Please circle all that apply for this one program only)

   (1) Graphic arts faculty

   (2) Graphic arts faculty in conjunction with department faculty

   (3) Department faculty

   (4) College/University personnel

   (5) Other (Please explain) _____

   _____

Please review the following list of "recruitment practices" and identify those used to attract students into your 4-yr. undergraduate graphic arts EDUCATION program (only), by college/university faculty. Circle number "1" if the practice is NOT USED. Circle a number [2-5] if the practice is used, indicating your perception of its effectiveness in recruiting students into graphic arts EDUCATION. Respond to each practice.

Recruitment Practices (for graphic arts EDUCATION)		Recruitment Effectiveness			
	NOT USED (1)	No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
Personal Communication					
5. Personal letters to interested high school students.	1	2	3	4	5
6. Personal interviews with high school or coll/univ students.	1	2	3	4	5
7. Contacts with high school guidance counselors.	1	2	3	4	5
8. Contacts with high school graphic arts teachers.	1	2	3	4	5
9. Contacts with graphic arts alumni.	1	2	3	4	5
10. Contacts with other high school (non-graphic arts) industrial education/ technology teachers or alumni.	1	2	3	4	5
11. Contacts with high school supervisors and administrators through student teaching programs.	1	2	3	4	5
12. Visits to high schools by coll/univ graphic arts or industrial education/technology faculty.	1	2	3	4	5
13. Visits to community colleges by coll/ univ graphic arts or other industrial education/technology faculty.	1	2	3	4	5
14. Coll/univ paid recruiters traveling the state and country.	1	2	3	4	5
15. Coll/univ graphic arts students recruiting other coll/univ and high school students.	1	2	3	4	5
16. Presentation to college freshmen-- during freshman orientation.	1	2	3	4	5

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Recruitment Practices (for graphic arts EDUCATION)	NOT USED (1)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
17. Presentation to fraternity or sorority students.	1	2	3	4	5
18. Coll/univ coaches representing the graphic arts program to athletic recruits.	1	2	3	4	5
Literature and Media					
19. Graphic arts display at shopping malls or other locations.	1	2	3	4	5
20. Display and recruitment at annual graphic arts or industrial education/ technology conventions/conferences.	1	2	3	4	5
21. Distribution of brochures to high school and community college students describing the coll/univ graphic arts program.	1	2	3	4	5
22. Distribution of fliers to other coll/ univ department faculty and advisors across campus (outside of graphic arts or industrial education/technology) with graphic arts course offerings.	1	2	3	4	5
23. Use of posters with tear-off cards advertising coll/univ graphic arts program to high school and community college students.	1	2	3	4	5
24. Recruitment packet for any interested party.	1	2	3	4	5
25. Filmed presentation (slides, slides and audio, or videotape) of graphic arts program offerings.	1	2	3	4	5
26. Newsletters for high school graphic arts teachers from coll/ univ graphic arts faculty.	1	2	3	4	5
27. Advertisement of the graphic arts program on TV, the radio, in a newspaper or magazine.	1	2	3	4	5
Coll/Univ Program and Facilities					
28. Indicating to non-majors in the institution advantages of graphic arts careers, by graphic arts or other industrial educ/tech faculty.	1	2	3	4	5
29. Encouraging graphic arts or other industrial education/technology teachers to bring their secondary school students (grades 7-12) to campus.	1	2	3	4	5
30. Impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the coll/univ.	1	2	3	4	5

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Recruitment Practices (for graphic arts EDUCATION)	NOT USED (1)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
31. Offering related general education courses through the graphic arts or industrial education/technology department which stimulate the interest of coll/univ students who have not yet decided to concentrate or major in graphic arts.	1	2	3	4	5
32. Providing contests on campus for high school students.	1	2	3	4	5
33. Providing career days, open house, or conference activities on campus for high school students.	1	2	3	4	5
34. Coll/univ faculty conducting annual recruitment conference on campus for secondary school counselors and/or (graphic arts or other industrial education/technology) teachers.	1	2	3	4	5
35. Offering a coll/univ credit introductory type course in graphic arts for high school seniors.	1	2	3	4	5
Other					
36. Scholarships for graphic arts (or other industrial education/technology) coll/univ programs.	1	2	3	4	5

37. Please list and rate any additional practices used to recruit students for your graphic arts EDUCATION program, that were not previously listed.

Recruitment Practices (for graphic arts EDUCATION)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
1)_____				
_____				
_____	2	3	4	5
2)_____				
_____				
_____	2	3	4	5
3)_____				
_____				
_____	2	3	4	5

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38. Overall, how effective are the total direct recruitment efforts in attracting students into various programs in your institution? (Please circle a response [1-5] for each program)

Type of Program	Not Applicable (1)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
1) Graphic Arts EDUCATION	1	2	3	4	5
2) Graphic Arts TECHNOLOGY	1	2	3	4	5
3) Graphic Arts MANAGEMENT	1	2	3	4	5
4) Graphic Arts TECH/MGMT (comb. prgm.)	1	2	3	4	5
5) Graphic Arts Service Courses	1	2	3	4	5

39. Do the people who recruit graphic arts students for your institution now expend efforts that are Increasing, Decreasing, or Remaining the Same, compared to recruitment efforts five years ago? (Please circle a response [1-4] for each program)

Type of Program	Not Applicable (1)	Amount of Recruitment Effort Expended Now: Increasing (2)	Decreasing (3)	Remaining the Same (4)
1) Graphic Arts EDUCATION	1	2	3	4
2) Graphic Arts TECHNOLOGY	1	2	3	4
3) Graphic Arts MANAGEMENT	1	2	3	4
4) Graphic Arts TECH/MGMT (comb. prgm.)	1	2	3	4
5) Graphic Arts Service Courses	1	2	3	4

40. What problems, if any, are experienced by you and your fellow graphic arts faculty members at your institution when recruiting students into your graphic arts EDUCATION programs (e.g., funding, transportation, etc.)? (Continue on the next page and/or back cover, if necessary)

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41. If your institution also offers programs in graphic arts TECHNOLOGY and/or MANAGEMENT, are the recruitment problems different in these fields than they are in graphic arts EDUCATION? (Please circle a response [1-3])

(1) Not Applicable (We only offer graphic arts EDUCATION) (2) Yes (3) No If "Yes," please briefly describe : (Continue on other side, if necessary)

Thank you for participating in Part 1 of this research (the Faculty Opinionnaire). Part 2 (the Student Opinionnaire--and the last part), involves student responses to "recruitment practices" that they have experienced (as well as "other factors" and "personal data").

Please see note on back page for returning: 1) this opinionnaire, 2) the student opinionnaires, and 3) the small gold INFORMATION FORM . . .

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If you should wish, I would appreciate your response.

Please indicate any questions or comments you may have regarding recruitment practices or anything else in this opinionnaire.

THANK YOU FOR YOUR COOPERATION AND PROMPT RESPONSE!

Please return the opinnionnaire(s) post-marked on or before _____ in the enclosed return envelope or box to:

Joseph G. Gindele, Research Director
1939 College Street, Apt. 235
P. O. Box 1108
Cedar Falls, Iowa 50613-1108

If you would like a summary of the results of the research, please complete the small gold INFORMATION FORM and return it with the completed opinionnaire(s). You will receive a copy after the research is completed.

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Code: FT

Recruitment Practices Used in Graphic Arts TECHNOLOGY*

Faculty Opinionnaire

Your opinion is needed regarding the effectiveness of recruitment practices used to attract students into the graphic arts TECHNOLOGY program at your institution.

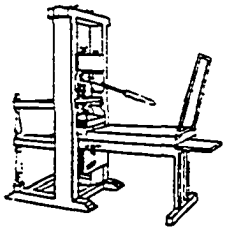
This opinionnaire is part of a doctoral research project to identify recruitment practices that are effective in increasing student enrollment in undergraduate graphic arts programs in colleges and universities in the United States.

Please answer all of the questions. This opinionnaire should take approximately 15 minutes to complete.

Your responses will be kept strictly confidential. The code identifies you as a participant in this study, and will be removed from the opinionnaire after recording it as being received.

Your assistance in completing this opinionnaire will be very valuable for my research!

Joseph G. Gindele, Research Director
Candidate, Doctor of Industrial Technology
Department of Industrial Technology
University of Northern Iowa
Cedar Falls, Iowa 50614-0178



*Endorsed by the International Graphic Arts Education Association (IGAEA) and the Graphic Arts Technical Foundation (GATF)

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Definitions

For the purposes of this opinionnaire, the following definitions are provided:

College/University Faculty — Unless otherwise stated, it generally means graphic arts (or other industrial education/technology) faculty. It may also include other personnel, such as those from the coll/univ recruitment office, and perhaps others.

Graphic Arts — The area of technology in which printed products are produced. Sometimes it is referred to as GRAPHIC COMMUNICATIONS, PRINTING, VISUAL COMMUNICATIONS, or COMMUNICATIONS.

Recruitment Practices — Those activities purposely undertaken by coll/univ faculty to increase student enrollment in 4-yr. undergraduate graphic arts programs. Some of these practices may include high school visitation days, distribution of promotional literature, etc.

1. Please indicate the type(s) of graphic arts program(s) offered at your institution, for students pursuing baccalaureate degrees: (Circle all that apply)

   (1) Service — one or two courses offered to students of other majors (e.g., design, journalism, business, etc.).

   (2) Concentration or Emphasis — A related degree with a graphic arts specialty (e.g., Industrial Technology, Industrial Education, Industrial Management, etc., with a concentration--more than two courses--in graphic arts).

   (3) Major — A graphic arts program in which a specific graphic arts degree is provided.

   (4) Other — (Please explain) _____

   _____

2. Please identify the [4 yr. specialized] field(s) of study offered at your institution: (Circle all that apply)

   (1) Graphic Arts EDUCATION — A program of study involving the subject areas of graphic arts and education, with focus on the student eventually "teaching" graphic arts in a secondary school, community college, or college/university.

   (2) Graphic Arts TECHNOLOGY — A program of study involving the subject areas of graphic arts and technology, with focus on the student eventually applying his/her skills in a technical function in business or industry.

   (3) Graphic Arts MANAGEMENT — A program of study involving the subject areas of graphic arts and management, with focus on the student eventually applying his/her skills in a managerial function in business or industry.

   (4) Graphic Arts TECHNOLOGY/MANAGEMENT — A combination program.

3. Please provide information related to enrollment in graphic arts program(s), leading to a baccalaureate degree, that apply to your institution: (Circle and number all that apply)

Type of Program	Not Applicable (1)	Number of Students Currently Enrolled (2)	Circle a number [3-5] representing the enrollment trend over past five years: Enrollment Increasing (3)	Enrollment Decreasing (4)	Enrollment Remaining the Same (5)
1) Graphic Arts EDUCATION	1	_____	3	4	5
2) Graphic Arts TECHNOLOGY	1	_____	3	4	5
3) Graphic Arts MANAGEMENT	1	_____	3	4	5
4) Graphic Arts TECH/MGMT	1	_____	3	4	5
5) Gr. Arts Service Courses	1	_____	3	4	5

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4. Recruitment for your graphic arts TECHNOLOGY program is accomplished by: (Please circle all that apply for this one program only)

   (1) Graphic arts faculty

   (2) Graphic arts faculty in conjunction with department faculty

   (3) Department faculty

   (4) College/University personnel

   (5) Other (Please explain) _____

   _____

Please review the following list of "recruitment practices" and identify those used to attract students into your 4-yr. undergraduate graphic arts TECHNOLOGY program (only), by college/university faculty. Circle number "1" if the practice is NOT USED. Circle a number [2-5] if the practice is used, indicating your perception of its effectiveness in recruiting students into graphic arts TECHNOLOGY. Respond to each practice.

Recruitment Practices (for graphic arts TECHNOLOGY)	NOT USED (1)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
Personal Communication					
5. Personal letters to interested high school students.	1	2	3	4	5
6. Personal interviews with high school or coll/univ students.	1	2	3	4	5
7. Contacts with high school guidance counselors.	1	2	3	4	5
8. Contacts with high school graphic arts teachers.	1	2	3	4	5
9. Contacts with graphic arts alumni.	1	2	3	4	5
10. Contacts with other high school (non-graphic arts) industrial education/ technology teachers or alumni.	1	2	3	4	5
11. Contacts with high school supervisors and administrators through student teaching programs.	1	2	3	4	5
12. Visits to high schools by coll/univ graphic arts or industrial education/technology faculty.	1	2	3	4	5
13. Visits to community colleges by coll/ univ graphic arts or other industrial education/technology faculty.	1	2	3	4	5
14. Coll/univ paid recruiters traveling the state and country.	1	2	3	4	5
15. Coll/univ graphic arts students recruiting other coll/univ and high school students.	1	2	3	4	5
16. Presentation to college freshmen-- during freshman orientation.	1	2	3	4	5

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Recruitment Practices (for graphic arts TECHNOLOGY)	NOT USED (1)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
17. Presentation to fraternity or sorority students.	1	2	3	4	5
18. Coll/univ coaches representing the graphic arts program to athletic recruits.	1	2	3	4	5
Literature and Media					
19. Graphic arts display at shopping malls or other locations.	1	2	3	4	5
20. Display and recruitment at annual graphic arts or industrial education/ technology conventions/conferences.	1	2	3	4	5
21. Distribution of brochures to high school and community college students describing the coll/univ graphic arts program.	1	2	3	4	5
22. Distribution of fliers to other coll/ univ department faculty and advisors across campus (outside of graphic arts or industrial education/technology) with graphic arts course offerings.	1	2	3	4	5
23. Use of posters with tear-off cards advertising coll/univ graphic arts program to high school and community college students.	1	2	3	4	5
24. Recruitment packet for any interested party.	1	2	3	4	5
25. Filmed presentation (slides, slides and audio, or videotape) of graphic arts program offerings.	1	2	3	4	5
26. Newsletters for high school graphic arts teachers from coll/ univ graphic arts faculty.	1	2	3	4	5
27. Advertisement of the graphic arts program on TV, the radio, in a newspaper or magazine.	1	2	3	4	5
Coll/Univ Program and Facilities					
28. Indicating to non-majors in the institution advantages of graphic arts careers, by graphic arts or other industrial educ/tech faculty.	1	2	3	4	5
29. Encouraging graphic arts or other industrial education/technology teachers to bring their secondary school students (grades 7-12) to campus.	1	2	3	4	5
30. Impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the coll/univ.	1	2	3	4	5

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Recruitment Practices (for graphic arts TECHNOLOGY)	NOT USED (1)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
31. Offering related general education courses through the graphic arts or industrial education/technology department which stimulate the interest of coll/univ students who have not yet decided to concentrate or major in graphic arts.	1	2	3	4	5
32. Providing contests on campus for high school students.	1	2	3	4	5
33. Providing career days, open house, or conference activities on campus for high school students.	1	2	3	4	5
34. Coll/univ faculty conducting annual recruitment conference on campus for secondary school counselors and/or (graphic arts or other industrial education/technology) teachers.	1	2	3	4	5
35. Offering a coll/univ credit introductory type course in graphic arts for high school seniors.	1	2	3	4	5
Other					
36. Scholarships for graphic arts (or other industrial education/technology) coll/univ programs.	1	2	3	4	5

37. Please list and rate any additional practices used to recruit students for your graphic arts TECHNOLOGY program, that were not previously listed.

Recruitment Practices (for graphic arts TECHNOLOGY)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
1)_____				
_____				
_____	2	3	4	5
2)_____				
_____				
_____	2	3	4	5
3)_____				
_____				
_____	2	3	4	5

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38. Overall, how effective are the total direct recruitment efforts in attracting students into various programs in your institution? (Please circle a response [1-5] for each program)

Type of Program	Not Applicable (1)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
1) Graphic Arts EDUCATION	1	2	3	4	5
2) Graphic Arts TECHNOLOGY	1	2	3	4	5
3) Graphic Arts MANAGEMENT	1	2	3	4	5
4) Graphic Arts TECH/MGMT (comb. prgm.)	1	2	3	4	5
5) Graphic Arts Service Courses	1	2	3	4	5

39. Do the people who recruit graphic arts students for your institution now expend efforts that are Increasing, Decreasing, or Remaining the Same, compared to recruitment efforts five years ago? (Please circle a response [1-4] for each program)

Type of Program	Not Applicable (1)	Amount of Recruitment Effort Expended Now: Increasing (2)	Decreasing (3)	Remaining the Same (4)
1) Graphic Arts EDUCATION	1	2	3	4
2) Graphic Arts TECHNOLOGY	1	2	3	4
3) Graphic Arts MANAGEMENT	1	2	3	4
4) Graphic Arts TECH/MGMT (comb. prgm.)	1	2	3	4
5) Graphic Arts Service Courses	1	2	3	4

40. What problems, if any, are experienced by you and your fellow graphic arts faculty members at your institution when recruiting students into your graphic arts TECHNOLOGY programs (e.g., funding, transportation, etc.)? (Continue on the next page and/or back cover, if necessary)

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41. If your institution also offers programs in graphic arts EDUCATION and/or MANAGEMENT, are the recruitment problems different in these fields than they are in graphic arts TECHNOLOGY? (Please circle a response [1-3])

(1) Not Applicable (We only offer graphic arts TECHNOLOGY) (2) Yes (3) No If "Yes," please briefly describe : (Continue on other side, if necessary)

Thank you for participating in Part 1 of this research (the Faculty Opinionnaire). Part 2 (the Student Opinionnaire--and the last part), involves student responses to "recruitment practices" that they have experienced (as well as "other factors" and "personal data").

Please see note on back page for returning: 1) this opinionnaire, 2) the student opinionnaires, and 3) the small gold INFORMATION FORM . . .

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If you should wish, I would appreciate your response.

Please indicate any questions or comments you may have regarding recruitment practices or anything else in this opinionnaire.

THANK YOU FOR YOUR COOPERATION AND PROMPT RESPONSE!

Please return the opinnionnaire(s) post-marked on or before _____ in the enclosed return envelope or box to:

Joseph G. Gindele, Research Director
1939 College Street, Apt. 235
P. O. Box 1108
Cedar Falls, Iowa 50613-1108

If you would like a summary of the results of the research, please complete the small gold INFORMATION FORM and return it with the completed opinionnaire(s). You will receive a copy after the research is completed.

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Code: FM

Recruitment Practices Used in Graphic Arts MANAGEMENT*

Faculty Opinionnaire

Your opinion is needed regarding the effectiveness of recruitment practices used to attract students into the graphic arts MANAGEMENT program at your institution.

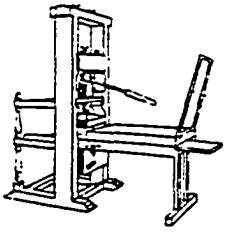
This opinionnaire is part of a doctoral research project to identify recruitment practices that are effective in increasing student enrollment in undergraduate graphic arts programs in colleges and universities in the United States.

Please answer all of the questions. This opinionnaire should take approximately 15 minutes to complete.

Your responses will be kept strictly confidential. The code identifies you as a participant in this study, and will be removed from the opinionnaire after recording it as being received.

Your assistance in completing this opinionnaire will be very valuable for my research!

Joseph G. Gindele, Research Director
Candidate, Doctor of Industrial Technology
Department of Industrial Technology
University of Northern Iowa
Cedar Falls, Iowa 50614-0178



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Definitions

For the purposes of this opinionnaire, the following definitions are provided:

College/University Faculty — Unless otherwise stated, it generally means graphic arts (or other industrial education/technology) faculty. It may also include other personnel, such as those from the coll/univ recruitment office, and perhaps others.

Graphic Arts — The area of technology in which printed products are produced. Sometimes it is referred to as GRAPHIC COMMUNICATIONS, PRINTING, VISUAL COMMUNICATIONS, or COMMUNICATIONS.

Recruitment Practices — Those activities purposely undertaken by coll/univ faculty to increase student enrollment in 4-yr. undergraduate graphic arts programs. Some of these practices may include high school visitation days, distribution of promotional literature, etc.

1. Please indicate the type(s) of graphic arts program(s) offered at your institution, for students pursuing baccalaureate degrees: (Circle all that apply)

   (1) Service -- one or two courses offered to students of other majors (e.g., design, journalism, business, etc.).

   (2) Concentration or Emphasis -- A related degree with a graphic arts specialty (e.g., Industrial Technology, Industrial Education, Industrial Management, etc., with a concentration--more than two courses--in graphic arts).

   (3) Major -- A graphic arts program in which a specific graphic arts degree is provided.

   (4) Other -- (Please explain) _____

   _____

2. Please identify the [4 yr. specialized] field(s) of study offered at your institution: (Circle all that apply)

   (1) Graphic Arts EDUCATION -- A program of study involving the subject areas of graphic arts and education, with focus on the student eventually "teaching" graphic arts in a secondary school, community college, or college/university.

   (2) Graphic Arts TECHNOLOGY -- A program of study involving the subject areas of graphic arts and technology, with focus on the student eventually applying his/her skills in a technical function in business or industry.

   (3) Graphic Arts MANAGEMENT -- A program of study involving the subject areas of graphic arts and management, with focus on the student eventually applying his/her skills in a managerial function in business or industry.

   (4) Graphic Arts TECHNOLOGY/MANAGEMENT -- A combination program.

3. Please provide information related to enrollment in graphic arts program(s), leading to a baccalaureate degree, that apply to your institution: (Circle and number all that apply)

Type of Program	Not Applicable (1)	Number of Students Currently Enrolled (2)	Circle a number [3-5] representing the enrollment trend over past five years: Enrollment Increasing (3)	Enrollment Decreasing (4)	Enrollment Remaining the Same (5)
1) Graphic Arts EDUCATION	1	_____	3	4	5
2) Graphic Arts TECHNOLOGY	1	_____	3	4	5
3) Graphic Arts MANAGEMENT	1	_____	3	4	5
4) Graphic Arts TECH/MGMT	1	_____	3	4	5
5) Gr. Arts Service Courses	1	_____	3	4	5

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4. Recruitment for your graphic arts MANAGEMENT program is accomplished by: (Please circle all that apply for this one program only)

   (1) Graphic arts faculty

   (2) Graphic arts faculty in conjunction with department faculty

   (3) Department faculty

   (4) College/University personnel

   (5) Other (Please explain) _____

   _____

Please review the following list of "recruitment practices" and identify those used to attract students into your 4-yr. undergraduate graphic arts MANAGEMENT program (only), by college/university faculty. Circle number "1" if the practice is NOT USED. Circle a number [2-5] if the practice is used, indicating your perception of its effectiveness in recruiting students into graphic arts MANAGEMENT. Respond to each practice.

Recruitment Practices (for graphic arts MANAGEMENT)	NOT USED (1)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
Personal Communication					
5. Personal letters to interested high school students.	1	2	3	4	5
6. Personal interviews with high school or coll/univ students.	1	2	3	4	5
7. Contacts with high school guidance counselors.	1	2	3	4	5
8. Contacts with high school graphic arts teachers.	1	2	3	4	5
9. Contacts with graphic arts alumni.	1	2	3	4	5
10. Contacts with other high school (non-graphic arts) industrial education/ technology teachers or alumni.	1	2	3	4	5
11. Contacts with high school supervisors and administrators through student teaching programs.	1	2	3	4	5
12. Visits to high schools by coll/univ graphic arts or industrial education/technology faculty.	1	2	3	4	5
13. Visits to community colleges by coll/ univ graphic arts or other industrial education/technology faculty.	1	2	3	4	5
14. Coll/univ paid recruiters traveling the state and country.	1	2	3	4	5
15. Coll/univ graphic arts students recruiting other coll/univ and high school students.	1	2	3	4	5
16. Presentation to college freshmen-- during freshman orientation.	1	2	3	4	5

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Recruitment Practices (for graphic arts MANAGEMENT)	NOT USED (1)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
17. Presentation to fraternity or sorority students.	1	2	3	4	5
18. Coll/univ coaches representing the graphic arts program to athletic recruits.	1	2	3	4	5
Literature and Media					
19. Graphic arts display at shopping malls or other locations.	1	2	3	4	5
20. Display and recruitment at annual graphic arts or industrial education/ technology conventions/conferences.	1	2	3	4	5
21. Distribution of brochures to high school and community college students describing the coll/univ graphic arts program.	1	2	3	4	5
22. Distribution of fliers to other coll/ univ department faculty and advisors across campus (outside of graphic arts or industrial education/technology) with graphic arts course offerings.	1	2	3	4	5
23. Use of posters with tear-off cards advertising coll/univ graphic arts program to high school and community college students.	1	2	3	4	5
24. Recruitment packet for any interested party.	1	2	3	4	5
25. Filmed presentation (slides, slides and audio, or videotape) of graphic arts program offerings.	1	2	3	4	5
26. Newsletters for high school graphic arts teachers from coll/ univ graphic arts faculty.	1	2	3	4	5
27. Advertisement of the graphic arts program on TV, the radio, in a newspaper or magazine.	1	2	3	4	5
Coll/Univ Program and Facilities					
28. Indicating to non-majors in the institution advantages of graphic arts careers, by graphic arts or other industrial educ/tech faculty.	1	2	3	4	5
29. Encouraging graphic arts or other industrial education/technology teachers to bring their secondary school students (grades 7-12) to campus.	1	2	3	4	5
30. Impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the coll/univ.	1	2	3	4	5

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Recruitment Practices (for graphic arts MANAGEMENT)	NOT USED (1)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
31. Offering related general education courses through the graphic arts or industrial education/technology department which stimulate the interest of coll/univ students who have not yet decided to concentrate or major in graphic arts.	1	2	3	4	5
32. Providing contests on campus for high school students.	1	2	3	4	5
33. Providing career days, open house, or conference activities on campus for high school students.	1	2	3	4	5
34. Coll/univ faculty conducting annual recruitment conference on campus for secondary school counselors and/or (graphic arts or other industrial education/technology) teachers.	1	2	3	4	5
35. Offering a coll/univ credit introductory type course in graphic arts for high school seniors.	1	2	3	4	5
Other					
36. Scholarships for graphic arts (or other industrial education/technology) coll/univ programs.	1	2	3	4	5

37. Please list and rate any additional practices used to recruit students for your graphic arts MANAGEMENT program, that were not previously listed.

Recruitment Practices (for graphic arts MANAGEMENT)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
1)_____				
_____				
_____	2	3	4	5
2)_____				
_____				
_____	2	3	4	5
3)_____				
_____				
_____	2	3	4	5

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38. Overall, how effective are the total direct recruitment efforts in attracting students into various programs in your institution? (Please circle a response [1-5] for each program)

Type of Program	Not Applicable (1)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
1) Graphic Arts EDUCATION	1	2	3	4	5
2) Graphic Arts TECHNOLOGY	1	2	3	4	5
3) Graphic Arts MANAGEMENT	1	2	3	4	5
4) Graphic Arts TECH/MGMT (comb. prgm.)	1	2	3	4	5
5) Graphic Arts Service Courses	1	2	3	4	5

39. Do the people who recruit graphic arts students for your institution now expend efforts that are Increasing, Decreasing, or Remaining the Same, compared to recruitment efforts five years ago? (Please circle a response [1-4] for each program)

Type of Program	Not Applicable (1)	Amount of Recruitment Effort Expended Now: Increasing (2)	Decreasing (3)	Remaining the Same (4)
1) Graphic Arts EDUCATION	1	2	3	4
2) Graphic Arts TECHNOLOGY	1	2	3	4
3) Graphic Arts MANAGEMENT	1	2	3	4
4) Graphic Arts TECH/MGMT (comb. prgm.)	1	2	3	4
5) Graphic Arts Service Courses	1	2	3	4

40. What problems, if any, are experienced by you and your fellow graphic arts faculty members at your institution when recruiting students into your graphic arts MANAGEMENT programs (e.g., funding, transportation, etc.)? (Continue on the next page and/or back cover, if necessary)

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41. If your institution also offers programs in graphic arts TECHNOLOGY and/or EDUCATION, are the recruitment problems different in these fields than they are in graphic arts MANAGEMENT? (Please circle a response [1-3])

(1) Not Applicable (We only offer graphic arts MANAGEMENT) (2) Yes (3) No If "Yes," please briefly describe : (Continue on other side, if necessary)

Thank you for participating in Part 1 of this research (the Faculty Opinionnaire). Part 2 (the Student Opinionnaire--and the last part), involves student responses to "recruitment practices" that they have experienced (as well as "other factors" and "personal data").

Please see note on back page for returning: 1) this opinionnaire, 2) the student opinionnaires, and 3) the small gold INFORMATION FORM . . .

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If you should wish, I would appreciate your response.

Please indicate any questions or comments you may have regarding recruitment practices or anything else in this opinionnaire.

THANK YOU FOR YOUR COOPERATION AND PROMPT RESPONSE!

Please return the opinnionnaire(s) post-marked on or before _____ in the enclosed return envelope or box to:

Joseph G. Gindele, Research Director
1939 College Street, Apt. 235
P. O. Box 1108
Cedar Falls, Iowa 50613-1108

If you would like a summary of the results of the research, please complete the small gold INFORMATION FORM and return it with the completed opinionnaire(s). You will receive a copy after the research is completed.

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APPENDIX G

STUDENT OPINIONNAIRE

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Code: _____

Recruitment Practices Used to Attract Students into Graphic Arts*

Student Opinionnaire

Your opinion is needed regarding recruitment practices and other factors that influenced you to enroll in your graphic arts program.

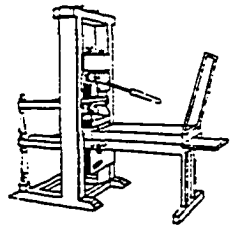
This opinionnaire is part of a doctoral research project to identify practices that have been effective in attracting students into undergraduate graphic arts programs in colleges and universities in the United States.

Please answer all of the questions. The opinionnaire should take approximately 15-20 minutes to complete.

Do not write your name on this opinionnaire--your responses will be kept strictly confidential. The code is used for management and follow-up purposes only, and will be removed once the opinionnaire is recorded as being received.

Your assistance in completing this opinionnaire will be very valuable for my research!

Joseph G. Gindele, Research Director
Candidate, Doctor of Industrial Technology
Department of Industrial Technology
University of Northern Iowa
Cedar Falls, Iowa 50614-0178



*Endorsed by the International Graphic Arts Education Association (IGAEA) and the Graphic Arts Technical Foundation (GATF)

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Definitions

The following definitions are provided as used in this opinionnaire:

Coll/Univ — A college or university with a graphic arts program (leading to a 4-year undergraduate degree).

Coll/Univ Faculty — Unless otherwise noted, generally means graphic arts (or other industrial education/technology) faculty, who recruit for graphic arts programs. It may also include other personnel who recruit for graphic arts, such as paid coll/univ recruiters, etc.

Concentration — A focused study of advanced grade that may be less than actually declaring a major in the area, but more than a passing involvement with graphic arts.

Enrolled — A student who is completing a "concentration, major or emphasis" in a specialized program of graphic arts, requiring more than just merely one or two courses in graphic arts.

Graphic Arts — The area of technology in which printed products are produced. It is sometimes referred to as GRAPHIC COMMUNICATIONS, PRINTING, VISUAL COMMUNICATIONS, or COMMUNICATIONS.

Major — A designated principal field of study in which a student specializes and receives a degree--such as one in graphic arts.

Other Factors — Generally, those influencers other than "direct" recruitment practices that also attract students into graphic arts. Some of these influencers may include parents, teachers, work experiences, courses, hobbies, etc.

Recruitment Practices — Those activities purposely undertaken by college/university faculty members to increase student enrollment in 4-yr. undergraduate graphic arts programs. Some of these practices may include coll/univ faculty visiting your high school, distribution of brochures to you, etc.

1. Please circle your grade level, as defined by the total number of credits that you have already completed (NOT including this Semester or Quarter):

Freshman	Sophomore	Junior	Senior
(0-29 Semester cr) (0-44 Quarter cr)	(30-59 Semester cr) (45-89 Quarter cr)	(60-89 Semester cr) (90-134 Quarter cr)	(90+ Semester cr) (135+ Quarter cr)
(1)	(2)	(3)	(4)

2. Please indicate the type of program [specialized field of study] in which you are concentrating, majoring, or enrolled (leading to a 4-yr. bachelor's degree): (Circle only one number: 1-4)

   (1) Graphic Arts EDUCATION -- A program of study involving the subject areas of graphic arts and education, with focus on the student eventually "teaching" graphic arts in a secondary school, community college, or college/university.

   (2) Graphic Arts TECHNOLOGY -- A program of study involving the subject areas of graphic arts and technology, with focus on the student eventually applying his/her skills in a technical function in business or industry.

   (3) Graphic Arts MANAGEMENT -- A program of study involving the subject areas of graphic arts and management, with focus on the student eventually applying his/her skills in a managerial function in business or industry.

   (4) Graphic Arts TECHNOLOGY/MANAGEMENT -- A combination of the above two programs.

3. At what educational level did you decide that you wanted to specialize in the area that you have chosen above? (Please circle a number: 1-8)

			College/University				
Middle schl or Jr. H.S.	High School	Voc/Tech (post h.s.)	Fresh-man	Sopho-more	Jun-ior	Sen-ior	Other (please specify):
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)_____

4. When did you complete your first graphic arts course? (Please circle a number: 1-8)

   (1) Grade 6 or before
   (2) Grades 7 or 8
   (3) Grades 9 or 10
   (4) Grades 11 or 12
   (5) While in military service
   (6) During college or post-secondary education
   (7) As an out of high school and employed adult
   (8) Other (please specify): _____

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I. Recruitment Practices

The following list of "recruitment practices" relate to why students select graphic arts EDUCATION, TECHNOLOGY, or MANAGEMENT programs as a field of study. Please read each practice. Circle number "1" if you did NOT EXPERIENCE that practice. Circle a number [2-5] if you DID experience that practice, indicating (in your opinion) how effective it was in recruiting YOU into YOUR graphic arts program. Please remember, for each recruitment practice circle a number.

Recruitment Practices	NOT EXPERIENCED (1)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
Personal Communication					
5. The college/university faculty wrote personal letters to me while in high school.	1	2	3	4	5
6. The coll/univ faculty conducted personal interviews with me when I was in high school or college.	1	2	3	4	5
7. The coll/univ faculty contacted my high school guidance counselor. (As a result, the counselor helped to recruit me.)	1	2	3	4	5
8. The coll/univ faculty contacted my high school graphic arts teacher. (As a result, my graphic arts teacher helped to recruit me.)	1	2	3	4	5
9. The coll/univ faculty contacted their graphic arts alumni. (As a result, the graphic arts alumni helped to recruit me.)	1	2	3	4	5
10. The coll/univ faculty contacted my other high school (non-graphic arts) industrial education/ technology teachers, or alumni. (As a result, these other people helped to recruit me.)	1	2	3	4	5
11. The coll/univ faculty contacted my high school supervisors and administrators through student teaching programs. (As a result, these high school people helped to recruit me.)	1	2	3	4	5
12. The coll/univ faculty visited my high school.	1	2	3	4	5
13. The coll/univ faculty visited my community college.	1	2	3	4	5
14. Coll/univ paid recruiters, traveling the state and country, contacted me.	1	2	3	4	5
15. Coll/univ graphic arts students recruited me when I was in high school or college.	1	2	3	4	5
16. Coll/univ faculty made a presentation to me, during freshman orientation.	1	2	3	4	5
17. Coll/univ faculty made a presentation to me at a fraternity or sorority.	1	2	3	4	5
18. Coll/univ coaches presented the graphic arts program to me, as an athletic recruit.	1	2	3	4	5
Literature and Media					
19. I saw a graphic arts display at a shopping mall or other location.	1	2	3	4	5
20. I saw a display and was recruited at an annual graphic arts or industrial education/technology conference or convention.	1	2	3	4	5

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Recruitment Practices	NOT EXPERIENCED (1)	Recruitment Effectiveness: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
21. As a high school or community college student, I received brochures describing the coll/univ graphic arts program.	1	2	3	4	5
22. As a coll/univ student, I received fliers describing the graphic arts program offerings from other department faculty and advisors across campus (outside of graphic arts or industrial education/technology).	1	2	3	4	5
23. As a high school or community college student, I saw posters and used their tear-off cards advertising the coll/univ graphic arts program(s).	1	2	3	4	5
24. I received a recruitment packet upon request.	1	2	3	4	5
25. I saw a filmed presentation (slides, slides and audio, or videotape) of coll/univ graphic arts program offerings.	1	2	3	4	5
26. My high school graphic arts teacher received newsletters from coll/univ graphic arts faculty. (He/she shared this information with me--it helped to recruit me.)	1	2	3	4	5
27. I saw or heard an advertisement of the graphic arts program on TV, in a newspaper or magazine, or on the radio.	1	2	3	4	5
Coll/Univ Program and Facilities					
28. As a coll/univ student who was not a declared graphic arts major, a faculty member indicated the advantages of a graphic arts career to me.	1	2	3	4	5
29. As a secondary school student (grade 7-12), a graphic arts or other industrial education/technology teacher brought me to the college campus for a visit.	1	2	3	4	5
30. As a high school student, the impact of modern facilities and programs attracted me and my parents to the graphic arts program during visits to the college.	1	2	3	4	5
31. As a coll/univ student who had not yet decided to concentrate or major in graphic arts, my interest in this field was stimulated by related general education courses, offered by the graphic arts or industrial education/technology department.	1	2	3	4	5
32. As a high school student, I participated in contests on the coll/univ campus.	1	2	3	4	5
33. As a high school student, I visited the coll/univ campus for career days, open house, or conference activities.	1	2	3	4	5
34. The coll/univ faculty conducted an annual recruitment conference on campus for my secondary school (grades 7-12) (graphic arts or other industrial education/technology) teachers and/or counselors. (As a result, one of these teachers or counselors helped to recruit me.)	1	2	3	4	5
35. As a high school senior, I completed a college credit introductory type course in graphic arts.	1	2	3	4	5
Other					
36. I received a scholarship for graphic arts (or other industrial education/technology) college programs.	1	2	3	4	5

Please proceed to part II. . . .

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II. Other Factors

This part relates to "other factors" (besides direct recruitment practices) that may have influenced you to enroll in your graphic arts EDUCATION, TECHNOLOGY, or MANAGEMENT program. Please read each factor. Circle number "1" if you did NOT EXPERIENCE that factor. Circle a number [2-5] if you DID experience that factor, indicating the amount of influence it had on YOU in selecting YOUR graphic arts program. Please remember, for each influential factor circle a number.

Other Influential Factors	NOT EXPERIENCED (1)	Amount of Influence: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
People--Personal Influences					
1. Parent(s) or guardian(s).	1	2	3	4	5
2. Brother(s) and/or sister(s).	1	2	3	4	5
3. Other relative(s).	1	2	3	4	5
4. Friend(s) and other college students not in graphic arts.	1	2	3	4	5
5. Neighbor(s) and/or other adult(s).	1	2	3	4	5
6. Leader(s) in my community.	1	2	3	4	5
7. Representative(s) from business or industry.	1	2	3	4	5
People--Educational Influences					
8. Secondary school graphic arts teacher(s) (grades 7-12).	1	2	3	4	5
9. Secondary school industrial education/ technology teacher(s) (other than graphic arts) (grades 7-12).	1	2	3	4	5
10. Secondary school teacher(s) (other than graphic arts or industrial education/ technology) (grades 7-12).	1	2	3	4	5
11. Secondary school guidance counselor(s) (grades 7-12).	1	2	3	4	5
12. Secondary school adult(s) (other than teachers or counselors) (grades 7-12).	1	2	3	4	5
13. College industrial education/technology faculty (other than graphic arts).	1	2	3	4	5
14. Other college faculty (besides graphic arts or industrial education/tech- nology).	1	2	3	4	5
Work/Recreational Influences					
15. Community youth group membership.	1	2	3	4	5
16. Military experience(s).	1	2	3	4	5
17. Camp experience(s).	1	2	3	4	5
18. Work experience(s) (part-time or full-time job).	1	2	3	4	5
19. Personal interests or hobbies.	1	2	3	4	5

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Other Influential Factors	NOT EXPERI-ENCED (1)	Amount of Influence: No Effect (2)	Little Effect (3)	Moderate/ Average Effect (4)	Great Effect (5)
Educational Influences					
20. Graphic arts course in secondary school, but no direct teacher recruitment (grades 7-12).	1	2	3	4	5
21. Industrial education/technology course in secondary school, (other than a graphic arts course) and no direct teacher recruitment (grades 7-12).	1	2	3	4	5
22. Secondary school course (other than graphic arts or other industrial education/technology courses) and no direct teacher recruitment (grades 7-12).	1	2	3	4	5
23. Elementary school classwork (grades K-6).	1	2	3	4	5
24. Secondary school extra curricular activities (grades 7-12).	1	2	3	4	5
25. Graphic arts course in coll/univ, but no direct teacher recruitment.	1	2	3	4	5
26. Results of an interest survey or aptitude test.	1	2	3	4	5
Media Influences					
27. Newspaper or magazine article(s) about graphic arts careers.	1	2	3	4	5
28. TV, films, videotape, slides and/or radio program about graphic arts careers.	1	2	3	4	5

29. Please list any additional "recruitment practices" or "other influencial factors" you experienced, that are not listed above. Then rate them.

1. _____				
_____				
_____	2	3	4	5
2. _____				
_____				
_____	2	3	4	5
3. _____				
_____				
_____	2	3	4	5

Please proceed to Part III. . . .

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III. Personal Data

This section deals with "personal data" that will be used to establish basic demographic information concerning the graphic arts undergraduate student population in the United States. (Please circle your responses for items 2-16, after first answering item 1.)

1. Your present age: Years = _____ and Months = _____

2. Are you: (1) Female (2) Male

3. What is the population of your hometown?
   (1) under 2,500 (6) 50,001 to 100,000
   (2) 2,501-5,000 (7) 100,001 to 250,000
   (3) 5,001 to 10,000 (8) 250,001 to 500,000
   (4) 10,001 to 25,000 (9) 500,001 to 1,000,000
   (5) 25,001 to 50,000 (10) 1,000,000 or more

4. Your high school was: (1) Public (2) Private (3) Other _____ (please specify)

5. Size of your high school graduating class:

   (1) 1-50 (2) 51-100 (3) 101-250 (4) 251-500 (5) over 500

6. Marital status: (1) Single (2) Married (3) Divorced

7. Race: (1) Black (3) Oriental (5) Native American Indian
   (2) Caucasian (4) Hispanic (6) Other _____ (please specify)

8. Religion: (1) Catholic (3) Protestant
   (2) Jewish (4) Other (please specify):_____

Given the following educational levels, please answer items 9, 10, and 11.
   1. Grade 8 or lower 5. Assoc. degree (2 yr college)
   2. Some high school 6. Bachelor's degree
   3. High school graduate 7. Master's degree
   4. Vo/Tech (post-h.s.) graduate 8. Doctor's degree

9. Highest level completed by father/guardian: (1) (2) (3) (4) (5) (6) (7) (8)

10. Highest level completed by mother/guardian: (1) (2) (3) (4) (5) (6) (7) (8)

11. The highest level of education you believe you will achieve: (5) (6) (7) (8)

Given the following occupational classifications, please answer items 12 and 13.
   1. Professional, Technical, Managerial 4. Service
   2. Agriculture, Fishery, Forestry, & Related 5. Clerical
   3. Processing, Machine Trades, Manufacturing Construction, Transportation & Mining 6. Sales
   7. Homemaker
   8. Other (specify)_____

12. Father's primary occupation is (was): (1) (2) (3) (4) (5) (6) (7) (8)

13. Mother's primary occupation is (was): (1) (2) (3) (4) (5) (6) (7) (8)

14. Is (was) your father's primary occupation related to graphic arts (business/ industry or education)?
   (1) Yes (2) No

15. Is (was) your mother's primary occupation related to graphic arts (business/ industry or education)?
   (1) Yes (2) No

16. Do you plan to teach graphic arts?

   (1) Yes (2) Probably (3) Undecided (4) Not likely (5) No

Thank you for participating in this national research study!

Please see instructions on back cover for returning this opinionnaire . . .

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Please indicate any questions or comments you may have regarding recruitment practices or anything else in this opinionnaire.

THANK YOU FOR YOUR COOPERATION AND PROMPT RESPONSE!

Please follow your professor's directions, and either:

(1) Return this opinionnaire to your professor according to his or her instructions,

or . . .

(2) If you have been provided with a return envelope, please mail the completed opinionnaire immediately to:

Joseph G. Gindele, Research Director
1939 College Street, Apt. 235
P.O. Box 1108
Cedar Falls, Iowa 50613-1108

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APPENDIX H

LIST OF JURY MEMBERS

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LIST OF JURY MEMBERS

Education

Dr. Wan-Lee Cheng, Professor
Design and Industry Department
San Francisco State University
1600 Holloway Ave.
San Francisco, CA 94132

Dr. William R. Hoots, Jr., Professor
Department of Manufacturing
East Carolina University
Greenville, NC 27858-4353

Dr. Fred Kagy,
Professor Emeritus
23 Ethell Parkway
Normal, IL 61761

Dr. Harvey R. Levenson,
Professor and Chair
Graphic Communication Department
California Polytechnic University
San Luis Obispo, CA 93407

Dr. Jane A. Liedtke, Assistant Professor
Department of Industrial Technology
Illinois State University
Normal, IL 61761

Dr. Thomas E. Schildgen, Associate Professor
Department of Industrial Technology
Arizona State University
Tempe, AZ 85287

Industry

Mr. Larry Schenr, Partner
K. B. Arts and Print, Inc.
32432 Dequindre
Warren, MI 48092

Dr. Jack Simich,
Education Director
Graphic Arts Technical
Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213

Dr. Jeannie Weber,
Education Director
Litho Specialties, Inc.
1280 Energy Park Drive
St. Paul, MN 55108

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APPENDIX I

NOTICES ANNOUNCING THE STUDY:

PRE-NOTIFICATION POSTCARDS (2 VERSIONS)

COVER LETTER TO FACULTY (2 VERSIONS)

THANK YOU/REMINDER POSTCARDS (2 VERSIONS)

FOLLOW-UP LETTERS (2 VERSIONS)

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PRE-NOTIFICATION POSTCARDS

October 18, 1988

Dear

I am asking your help in a nationwide research project.

Last Spring you stated that you and your students would be willing to participate in a graphic arts recruitment study, the aim of which is to increase student enrollment in four-year undergraduate graphic arts programs in colleges and universities.

In a few days you will receive one faculty and a few student opinionnaires (to sample your students). These should take but a few minutes to complete.

I would appreciate your cooperation in completing and returning these short forms.

Sincerely,

Joseph G. Gindele, Doctoral Candidate
Department of Industrial Technology
University of Northern Iowa

October 18, 1988

Dear

I am asking for assistance from you and a few of your students in a nationwide research project. This project involves a study of graphic arts recruitment, the aim of which is to increase student enrollment in four-year undergraduate graphic arts programs in colleges and universities.

In a few days you will receive one faculty and a few student opinionnaires (to sample your students). These should take but a few minutes to complete.

I would appreciate your cooperation in completing and returning these short forms.

Sincerely,

Joseph G. Gindele, Doctoral Candidate
Department of Industrial Technology
University of Northern Iowa

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University of Northern Iowa

Department of Industrial Technology

Industrial Technology Center
Cedar Falls, Iowa 50614
Phone (319) 273-2561

October 25, 1988

Dear

How, where, and to what extent are "recruitment practices" being used to increase student enrollment in four-year undergraduate graphic arts programs in colleges and universities in the United States? Which of these practices are more effective than others? How can recruitment efforts be improved to address the critical shortage of qualified employees for the graphic arts industry and graphic arts education?

The answers to these questions are not clear. Especially not known are the true opinions of graphic arts faculty members on these issues. Also, the reactions of students regarding recruitment practices that they experienced are not known. That is why you are being asked to complete the enclosed short opinionnaire, and to distribute the others to selected students for sampling. If you recall, last Spring you indicated that you and your students would be willing to participate in this study. Working cooperatively to address these concerns, this doctoral research is endorsed by education (IGAEA and the Department of Industrial Technology--University of Northern Iowa) and industry (GATF).

As part of a small, select, national group, chosen to be a cross section of all graphic arts coll/univ faculty, representing either a graphic arts EDUCATION, TECHNOLOGY, and/or MANAGEMENT program at your institution, your responses will help formulate a complete, detailed picture of recruitment practices in each of these fields. From this, knowledge of the recruitment process will be increased so that future graphic arts recruitment methods can be more effectively designed, focused, and applied.

The research findings will be thoroughly analyzed, evaluated, and reported. A summary will be available to you. The information, hopefully, will be an important tool for you and your colleagues to use, to increase the number of students enrolling in and eventually graduating from your graphic arts program(s). This should go a long way in meeting the employment needs of the graphic arts industry and education.

Your responses will be kept completely confidential. To keep track of returns, numbers are used on the opinionnaires rather than names. At no time will responses be identified with your name or institution.

It is hoped that you and your students will find the opinionnaires interesting and that you will complete it while you have it at hand. For your convenience in replying, an addressed return envelope is enclosed. Please call if you have any questions about the study.

Sincerely,

Joseph G. Gindele, Ed.S.,
Candidate,
Doctor of Industrial Technology
(319) 277-4247

Approved:

Ervin A. Dennis, Ed.D.,
Professor of Industrial Technology
& Doctoral Advisor
(319) 273-2753

P.S.: The enclosed crisp dollar bill is just a token of my appreciation.

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University of Northern Iowa
Department of Industrial Technology
Industrial Technology Center
Cedar Falls, Iowa 50614
Phone (319) 273-2561

October 25, 1988

Dear

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The answers to these questions are not clear. Especially not known are the true opinions of graphic arts faculty members on these issues. Also, the reactions of students regarding recruitment practices that they experienced are not known. That is why you are being asked to complete the enclosed short opinionnaire, and to distribute the others to selected students for sampling. Working cooperatively to address these concerns, this doctoral research is endorsed by education (IGAEA and the Department of Industrial Technology--University of Northern Iowa) and industry (GATF).

As part of a small, select, national group, chosen to be a cross section of all graphic arts coll/univ faculty, representing either a graphic arts EDUCATION, TECHNOLOGY, and/or MANAGEMENT program at your institution, your responses will help formulate a complete, detailed picture of recruitment practices in each of these fields. From this, knowledge of the recruitment process will be increased so that future graphic arts recruitment methods can be more effectively designed, focused, and applied.

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Your responses will be kept completely confidential. To keep track of returns, numbers are used on the opinionnaires rather than names. At no time will responses be identified with your name or institution.

It is hoped that you and your students will find the opinionnaires interesting and that you will complete it while you have it at hand. For your convenience in replying, an addressed return envelope is enclosed. Please call if you have any questions about the study.

Sincerely,

Joseph G. Gindele, Ed.S.,
Candidate,
Doctor of Industrial Technology
(319) 277-4247

Approved:

Ervin A. Dennis, Ed.D.,
Professor of Industrial Technology
& Doctoral Advisor
(319) 273-2753

P.S.: The enclosed crisp dollar bill is just a token of my appreciation.

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THANK YOU/REMINDER POSTCARDS

November 3, 1988

Dear

Last week opinionnaires seeking your views and those of some of your students about graphic arts recruitment practices were mailed to you. I am grateful that you previously agreed to participate in this nationwide study.

If you and your students have already completed and returned them to me, please consider this card a "Thank You" for your valuable help.

If you have not had a chance to do so as yet, may I ask that you return the completed forms now? Because I am only contacting one faculty member each from selected colleges and universities offering specialized graphic arts programs, it is extremely important that you and your students be included in the study if the results are to accurately represent opinions regarding these practices. Your participation is vital to the success of this study. Thank you again!

Joseph G. Gindele, Doctoral Candidate
Department of Industrial Technology
University of Northern Iowa

November 3, 1988

Dear

Last week opinionnaires seeking your views and those of some of your students about graphic arts recruitment practices were mailed to you. I am grateful for any support that you may give in this nationwide study .

If you and your students are in the process of completing and returning them to me, please consider this card a "Thank You" for your valuable help.

If you have not had a chance to do so as yet, may I ask that you return the completed forms soon? Because I am only contacting one faculty member each from selected colleges and universities offering specialized graphic arts programs, it is extremely important that you and your students be included in the study if the results are to accurately represent opinions regarding these practices. Your participation is vital to the success of this study. Thank you again!

Joseph G. Gindele, Doctoral Candidate
Department of Industrial Technology
University of Northern Iowa

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University of Northern Iowa
Department of Industrial Technology

Industrial Technology Center
Cedar Falls, Iowa 50614
Phone (319) 273-2561

November 22, 1988

Dear

We've been tabulating the returns of our opinionnaires on graphic arts recruitment practices and we noted that we had not received your reply. We know that we are asking you to do us a favor, but we really would appreciate hearing from you.

Does it really matter if you and your students complete the forms? Yes, definitely! You are part of a small group of graphic arts college/university faculty and students who have been asked to participate in this research. If we are to increase our knowledge of the recruitment process so that future graphic arts recruitment methods can be more effectively designed, focused and applied, then we need to hear from every person in the study sample.

Members of the Department of Industrial Technology at the University of Northern Iowa, of IGAEA, GATF, and other organizations, as well as other graphic arts educators, need to know your thoughts and your student's thoughts about recruitment practices used to attract undergraduate students into graphic arts EDUCATION, TECHNOLOGY, and MANAGEMENT programs. Research data is needed to identify ways of increasing student enrollment in these programs. Your assistance in the study will provide important information on ways to address the critical shortage of qualified employees for the graphic arts industry and graphic arts education--information that just cannot be obtained in any another way.

Thus, we hope that you and your students will spend a few minutes to complete these opinionnaires. Again, you can be assured that we will keep your responses completely confidential. As soon as we hear from you we will remove your name from our mailing list.

We would be happy to talk to you about this doctoral study if you wish to call (collect) at (319) 277-4247. A printed summary will be made available to you if you indicate it on the enclosed gold INFORMATION FORM. Thank you in advance for your cooperation.

Sincerely,

Joseph G. Gindele, Ed.S.,
Candidate,
Doctor of Industrial Technology
(319) 277-4247

Approved:

Ervin A. Dennis, Ed.D.,
Professor of Industrial Technology
& Doctoral Advisor
(319) 273-2753

P.S. Have a cup of coffee on me while you complete your opinionnaire! Please assist me in helping our profession by returning your completed opinionnaire and those of your students, post-marked on or before Friday, December 2, 1988. Thanks!

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University of Northern Iowa
Department of Industrial Technology

Industrial Technology Center
Cedar Falls, Iowa 50614
Phone (319) 273-2561

January 12, 1989

Dear

I am writing to you about my doctoral study regarding the effectiveness of recruitment practices used to attract students into the graphic arts program(s) at your institution. Completed surveys from you and your students have not yet been received.

The large number of surveys returned is very encouraging. But whether I will be able to describe accurately how college and university graphic arts faculty and students feel on these important issues depends upon you and others who have not yet responded. This is because past experiences suggest that those of you who have not yet sent in your surveys may hold quite different preferences regarding recruitment practice use and effectiveness than those who have.

This is the first nationwide graphic arts study of this type that has ever been done (and is endorsed by GATF, IGAEA, and the Department of Industrial Technology, UNI). Therefore, the results are of particular importance to graphic arts educators in our nations colleges and universities, who are concerned with increasing student enrollment in graphic arts EDUCATION, TECHNOLOGY, and/or MANAGEMENT. The usefulness of the results of this study depends on how accurately I am able to describe experiences in the field in these three areas.

It is for these reasons that I am sending this reminder to you. Perhaps your survey and those of your students have been completed, yet remain on your desk to be mailed, or due to the holidays you have not had a chance to complete this task. May I urge your participation in this study? Would you please mail the completed surveys back post-marked on or before January 31, 1989?

Your contribution to the success of this study will be appreciated greatly.

Most sincerely,

Joseph G. Gindele, Research Director
(Recruitment in the Graphic Arts)
1939 College Street
P.O. Box 1108
Cedar Falls, IA 50613-1108
(319) 277-4247

P.S.: I will be happy to send you a copy of the results of the study if you desire one. Simply complete the gold INFORMATION FORM enclosed and return with completed surveys. I expect to have them ready to send out late this Spring or early this Summer.

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APPENDIX J

MANAGEMENT OF AND INCENTIVES FOR THE STUDY:

DIRECTIONS FOR ADMINISTERING STUDENT OPINIONNAIRES
(3 VERSIONS WITH RANDOM SELECTION OF STUDENTS)

PROGRAM IDENTIFICATION FOR GRAPHIC ARTS STUDENTS
AND PROGRAM FACULTY MANAGEMENT SHEET

ENDORSEMENTS (DR. JACK SIMICH, DR. VIRGIL R. PUFAHL)

GIFT CERTIFICATE/GOLD INFORMATION FORM

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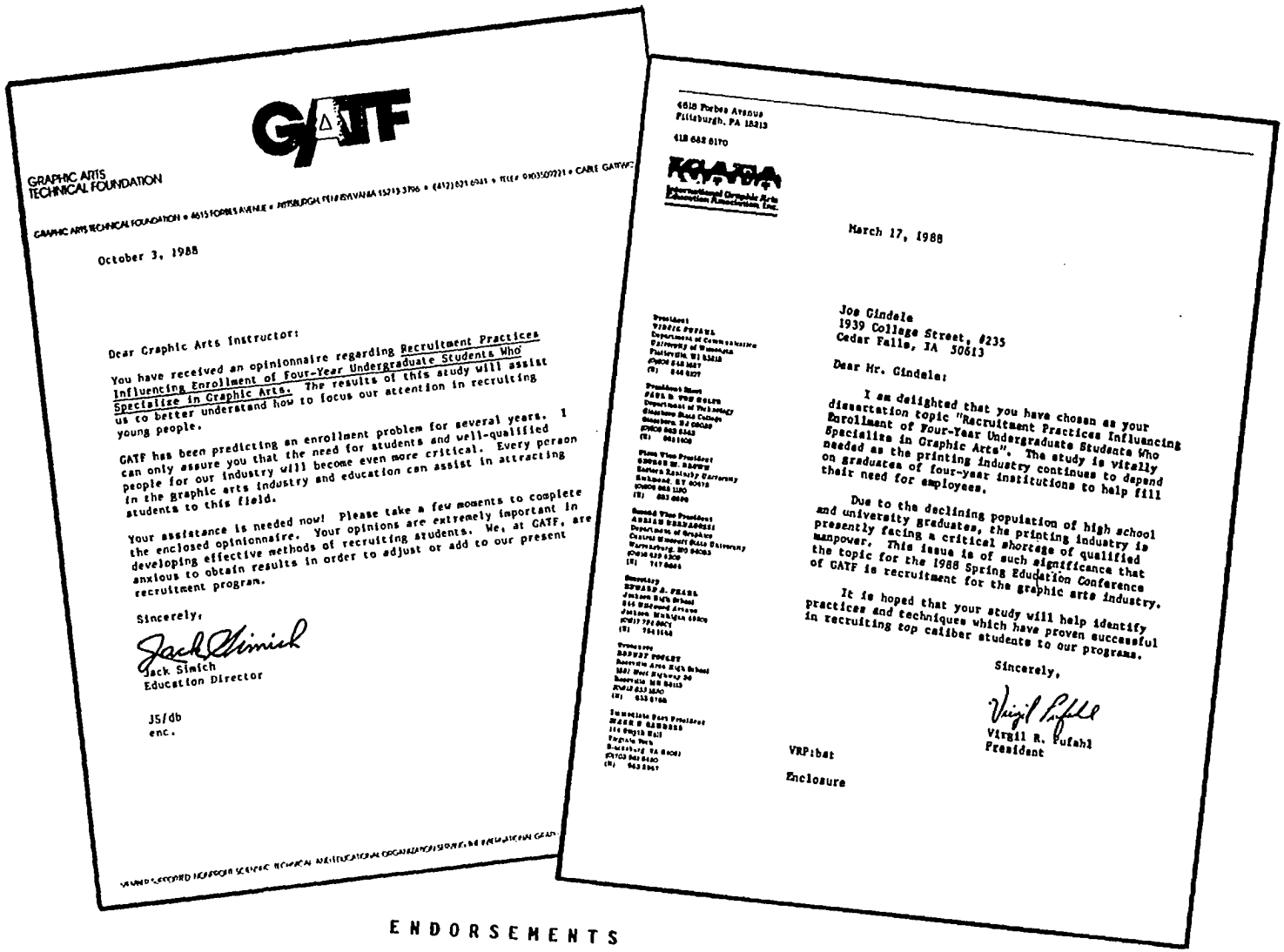

GRAPHIC ARTS TECHNICAL FOUNDATION

October 3, 1988

Dear Graphic Arts Instructor:

You have received an opinionnaire regarding Recruitment Practices Influencing Enrollment of Four-Year Undergraduate Students Who Specialize in Graphic Arts. The results of this study will assist us to better understand how to focus our attention in recruiting young people.

GATF has been predicting an enrollment problem for several years. I can only assure you that the need for students and well-qualified people for our industry will become even more critical. Every person in the graphic arts industry and education can assist in attracting students to this field.

Your assistance is needed now! Please take a few moments to complete the enclosed opinionnaire. Your opinions are extremely important in developing effective methods of recruiting students. We, at GATF, are anxious to obtain results in order to adjust or add to our present recruitment program.

Sincerely,

Jack Simich
Education Director

JS/db
enc.

4616 Forbes Avenue
Pittsburgh, PA 15213

412 682 8170

March 17, 1988

Joe Gindele
1939 College Street, #235
Cedar Falls, IA 50613

Dear Mr. Gindele:

I am delighted that you have chosen as your dissertation topic "Recruitment Practices Influencing Enrollment of Four-Year Undergraduate Students Who Specialize in Graphic Arts". The study is vitally needed as the printing industry continues to depend on graduates of four-year institutions to help fill their need for employees.

Due to the declining population of high school and university graduates, the printing industry is presently facing a critical shortage of qualified manpower. This issue is of such significance that the topic for the 1988 Spring Education Conference of GATF is recruitment for the graphic arts industry.

It is hoped that your study will help identify practices and techniques which have proven successful in recruiting top caliber students to our programs.

Sincerely,

Virgil R. Tufahl
President

VRP:bat

Enclosure

ENDORSEMENTS

FR/PRQ-YF

F_____

PLEASE RETURN THIS SHEET
(with the completed opinionnaires, and gold form, after completing information below)

Student Opinionaires

You may, perhaps, decide to have the students complete the surveys as part of an assignment--or for extra credit--either in or out of class.

Student cooperation is vitally needed to assist in identifying recruitment practices that they experienced and regard as effective. It is a critical and final part of this research. Although you are being asked to complete your faculty survey for only one specific program (either graphic arts EDUCATION, TECHNOLOGY, or MANAGEMENT), it is very important that the generic student surveys be given to students in each of these programs applicable to your institution, indicated in column I below (#'s 2, 3 & 4).

Selection of Student Sample

The students sampled are those enrolled at your institution who are concentrating* or majoring* in a graphic arts EDUCATION, graphic arts TECHNOLOGY, or graphic arts MANAGEMENT program--and pursuing a 4-year baccalaureate degree. Where 10 or less students are enrolled in a particular graphic arts program, each student in that program should receive and complete a survey. Where more than 10 students are enrolled in a program, a random sampling** should be made from the students enrolled in that program.

Directions for Administering Student Opinionnaires

You indicated last Spring that you would be willing to distribute and collect the student surveys. Please distribute** the student surveys according to your programs (# 2, 3, & 4) and the numbers listed in column I. To assist you in managing this, you may wish to write the student's name on the pink post-it-note on each survey for easier distribution. This should be removed as the student receives his/her survey (in which case you may wish to place these on the back of this sheet for future reference), or the student should remove it upon returning the survey. The attached green management sheet may also assist you.

(Then collect these completed surveys, complete column II numbers (1, 2-4), and return: (1) this sheet, (2) your completed faculty opinionnaire, (3) the completed student opinionnaires, and (4) the gold INFORMATION FORM, in the envelope provided, by .)

	Column I (# of surveys SENT TO YOU)		Column II (# of surveys YOU ARE RETURNING)		
1.	Faculty Opinionnaire	1	Faculty Opinionnaire		
2.	Student ga EDUCATION		Student ga EDUCATION		PLEASE
3.	Student ga TECHNOLOGY		Student ga TECHNOLOGY		COMPLETE
4.	Student ga MANAGEMENT		Student ga MANAGEMENT		
5.	F/S survey=your file	2	(please do not return these)		

*A concentration is a focused study of advanced grade that may be less than actually declaring a major in the area, but more than a passing involvement with graphic arts. Such a student will complete more than two courses in graphic arts in his/her program. A major would be a designated field of study in which the student specializes and recieves a degree--such as one in graphic arts.

**Please see other side of sheet for one method of random selection (if called for):

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FR/PRQ-YS

S_____

PLEASE RETURN THIS SHEET
(with the completed opinionnaires, and gold form, after completing information below)

Student Opinionaires

You may, perhaps, decide to have the students complete the surveys as part of an assignment--or for extra credit--either in or out of class.

Student cooperation is vitally needed to assist in identifying recruitment practices that they experienced and regard as effective. It is a critical and final part of this research. Although you are being asked to complete your faculty survey for only one specific program (either graphic arts EDUCATION, TECHNOLOGY, or MANAGEMENT), it is very important that the generic student surveys be given to students in each of these programs applicable to your institution, indicated in column I below (#'s 2, 3 & 4).

Selection of Student Sample

The students sampled are those enrolled at your institution who are concentrating* or majoring* in a graphic arts EDUCATION, graphic arts TECHNOLOGY, or graphic arts MANAGEMENT program--and pursuing a 4-year baccalaureate degree. Where 10 or less students are enrolled in a particular graphic arts program, each student in that program should receive and complete a survey. Where more than 10 students are enrolled in a program, a random sampling** should be made from the students enrolled in that program.

Directions for Administering Student Opinionnaires

You indicated last Spring that you would be willing to distribute** the student surveys, and have the students mail them back individually (return envelopes are enclosed). MAY I ASK, HOWEVER, THAT YOU PLEASE RECONSIDER THIS POSITION, AND HAVE THE STUDENTS RETURN THE SURVEYS TO YOU OR YOUR DESIGNEE FOR YOUR ONE-TIME BULK RETURN? I believe a great many MORE surveys would then be returned, thus achieving a larger data-base more accurately representing student views nationally. Please distribute student surveys (and envelopes?) according to your programs (# 2, 3, & 4) and the numbers listed in column I. To assist you in managing this, you may wish to write the student's name on the pink post-it-note on each survey for easier distribution. This should be removed when the student returns the survey. The attached green management sheet may also assist you.

(Then [collect these completed surveys?] complete column II numbers (1, 2-4), and return: (1) this sheet, (2) your completed faculty opinionnaire, (3) the completed student opinionnaires[?], and (4) the gold INFORMATION FORM, in the envelope provided, by .)

Column I (# of surveys SENT TO YOU)		Column II (# of surveys YOU ARE RETURNING)		
1. Faculty Opinionnaire	1	1. Faculty Opinionnaire	_____	
2. Student ga EDUCATION	___	2. Student ga EDUCATION		PLEASE
3. Student ga TECHNOLOGY	___ ____	3. Student ga TECHNOLOGY	_____	COMPLETE
4. Student ga MANAGEMENT	___	4. Student ga MANAGEMENT		
5. F/S survey=your file	2	(please do not return these)		

*A concentration is a focused study of advanced grade that may be less than actually declaring a major in the area, but more than a passing involvement with graphic arts. Such a student will complete more than two courses in graphic arts in his/her program. A major would be a designated field of study in which the student specializes and recieves a degree--such as one in graphic arts.

**Please see other side of sheet for one method of random selection (if called for):

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FR/PRQ-N

N _____

PLEASE RETURN THIS SHEET
(with the completed opinionnaires, and gold form, after completing information below)

Student Opinionaires

You may, perhaps, decide to have the students complete the surveys as part of an assignment--or for extra credit--either in or out of class.

Student cooperation is vitally needed to assist in identifying recruitment practices that they experienced and regard as effective. It is a critical and final part of this research. Although you are being asked to complete your faculty survey for only one specific program (either graphic arts EDUCATION, TECHNOLOGY, or MANAGEMENT), it is very important that the generic student surveys be given to students in each of these programs applicable to your institution, indicated in column I below (#'s 2, 3 & 4).

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Directions for Administering Student Opinionnaires

Please distribute student surveys according to your programs (# 2, 3, & 4) and the numbers listed in column I. I have also enclosed individual postage-paid return envelopes that could also be distributed to students to mail surveys back individually. HOWEVER, MAY I ASK THAT YOU PLEASE HAVE THE STUDENTS RETURN THE SURVEYS TO YOU OR YOUR DESIGNEE, FOR YOUR ONE-TIME BULK RETURN? I believe a great many MORE surveys would then be returned, thus achieving a larger data-base more accurately representing student views nationally. To assist you, you may wish to write the student's name on the pink post-it-note on each survey for easier distribution. This should be removed when the student returns the survey. The attached green management sheet may also assist you.

(Then [collect these completed surveys?] complete column II numbers (1, 2-4), and return: (1) this sheet, (2) your completed faculty opinionnaire, (3) the completed student opinionnaires[?], and (4) the gold INFORMATION FORM, in the envelope provided, by .)

Column I (# of surveys SENT TO YOU)		Column II (# of surveys YOU ARE RETURNING)		
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3. Student ga TECHNOLOGY		3. Student ga TECHNOLOGY		COMPLETE
4. Student ga MANAGEMENT		4. Student ga MANAGEMENT		
5. F/S survey=your file	2 (please do not return these)			

*A concentration is a focused study of advanced grade that may be less than actually declaring a major in the area, but more than a passing involvement with graphic arts. Such a student will complete more than two courses in graphic arts in his/her program. A major would be a designated field of study in which the student specializes and recieves a degree--such as one in graphic arts.

**Please see other side of sheet for one method of random selection (if called for):

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Random Selection of Students (Example)

You may use any sampling method that will provide a random selection* of students to participate in completing the surveys. The following example illustrates one method of random selection.

To select students randomly, obtain a separate list** of those undergraduate students enrolled in 4-year graphic arts EDUCATION, graphic arts TECHNOLOGY, and graphic arts MANAGEMENT programs at your institution. For each of these programs that you offer, number each list from 1-... Take the numerical month that YOU were born (i.e, May=5)--this number (5) will be your starting point.

Situation #1:
If you have 34 students in graphic arts TECHNOLOGY, for instance, and are asked to select 10 of these (if the # 10 appears in column I, item 3), divide 10 into 34 and obtain 3.4 (round this to the nearest whole number--3). Start at the numerical month you were born (in this case, #5). This will be your first selection. Then count down every 3rd name in the graphic arts TECHNOLOGY category (for 9 more names) until you have a total of 10 student names selected.

Situation #2:
If you have 19 students in graphic arts EDUCATION, for instance, and you are asked to select 10 from this list (if the # 10 appears in column I, item 2), divide 10 into 19 and obtain 1.9 (round this to nearest whole number--2). Start from your numerical birth month again (in this case, #5) and, counting this number (5) as your first student participant in the graphic arts EDUCATION category, count nine more names--EVERY 2nd ONE (from #5). Here you will reach the end of the list before obtaining 10 names. Merely go up to #1 and continue counting and selecting every second name until you have your 10 names.

Situation #3:
If you have 120 students in graphic arts MANAGEMENT, for instance, and you are asked to select 20 from this list (if # 20 appears in column I, item 4), divide 20 into 120 and obtain 6. Start from your numerical birth month, and counting this number (again, in this case #5) as your first student participant, count 19 more names--EVERY 6th ONE (from #5).

If you should get into a predicament where you have not obtained enough random selections, and have cycled through and "hit" your birth month number again, and it appears that the names following this will also be the same as those identified previously, merely add "one" to your birth month number and continue on, thereby not selecting the same names over. If you were born in November (11) or December (12), you may use either #'s 11 and 12, or 1 and 2, respectively, as starting birth points.

*Please remember that for each program--use the random sampling method only if your institution has more than 10 students enrolled in that program. If your institution has 10 or less students enrolled in a particular program, survey all of them in that program.

**Or formulate your list by reproducing the form on the back side of the attached green sheet and distribute them to all graphic arts students to indicate the programs they are in. Then use the completed forms to select students from the three programs.

If you wish, you may use the columns on the attached green sheet to record the names of students you have selected in each program, who will be given a survey to complete. This is provided for your record management only, and does NOT have to be returned.

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Professor: You may duplicate this side of the sheet on your copier, if you wish, for distribution to graphic arts students--to identify their programs.

(Student's Name--Please PRINT) (Graphic Arts Class & Section)

Program Identification for Graphic Arts Students

Using the definitions provided on this sheet, please indicate the type of program [specialized field of study] in which you are concentrating, majoring, or enrolled (leading to a 4-year bachelor's degree): (Circle only one number, 1-5)

(1) Graphic Arts EDUCATION -- A program of study involving the subject areas of graphic arts and education, with focus on the student eventually "teaching" graphic arts in a secondary school, community college, or college/university.

(2) Graphic Arts TECHNOLOGY -- A program of study involving the subject areas of graphic arts and technology, with focus on the student eventually applying his/her skills in a technical function in business or industry.

(3) Graphic Arts MANAGEMENT -- A program of study involving the subject areas of graphic arts and management, with focus on the student eventually applying his/her skills in a managerial function in business or industry.

(4) Graphic Arts TECHNOLOGY/MANAGEMENT -- A special combination program of the above two programs.

(5) Other (please specify): _____

Other Definitions:

Graphic Arts -- The area of technology in which printed products are produced. It is sometimes referred to as GRAPHIC COMMUNICATIONS, PRINTING, VISUAL COMMUNICATIONS, or COMMUNICATIONS.

Concentration -- A focused study of advanced grade that may be less than actually declaring a major in the area, but more than a passing involvement with graphic arts.

Enrolled -- A student who is completing a "concentration, major or emphasis" in a specialized program of graphic arts, requiring more than just merely one or two courses in graphic arts.

Major -- A designated principal field of study in which a student specializes and receives a degree--such as one in graphic arts.

Please make sure your NAME and CLASS/SECTION are completed and that you have CIRCLED ONE of the programs above. Then return this form to your professor. Thank you!

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Student Survey Participants/Program Faculty Management Sheet
-Graphic Arts Recruitment Practices-

graphic arts EDUCATION students

	OUT		IN
1.	____	_____	____
2.	____	_____	____
3.	____	_____	____

graphic arts TECHNOLOGY students

	OUT		IN
1.	____	_____	____
2.	____	_____	____
3.	____	_____	____
4.	____	_____	____
5.	____	_____	____
6.	____	_____	____
7.	____	_____	____
8.	____	_____	____
9.	____	_____	____
10.	____	_____	____

[This faculty management sheet is an example of one used for an institution having two graphic arts programs, one in education with an enrollment of three, and the other in technology with an enrollment of 25. It was expected that all three education students were to participate in the survey and only 10 technology students were to be randomly selected to participate from the 25. Each faculty member received a unique management sheet for his/her institution/program(s).]

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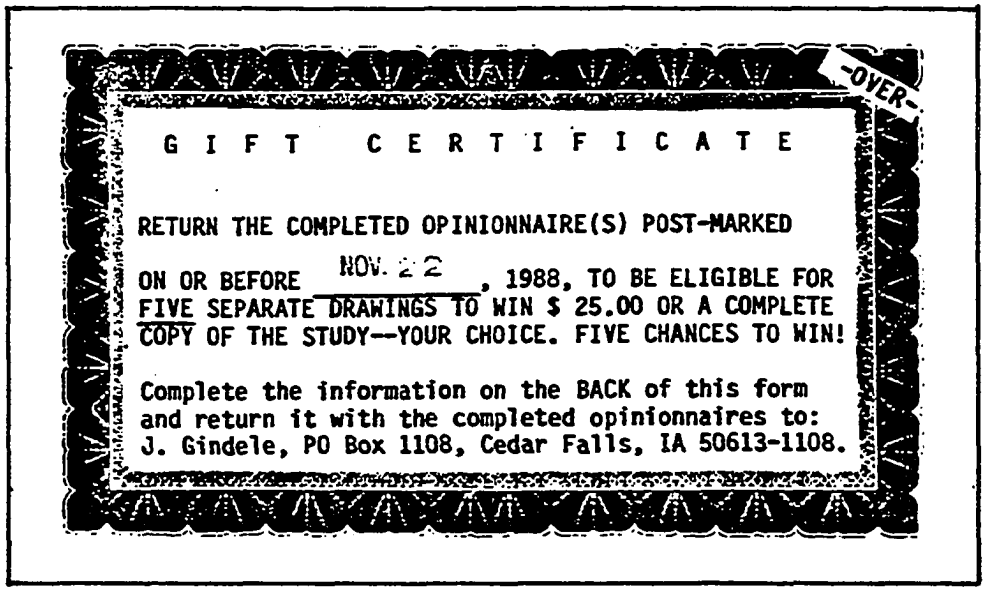
GIFT CERTIFICATE



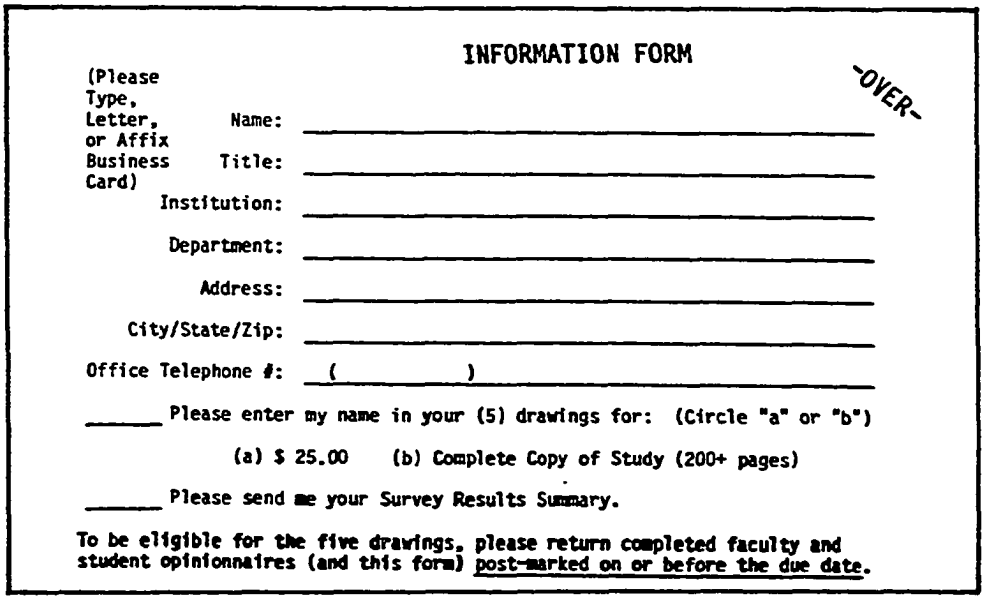
-OVER-

G I F T C E R T I F I C A T E

RETURN THE COMPLETED OPINIONNAIRE(S) POST-MARKED ON OR BEFORE NOV. 22, 1988, TO BE ELIGIBLE FOR FIVE SEPARATE DRAWINGS TO WIN $ 25.00 OR A COMPLETE COPY OF THE STUDY--YOUR CHOICE. FIVE CHANCES TO WIN!

Complete the information on the BACK of this form and return it with the completed opinionnaires to: J. Gindele, PO Box 1108, Cedar Falls, IA 50613-1108.

GOLD INFORMATION FORM



INFORMATION FORM

-OVER-

(Please Type, Letter, or Affix Business Card)

Name: _____

Title: _____

Institution: _____

Department: _____

Address: _____

City/State/Zip: _____

Office Telephone #: ( ) _____

_____ Please enter my name in your (5) drawings for: (Circle "a" or "b")

(a) $ 25.00 (b) Complete Copy of Study (200+ pages)

_____ Please send me your Survey Results Summary.

To be eligible for the five drawings, please return completed faculty and student opinionnaires (and this form) post-marked on or before the due date.

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LETTER TO GIFT CERTIFICATE WINNERS

April 15, 1989

Dear:

Congratulations on winning either $ 25.00 or a forthcoming copy of my dissertaion on recruitment in the graphic arts. Some time ago you completed a gold information form and submitted it by the prescibed deadline with a completed faculty and a few student opinionnaires. If you indicated your preference for a copy of the research study, rest assured you will receive one when it is completed and printed. Otherwise your check is enclosed.

Your efforts and those of your participating students were greatly appreciated. It is my feeling that some very useful information was obtained from the study and effective recruitment practices and other factors attracting students into various graphic arts programs were identified. Hopefully, graphic arts faculty will be able to utilize these findings to increase enrollment in their programs.

Professionally yours,

Joseph G. Gindele

P.S.: The following people were the recipients of one of the prizes described above:

Mr. Charles Anderla
Northwest Missouri State University

Mr. George M. Brown
Eastern Kentucky University

Mr. Lyndal Burnett,
East Texas State University

Mr. Steven E. Horwood
Murray State University

Dr. Keith A. Stenehjem
The University of North Dakota

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APPENDIX K

IGAEA NEWSLETTER NOTICE REQUESTING SUPPORT FOR STUDY

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NOTICE TO IGAEA MEMBERS REQUESTING SUPPORT FOR THE STUDY
IGAEA Newsletter, November 22, 1988

Attention College/University Graphic Arts Faculty Members

How can recruitment efforts be improved to address the critical shortage of qualified employees for the graphic arts industry and graphic arts education? What can be done to effectively increase student enrollment in your program in graphic arts EDUCATION, graphic arts TECHNOLOGY, and graphic arts MANAGEMENT?

IGAEA member, Joseph Gindele, is conducting a major study on recruitment practices in the graphic arts industry. He will be asking selected college/university faculty members (one from each institution) and a few of their students to complete opinionnaires. The purpose of the study is to identify those practices that are effective, from faculty and student points-of-view, in increasing student enrollment in undergraduate graphic arts programs in colleges and universities in the United States. The study will further delineate faculty and student views for each of the three specialized programs listed above. This dissertation research is endorsed by IGAEA, GATF, and the Department of Industrial Technology--University of Northern Iowa.

If you are contacted, Joseph asks for your assistance in completing and returning the faculty opinionnaire. He asks that you also distribute a few student opinionnaires to your students, to determine what recruitment practices they experienced and deem to be effective. Only through sharing your knowledge and experiences will we, and hopefully the graphic arts industry, benefit. All information will remain strictly confidential.

Contact: Joseph Gindele
1939 College Street, Apt. 235
Cedar Falls, Iowa 50613
(319) 277-4247

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APPENDIX L

ADDITIONAL TABLES, L-1 to L-23

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Table L-1

Grouped Age of Student Respondents by Graphic Arts Program

Age:	Education f	Education %	Technology f	Technology %	Management f	Management %
17-19	9	8.1	26	10.8	85	15.7
20-24	72	64.9	175	72.6	368	68.3
25-29	17	15.3	21	8.7	46	8.5
30-34	5	4.5	12	5.0	21	3.9
35-39	6	5.4	6	2.5	12	2.2
40-44	2	1.8	1	0.4	4	0.7
45-49	-	-	-	-	2	0.4
50-54	-	-	-	-	1	0.2
No response	1		3		6	
Total	112		244		545	

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Table L-2

Type of High School Students Attended by Graphic Arts Program

Type of high school:	Education f	Education %	Technology f	Technology %	Management f	Management %
Public	104	94.5	222	91.0	467	86.2
Private	5	4.5	20	8.2	70	12.9
Other (Specify)	1	0.9	2	0.8	5	0.9
No response	2		-		3	
Total	112	100.0	244	100.0	545	100.0

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Table L-3

Size of Student's High School Graduating Class by Graphic Arts Program

Size of high school graduating class:	Education f	Education %	Technology f	Technology %	Management f	Management %
1-50	8	7.1	18	7.4	38	7.0
51-100	14	12.5	34	13.9	62	11.5
101-250	34	30.4	70	28.7	157	29.0
251-500	40	35.7	89	36.5	199	36.8
over 500	16	14.3	33	13.5	85	15.7
No response	-		-		4	
Total	112	100.0	244	100.0	545	100.0

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Table L-4

Student's Marital Status
by Graphic Arts Program

Marital Status:	Education f	Education %	Technology f	Technology %	Management f	Management %
Single	86	78.2	215	88.5	482	89.1
Married	21	19.1	24	9.9	47	8.7
Divorced	3	2.7	4	1.6	12	2.2
No response	2		1		4	
Total	112	100.0	244	100.0	545	100.0

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Table L-5

Student's Race by Graphic Arts Program

Race:	Education f	Education %	Technology f	Technology %	Management f	Management %
Black	7	6.3	23	9.5	48	9.0
Caucasian	97	86.6	205	84.4	456	85.1
Oriental	-	-	5	2.1	14	2.6
Hispanic	4	3.6	5	2.1	7	1.3
Native Am. Indian	1	0.9	-	-	4	0.7
Other (specify)	3	2.7	5	2.1	7	1.3
No response	-		1		9	
Total	112	100.0	244	100.0	545	100.0

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Table L-6

Student's Religion by Graphic Arts Program

Religion:	Education f	Education %	Technology f	Technology %	Management f	Management %
Catholic	33	30.3	77	33.8	181	34.5
Jewish	3	2.8	3	1.3	18	3.4
Protestant	50	45.9	105	46.1	240	45.8
Other (specify)	23	21.1	43	18.8	85	16.2
No response	3		16		21	
Total	112	100.0	244	100.0	545	100.0

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Table L-7

Father's Highest Level of Education by Graphic Arts Program

Father's (or guardian's) highest educational level:	Education f	Education %	Technology f	Technology %	Management f	Management %
Grade 8 or lower	5	4.5	15	6.3	28	5.2
Some high school	10	8.9	13	5.4	37	6.9
High school grad.	35	31.3	78	32.6	161	29.9
Vo/Tech (post-h.s. graduate)	6	5.4	20	8.4	52	9.7
Assoc. degree 2-yr college)	7	6.3	30	12.6	61	11.3
Bachelor's degree	24	21.4	40	16.7	115	21.4
Master's degree	18	16.1	25	10.5	52	9.7
Doctor's degree	7	6.3	18	7.5	32	5.9
No response	-		5		7	
Total	112	100.0	244	100.0	545	100.0

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Table L-8

Mother's Highest Level of Education
by Graphic Arts Program

Mother's (or guardian's) highest educational level:	Education		Technology		Management	
	f	%	f	%	f	%
Grade 8 or lower	6	5.4	5	2.1	13	2.4
Some high school	6	5.4	7	2.9	25	4.7
High school grad	45	40.2	120	49.6	236	43.9
Vo/Tech (post-h.s. graduate)	5	4.5	19	7.9	34	6.3
Assoc. degree 2-yr college)	17	15.2	33	13.6	56	10.4
Bachelor's degree	18	16.1	40	16.5	112	20.9
Master's degree	13	11.6	12	5.0	48	8.9
Doctor's degree	2	1.8	6	2.5	13	2.4
No response	-		2		8	
Total	112	100.0	244	100.0	545	100.0

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Table L-9

Father's Primary Occupation
by Graphic Arts Program

Father's primary occupation:	Education f	Education %	Technology f	Technology %	Management f	Management %
Professional/Technical/Managerial	57	50.9	118	49.2	283	52.3
Agriculture/Fishery/Forestry/Related	12	10.7	11	4.6	31	5.7
Processing/Machine Trades/Manufacturing/Construction/Transportation/Mining	23	20.5	65	27.1	112	20.7
Service	9	8.0	19	7.9	39	7.2
Clerical	1	0.9	-	-	4	0.7
Sales	6	5.4	14	5.8	41	7.6
Homemaker	-	-	-	-	1	0.2
Other (specify)	4	3.6	13	5.4	30	5.5
No response	-		4		4	
Total	112	100.0	244	100.0	545	100.0

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Table L-10

Mother's Primary Occupation
by Graphic Arts Program

Mother's primary occupation:	Education f	Education %	Technology f	Technology %	Management f	Management %
Professional/Technical/Managerial	33	30.0	61	25.6	186	34.7
Agriculture/Fishery/Forestry/Related	1	0.9	2	0.8	7	1.3
Processing/Machine Trades/Manufacturing/Construction/Transportation/Mining	4	3.6	10	4.2	23	4.3
Service	20	18.2	24	10.1	47	8.8
Clerical	16	14.5	55	23.1	97	18.1
Sales	6	5.5	11	4.6	20	3.7
Homemaker	25	22.7	68	28.6	136	25.4
Other (specify)	5	4.5	7	2.9	20	3.7
No response	2		6		9	
Total	112	100.0	244	100.0	545	100.0

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Table L-11

Relationship of Father's Occupation to Graphic Arts by Graphic Arts Programs

Father's primary occupation related to graphic arts (business/industry or education):	Education		Technology		Management	
	f	%	f	%	f	%
Yes	21	18.8	29	12.0	101	18.7
No	19	81.3	212	88.0	438	81.3
No response	-		3		6	
Total	112	100.0	244	100.0	545	100.0

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Table L-12

Relationship of Mother's Occupation to Graphic Arts by Graphic Arts Programs

Mother's primary occupation related to graphic arts (business/industry or education):	Education		Technology		Management	
	f	%	f	%	f	%
Yes	14	12.5	15	6.2	42	7.8
No	98	87.5	228	93.8	499	92.2
No response	-		1		4	
Total	112	100.0	244	100.0	545	100.0

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Table L-13

Type of Program Students are Specializing in by Graphic Arts Program

Graphic arts program student is enrolled in:	Education f	Education %	Technology f	Technology %	Management f	Management %
Education	112	100.0	-	-	-	-
Technology	-	-	244	100.0	-	-
Management*	-	-	-	-	248	45.5
Tech/Mgmt*	-	-	-	-	297	54.5
No response	-		-		-	
Total	112	100.0	244	100.0	545	100.0

Note. *These two programs were combined, and the students were classified as management students in this study.

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Table L-14

Type of Graphic Arts Program Offered at the Institution by Graphic Arts Program

Baccalaureate degree graphic arts program offered:	Education		Technology		Management	
	f	%	f	%	f	%
Service	16	69.6	20	80.0	20	74.1
Concentration or Emphasis	20	87.0	21	84.0	20	74.1
Major	5	21.7	8	32.0	19	70.4
Other (specify)	2	8.7	1	4.0	2	7.4

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Table L-15

Institutional Offerings in Graphic Arts by Graphic Arts Program

4-yr fields of study offered at the institution:	Education		Technology		Management	
	f	%	f	%	f	%
Gr Arts Education	23	100.0	13	52.0	11	40.7
Gr Arts Technology	13	56.5	25	100.0	6	22.2
Gr Arts Management	8	34.8	5	20.0	19	70.4
Gr Arts Tech/mgmt comb.	5	21.7	3	12.0	13	48.1

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Table L-16

Recruitment in the Institution

Recruitment for the graphic arts program is accomplished by:	Education f	Education %	Technology f	Technology %	Management f	Management %
Graphic arts faculty	15	65.2	15	60.0	23	85.2
Gr arts faculty in conjunction with department faculty	15	65.2	12	48.0	5	18.5
Department faculty	12	52.2	11	44.0	6	22.2
College/University personnel	12	52.2	17	68.0	20	74.1
Other (specify)	2	8.7	4	16.0	6	22.2

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Table L-17

Additional EDUCATION Recruitment Practices Used by Faculty

(5) Work with Student Clubs

(4) Recommendations from graduates in the field, not necessarily graphic arts or industrial tech.

(4) Meet with university counseling center personnel.
(4) Meet with general arts & sciences advisors.

(5) Students selling other students on the program

(4) Departmental open house during the university's alumni-weekend homecoming.

(4) Presenting teaching career information to the students who take the basic introductory course in Graphic Arts (I have gained about one G.A. Educ student per year this way).

(2) Brochures to high school guidance counselors.
(2) Posters to Jr. High and H.S. guidance counselors.

Additional MANAGEMENT Recruitment Practices Used by Faculty

(5) PSAT/SAT score w/Personalized Follow-up
(5) Activities with our local graphic arts trade association--funded by them

(5) Faculty is active in GA industry associations. Long range results; but very good.
(5) Internships. Students do recruiting while on internship assignment.

(5) Strong use of alumni contacts

(5) Display set up at national and regional trade shows.

(5) Three-day field trip to major printing/publishing firms to-show modern technology and important speakers.

(4) The Indy Craftsmans Club sponsors a special evening for all interested high school students w/colleges and universities presenting their programs.

(5) Presentations to graphic arts clubs and associations by me, the chair.

Note. Additional practices were not reported for TECHNOLOGY programs; Rank (5)=Great Effect, (4)=Moderate/Average Effect, (3)=Little Effect, (2)=No Effect.

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Table L-18

Additional Recruitment Practices and Other Influential Factors Experienced and Rated "Great Effect" (5) by the Education Student

	EDUC Practices/Factor (n = 33)	f	%	Rank
1.	Own interest/experience	9	27.3	1
2.	An introductory, required or elective class	4	12.1	2-3
3.	Graphic arts course/program	4	12.1	2-3
4.	Graphic arts instructor	2	6.1	4-7
5.	Graphic arts students	2	6.1	4-7
6.	Department head, Dean	2	6.1	4-7
7.	Teaching	2	6.1	4-7
8.	College catalog	1	3.0	8-15
9.	Tour	1	3.0	8-15
10.	Work experience or internship	1	3.0	8-15
11.	Computer/technology involvement	1	3.0	8-15
12.	Secondary school course(s)	1	3.0	8-15
13.	Relatives	1	3.0	8-15
14.	Teacher	1	3.0	8-15
15.	High school/college activities	1	3.0	8-15

Note. f=frequency; %=percent.

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Table L-19

Additional Recruitment Practices and Other Influential Factors Experienced and Rated "Great Effect" (5) by Technology Students

	TECH Practices/Factor (n = 58)	f	%	Rank
1.	Own interest/experience	6	10.3	1
2.	An introductory, required, or elective class	4	6.9	2-5
3.	Relatives	4	6.9	2-5
4.	Friends	4	6.9	2-5
5.	Industry representative or show	4	6.9	2-5
6.	Graphic arts instructor	3	5.2	6-10
7.	College catalog	3	5.2	6-10
8.	Graphic arts students	3	5.2	6-10
9.	Secondary school course(s)	3	5.2	6-10
10.	Career opportunity/guidance	3	5.2	6-10
11.	Graphic arts course/program	2	3.4	11-17
12.	Work experience or internship	2	3.4	11-17
13.	Advisor	2	3.4	11-17
14.	High school/college activities	2	3.4	11-17
15	Photography interest	2	3.4	11-17
16.	Year book/newspaper staff	2	3.4	11-17
17.	Money	2	3.4	11-17
18.	Coaches/sports advertisement	1	1.7	18-25
19.	Department head, Dean	1	1.7	18-25
20.	Computer/technology involvement	1	1.7	18-25

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Table L-19 (continued)

	TECH Practices/Factor (n = 58)	f	%	Rank
21.	Teacher	1	1.7	18-25
22.	Contests	1	1.7	18-25
23.	Advertising/bulletin/readings, display	1	1.7	18-25
24.	Creativity	1	1.7	18-25
25.	Working environment	1	1.7	18-25

Note. f=frequency, %=percent.

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Table L-20

Additional Recruitment Practices and Other Influential Factors Experienced and Rated "Great Effect" (5) by the Management Student

	MGMT Practices/Factor (n = 185)	f	%	Rank
1.	Friends	30	16.2	1
2.	Work experience or internship	25	13.5	2
3.	Own interest/experience	20	10.8	3
4.	Career opportunity/guidance	16	8.6	4
5.	Graphic arts instructor	12	6.5	5-6
6.	An introductory, required, or elective class	12	6.5	5-6
7.	Graphic arts students	11	5.9	7
8.	College catalog	6	3.2	8-9
9.	Relatives	6	3.2	8-9
10.	Graphic arts course/program	5	2.7	10-12
11.	Photography interest	5	2.7	10-12
12.	Creativity	5	2.7	10-12
13.	Department head, Dean	4	2.2	13-15
14.	Tour	4	2.2	13-15
15.	Secondary school course(s)	4	2.2	13-15
16.	Computer/technology involvement	3	1.6	16-18
17.	Teacher	3	1.6	16-18
18.	Advertising/bulletin/readings, display	3	1.6	16-18
19.	Advisor	2	1.1	19-21

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Table L-20 (continued)

	MGMT Practices/Factor (n = 185)	f	%	Rank
20.	High school/college activities	2	1.1	19-21
21.	Year book/newspaper staff	2	1.1	19-21
22.	Contests	1	0.5	22-26
23.	Industry representative or show	1	0.5	22-26
24.	Working environment	1	0.5	22-26
25.	Personal	1	0.5	22-26
26.	Financial aid	1	0.5	22-26

Note. f=frequency, %=percent.

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Table L-21

"t"-Tests for Perceived Effectiveness Means of Recruitment Practices for Graphic Arts Education Programs (Faculty vs Students)

Recruitment Practices (Education)	Frequency F	Frequency S	Means F	Means S	t-ratio
Personal Communication					
1. Personal letters to interested high school students.	14	17	3.93	3.24	2.59 *
2. Personal interviews with high school or coll/univ students.	20	26	4.25	3.54	2.57 *
3. Contacts with high school guidance counselors.	14	17	3.00	3.00	0.00
4. Contacts with high school graphic arts teachers.	20	21	3.90	3.90	-0.02
5. Contacts with graphic arts alumni.	14	8	3.29	3.13	0.33
6. Contacts with other high school (non-graphic arts) industrial education technology teachers or alumni.	18	23	3.50	3.61	-0.37
7. Contacts with high school supervisors and administrators through student teaching programs.	14	19	3.21	2.84	1.33
8. Visits to high schools by coll/univ graphic arts or industrial education/technology faculty.	18	30	3.61	3.27	1.21
9. Visits to community colleges by coll/univ graphic arts or other ind. education/technology faculty.	11	9	3.64	3.00	1.70
10. Coll/univ paid recruiters traveling the state and country.	14	17	3.50	3.41	0.30
11. Coll/univ graphic arts students recruiting other coll/univ and high school students.	16	29	4.19	3.48	2.93 *

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Table L-21 (continued)

Recruitment Practices (Education)	Frequency F	Frequency S	Means F	Means S	t-ratio
12. Presentation to coll/univ freshmen during freshman orientation.	14	29	3.50	3.14	1.17
13. Presentation to fraternity or sorority students.	1	7	2.00	2.86	-0.66
14. Coll/univ coaches representing the graphic arts program to athletic recruits.	8	8	3.63	3.88	-0.46
Literature and Media					
15. Graphic arts display at shopping malls or other locations.	8	45	3.25	3.13	0.38
16. Display and recruitment at annual graphic arts or industrial educ./ tech. conventions/conferences.	12	25	3.67	3.28	1.29
17. Distribution of brochures to high school and community college students describing the coll/univ graphic arts program.	19	50	3.74	3.64	0.43
18. Distribution of fliers to other coll/univ department faculty and advisors across campus (outside of graphic arts or ind. educ./tech.) with graphic arts course offerings.	16	35	3.25	3.46	-0.73
19. Use of posters with tear-off cards advertising coll/univ graphic arts program to high school and community college students.	10	27	3.40	2.96	1.25
20. Recruitment packet for any interested party.	22	43	3.77	3.81	-0.19
21. Filmed presentation (slides, slides and audio, or videotape) of graphic arts program offerings.	13	26	3.69	3.42	0.81

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Table L-21 (continued)

Recruitment Practices (Education)	Frequency F	Frequency S	Means F	Means S	t-ratio
22. Newsletters for high school graphic arts teachers from coll/ univ graphic arts faculty.	8	17	3.38	3.06	0.86
23. Advertisement of the graphic arts program on TV, the radio, in a newspaper or magazine.	5	16	3.20	3.06	0.26
Coll/Univ Program and Facilities					
24. Indicating to non-majors in the institution advantages of graphic arts careers, by graphic arts or other ind educ/tech faculty.	16	63	3.94	3.65	1.10
25. Encouraging graphic arts or other industrial education/technology teachers to bring their secondary school students (grades 7-12) to campus.	17	27	3.71	3.82	-0.34
26. Impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the coll/univ.	18	38	3.78	3.76	0.05
27. Offering related general education courses through the graphic arts or industrial education/technology department which stimulate the interest of coll/univ students who have not yet decided to concentrate or major in graphic arts.	20	72	3.70	3.90	-0.72
28. Providing contests on campus for high school students.	12	16	3.58	3.50	0.18
29. Providing career days, open house, or conference activities on campus for high school students.	18	49	3.44	3.71	-1.29

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Table L-21 (continued)

Recruitment Practices (Education)	Frequency F	Frequency S	Means F	Means S	t-ratio
30. Coll/univ faculty conducting annual recruitment conference on campus for secondary school counselors and/or (graphic arts or other industrial education/technology) teachers.	12	21	3.33	3.14	0.56
31. Offering a coll/univ credit introductory type course in graphic arts for high school seniors.	3	11	2.33	3.00	-1.09
Other					
32. Scholarships for graphic arts (or other industrial education/technology) coll/univ programs.	15	17	3.27	3.71	-1.42

Note. F = Faculty (N = 23), S = Students (N = 112).
* = $p < .05$.

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Table L-22

"t"-Tests for Perceived Effectiveness Means of Recruitment Practices for Graphic Arts Technology Programs (Faculty vs Students)

Recruitment Practices (Technology)	Frequency F	Frequency S	Means F	Means S	t-ratio
Personal Communication					
1. Personal letters to interested high school students.	17	29	3.65	3.17	1.82
2. Personal interviews with high school or coll/univ students.	17	41	4.06	3.51	2.02 *
3. Contacts with high school guidance counselors.	20	29	3.20	3.00	0.70
4. Contacts with high school graphic arts teachers.	21	26	3.90	3.39	1.78
5. Contacts with graphic arts alumni.	19	14	3.47	2.50	3.42 *
6. Contacts with other high school (non-graphic arts) industrial education technology teachers or alumni.	20	21	3.40	2.95	1.84
7. Contacts with high school supervisors and administrators through student teaching programs.	14	16	3.07	2.63	1.81
8. Visits to high schools by coll/univ graphic arts or industrial education/technology faculty.	17	44	3.47	3.23	0.94
9. Visits to community colleges by coll/univ graphic arts or other ind. education/technology faculty.	17	18	3.24	2.89	1.10
10. Coll/univ paid recruiters traveling the state and country.	19	25	3.32	2.80	2.00
11. Coll/univ graphic arts students recruiting other coll/univ and high school students.	16	52	3.94	3.77	0.59

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Table L-22 (continued)

Recruitment Practices (Technology)	Frequency F	Frequency S	Means F	Means S	t-ratio
12. Presentation to coll/univ freshmen during freshman orientation.	13	50	3.15	3.34	-0.90
13. Presentation to fraternity or sorority students.	0	11	0.00	2.64	----
14. Coll/univ coaches representing the graphic arts program to athletic recruits.	6	18	2.50	3.56	-2.06
Literature and Media					
15. Graphic arts display at shopping malls or other locations.	6	105	2.50	3.42	-2.13 *
16. Display and recruitment at annual graphic arts or industrial educ. tech. conventions/conferences.	12	41	3.17	3.27	-0.43
17. Distribution of brochures to high school and community college students describing the coll/univ graphic arts program.	21	80	3.52	3.53	-0.01
18. Distribution of fliers to other coll/univ department faculty and advisors across campus (outside of graphic arts or ind. educ./tech.) with graphic arts course offerings.	15	81	3.13	3.51	-1.52
19. Use of posters with tear-off cards advertising coll/univ graphic arts program to high school and community college students.	11	37	3.09	2.97	0.35
20. Recruitment packet for any interested party.	20	77	3.85	3.79	0.25
21. Filmed presentation (slides, slides and audio, or videotape) of graphic arts program offerings.	11	40	3.09	3.48	-1.09

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Table L-22 (continued)

Recruitment Practices (Technology)	Frequency F	Frequency S	Means F	Means S	t-ratio
22. Newsletters for high school graphic arts teachers from coll/ univ graphic arts faculty.	4	42	2.75	3.62	-1.49
23. Advertisement of the graphic arts program on TV, the radio, in a newspaper or magazine.	2	45	3.00	3.53	-0.71
Coll/Univ Program and Facilities					
24. Indicating to non-majors in the institution advantages of graphic arts careers, by graphic arts or other ind educ/tech faculty.	20	111	3.50	3.78	-1.15
25. Encouraging graphic arts or other industrial education/technology teachers to bring their secondary school students (grades 7-12) to campus.	19	20	3.26	3.15	0.34
26. Impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the coll/univ.	21	57	3.33	3.44	-0.38
27. Offering related general education courses through the graphic arts or industrial education/technology department which stimulate the interest of coll/univ students who have not yet decided to concentrate or major in graphic arts.	16	133	3.81	4.06	-1.02
28. Providing contests on campus for high school students.	7	37	3.14	3.30	-0.36
29. Providing career days, open house, or conference activities on campus for high school students.	21	84	3.43	3.52	-0.40

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Table L-22 (continued)

Recruitment Practices (Technology)	Frequency F	Frequency S	Means F	Means S	t-ratio
30. Coll/univ faculty conducting annual recruitment conference on campus for secondary school counselors and/or (graphic arts or other industrial education/technology) teachers.	14	24	3.21	3.00	0.65
31. Offering a coll/univ credit introductory type course in graphic arts for high school seniors.	1	30	2.00	3.70	-1.32
Other					
32. Scholarships for graphic arts (or other industrial education/technology) coll/univ programs.	11	20	3.18	3.15	0.08

Note. F = Faculty (N = 25), S = Students (N = 244).
* = $p < .05$.

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Table L-23

"t"-Tests for Perceived Effectiveness Means of Recruitment Practices for Graphic Arts Management Programs (Faculty vs Students)

Recruitment Practices (Management)	Frequency F	Frequency S	Means F	Means S	t-ratio	
Personal Communication						
1. Personal letters to interested high school students.	20	84	3.70	3.25	1.95	
2. Personal interviews with high school or coll/univ students.	22	122	4.23	3.61	2.83	*
3. Contacts with high school guidance counselors.	23	77	3.13	3.21	-0.35	
4. Contacts with high school graphic arts teachers.	23	87	4.00	3.76	0.95	
5. Contacts with graphic arts alumni.	24	47	3.92	3.40	1.98	
6. Contacts with other high school (non-graphic arts) industrial education technology teachers or alumni.	20	52	3.05	3.10	-0.20	
7. Contacts with high school supervisors and administrators through student teaching programs.	12	52	2.75	2.87	-0.41	
8. Visits to high schools by coll/univ graphic arts or industrial education/technology faculty.	22	115	3.64	3.23	1.83	
9. Visits to community colleges by coll/univ graphic arts or other ind. education/technology faculty.	21	41	3.86	3.20	2.41	*
10. Coll/univ paid recruiters traveling the state and country.	23	57	3.48	3.12	1.70	
11. Coll/univ graphic arts students recruiting other coll/univ and high school students.	24	128	4.17	3.65	2.27	*

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Table L-23 (continued)

Recruitment Practices (Management)	Frequency F	Frequency S	Means F	Means S	t-ratio
12. Presentation to coll/univ freshmen during freshman orientation.	20	119	3.50	3.44	0.30
13. Presentation to fraternity or sorority students.	4	25	3.25	2.64	1.30
14. Coll/univ coaches representing the graphic arts program to athletic recruits.	9	33	2.78	3.09	-0.76
Literature and Media					
15. Graphic arts display at shopping malls or other locations.	13	168	3.31	3.37	-0.25
16. Display and recruitment at annual graphic arts or industrial educ./ tech. conventions/conferences.	18	76	3.50	3.32	0.72
17. Distribution of brochures to high school and community college students describing the coll/univ graphic arts program.	22	256	3.82	3.78	0.24
18. Distribution of fliers to other coll/univ department faculty and advisors across campus (outside of graphic arts or ind. edcc./tech.) with graphic arts course offerings.	18	198	3.22	3.49	-1.89
19. Use of posters with tear-off cards advertising coll/univ graphic arts program to high school and community college students.	13	112	3.54	3.13	1.36
20. Recruitment packet for any interested party.	22	256	4.14	3.87	2.03
21. Filmed presentation (slides, slides and audio, or videotape) of graphic arts program offerings.	16	86	3.69	3.43	1.07

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Table L-23 (continued)

Recruitment Practices (Management)	Frequency F	Frequency S	Means F	Means S	t-ratio
22. Newsletters for high school graphic arts teachers from coll/ univ graphic arts faculty.	7	126	3.43	3.57	-0.36
23. Advertisement of the graphic arts program on TV, the radio, in a newspaper or magazine.	9	81	3.56	3.26	0.81
Coll/Univ Program and Facilities					
24. Indicating to non-majors in the institution advantages of graphic arts careers, by graphic arts or other ind educ/tech faculty.	19	223	3.74	3.95	-0.91
25. Encouraging graphic arts or other industrial education/technology teachers to bring their secondary school students (grades 7-12) to campus.	19	57	3.84	3.40	1.45
26. Impact of modern facilities and programs attracting high school students and their parents to the graphic arts program during visits to the coll/univ.	24	160	4.04	3.54	2.30 *
27. Offering related general education courses through the graphic arts or industrial education/technology department which stimulate the interest of coll/univ students who have not yet decided to concentrate or major in graphic arts.	21	271	3.76	3.89	-0.79
28. Providing contests on campus for high school students.	5	68	3.20	3.46	-0.48
29. Providing career days, open house, or conference activities on campus for high school students.	21	217	3.95	3.61	1.59

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Table L-23 (continued)

Recruitment Practices (Management)	Frequency F	Frequency S	Means F	Means S	t-ratio
30. Coll/univ faculty conducting annual recruitment conference on campus for secondary school counselors and/or (graphic arts or other industrial education/technology) teachers.	16	64	3.50	3.19	1.11
31. Offering a coll/univ credit introductory type course in graphic arts for high school seniors.	7	75	4.29	3.95	0.79
Other					
32. Scholarships for graphic arts (or other industrial education/technology) coll/univ programs.	22	88	3.86	3.91	-0.17

Note. F = Faculty (N = 27), S = Student (N = 545).
* = $p < .05$.

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APPENDIX M

SELECTED FACULTY COMMENTS

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Problems Faculty Members Have in Recruiting Students into Graphic Arts Programs

Education Programs:

1. The university requires that one work in five areas to maintain employment: research, community service, university service, student growth and development, and teaching. As an educator, it is difficult to do all of this and still devote time to curriculum development and student recruitment. Second, funding of these recruitment practices is very limited.

2. Scholarship $ (or lack of) for students, lab equipment, travel $.

3. Our problem is two-fold--time and money. We cannot get the release time to make the visitations that are necessary for good recruitment. We also have a budget problem as far as monies are concerned. Our best recruiting is done by our students and people who have dependents and work in graphic arts.

4. Outdated equipment and facility, lack of computer support equipment.

5. No special effort beyond a general college recruiting and a division recruiting effort is being made. We are drastically understaffed. I would like to do more personally and plan to do so, but I teach 10 comprehensive courses (on a rotating basis) and handle the practicum interns, advisees, etc.. I plan to use a newsletter to reach high school students in the near future, as well as additional flyers & posters.

6. We do not have time to recruit. During the past several years the demands for other things have been so great that recruitment is unheard of.

7. We've done a study (and significant) job of recruiting over the years. We've tried nearly everything you've listed on this survey. The sad fact is, we have trouble selling students on a teaching career. We have a lot of interest in our graphic arts courses (they're always filled), but few people really want to teach.

8. Funding--no real support, especially from Dean's level, time.

9. The real problems which exist in recruiting students in technology education--graphic arts or any other area of interest are these: (1) lack of monies for the necessary high-tech and up-to-date equipment, (2) lack of a planned recruiting program by the department. Recruitment has depended primarily on alumni, teachers in the field, and past reputation.

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10. After waiting for years for the Admissions people to recruit graphic arts students the results have been:

a. They will go to a school if the graphics person requests them to. However, the instructor must set up the appointment and from past experience he must go with the admissions counselor if a good program is expected.

b. They do not pin-point the students on most visits. They go to the school, set up a table and wait for students. Students at the high school are never told that a college with a graphics program is visiting.

This year I have started:

a. Posters with rip-off cards.

b. Letters to teachers telling them that a counselor will be on campus and please notify their graphics students.

c. Letters to all graphics and head guidance counselors in the state telling them about the program. Included is information about the program and rip-off cards.

d. Mailings and posters to Industrial Arts programs that may/may/not have graphics programs.

I feel that the pin-point approach is what will work the best--time will tell.

11. The biggest problem in recruitment is letting potential students know about the program.

12. Lack of funding to maintain relatively up-to-date equipment. That was a major reason for our declining enrollment 3-4 years ago as cited by students going to another university or school. The lack of a serious and year-round recruitment strategy developed and carried out by the technology education department.

13. Lack of funding, a Dean who really isn't interested!, and a lame duck chairperson.

14. _____ University has recently started an engineering college using the department of technology curriculum and faculty as the foundation. Four years ago we had over 1,000 technology majors and about 100 graphic arts majors. Today we have approximately 250-300 technology majors and only 25-30 graphic arts majors. Faculty members have been reduced also. Most funds and curriculum concerns are engineering related. Funds have been greatly reduced in the technology department. I am now attempting to overcome the many problems by seeking assistance from the printing industries in northern ____ [state] and alumni.

15. Time to put together recruiting materials to be used--since our university is so world wide in nature--hard to identify clientele and who needs info unless they contact us. Also, our secondary schools are weak in graphic arts.

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16. Equipment in facility not state-of-the-art; bad for first impression.

17. Our program changed to Technology Education in 1986. The core includes an Info-Tech class that is primarily mass print/mass electronics technology. Included in the program are three electives and a senior project where a student interested in learning about the impact of the print media, "printing/publishing/packaging" industry, can develop the necessary expertise. Currently there appears to be good interest in GA among the new students.

18. Admission department on campus refuses to recognize our department and does not refer students to us. Guidance counselors turn a deaf ear on our attempts to raise their consciousness about graphic arts management program and education.

Technology Programs:

1. Very few high school graphic arts students in this area. Students are accepted into school that are of low-income families. They must be eligible for the Pell grant and have a moderately high ACT score.

2. No institutional funding for these direct efforts; no release time.

3. Funding. Limited faculty--cannot handle any more students.

4. Lack of funding and released time for faculty to visit local schools and community colleges. Current need to update program and begin to develop an integrated program with other areas of emphasis in the department (e.g., packaging, Design/Drafting, etc.). Need to establish an advisory board to create a better working relationship w/area firms--this may be the foundation for developing internships in graphics. This is a critical recruitment tool in my estimation.

5. Funding, lack of industry support, old equipment.

6. Time, funding, # of faculty.

7. The largest problem facing faculty in recruitment of quality students is finding the time to do the recruiting.

8. SAT admissions requirements usually eliminate 2/3 of all high school students interested in the program.

9. Funding is a major problem. This academic year I was awarded a total of $ 100.00 for all professional travel; including in-state, out-of-state, recruitment, etc.

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10. Lack of money--budget needs high, amount allocated "0." State of art equipment--23 years behind time.

11. The local economy in this area has had an influence in our overall recruiting. Our enrollment campus-wide has increased greatly over the past two years. Our major problem in our graphic arts area is retention. We are a small unit associated with production for the university. If we could retain the students our enrollment would be good compared to our faculty size.

12. Funding and time a great problem.

13. We have not recruited to any extent in the past. Our facility was very old as was the equipment in it. We now have a new facility and we plan to recruit. The graphics program was a component in the education sector only. It still is not a component of the Ind. Tech. The new facility and new equipment will allow us to change that.

14. Many high school programs have better equipment than ours. Capital equipment funding has been slim. Our program could use the entire capital equipment budget for the college and would still have equipment that is inferior to some high schools.

15. University budget is non-existent; we depend on "soft" monies that are rarely available for funding!

16. Time and money

17. Not enough time and funds to administer and carry out a quality recruiting effort.

18. Due to budget cuts across the nation, the purchase of "new" technology. How can a program be impressive technology when all the money goes to places with large programs, i.e., Stout, RIT, Clemson? We do very good work with what we have, but many high school students come here having better equipment than we do. This is not just a problem here at _____ university, but at other schools across the country. We constantly beg and go to surplus "give-a-ways" around the midwest.

Management Programs:

1. There is great institutional enthusiasm and support. We are, however, only in our first year of operation.

2. Have found that our representatives are not interested in encouraging students into non-liberal arts programs. Counselors in high school are not receptive to technical or anything that looks technical. High school students are not encouraged to seek information regarding technical education.

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3. Time allocation, travel funds, quality industry brochures other than university materials, and personnel time commitment.

4. Funding (travel, lodging) is a problem. We use industry displays extensively and there often is a booth rental charge. Finding the time to produce newsletters, other recruitment PR material when teaching full time is a problem. Funds for extensive mailing.

5. Travel funds are tough to get. We must look at recruiting math, science students, and women as our Industrial Education program in high schools close down. We have to re-look and re-focus our recruitment efforts.

6. Very little recruiting is being done at present. This is my first year at the university and I am very interested in turning the current trend around. More support is needed, at this university, from the powers above!

7. Funding, time

8. Limited funds and release time to visit high schools. Security problems and formal visiting procedures at high schools limits the number of schools you can visit in one day. Decrease in number and quality of students in graphic arts because of an increase in graduation requirements.

9. No recruiting budget, lack of personnel

10. Attracting very bright students with strong academic background who are of interest to our Admissions Office to an industry not perceived to be a "glamorous" one. Lack of success in external recruiting has led to dependence on internal recruitment of undeclared or interested students.

11. The biggest problem with recruiting students in my program are as follows: 1) no graphic arts in high school (only at some area vocational schools), 2) little or no funding for latest technology in equipment and facilities, and 3) too many outside (graphic arts) assignments for department or university that takes away from time to recruit and build graphic arts program.

12. Like anything else, as you well know, is finding time! ____ State University does provide us transportation, lodging, food, etc. to recruit--but finding that "release" or free time is difficult. Our administration really does support us in this effort!

13. Lack of adequate funding and poor funding for transportation to recruitment areas.

14. Time away from classes and campus, funding--subsistence funding--advertising and AV materials.

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15. None--Good graduates produce a positive attitude with industry and an increase in job offers. The Printing Association of ____ [state] and industry support this program, with equipment, scholarship, student enrichment funds, high school summer program and teacher workshop (runs $ 40,000 to $ 70,000 per year). This also includes money for teachers travel to many different workshops, conventions, etc. #1 turn out "good" students and a program could be successful.

16. The Division of Graphic Arts faculty has experienced the following problems when recruiting students into the graphic arts management programs:

a. A negative understanding among high school counselors as to what graphic arts is and what kind of careers are available at a four-year degree granting university.
b. The closing of graphic arts programs and merging with fine arts photography as a means to cost effectiveness
c. Graphic arts industries unwillingness to play a major role in assisting graphic arts programs at the secondary, post-secondary and college level.
d. The lack of a good public relation program at the high school and post-secondary level, to get the word out about careers in graphic arts.
e. To update vocational education teachers as it relates to the placement of graphic arts graduates in the world of work, that is to re-direct and encourage students with the talent to pursue advanced degrees.

17. Funding, transportation, etc. (this entire category of support)

18. Funding. Having time available when not doing teaching, research and service. The University recruiting office does not want individual programs out visiting high schools.

19. Funding to attend events

20. High entrance requirements for students. Most of the typical printing students do not have the academic achievement to get into the university.

21. Low budget for recruitment operation, lack of student familiarity with graphic arts field, and lack of personnel.

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VITA

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Graduate Teaching Assistant
Communication Systems
Department of Industrial Technology
University of Northern Iowa, 1982-83

Audiovisual Coordinator
Robbinsdale Senior High School, ISD 281
Robbinsdale, Minnesota, 1981-82

Industrial Technology Teacher (Woods)
Hosterman Junior High School, ISD 281
New Hope, Minnesota, 1978-79

Industrial Technology Teacher (Graphic Arts, Photography, Electronics)
Robbinsdale Senior High School, ISD 281
Robbinsdale, Minnesota, 1970-78

Mathematics and Industrial Technology Teacher (Electricity/Electronics, Driver Education)
Coon Rapids Junior High School, ISD 11
Coon Rapids, Minnesota, 1968-70

Industrial Technology Teacher (Electronics)
Faribault Senior High School, ISD
Faribault, Minnesota, Spring 1968

Prof. Licenses
Regular:
*Industrial Education, K-12
*Mathematics, 7-12
*Media Generalist, K-12
*Audiovisual Director, K-12
*Audiovisual Coordinator, K-12
*Librarian, K-12
*Driver Education
*Social Studies, all, 5-8 (middle school)
*Mathematics 5-8, (middle school)

Vocational:
*Trade & Industry Coordinator, Cooperative Training
*Work Experience Coord., Disadvantaged/Handicapped
*Related Mathematics
*Graphic Arts (secondary, post-secondary, adult)

Professional Affiliation:
*American Federation of Teachers
*Association for Educational Communications & Technology
*American Vocational Association
*Council on Technology Teacher Education
*Epsilon Pi Tau
*Graphic Arts Technical Foundation
*International Graphic Arts Education Association
*International Technology Education Association
*Minnesota Educational Media Organization
*Minnesota Federation of Teachers
*National Association of Industrial Technology
*National Association of Industrial & Technical Teacher Educators
*Phi Delta Kappa
*Robbinsdale Federation of Teachers
*Technical Association of the Graphic Arts
*Waterloo Club of Printing House Craftsmen
*World Future Society

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Publications:

1. Recruitment Practices Influencing Enrollment of Four-Year Undergraduate Students Who Specialize in Graphic Arts. A dissertation for the D.I.T. degree in Industrial Technology, University of Northern Iowa, Cedar Falls, IA, May 1989.

2. An Analysis of the Use of Videodisc Technology in Graduate Library and Instructional Media Studies in North America. A field study for the Ed.S. degree in Information Media, St. Cloud State University, St. Cloud, MN, March 1988.

3. "Industry Internships: Catalyst for Professional Growth," (co-author) Visual Communications Journal, Summer 1987.

4. Market Segment Survey of Trade Shops, Publication and Large Commercial Printers, (co-author of a $ 20,000 research study) 3M Company, Graphic Preparation Division, August 1986.

5. "General Education, Technology Education, and Industrial Technology in Japan (an Internship Experience)," (co-author) ERIC ED 280 430, September 1985.

6. "Communications Technology and the Industrial Arts/Technology Educator," (co-author) The Technology Teacher, December 1984.

7. Critical book review of Work in the 21st Century, The Journal of Epsilon Pi Tau, Fall 1984.

8. Critical book review of Megatrends: Ten New Directions Transforming Our Lives, (co-author) Association for Educational Data Systems (AEDS) Journal, Fall 1984.

9. "Interactive Videodisc Technology and Its Implications for Education," (co-author) Technological Horizons in Education (T.H.E.) Journal, also on microfiche in ERIC ED 268 963, August 1984.

10. "What Does It Cost to Run a Home?," (co-author) VocEd: Journal of the American Vocational Association, June 1981.

11. Dimensions of Loss and Death Education: A Student Activity Workbook, 57 activities, 76 pgs., EDU-PAC Publ. Co., 1979/1986.

12. 7 Cafeteria Posters for behavioral lunchroom management, (published) EDU-PAC Publ. Co., 1978.

13. Computer Project Kit, (co-author) EDU-PAC Publ. Co., 1977.

14. An Analysis of the Use of Five Learning Activity Packages in the Graphic Arts, a thesis for the M.S. degree in Industrial Education, University of Wisconsin--Stout, Menomonie, WI, August 1971.

15. Learning Activity Packages (1) Introduction to the Four Major Printing Processes, (2) Identification of Machines, Tools and Equipment Commonly Found in the Graphic Arts Laboratory, (3) Common Terms and Definitions Used in Graphic Arts, (4) Safety in the Graphic Arts Laboratory, (5) Occupational Opportunities in the Graphic Arts Field, EDU-PAC Publ. Co., 1971.

16. An Instructional Package on How to Make an Instructional Package, (co-author) EDU-PAC Publ. Co., 1971.

17. Dimensions of Loss and Death Education: A Resource and Curriculum Guide, (published) EDU-PAC Publ. Co., 1979/1986.

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