DOCUMENT RESUME

ED 103 624 CE 003 219

TITLE	Graduate Programs in Industrial Education: Monograph 4.
INSTITUTION	American Council on Industrial Arts Teacher Education, Washington, D.C.
PUB DATE	74
NOTE	99p.
AVAILABLE FROM	American Council on Industrial Arts Teacher Education, 1201 Sixteenth St. NW, Washington, D.C. 20036 ($2.00)
EDRS PRICE	MF-$0.76 HC Not Available from EDRS. PLUS POSTAGE
DESCRIPTORS	*Degree Requirements; Doctoral Programs; *Graduate Study; Higher Education; *Industrial Education; Literature Reviews; Masters Degrees; Program Descriptions; *Program Development; Specialists; *State of the Art Reviews; Teacher Education; Teacher Programs; Vocational Education
IDENTIFIERS	*Readings (Collections)

ABSTRACT

The purpose of the monograph is the identification of unsolved problems in providing programs of graduate education in the field of industrial education. In part one there are reports of a literature review on graduate education and a study of the status of industrial education graduate programs. Parts two, three and four are addressed to current issues in master's degree (part two), sixth year specialist's certificate (part three), and doctoral degree (part four) programs in industrial education. In each of these parts there are two articles presenting issues and a third article which summarizes and highlights the issues presented. Contributors to the monograph include: T. L. Wentling, R. Harris, R. Tomlinson, D. L. Passmore, G. W. Poor, R. A. Swanson, H. C. Kazanas, F. M. Miller, J. Streichler, M. J. Drenforth, J. McF. Pollock, D. G. Lux, R. N. Evans, and J. Moss, Jr. (Author/MW)

Graduate Programs in Industrial Education

by Graduate Studies Committee
American Council on Industrial Arts Teacher Education

American Council on Industrial Arts Teacher Education
Affiliated with American Industrial Arts Association of the National Education Association
1974

American Council on Industrial Arts Teacher Education
Affiliated with the National Education Association
1201 Sixteenth Street NW, Washington, D.C. 20036
Price $2.00

Preface

This special treatise on the subject of "Graduate Programs in Industrial Education" is the fourth in a series of monographs published by the American Council on Industrial Arts Teacher Education. The first monograph entitled "An Analysis of Graduate Work in Institutions with Programs for Industrial Arts Personnel" was published in 1965. The series continued with the presentation of a second monograph on the subject "Measuring Creative Abilities in Junior High School Industrial Arts" in 1966. Prior to this issue, the last monograph offered by the Council, in 1970, was on the subject of "Teacher Competencies for a Cybernated Age." It can be seen that no special schedule is followed in the presentation of such works. Policies of the ACIATE Publication Committee allow for the publication of significant contributions if and when they are worthy of presentation, regardless of temporal considerations.

One principal criterion used in reviewing manuscripts for possible publication is that the topic must be germane to industrial arts teacher education. Such a treatise might grow from the work of an ACIATE committee, such as this one. Monographs also may be generated by one or more individuals who wish to present a scholarly paper on a single subject of significance to the profession. When manuscripts are too long to be shared as journal articles, or when they are limited only to topics of especial interest of teacher educators, they uniquely qualify for this series. The Publication Committee may seek, at its discretion, manuscripts from ACIATE members or from scholars in related disciplines. A primary guide will be the identification of information which, when published and distributed, will promote industrial arts and assist in fulfilling other goals of the ACIATE.

The first ACIATE monograph grew from the Graduate Studies Committee. This fourth monograph presents evidence of its productivity as a functioning Council group. Dr. David C. Bjorkquist, University of Minnesota, Minneapolis, serves as the Graduate Studies Committee Chairman and Monograph Editor. Members of the committee are listed at the end of the Introduction to this work. All are to be commended for their efforts.

Editor Bjorkquist and authors have conducted research and have presented this professional contribution ". . . premised on a desire to

understand the extent to which present (graduate) programs are meeting the demand for relevance and are pursuing with rigor their mission of providing professional competencies for personnel in their programs." Upon completion of a study of their work, it is hoped that the reader will achieve such an understanding.

The success of this monograph series should be credited to the ACIATE Publication Committee. Dr. Raymond L. Cornwell, Northern Illinois University, has exerted strong leadership as Chairman of that committee, the members of which are listed elsewhere in this publication.

Single copies of this monograph are distributed at no cost to ACIATE members. Additional copies may be purchased through the national office of the AIAA.

Enquiries relating to the monograph series may be directed to the chairman of the Publication Committee or may be sent to any Council officer. Observations and questions regarding the content of this monograph should be directed to the monograph editor or any author or authors.

Willis E. Ray
President, ACIATE

Contents

Tables

Figures

Introduction

This monograph does not intend to provide the reader with solutions to problems. Its purpose might better be described as the identification of unsolved problems in providing programs of graduate education in the field of industrial education. It is our contention that at this point in our history as a field of education, problem identification may be more useful than the application of problem solutions.

This is an appropriate time to reflect on the place of industrial education in chronology. The field has reached a point of some maturity and a point which makes change imminent. There are several marks of this maturity which suggest the desirability of accepting change.

Something approaching a balance in the production and demand for industrial education graduates with degrees from graduate programs has occurred. However, the student capacity of programs has increased rapidly in recent years by the addition of graduate programs at many institutions and expansion of the faculties and facilities at others. There may in fact be too many graduate programs in industrial education. We, as a field need to question the quantitative expansion in graduate programs. This statement is made with the assumption that we work with limitations on financial, faculty and facility resources. Resources spent on the expansion of graduate programs, particularly on enlarging existing programs, may not have a positive effect on the quality of those programs and in many cases may take the place of improved quality. Consideration of the problems posed by this situation does not lead us to ready-make solutions but rather to intensive and often painful inquiry about the needs of the field and the solutions to be offered.

We need to address ourselves to the issues of how our graduate programs should be different and whether or not they are different in significant ways.

A notable era in industrial education graduate programs has passed quite completely. Reading about an earlier time in the field suggests the extent to which graduate programs in industrial education were built around an individual at his institution of higher learning. Many colleges and universities had a faculty member who was a "giant" in the field and that person, in many ways, *was* the graduate program of that institution. The present day graduate faculties of many industrial education programs include *several* capable persons who can contribute to the education of graduate students. If this observation about increased

faculty resources in industrial education graduate programs is true, it suggests that the product of these programs can and probably should be different from what it was at an earlier time.

The occupational goals of students who enter graduate programs in industrial education should set directions for programs. Many students now have *broader goals* than was once the case. They are often preparing for positions requiring capabilities not strictly within the field of industrial education. Some such positions exist in community colleges, area vocational technical schools, city school administration, state departments of education, and evaluation or research organizations.

However, in another sense some industrial education graduate students have *narrower goals* than their counterparts of the past. They don't want to be industrial education generalists, but rather choose to specialize within industrial education. These include such specialties as technical teaching, teaching special students, administration, curriculum, instructional methodology, research and evaluation. How we react to changing goals of graduate industrial education students and the fields they enter should be major concerns of graduate program planners.

For the purpose of addressing the general questions introduced here, this monograph on graduate programs in industrial education is divided into four parts. In Part I there are reports of a literature review on graduate education and a study of the status of industrial education graduate programs. Parts II, III and IV are addressed to current issues in master's degree (Part II), specialist's certificate (Part III), and doctoral degree (Part IV) programs in industrial education. In each of these parts there are two articles presenting issues and a third article which summarizes and highlights the issues presented.

The Graduate Studies Committee of the American Council on Industrial Arts Teacher Education was responsible for the planning and organization of this monograph. Members of that Committee include:

Walter C. Brown, *Professor*
Division of Technology
Arizona State University, Tempe

Robert G. Hammond, *Chairman*
Department of Industrial Arts
University of Northern Colorado, Greeley

Robert C. Harris, *Assistant Professor*
Vocational Education, School of Education
Indiana University, Bloomington

John M. Pollock, *Head*
Industrial Arts Department
University of Georgia, Athens

Henry Sredl, *Associate Professor*
Department of Vocational and Technical Education
Division of Industrial Education
University of Illinois at Urbana, Champaign

David C. Bjorkquist, *Professor and Chairman*
Department of Industrial Education
University of Minnesota, Minneapolis
Committee Chairman and Monograph Editor

Graduate programs in industrial education: status and objectives

PART I

One role of a professional association is to keep abreast of programs that are provided by institutions represented by the association's membership. The association's role with regard to research is to discern key elements in the profession, to assess characteristics of these elements, and to serve as a catalyst for promoting quality and innovation. Clearly, the purpose of research is not to establish uniformity nor to dictate the nature of programs. The strength of our educational programs may well be our acceptance of differences in programs and approaches.

The posture of the Graduate Studies Committee of the American Council on Industrial Arts Teacher Education is one of commitment to a belief that research provides a fundamental contribution toward the attainment of the Council's goals. The probing and reporting quality of research serves as a basis for dialogue. The need for research on graduate industrial education conducted by our professional association is premised on a desire to understand the extent to which present programs are meeting the demand for relevance and are pursuing with vigor their mission of providing professional competencies for personnel in their programs.

Part I of this monograph is composed of two articles. Dr. Wentling has made an extensive review of research literature relevant to graduate programs in general and graduate industrial education in particular. Dr. Wentling's review is a valuable contribution because of his identification of a wide array of research literature, his insightful organization of the material, and his attention to the essential. Drs. Harris and Tomlinson, report the results of an ACIATE-sanctioned national study of graduate programs in industrial education. While the study was concerned with graduate industrial education, doctoral programs in this field were the primary focus. Questions posed in the concluding remarks should provide a basis for reflective analysis of the descriptive information.

The success of Part I will be measured by the thoughts stimulated and the interest generated toward a continuing search for means to improve graduate industrial education.

Review of research on graduate education

Tim L. Wentling[1]

1

Graduate education in the United States is facing many pressures. The tightening of university appropriations, the general trend toward accountability, and the concern expressed by students, parents, faculty, and legislatures for "relevant" education are but a few of the forces impinging on traditional graduate programs. Progress is born from just these sorts of pressure—if those in graduate education are willing to step back and assess past developments, and to research what might best be done in the future.

Many questions arise which research may help to answer. What can be done to improve this program? How does supply compare to demand for graduates in the labor market? How do graduates rate a particular program? Is there a need for a new Ph.D. program? To answer many different questions, researchers have utilized three basic types of studies which provide the structure for this review: 1) program planning and status studies, 2) program assessment studies, and 3) origin and follow-up studies.

Material for this review was drawn from *Research in Education* and *Current Index of Journals In Education* for 1967 through 1972. The libraries of two Big Ten universities, *Summaries of Studies in Industrial Arts Education* (Jelden, 1972), as well as personal correspondence with many individuals provided additional sampling of current literature.

Program development and status studies

A large segment of the research on graduate education consists of studies which focus on the current status of existing programs or on the planning of new programs. Program status studies generally have the purpose of assessing the "state of the art" in certain educational fields or geographic areas, while most program development studies are conducted to gather information for planning and to assess the need for addition, expansion, or revision of a graduate program.

Graduate program operations and outcomes have been the topic of several research studies. Chase and Spiro (1962) reported that in 1958-59, 503 doctorates in education were awarded, 10 of which were in industrial arts education and six in trade and industrial education. According to Silverman and Metz (1970), 805 bachelors, 870 masters and 49 doctorates were awarded in trade and industrial education in

[1]Dr. Wentling is Assistant Professor of Industrial Education, University of Illinois, Urbana.

1966-67. They concluded that over 50 percent of all doctoral recipients aside from the physical sciences and engineering are employed first by colleges and universities. Moore (1960), in a study of several doctoral program characteristics, identified 65 Ph.D. and 75 Ed.D. programs in 92 institutions in the United States. The most apparent difference between Ph.D. and Ed.D. programs was in language and dissertation requirements and the greater appearance of structural requirements for Ed.D. programs. Baldwin (1971) found that 73 percent of the doctoral graduates he surveyed accepted college or university teaching positions. Suggestions were made by former students and faculty for improving teacher preparation in doctoral programs.

Ginther (1964) and Miller and Ginther (1965) in a survey of industrial arts department chairmen found that many institutions allowed for but did not require a thesis for the master's degree. About one-third of the required or recommended course work provided opportunity for the development of teaching and administrative competencies. They concluded that "major emphasis for the development of technical competencies for industrial arts personnel must be directed to the master's and bachelor's level (p. 34)."

Nielson (1969) studied similarities and differences among Ed.D. and Ph.D. programs in industrial arts, trade and industrial education, and industrial-technical education by polling graduate school deans and department chairmen for industrial education. Nielson found curricular patterns—percentages of programs devoted to developing professional, technical, research, and general education competencies—strikingly similar among the various manifestations of industrial education. Consistent with the findings of Moore, he found the primary difference between the Ed.D. and the Ph.D. in industrial education to be the language requirement within the Ph.D. programs. However, a trend toward substitution of proficiency in other areas, such as statistics, for foreign languages was acknowledged.

Several status studies have concentrated on master's degree programs in industrial education. Hankammer (1936) reviewed catalogs for 39 institutions (the total population of industrial education programs in 1935). The study method also incorporated the administration of a questionnaire to graduate school deans and heads of industrial education departments. Hankammer found two basic focal points within master's programs: the research aim and the teaching aim. Descriptive data pertaining to admission requirements, prevalence of examinations, foreign language requirements, and similar program attributes was provided. Extending and up-dating Hankammer's investigation, Gavin (1968) conducted a survey involving industrial arts department chairmen, deans of colleges and universities, supervisors of industrial arts teachers, and teachers of industrial arts. The purpose of this investigation was to ascertain the desirable characteristics of master's degree programs for industrial arts personnel. Results led to a number of conclusions of significance for program planning and revision. For example, Gavin concluded that the major emphasis of master's level study should be

directed toward the development of teaching competencies. Also recommended was that graduate students should have experience in research but not necessarily be required to complete a thesis.

Duncan (1965), exploring the possibility of developing master's degree programs in the Pennsylvania state colleges, identified the need for master's level programs for teachers. Studies similar to Duncan's, although directed toward the establishment of doctoral programs in industrial education, have been conducted at the University of Wisconsin—Stout (Wright, 1970), Northern Illinois University (Erickson, 1971), and Indiana State University (Yoho, 1970), to mention but a few.

Grigg (1959) conducted a survey to identify the need for program development and expansion in graduate education in Florida. Over one-third of the Florida college seniors surveyed indicated their intent to enter graduate school within three years after graduation.

Most of the studies presented in this section have had one of two general purposes: assessment of the status of graduate programs and program characteristics, and the study of need for development, expansion, or revision of graduate programs. The investigations presented have ranged in scope from nationwide studies of all graduate programs in education, national studies of specific subject-matter areas within education, to very limited institutional planning studies. Of the reviewed studies, most incorporated some type of survey as a primary data-gathering method—usually a mailed questionnaire.

Program assessment studies

The emerging emphasis on accountability and evaluation in education has not been overlooked by those involved in graduate education. Evaluation or assessment studies have varied in scope from specific institutional studies to national ratings of graduate departments. The American Council on Education (1960) noted that quality in graduate education resulted from a composite of elements including the teacher, the learner, the curriculum, and the educational environment. The Council found, however, that most universities document their claim to quality in quantitative terms. The number of Ph.D.'s produced are often considered indices of eminence (Heiss, 1970). Other commonly accepted quantitative indices include the number of fellowships and grants received, the number of faculty publications, and the number of citations and awards received by faculty members.

With certain limitations, numbers of graduates may be used to indicate program excellence (Eels & Hollis, 1966). They found that as candidates tend to select superior institutions, superior institutions tend to attract the most doctoral candidates. However, Cartter (1966) found broad variations in quality among the 50 institutions that produced over 90 percent of the Ph.D.s in 1965.

Five attempts to assess the academic excellence of graduate programs on a nationwide basis have been made in the United States. Hughes (1934) selected a group of national scholars to evaluate the quality of 38 of the 65 universities then offering the Ph.D. This study was re-

plicated by Hughes 10 years later. Department chairmen were asked to rate the quality of graduate programs at 25 Universities in a study conducted by Keniston (1959). Cartter (1966) conducted a comprehensive study in which department chairmen and senior and junior scholars in 29 disciplines rated the quality of the graduate faculty and effectiveness of doctoral programs in their field at each institution included in the study. Top rated institutions were Cambridge, the Big Ten Universities and California's Berkeley, Stanford and Caltech. Roose and Anderson (1971) essentially replicated the Cartter study with an expanded number of disciplines (36) and a larger number of respondents. Over three-fourths of the more than 1600 programs included in the Cartter and Roose and Anderson studies showed increases in the quality of their graduate faculties.

Nationwide assessment studies have also focused on special graduate programs including specially funded graduate study such as National Defense Education Act (NDEA) training programs and Education Professions Development Act (EPDA) programs which are offered in many fields of graduate education. A description of all such assessment studies is beyond the scope of this review. The reader is directed to *Research in Education* or to the funding agencies for the specific reports. Of particular interest is a study conducted by Crouch (1968) to appraise the 1967 NDEA Institutes for Advanced Study in Industrial Arts. Results indicated a positive effect of the institutes on the instructional programs subsequently conducted by the participants. Institutes were rated very high in terms of instruction and the working/learning relationship between directors and participants was rated superior to regular collegiate programs.

In addition to national assessment studies of graduate departments and special programs, smaller-scale studies of specific graduate colleges and departments have been conducted. Such institutional studies have utilized several techniques. Internal study of programs by faculty, study by visiting specialists external to the institution, and gathering of input from currently enrolled students and graduates concerning program strengths, weaknesses, and possible improvements, were the three most commonly used techniques.

One study which utilized both internal study by faculty and input from current students was conducted at Stanford University (Commission on Graduate Education, 1969). A team, comprised of both faculty and students, studied the Ph.D. programs, focusing on components such as admissions, university regulations and policies, departmental programs, and professional "socialization." Findings led to many recommendations concerning modification of residency requirements, revision of language requirements, increased activity in the recruitment of students, and many others.

Two additional studies related to the assessment of industrial education programs utilized input from former students as primary evaluative data. Moreland (1970) evaluated the effectiveness of the doctoral program in industrial arts education at the University of Northern Colorado

(formerly Colorado State College). In a similar investigation, Devlin (1971) surveyed current graduate students, graduates, and inactive graduate students to evaluate the industrial education doctoral program at Texas A & M University. Respondents in the Colorado and Texas samples considered their associations with other doctoral students one of the most valuable aspects of their doctoral program.

The utilization of student input is very widespread in evaluative studies. In addition to those studies previously mentioned, Elder's (1958) study of the graduate schools of Harvard and Radcliffe, Barzun's (1958) study of graduate programs at Columbia, as well as Heiss' (1967) study of Berkeley are but further examples of institutional studies which utilized the input of current students and graduates. Based upon the analysis of data from several studies, Heiss (1970) cautioned that student input concerning programs is inconsistent. There is evidence, she points out, that graduates give a more favorable rating of programs and program components than do currently enrolled students.

Program assessment studies vary from national assessments of graduate departments to specific institutions evaluating their own efforts. The intent of assessment studies, regardless of scope, is similar. Assessment studies are conducted to provide information useful to improving programs or to providing public authorities or policy makers with information necessary to effective resource allocation. Methodology for assessment studies has included both internal and external observation in addition to the utilization of student imput.

The national departmental assessment studies appear to produce a very usable product. However, the three most recent national studies do not include evaluations of programs in education. Therefore, this is a possible area for extended research in education.

The worth of institutional assessments has been demonstrated in many instances. Evaluative studies should be initiated as grounds for improvement in all departments of industrial education periodically and should not rely on state and federal funding or doctoral dissertation projects for their initiation.

Origin and follow-up studies

A third major portion of the literature on graduate education focuses specifically on the primary element of graduate schools—the student. From the graduate student's experience—pre-graduate, graduate, or post-graduate—information of three basic types may be drawn. Information relating to the origin of graduates, information indicating the current placement and activities of graduates, and information contributing to the assessment of programs are all available upon examination of student experience. Methodologically, studies of graduate students may be classified as origin studies and follow-up studies.

The National Academy of Sciences has maintained origin information concerning its members—information which has facilitated several studies within the science area (Siebring & Schwahn, 1959; Siebring & Schaff, 1971). Another origin study was conducted by the Wisconsin

Joint Staff Coordinating Committee for Higher Education (1956). This project attempted to determine the geographic origin of entering freshmen, undergraduates, and graduate and professional students of the state universities and colleges of Wisconsin.

Follow-up studies involve the contact of graduates usually to gather personal information and frequently evaluative information concerning the former educational program of the respondent. In some cases an ancillary follow-up is made to the employers of graduates to aid in assessing program effectiveness.

Some large nationwide follow-up studies have been conducted. Hollis (1945) conducted a follow-up of 20,000 persons who had received their Ph.D. degree between 1930 and 1940. Over 40,000 graduates from 1200 institutions at the bachelor's, master's and professional levels were contacted two years after graduation in a study conducted by the Bureau of Social Science Research (1963). A report of a task force on higher education funded by the Ford Foundation (Newman, 1971) stresses that graduate education has suffered from too much growth in some fields of low demand and from too little growth in fields where shortages exist.

Several other national studies specific to a particular field have also been conducted. Brown and Slater (1960) studied recipients of the Doctor of Education and Doctor of Philosophy degrees in education between 1956 and 1958. Pershing (1970) surveyed doctoral recipients between 1964 and 1969 to establish criteria for the evaluation and development of industrial education doctoral programs. Young considered the present activities and publications record of Ph.D. graduates in mathematics of 1945, 1948, 1954, 1957, 1960 and 1962. Davis (1964) studied the availability of financial support for arts and science graduate students.

The scope of several studies was limited to the follow-up of graduates of one specific institution or field. In 1965, Bjork and Stordahl (1966) conducted a study to assess a master's program which was founded in 1960. A similar, though larger, study was conducted at the American University. This investigation included the follow-up of all earned doctorates awarded between 1916 and 1966 (Torrence, 1969).

In reporting a summary of many studies conducted within the realm of graduate education, it is anticipated that the reader can visualize the extent, emphasis and methodology of current research. Also, for the researcher who may be currently planning a study, this may provide a base from which to proceed. And, finally, it is hoped that this review will aid the reader in identifying areas in graduate education in general and raduate industrial education in particular needing extended or additional research.

References

American Council on Education, Problems and Policies Committee. *The price of excellence: A report to decision-makers in American higher education.* Washington, D.C.: American Council on Education, 1960.

Baldwin, T. R. *Preparation of college teachers in selected doctoral programs.* Unpublished doctoral dissertation, Texas A & M University, College Station, Texas, 1971.

Barzun, J. *The American University.* New York: Columbia University Press, 1958.

Bjork, C. M., & Stordahl, K. E. *Follow-up study of Northern Michigan University master of arts graduates.* Unpublished doctoral dissertation, Northern Michigan University, Marquette, Mich., 1966.

Brown, L. D. & Slater, J. M. *The doctorate in education. Vol. I. The graduates.* Washington, D. C: American Association of Colleges for Teacher Education, 1960.

Bureau of Social Science Research. *Two years after the college degree.* Washington, D.C.: U.S. Government Printing Office, 1963.

Cartter, A. M. *An assessment of quality in graduate education.* Washington, D.C.: American Council on Education, 1966.

Chase, J. L. & Spiro, C. M. *A statistical analysis of graduate degrees awarded by land-grant institutions in 1958-59.* Washington, D.C.: U.S. Office of Education, 1962.

Commission on Graduate Education. *Graduate education. The study of education at Stanford. Report to the university.* Stanford, Calif.: Stanford University, 1969.

Crouch, J. P. *An appraisal of the 1967 NDEA institutes for advanced study in industrial arts and their impact upon professional activities of participants and directors.* Unpublished doctoral dissertation, University of Missouri, Columbia, Mo., 1968.

Davis, J. A. *Great aspirations.* Chicago: Aldine, 1964.

Devlin, L. G. *An analysis and evaluation of the doctoral degree program in industrial education at Texas A & M University.* Unpublished doctoral dissertation, Texas A & M University, College Station, Texas, 1971.

Duncan, W. H. Factors in the development of master's degree programs for teachers, with implications for a graduate program in the state teachers colleges of Pennsylvania. *Pennsylvania State Review of Educational Research,* 1956, 3, pp. 14-17.

Eels, W. C. & Hollis, E. V. *Teaching faculty in universities and four-year colleges, Spring, 1963.* Washington, D.C.: National Center for Educational Statistics, 1966.

Elder, J. P. *A criticism of the graduate school of arts and sciences at Harvard University and Radcliff College.* Cambridge: Harvard University Press, 1958.

Erickson, R. C. *Proposal for the Ed.D. in industrial and technical education.* Unpublished proposal, Department of Industry and Technology, Northern Illinois University, DeKalb, 1971.

Gavin, G. O. *Characteristics of master's degree programs for teachers of industrial arts.* Unpublished doctoral dissertation, University of Nebraska, Lincoln, Neb., 1968.

Ginther, R. E. *An analysis of opinions concerning graduate programs in industrial education.* Unpublished doctoral dissertation, University of Missouri, Columbia, Mo., 1964.

Grigg, C. M. *Who wants to go to graduate school and why?* (Research Reports monograph, 2, (1) Tallahassee, Fla.: The Florida State University, 1959.

Hankammer, O. O. *Graduate programs in industrial arts education with special reference to the master's degree.* Unpublished doctoral dissertation, Ohio State University, Columbus, Ohio, 1936.

Heiss, A. M. *Challenges to graduate schools* San Francisco: Jossey-Bass Inc. 1970.

Heiss, A. M. Berkeley doctoral students appraise their academic programs. *The Educational Record,* Winter, 1967. 30-44.

Hollis, E. V. *Toward improving the Ph.D.* Washington, D.C.: American Council on Education, 1945.

Hughes, R. Graduate education: A report of a committee of the American Council on Education. *The Educational Record,* April, 1934, 192-234.

Keniston, H. J. *Graduate study and research in the arts and sciences at the University of Pennsylvania.* Philadelphia: University of Pennsylvania Press, 1959.

Miller, W. R. & Ginther, R. E. *An analysis of graduate work in institutions with programs for industrial arts education personnel.* (ACIATE Monograph series, No. 1) Washington, D.C.: American Industrial Arts Association, 1965.

Moore, H. E., Russell, J. H. & Ferguson, D. G. *The doctorate in education Volume II, the institutions.* Washington, D.C.: American Association of Colleges for Teacher Education, 1960.

Moreland, H. C., Jr. *A follow-up study of recipients of the doctor of education degree in industrial arts education from Colorado State College.* Unpublished doctoral dissertation, University of Northern Colorado, Greeley, Colo., 1970.

Newman, F. *Report on Higher Education.* Washington, D.C. U.S. Government Printing Office, 1971:

Nielson, E. E. *A comparative analysis of doctoral degree programs in industrial education.* Unpublished doctoral dissertation, Colorado State College, Greeley, Colo., 1969.

Pershing, R. W. *Establishment of criteria for the evaluation and development of industrial education doctoral degree programs.* Unpublished doctoral dissertation, University of Northern Colorado, Greeley, Colo., 1970.

Roose, K. P. & Anderson, C. J. *A rating of graduate prgrams.* Washington, D.C.: American Council on Education, 1971.

Siebring, B. R. & Schaff, M. E. Doctoral origins of eminent chemists. *Journal of Chemical Education,* 1971, 48 (1), 72-74.

Siebring, B. R. & Schwahn, D. H. Baccalaureate origins of Ph. D. physicists. *American Journal of Physics,* 1959, 27, 647-648.

Silverman, L. J. & Metz, S. *Selected statistics on educational personnel. Catalog No. HES 258:58041,* Washington, D.C.: U.S. Government Printing Office, 1970.

Torrence, L. E. *A survey and analysis of earned doctorates 1916-1966.* Washington, D.C.: American University, 1969.

Wisconsin Joint Staff Coordinating Committee for Higher Education. *Geographic origin of Wisconsin college students. Research study 1A.* Madison, Wisc.: Author, 1956.

Wright, L. S. *A proposal for the degree of doctor of education in industrial and vocational education.* University of Wisconsin-Stout, Menomonie, July, 1971.

Yoho, L. W. *Proposal for Ph.D. degrees in industrial arts education.* Indiana State University School of Technology, Terre Haute. 1970.

Young, G. S. *A study of productivity, research activities, and positions of post-war Ph.D.'s in mathematics.* ED No. 020 119, undated.

Graduate programs: a status report

Robert Harris and Robert Tomlinson[1]

2

Graduate industrial education programs and particularly doctoral programs within 224 colleges and universities in the United States have attempted to reflect interests and satisfy needs of both sponsors and benefactors. Few would challenge the goal of these graduate industrial education programs to provide competently trained personnel to staff a wide array of professional education positions. The relationship of the graduate degrees to professional roles is widely recognized. The master's degree is accepted as a necessary educational criterion for professionalization of state teaching licenses. Doctoral programs in industrial education clearly have become the capstone experience in the educational hierarchy for the systematic endorsement of leadership personnel.

While the goal of graduate industrial education remains relatively constant, redefinition of means for achieving this mission have been challenged. Protagonists against the status quo have demanded more relevance from graduate education in general and industrial education in particular. Innovators who staff graduate education programs have responded by proposing modifications, developing new educational approaches, and altering traditional policies. However, documentation of the characteristics of existing and developing graduate industrial education programs by systematic means on a national scale was needed as an essential cognitive base for future modifications.

Statement of the problem

The purpose of this investigation was to assess selected components of graduate programs in industrial education related to educational preparation for new professional personnel, program characteristics and recent program changes.

Three major objectives were formulated to provide an investigative framework for structuring the study.

1. *To forecast professional personnel needs in relationship to preparation for teacher educators to fill replacement and new positions.*

Descriptive information was sought regarding the number of personnel needed for full-time new and replacement positions and the need for

[1]Dr. Harris is Assistant Professor of Education, Vocational Education Program Area, School of Education, Indiana University. Dr. Tomlinson is Associate Professor, College of Education, The University of Illinois.

in-service educational programs for present staff. The type of preparation needed by people to fill these positions was of central concern.

2. *To describe existing and developing doctoral programs for industrial education personnel.*

Information about the characteristics of existing and developing doctoral programs was essential to provide a profile of program variations.

3. *To assess the nature of changes that have occurred for selected variables associated with graduate education programs.*

Socio-economic forces of the late sixties mandated change and documentation of these changes was essential to ascertain the levels of incorporation of innovative curricula, levels of student involvement, types of specialization in doctoral programs and levels of incorporation of new learning experiences.

Population and procedure

All institutions listed during the academic year 1970-71 in the *Industrial Teacher Education Directory* (Wall, 1970) as providing degree programs in industrial education was the population. Respondents were department, division, or program chairman at each of these institutions.

The Industrial Education Graduate Study Research Project was conceived by personnel from Indiana University and The University of Illinois. Study objectives and general questions were formulated by a research team.[2] The refined industrial education graduate study instrument was sent to department chairmen at 224 institutions located in 53 states and territories of the United States. A general return of 160 questionnaires represented a 71 percent response. However, the return was considerably higher for those institutions listed as providing graduate programs. Of the 39 institutions identified in the *Industrial Teacher Education Directory* (Wall, 1970) for 1970-71 as having doctoral programs, department chairmen of 38 institutions (97 percent) responded. A 91 percent return was achieved for those institutions listed by Wall (1970) as providing master's degree programs. All questionnaires received by June 1, 1971 were used in the analysis. Additional information from the *Industrial Teacher Education Directory* (Wall, 1970) and the *1970-71 College Facts Chart* (The National Beta Club, 1970) were used in selected tabulations.

The original study design called for a population census. The 97 percent return provided a reasonable expectation of such an endeavor for the doctoral program subgroup. However, some respondents chose not to complete selected items on the questionnaire. Therefore, interpretation of reported results must be conditioned by the number of responses to each item. In instances where the number of responses was

[2]Research team: Thomas Gurbach, Indiana University; Robert Harris, Indiana University; Henry Sredl, University of Illinois; Robert Tomlinson, University of Illinois, Chairman; and Tim Wentling, University of Illinois.

below 60 percent, items were deleted from this report. However, such limited information was occasionally used to provide descriptive information about the related table arrays.

The findings reported in the following section represent delineations of the three primary study objectives. Data are represented in tables as frequencies, percentages, medians, and means and reflect responses for specific items of the uestionnaire. Clarification of descriptive information is provided in the accompanying narrative section for each of the tables. Concluding remarks in the form of questions are presented in the "conclusions" section.

Findings

University graduate industrial education departments are considered the appropriate degree-granting agencies to provide personnel to fill industrial teach education positions. To forecast new and replacement positions, all industrial teacher education departments in colleges and universities in the United States were requested to submit estimates of their foreseen personnel needs. One hundred sixty department chairmen responded to the item. Reported in Table 1 are full-time higher education staff needs projected for three academic years, 1971-74. The respondents indicated a total of 477 position vacancies during the three-year period which represents a total equivalent of 30.6 percent of the present staff. While new positions constituted a larger portion of the personnel needs, both "replacement" and "new positions" were forecasted to increase.

Several factors caution the reader's interpretation of these data. First, trends may have shifted since Spring, 1971. This shift may be due to current forces such as 1) reduction or restriction on department budgets and/or 2) a general student population decrease. Additionally, teacher education institutions may continue to look to other agencies for recruitment of personnel. Many institutions rely upon highly qualified people with master's degrees who may be willing to pursue a doctorate concurrently with their professional activities. Finally, with regard to forecasting, replacement data are probably a more valid estimate of need since such estimates are based upon retirements and anticipated terminations.

TABLE 1

Full-time higher education staffing needs projected for the three academic years: 1971-74

Source of Position	Number of institutions Responding	Personnel Needed	Percent of Present Full-time Staff*
New Position	160	281	18.0
Replacements	160	196	12.6
Total	160	477	30.6

*Total reported presented full-time staff was 1558

Respondents indicating a need for additional personnel as a result of either replacement or newly created positions were asked to identify general competency areas for the anticipated positions. Additionally, respondents were asked to indicate competency area needs for present staff. Reported in Table 2 are the number of institutions indicating various types of preparation desired for new and present personnel. The number of institutions indicating a need for personnel with 1) technical only or 2) a combination of technical and professional backgrounds is worthy of serious consideration. This same technical and combination of technical and professional emphasis is also noted for continuing personnel.

Technical was defined for this study as those competencies, skills and/or knowledges, associated with laboratory instructional roles of persons in either undergraduate or graduate programs. Professional was defined as those competencies essential for instructional roles in such areas as student teaching, methods, laboratory planning, etc. or for special roles in such areas as evaluation, research, and administration at either the undergraduate or graduate level. The inconsistency between the high technical competency needs indicated for new positions, replacements, or inservice education and the very limited technical competency component included in present doctoral programs will be discussed later in the report. One limitation of the above information should be noted. Respondents to the questionnaire were chairmen of industrial education departments; therefore, the types of preparation indicated as being needed represents needs as perceived by administrators rather than the needs as seen by current or potential doctoral students.

Reported in Fig. 1 are the number of positions for selected technical competency areas reported for each of the new and continuing higher education positions. Four technical areas dominated the forecasted staffing needs: Power, Electronics, Metals and Communications.

Three traditionally popular industrial education technical areas, drafting and design, graphic arts, and woods, received a limited number of forecasted new positions. Technical competency areas closely related to the curricular innovations of the sixties' decade appeared to have limited needs. These might include preparation in such areas as manu-

TABLE 2
Desired education for new and continuing higher education staff

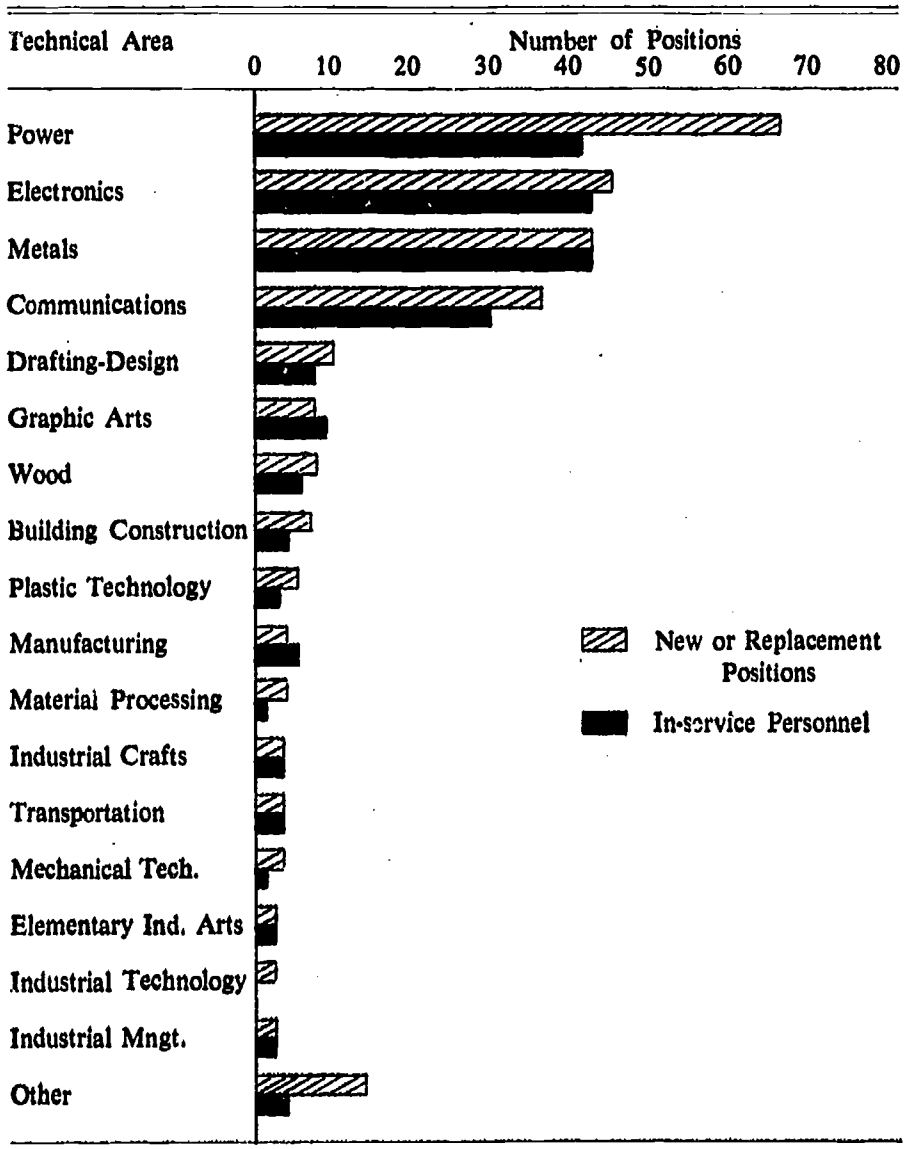
Type of Preparation	Number of Institutions	
	New Positions/Replacements	In-service Program*
Technical (only)	57	37
Professional (only)	8	14
Combination (T & P)	69	55
Field Not Indicated	17	17
Total	151	123

*In-service program is defined as "desired doctoral programs for present staff members."

facturing, building construction, material processing, and industrial technology. Adoption of these curricular innovations was not reflected in collegiate education industrial programs by forecasted personnel needs to staff developing positions. Data indicated that industrial arts education department chairmen were looking for new people with traditional technical preparation. There appeared to be little difference between the forecasted technical competency needs for new or replacement positions and education needed as inservice experience for current staff.

FIGURE 1

*Desired technical competency areas for new and continuing higher education staff**



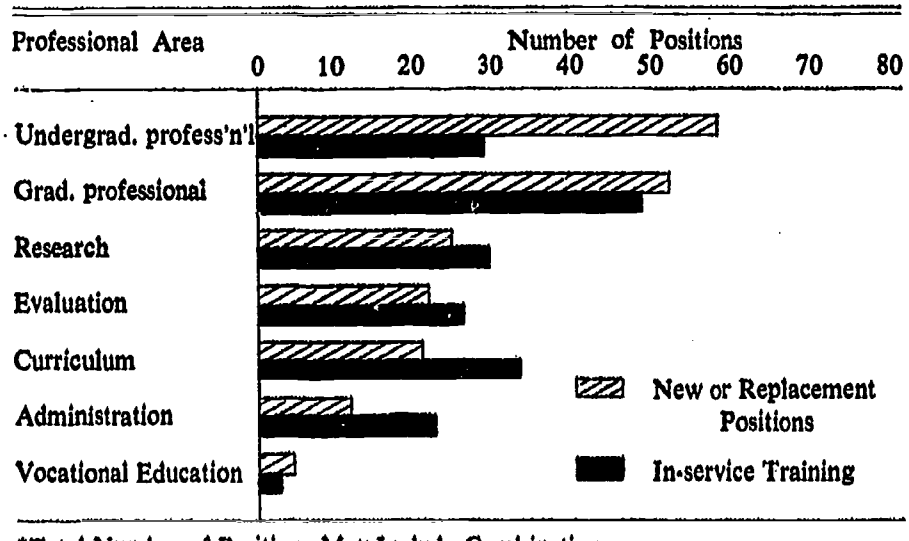
*Number of positions by area is greater than total number positions due to combination of competencies for several positions.

Data indicated staffing needs existed for persons with professional competencies, in either full-time professional positions or in combination professional and technical assignments. To assess the variation in needed competencies in the professional area, respondents were asked to indicate the number of positions relative to types of professional training. Professional areas receiving the two highest ranks, in number of positions for new or replacement staff, were general undergraduate professional and general graduate professional (See Fig. 2). The general graduate professional area was found as the greatest need for current staff. Competancy areas of research, evaluation and curriculum were each indicated for 20 or more new positions. While the titles may imply that professional areas represent full-time positions, it is very unlikely this interpretation is correct. It is much more likely that a combination of professional areas or a combination of professional areas with some technical skill is a more accurate representation of the positions to be available. The level of need for the three areas of research, evaluation and curriculum seem to reflect present trends in the educational community for increased activities in the areas as a necessary function of higher education institutions.

Respondents indicating the need for graduate level in-service education for their present staff were asked to indicate the types of barriers they perceived as inhibiting their present staff from pursuing further education. Reported in Table 3 are the response frequencies for various types of barriers indicated by department chairmen. Of the 123 respondents who reported perceived barriers, 92 indicated a lack of financial assistance during the study period has served as a barrier to their staff. The second ranked barrier was lack of doctoral program relevance for inservice

FIGURE 2

*Desired professional competency areas for new and continuing higher education staff**



*Total Number of Positions May Include Combinations

staff needs. More information is needed to provide an adequate interpretation of the strength and nature of this response. However, the need for additional technical competens and the limited technical component in doctoral programs seems to be the most likely interpretation. It should be noted that more than one barrier could be indicated. However, 47 chairmen listed only one barrier. Nine of the 19 "other" respondents indicated that age and nearness of retirement was of sufficient importance that their staff could not justify the financial expenditure required to attain a doctoral degree. One limitation of the information provided in Table 3 is the reliance upon department chairmen as a secondary source for the reported information. While more reliable information could have been obtained by contacting persons desiring in-service training, it is nevertheless reasonable to assume that the barriers as indicated are valid within limits.

Previous discussion regarding the number of forecasted positions available within the next three academic years and types of preparatory experiences desired for these personnel provides a suitable background for discussing the nature of present doctoral programs. The following tables and narrative sections provide a partial profile of doctoral programs in the 38 responding institutions which offer either a Doctor of Philosophy (Ph.D.); Doctor of Education (Ed.D.) or Doctor of Arts in Teaching (D.A.T.). Reported in Table 4 are the number of institutions by major fields of doctoral program emphasis and degree type. The number of institutions is not consistent with column totals since a number of institutions offer both the Ph.D and Ed.D. The nature of doctoral degree program emphasis is varied. Twenty-three institutions (61 percent) provide doctoral programs for combined fields of emphasis: industrial arts and either industrial education or vocational education. Combination programs would imply that students with special interest in industrial arts and either vocational education or industrial education

TABLE 3

Barriers to pursuing doctoral program for present higher education industrial education staff

Type of Barrier	Response Frequency
Lack of Financial Assistance	92
Lack of Doctoral Program Relevance	52
Non-availability of Leave of Absence	38
Incompatible Educational Background to Graduate Program	24
Admission Requirements	8
Lack of Doctoral Program Information	7
Other	19

*More than one barrier could be checked.

are probably enrolled in at least some of the same major classes. While no attempt was made to identify the cause of the shift to this more comprehensive approach, it is suggested that vocational education legislation of the sixties may have had some impact on the nature of program offerings. One consideration must be the extent to which "major" course content is appropriate to the different interests of individual students. A second consideration associated with the combination doctoral program emphasis is the background of the instructional staff. Six institutions of the 38 indicated a degree emphasis in only industrial arts. Finally, it should be noted that the total number and distribution of programs by emphasis is approximately equal for the Doctor of Philosophy and Doctor of Education. Only two institutions have implemented programs for the relatively new Doctor of Arts in Teaching Degree.

The interest in and demand for graduate education programs in industrial education has increased in recent years. The number of graduate programs in industrial education has reflected this demand. Reported in Table 5 are the number of graduate programs by type of degree in operation prior to 1966 and the number of programs developed in the five-year period from 1966 to 1970. Actual numbers and percents of increase are shown. Considerable growth is noted for all types of graduate programs when measured in terms of the number of institutions offering graduate degrees. Of the 160 institutions responding to the questionnaire, 114 reported offering programs at the master's degree level which emphasized teaching, an increase of 16 percent since

TABLE 4

Major fields of doctoral program emphasis by type of degree and number of institutions in 1971

Field of Emphasis	Ph.D.	Ed.D.	DAT	Number of Institutions*
Industrial Arts (only)	3	3	1	6
Industrial Education (only)	0	1	0	1
Vocational Education (only)	0	0	0	0
Education	1	1	0	1
Combination: Industrial Arts and Either Industrial or Vocational Education	15	19	0	23
Combination: Industrial Education - Vocational Education	2	2	1	3
Other	2	3	0	4
Total	23	29	2	38

*Number of fields of emphasis by institution *is not* the sum of the row frequencies since fifteen institutions offer more than one type of degree.

1966. Additionally, 37 programs with a technical emphasis at the master's degree level were reported, with ten new programs or a 35 percent increase noted. The specialist certificate in education, a sixth year program, was offered in 24 institutions. This type of program has expanded by 45.8 percent in the five-year period. Doctoral programs developed since 1966 provided an overall increase of 26 percent.

In conjunction with the number of degree programs by areas of specialization indicated in Table 5, respondents were asked to identify types of changes incorporated or proposed for their graduate programs. The dominant change indicated as "incorporated" by respondents was an increase in program flexibility associated with revised and new course offerings. A comment ranked second in frequency was greater emphasis on technical courses which could be used to meet degree requirements.

Regarding the doctoral program, ten respondents indicated the language requirements had been waived in favor of other areas such as research and/or statistics. Additional course work outside education was also accepted in lieu of the language requirement. The two most frequently noted proposed changes indicated by respondents were greater emphasis on technical courses in graduate programs and more emphasis on post-secondary education programs.

Reported in Table 6 is the number of institutions offering or planning to offer doctoral degree programs for industrial education personnel by type of degree. In 1971, 38 institutions offered either 1) a Doctor of Philosophy, 2) a Doctor of Education, 3) both the Ph.D. and Ed.D., or 4) a Doctor of Arts in Teaching. Twenty-one department chairmen indicated their institution was planning to offer a doctoral program in the five year period from 1972 through 1976. Fifteen of these institutions are planning a Doctor of Education program. Three additional institutions are planning to offer both degrees. Three new Doctor of Arts in

TABLE 5

Number of graduate degree programs in industrial education by type and recency of adoption

Type of Degree	Prior to 1966	Since 1966	Total	Percent Increase*
Doctor of Philosophy	18	5	23	27.7
Doctor of Education	24	5	29	20.8
Doctor of Arts	1	1	2	100.0
Specialist in Education	24	11	35	45.8
Masters in Teaching	98	16	114	16.3
Masters in Technical	27	10	37	35.2

*Based on number of new programs in relationship to programs in existence in 1966.

Teaching programs are under consideration. If the proposed programs for the Doctor of Education are implemented by 1976, there would be a 115 percent increase in the number of institutions offering this degree. While the number of Doctor of Arts in Teaching programs is limited, the apparent increased interest in this degree is noted. If all the proposed programs are operational by 1976, there will be 59 institutions in the United States providing some type of doctoral degree program for industrial education personnel. This figure represents a 55 percent increase in the number of institutions providing doctorates during the five-year (1971-1976) period.

To ascertain the characteristics of the 21 institutions planning doctoral programs in relation to the 38 institutions now offering such programs, the *1970-71 College Facts Chart* published by the National Beta Club (1970) was examined. Table 7 reports the relationship of present and planned doctoral degree programs by the number of students attending the 59 institutions. The size of the 21 institutions planning doctoral degree programs range from slightly over 1000 students on the central campus to nearly 33,000 students. The mean population for these 21 institutions was approximately 12,800. Two additional observations are worthy of note. First, a large number of the institutions presently offering doctoral degrees are considered major state universities or land

TABLE 6

Number of institutions offering or planning doctoral degree programs for industrial education personnel

Type of Degree	Number of Institutions Offering (1971)	Planning (1972-76)	Total	Percent Increase
Doctor of Philosophy (only)	8	0	8	0
Doctor of Education (only)	13	15	28	115.3
Both Ph.D. and Ed.D.	15	3	18	20.0
Doctor of Arts (only)	2	3	5	150.0
Total	38	21	59	55.3

TABLE 7

Relationship of present and planned doctoral degree programs by total number of students attending institution

State of Degree Program	N	Size of Institution* Range	Mdn	$\bar{X}$
Planned	21	1,086 - 32,973	9,797	12,783
Present	38	1,707 - 45,099	15,975	19,076

*Central Campus Only

grant colleges. The majority of institutions planning programs were institutions that have been typically part of state college systems who have attained university status. Second, with a few exceptions, most of the 21 institutions had a relatively large undergraduate industrial arts-industrial education program. Evidence supports a tentative view that institutions planning doctoral programs may differ from traditional institutions in total size, status and undergraduate industrial education program size.

As one indication of doctoral program variability in existing institutions, respondents were asked to indicate the mean number of hours beyond the master's degree required to complete the program. Reported in Table 8 are the mean semester hours required to complete a doctoral program by type of degree. The Doctor of Philosophy and Doctor of Education degree programs in terms of minimum mean semester hours required for program completion appear to be very similar. Secondly, the variation in range in semester hours among institutions is worth noting. It would appear that wide institutional variational variation exists in minimum requirements for both the Ph.D and Ed.D. Variations in the level of credit granted for the thesis may account for a portion of this range.

Reported in Table 9A and 9B are profiles of the Doctor of Philosophy and Doctor of Education degree course work requirements by selected categories. Reported in both tables are the number of institutions requiring some percentage of course work. For example, six of the 18 institutions offering the Doctor of Philosophy degree indicated that technical course work constituted a portion of the doctoral program. The percent of technical course work ranged from 5-28 percent.

Two further clarifications of the tables are necessary. "Related Education" refers to courses taught in departments of colleges of education such as curriculum, educational psychology, counseling, etc. "Non-related Education" refers to courses typically taught in colleges of the university other than education, such as business, philosophy, psychology, etc.

TABLE 8

Mean semester hours required to complete program by type of degree (beyond master's degree)

Type of Degree	Number of Programs*	Range**	$\bar{X}$ Semester Hours
Doctor of Philosophy	16	36 - 66	59.4
Doctor of Education	18	30 - 66	59.5
Doctor of Arts	2	60 - 89	74.5

*Data were provided for (7) Ph.D. and (11) Ed.D. Programs
**Reported data may not have included thesis credit

An examination of Tables 9A and 9B reveals four points of consideration. First, and most striking, is the wide range of institutional difference indicated by the percent of course work for all categories. Second is the modest difference between median and mean percent computations for each category for both degrees. Third, is the high degree of similarity between the Doctor of Education and Doctor of Philosophy by percent of course work for each of the six selected categories. For example, evidence indicated that professional courses in the major area constituted approximately 30 percent of the course work in both degree programs. The dissertation constitutes roughly one-fifth of the required course work. Finally, a minimal emphasis on technical course work at the doctoral level is noted for both degrees by the 1) low mean percentage of course work and 2) limited number of institutions who consider course work in the technical areas as a percentage of their degree.

TABLE 9A

Profile of Doctor of Philosophy course work by selected categories for sixteen institutions

Categories		Percent of Course Work*		
	N	Range	Mdn	$\bar{X}$
Technical	6	5-28	15	6
Professional	16	15-45	28	30
Statistics & Research Methods	15	5-34	17	17
Related Education	14	9-30	21	19
Non-Related Education	10	2-20	11	9
Dissertation	13	10-42	20	19

TABLE 9B

Profile of Doctor of Education course work by selected categories for eighteen institutions

Categories		Percent of Course Work*		
	N	Range	Mdn	$\bar{X}$
Technical	10	6-28	19	10
Professional	18	13-50	30	34
Statistics & Research Methods	18	5-20	10	13
Related Education	17	8-56	19	20
Non-Related Education	10	5-20	9	6
Dissertation	16	5-33	19	17

*Percent has been rounded to nearest whole number

The respondents were asked to indicate whether the distribution of course work in terms of percent had changed in the last five years. Nineteen respondents (90 percent) indicated that no change in the percentage of course work by category had been made within the last five years. The remaining respondents indicated the following: 1) more technical courses, 2) more research and computer courses, and 3) more special educational experiences, such as internships. All comments regarding changes reflected decreases in amount of professional courses in the major area.

The similarity between the Doctor of Education and Doctor of Philosophy degree prompted a concern for variability of degree admission requirements. No difference in admission requirements for the Ph.D. and Ed.D. existed in 22 of the 24 responding institutions.

Similarity in the nature of the Doctor of Education and Doctor of Philosophy degree programs is noted by the possible areas of specialization. Indicated in Table 10 are the number of institutions and their areas of specialization available by degree type. The similarity of the two degree programs is noted consistently throughout the areas of specialization with perhaps the exception of evaluation. Evidence provided in this table indicates that administration, curriculum, and teacher education are the dominant areas of specialization for both degrees. The greatest disparity between the two degrees is in the area of evaluation where the larger number of offerings is associated with the Doctor of Education degree.

Recognizing that the professional opportunities available to doctoral graduates have become more diversified, one item of the questionnaire attempted to assess the relationship of the doctoral program's areas of specialization to career positions graduates will take. The type of change in this relationship occuring within the program over the last five years

TABLE 10

*Areas of specialization of doctoral program by type of degree, 1971**

Area of Specialization**	Ph.D.	Ed.D.	DAT
Administration	17	18	0
Curriculum	16	17	0
Teacher Education	13	17	2
Statistics & Research	8	9	0
Evaluation	6	17	0
Guidance	9	11	0
Supporting Fields (other)	9	10	0
No Respense	2	2	0

*N = 38 Institutions

**More than one area of specialization could be indicated for each type of degree

was assessed. See Table 11. Eight institutions indicated that the content of the doctoral program has become broader or more general to encompass a broader possible array of careers. Eight respondents indicated no appreciable change in reorientation had occurred in the five-year period. Four respondents indicated that the content of their doctoral programs had become more narrowly oriented to specific careers. The response options in this item were insufficient to indicate clearly the exact nature of the changes.

A sign of the times in the decade of the sixties was the desire of students in universities to participate actively in educational change processes. Data presented in Table 12 indicates that graduate industrial education departments across the country responded in varying degrees to the desires of students for involvement in the change process. Approximately two-thirds of the institutions responding to the item indicated that students were surveyed for their opinions regarding potential or desired changes. More active involvement such as serving on de-

TABLE 11

*Relationship of change in doctoral program content to graduates' career roles**

Nature of Change	Number of Institutions
Content Has Become More Specific to a Career	4
Content Has Become Broader to Encompass More Careers	8
Other	2
No Appreciable Change	8

*Change occurring in last five years.

TABLE 12

Type of student involvement in the change process relevant to doctoral, specialist and master's programs

Type of Student Involvement*	Frequency	Percent**
Serve on Policy Committee With Voting Privileges	11	10.5
Serve on Policy Committee Without Voting Privileges	3	2.9
Serve on Development Committee	23	21.9
Serve on Need Study Committee	19	18.1
Surveyed for Opinion	72	68.6
Were Not Consulted	17	16.2

*More than one type of involvement was indicated by 30 institutions
**Percent is a function of the number of institutions, therefore, sum of percent does not equal 100.

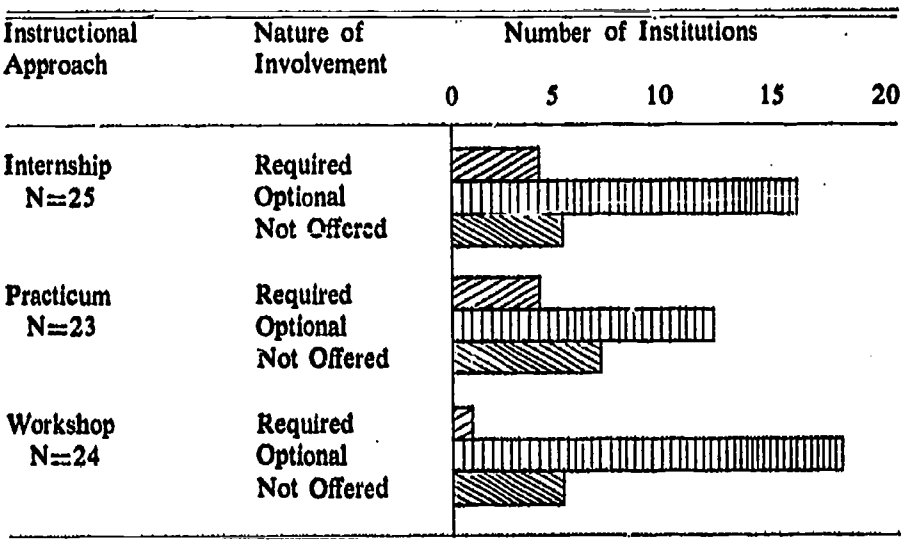
velopment committees or need study committees was made available to students in approximately one out of three institutions that responded to the questionnaire. One in ten responding institutions indicated that students served on policy committees with voting privileges. In contrast to this highest level of involvement, roughly one in six institutions indicated students were not involved in change processes. Two points seem apparent. First, there is a diverse range of student involvement among industrial education departments. Second, there is evidence to support the view that students were actively involved in change processes in a number of institutions throughout the country.

Cited in Fig. 3 are three instructional approaches designed to provide alternative strategies to traditional classroom methods in doctoral programs. Twenty-seven institutions responded by indicating levels of involvement in each of these three types of educational experiences. Twenty institutions indicated that internships were either required or optionally offered. Sixteen of these same institutions indicated practicums were either required or optional. Nineteen institutions indicated workshops were either optional or required. Exidence would seem to indicate a commitment to these educational alternatives as viable educational experiences for doctoral students. At the present time, these three types of experiences are viewed as "optional" as opposed to "required" alternative methods.

The decade of the sixties was characterized by the intense interest in curricular revision proposed for secondary school industrial education programs. There is need for clarification of the commitment of graduate

FIGURE 3

*Nature of involvement in three instructional approaches for doctoral students**



*27 institutions providing doctoral degrees responded to the questionnaire item.

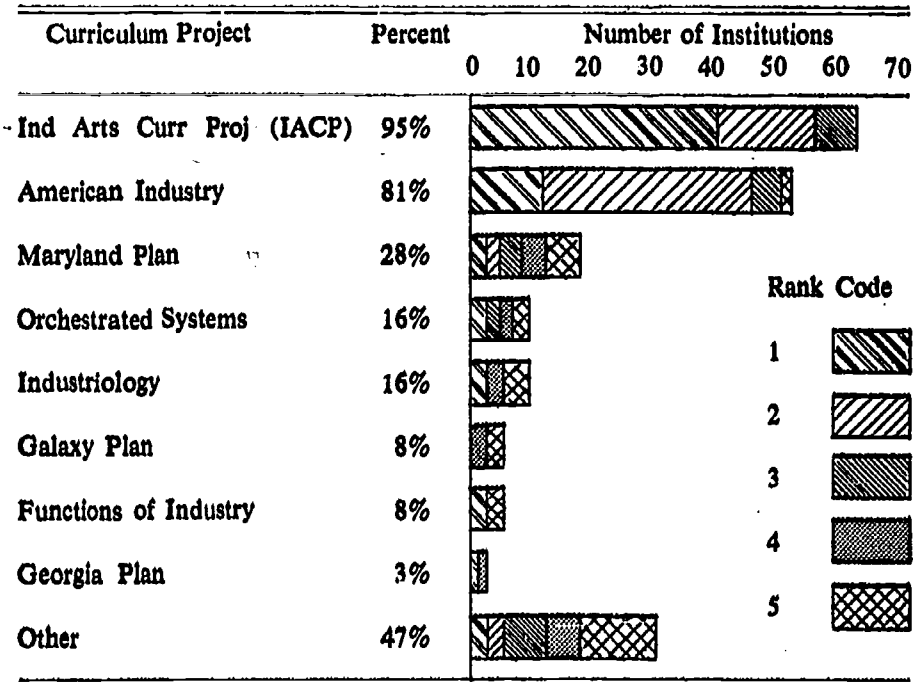
programs to these curricular proposals. Depicted in Fig. 4 are the percent of the 64 responding institutions who indicated some incorporation of curricular innovations to their graduate programs. Respondents were asked to rank the curricular projects receiving emphasis in their graduate programs. The rank order is indicated by the five codes identified in the legend.

The two primary programs indicated by the respondents are the Industrial Arts Curriculum Project (IACP) and the American Industries Project. The relative ranking of these two projects is also noted by the indication of rank reversal in the priority levels. A total of 25 curriculum projects were listed by the respondents. Several respondents indicated up to six projects were studied but equal emphasis was given for each. Two considerations are worthy of note. Clearly, graduate programs have begun to include the innovative curricular projects of the sixties. However, a commitment to one or two projects on a massive and in-depth scale did not appear to have taken place.

As an extension of the previous item, an attempt was made to ascertain the level of commitment by the graduate programs to the curricular project. Data displayed in Table 13 appear to indicate the primary modes of study are 1) "Selected elements of several projects are given emphasis" or 2) "Several projects are given particular emphasis."

FIGURE 4

*Rank order of curriculum project incorporation into graduate instructional program, 1971**



*Number of institutions responding: N = 64

Similarity in the pluralist nature of these two statements should be noted.

Evidence from this survey indicated that graduate programs in industrial education were changing. New curricular programs were being introduced into the graduate programs. New educational approaches were being used as alternative learning strategies. The proportion of course content was changing modestly in selected categories. Course content was being changed to permit both greater focus on specific careers and to provide a broad base appropriate to several career options.

The final concern of the study was to ascertain the types of funds made available to support the change process in degree programs at the graduate level. Table 14 depicts the percentage of support by source for the responding institutions. It should be noted that more than one source of support was indicated by eight institutions. One hundred and

TABLE 13

Methods of incorporating innovative curricular projects in graduate program

Method	Frequency	Percent*
A special project is given particular emphasis	8	8.3
Several projects are given particular emphasis	32	33.3
Selected elements of a single project are given emphasis	1	1.0
Selected elements of several projects are given emphasis	40	41.8
Projects are not studied	6	6.2
Other	9	9.4
No Response	64	

*Based on number of institutions responding

TABLE 14

Fund sources supporting change processes relevant to doctoral, specialist's and master's programs

Source of Support*	Frequency	Percent**
Federal Grant	2	1.9
State Grant	7	6.7
Foundation Grant	3	2.9
Institutional Grant***	52	49.5
Other	1	.9
No Support Required	50	47.6

*More than one source was indicated by eight institutions

**Percentage is a function of the total number of institutions, therefore percentage will not total 100%

***May include funds provided by an operating budget increase

five institutions responded to the item. The evidence seems clear that in approximately half of the institutions, changes were made without additional support. In those instances where supplemental support was used, institutional grants appeared to be the dominant mode for facilitating the change process. Several respondents indicated the change process did not necessitate supplemental financial expenditure since such costs were absorbed by the department's operating budget. Evidence would seem to support the view that changes occurring in graduate programs have been supported essentially by institutional sources.

Conclusions

The value of information presented in this report can be most appropriately received, not as a final and definitive statement, but as a basis for analysis and dialogue regarding graduate programs in industrial education. With that purpose in mind, the following questions would seem to be a fitting conclusion to this report.

Forecasting professional needs in terms of new and replacement positions has an undertermined level of error. However, data indicate that a number of positions have been identified with competency needs in technical and professional areas.

Are curricula of present and developing doctoral programs designed to produce qualified personnel to fill these positions?

Data would seem to indicate that the technical competency needs of the next three years have a heavy emphasis in traditional areas. Clarification of the roles of graduate education programs regarding emerging curricular trends in industrial education is needed.

Should graduate industrial education programs assume leadership in promoting innovative curricular programs by developing technical competencies appropriate for these positions?

While undergraduate education in industrial education tends to be specific, graduate education appears to be moving toward comprehensive educational approaches with vocational education.

Can the needs of industrial education personnel be served best by such comprehensive programs?

The similarity of the Doctor of Philosophy, Doctor of Education, and Doctor of Arts in Teaching degree programs have been noted in several instances: 1) the proportion of course work in categorical areas, 2) degree requirements, 3) admission requirements, and 4) areas of specialization available. Variations between institutions have been noted as spanning a broader range of diversification than within-institution variations.

Have the three degrees, Ph.D., Ed.D., and D.A.T., been defined and differentiated adequately to serve the needs of industrial education personnel who wish to select an appropriate degree program?

The demand for graduate education has apparently fostered a number of doctoral programs in new institutions. Several questions are worthy of reflective thought.

What will be the impact of these new doctoral programs on the supply and demand balance for industrial education personnel?

Will these new doctoral programs be consistent with traditional programs or will they offer new approaches for doctoral education?

Will the relationship of these graduate programs, because of their institutional setting and proportionally larger undergraduate industrial education programs, provide a new dimension to graduate education?

The dynamic quality of graduate industrial education was clearly noted. To date, change appears to be related to the independent initiative of each institution as a response to personnel served and forces impinging upon the institution. While professional graduate educators have an unquestioned commitment to their university they are also voluntary members of a second arena, their professional associations. Such professional membership is a sign of the interdependence of graduate industrial educators. Such dualism calls for role definition and clarification. Therefore, a final question is posed.

What is the role of the professional association with regard to the development and operation of graduate programs in industrial education?

References

The National Beta Club. *1970-71 College Facts Chart*, Harris, J.W. (ed). The National Beta Club: Spartansburg, S.C. 1970.

Wall, G.S. *Industrial Teacher Education Directory, 1970-71*, Goodheart-Wilcox: Homewood, Illinois, 1970.

Current issues in industrial education: master's degree programs

PART II

Master's degree programs have an impact on more industrial education students than any other graduate program. This makes them important in the advancement of industrial education as a professional field. Because of the number of students involved, it may suggest that there should be more variation among master's degree programs than other graduate programs. Every student entering a master's degree program comes with his own individual set of capabilities, experiences, hopes and goals.

The potential contribution of this part of the monograph lies not only in the topic (master's degree program) but in the perspective of the writers and the facets of the subject they have chosen to discuss. Writers of the two articles are recent graduates of master's degree programs and rely extensively on that educational experience in their writing. In a sense, they give us a renewed opportunity to look at master's degree education from the student's side of the teacher's desk.

The first article in this part is written by David L. Passmore. He deals in a very straightforward fashion with the master's degree by examining societal perspective, input variables, enabling elements and program outputs. The conventional subheadings of this article have not caused Mr. Passmore to reduce the topic to a mundane discussion. Readers will be challenged by questions about the quality of students admitted to master's degree programs in industrial education, the submission of students to faculty members for the sake of facilitating their successful program completion, and the organization of programs, to mention a few.

Gene W. Poor, another recent master's degree graduate, makes a case for focusing attention in the master's program on the student, giving attention to his background, motivational level and expectations. This refreshing point of view is contrasted with all too common discussions about courses, credits, content distribution, theses and examinations conducted by graduate faculties about master's degree programs.

The responsibility of coordinating the writing of Part II was carried by Richard A. Swanson. He also provided a synthesis and reaction to the articles by Passmore and Poor.

The academic program leading to the master's degree

David L. Passmore[1]

3

The purpose of this article is to examine some of the problems and issues related to the master's degree in industrial education. It is written from the perspective of a student who has recently been processed through such a program[2] and who has developed most of the ideas in this paper by reflecting on his graduate school experiences. Perhaps a caveat is, therefore, appropriate: this article is mainly a showcase for opinion rather than the result of generalizations from hard data or broad personal experience.

Prescriptive statements about the specific subject matter of the academic program may be found elsewhere (Arnold, 1969) as may status studies of graduate industrial education (Wall, 1968).[3] Also, an historical analysis of graduate industrial education has been previously presented (Schulz, 1961). Consequently, these topics will not be discussed here. Rather, the author's perceptions of broad societal difficulties in graduate education, as well as problems related specifically to master's degree programs in industrial education, are examined.

First, the lack of national goals and priorities is critiqued in SOCIETAL PERSPECTIVE so that the imperfect interface of graduate education with society may be examined. *Second,* the characteristics of and interaction between graduate students and their socializing agents are explored in the INPUT section of this paper. *Third,* a section called ENABLING ELEMENTS contains a critique of the organizational structure and processes which have been thought to enhance the master's degree program in industrial education. *Fourth,* the culminating experiences and evaluation of master's degree programs in industrial education programs are inspected in a section called OUTPUT. Most of the points raised in these sections might not be applied only to the master's degree program in industrial education but may also be appropriate for many advanced degree programs in Education.

---

[1]Dr. Passmore was Research Fellow in the USOE fellowship program, "Preparing Researchers in Vocational Education" at the University of Minnesota when this was written. He is now Lecturer, Center for Occupational Education, University of Massachusetts, Amhurst. The critical comments of Jerome Moss, Jr., Brandon B. Smith, F. Marion Asche, and Gary Ragan have been exteremely helpful in the preparation of this paper.

[2]Bowling Green State University, 1970.

[3]See also the chapter by Wentling, Harris, Tomlinson, in Part I of this monograph.

Societal perspective

Graduate education may be perceived as a means for preparing aspiring individuals for specialized and advanced occupational roles which, jointly, may evolve into leadership roles within various societal institutions. Within the educational institution, students receiving a master's degree in industrial education have traditionally been prepared for roles in administration, coordination, master teaching, or supervision at the state or local level.

It is conceptually appealing to think that the desire to maintain an appropriate manpower supply-demand equalibrium may guide the allocation of scarce societal resources (human and monetary) to this delivery system. Although this is certainly an oversimplification, an increase or decrease in the number of graduate students selected and processed may be a function of society's desire to invest in this delivery system instead of other potential investments. Also, the supply of educational manpower could be dependent on the availability and attractiveness of educational careers over other career options. However, constraints on the educational manpower equilibrium such as the dynamics of power politics or the difficult passage of school levies may cause unsystematic and unpredictable fluctuations in supply-demand relationships. In addition to these types of constraints, some writers (e.g. Levitan, 1966, p. 127) have considered the methodology for projecting the supply of and demand for society's manpower needs to be woefully imprecise. If these statements are true, perhaps chance has a greater effect upon the allocation of societal resources to graduate education than does reason.

This perplexity may reflect the lack of an adequate statement of our nation's goals and priorities. If demand for educational manpower could be defined in terms of the fulfillment of national goals, then plans for the allocation of scarce societal resources might be more forthright and subject to less haphazard fluctuation. Lecht (1969) used this pregnant approach to specify the nation's manpower needs during the 1970's. Interestingly, given the national goals he specified, a scarcity rather than a redundancy of human resources was projected to meet society's educational needs.

Input

In this section, some of the inputs to master's degree programs in industrial education are scrutinized. First, the selection of students, the differences between individual students, their level of career commitment, and the inclination of some of these students to acquiesce to figures of power and authority are examined. Second, the effect of faculty, peers, and institutions as agents in socializing graduate students to academic and future occupational roles is discussed. Third, the interaction of the characteristics of students with socializing agents is probed.

Students

Selection. It seems that potential entrants into master's degree programs in industrial education, or for that matter in most advanced

degree programs in education, are not subject to as rigid selection criteria as are potential graduate students in other disciplines such as the physical or health sciences. Perhaps this is because the master's degree in education has been viewed primarily as a credential required for job stability in the nation's public schools. If this is true, colleges and universities which have provisionally certified students emerging from undergraduate education curricula may feel an obligation to these students and society to complete the certification process by awarding the master's degree to almost all of the aspiring applicants. This does not appear to be true in some disciplines where potential for scholarly independence and competence seems to take precedence.

Individual differences. It is unlikely that graduate educators have as much control over the intellectual growth of their students as they would prefer since socialization to an occupational role is properly viewed in a developmental sense (Borow, 1966). Therefore, it would seem foolish to assume that students enter graduate programs in a *tabula rasa* condition. There is probably some variability among entrants into master's degree programs on such factors as: intellectual maturity, proficiency in a technical specialty, experience related to the occupational role for which they are preparing, occupational needs to be satisfied, or years away from formal schooling. It seems axiomatic that these individual differences should be recognized and accommodated in the graduate program. However, this rarely seems to happen.

Career commitment. Hopefully, graduate education is an uplifting academic experience for the student. Recipients of graduate credits and degrees may also be rewarded for their academic work by salary increases. This is certainly one of the reasons for attending graduate school. But, unfortunately, many students seem to be motivated almost solely by this monetary goal and appear to have given little thought to their ultimate professional aspirations. Perhaps these students have not specified a set of career objectives which may be used to guide their graduate school experiences. If these assumptions are correct, they may select courses which, in the long run, bear little relation to their subsequent careers. This could be wasteful for society as well as the individual. In order to minimize this problem it seems that graduate programs should encourage and even expect students to specify a career committment early in their program.

Acquiescence. Some writers (Passmore, 1972; Rosen & Bates, 1969) have claimed that many entrants into a master's degree program feel that intellectual honesty, independence, and courage are virtues to be implemented after graduation. A number of implications could be drawn if this statement is true. Such students may feel that their ship sails best through calm, unruffled waters. Unfortunately, as a result of this "I'll-do-it-when-I-get-out" syndrome, students could learn a number of principles which may inhibit their future performance as professional educators. They may become child-like and dependent on others in their academic endeavors. Doubt may be cast on their determination to stand up for their moral beliefs and intellectual views

if they choose not to test their ideas within a relatively safe academic environment. They may easily rationalize their loss of integrity; they must please "them" (those paternalistic figures in administrative control) so that "they" will give them an academic credential. They may learn to attack substantial issues in the field in a sterile and political manner. These students could learn that stability in their profession is related to their ability to gracefully acquiesce to persons with more power and authority on controversial issues. Perhaps their greatest fault might be to subtly indoctrinate *their own* future students with these same principles. Consequently, such behavior may earmark the graduate student for professional impotence.

Parenthetically, if the forecasts of some authors (Klapp, 1969; Reich, 1971) become true concerning the trend toward a change in national consciousness, then it is conceivable that the docile character of graduate students may, concommitantly, undergo some change. Thompson (1967) predicted that students in the future will have an allegiance to humanity rather than to any system. If this is so, perhaps graduate educators in industrial education can expect to receive a greater number of students who are aware of and ready to courageously attack relevant educational problems.

Socializing Agents

Faculty and peers. Various agents may cause graduate students in industrial education to be socialized to their future occupational roles. *Faculty members* function in this capacity by acting as occupational role models for students. Perhaps some faculty members make inadequate models if they, much like some students, have difficulties such as continual acquiescence to power figures or lack of strong career commitment. Also, some faculty members seem to be insensitive to the influence which they may exert on the graduate student's attitude toward success in his chosen occupational role or in his ultimate choice to remain in the field of industrial education. It should be remembered that graduate students need to feel that they are respected as emerging professionals and, most importantly, as worthwhile human beings.

Although there has been little research on the subject (cf. however, Edgar & Warren, 1969), the influence of the graduate student's *peers* in the process of occupational socialization cannot be overlooked. Depending on the institutional environment, peers may coerce the student to conform to norms of academic behavior which may range from listless to enthusiastic. If this happens, perhaps such academic behavior, whether good or bad, may transfer to future occupational behavior.

Institutions. Graduate schools, as formal organizations, also have a socializing effect on students. It seems that many graduate schools expect students to operate within narrow coursework options and, consequently, may not be responsive to individual student needs. Even if graduate educators were to help students design individually-tailored academic experiences as has been suggested in this paper, "deviant" patterns might run directly into a brick wall of tradition. This does not mean that

institutional tradition has no merit. It does mean, however, that such traditions should not serve as the only basis for the graduate program.

Interaction of input elements

Graduate education has been considered by some writers (e.g. Bondi & Hogart, 1964) to be a negation of its stated purposes and objectives. An interaction of the negative aspects of the inputs to the graduate program were hypothesized in this paper may produce graduate students who may be far from self-determining and who might not provide even a minimal return on society's investment in their graduate education. Dolce (1971) described such students:

> "I see their course grades and they are all A's and B's . . . (but) I find that these students have a lack of the great vision of the apostle . . . they just have no vision of what can be possible for our society. I am sad to say we have been primarily political animals because this is the process by which they were really selected. I also see a lack of overt professional and personal integrity based on an inability on the part of students to stand up and speak their minds in what I consider to be a relatively safe university environment. . . . I find the students trying to psych out what the dean thinks or what the faculty member thinks. While this may be important from the student's point of view, the professional's point of view of what is important is what does this student think and what does he mean to be counted on. I guess what I am saying is that this is one of the characteristics of leadership I see in a person who has a certain basic personal and professional integrity and who may lose his job because of the principles which he thinks are important enough to fight about" (pp. 4-5).

Enabling elements

Enabling elements of master's degree programs in industrial education are discussed in this section. First, the ways in which programs are organized is critically inspected. The inefficient distribution of labor between and within institutions is criticized as is the lack of a clear specification of competencies needed by emerging graduate students. Second, program emphases and expectations for studying for the master's degree in industrial education are considered.

Organizational structure

Division of labor. The traditional separation of subject matter fields within vocational and practical arts education, of which industrial education is a part, has caused heated discussion. Some educators have insisted on separation (Hammond, 1968); McMahon, 1968) while others have argued for less independence among fields (Evans, 1968); Randleman, 1968). Moss (1969) suggested that industrial educators should stop trying to build fences around artificial and shaky disciplinary boundaries. "Our concern for maximizing the total functional contributions of education will force us to blur sharp distinctions, to break down unnecessary barriers among the practical arts and between them and vocational education (Moss, 1969, p. 43)." Hill (1971) and Moss (1971) both note that there are many commonalities in the methods of preparing teachers for each of the subject matter fields in

vocational and practical arts education. Perhaps some of these generalizations may be extended to graduate industrial education.

Graduate students from traditionally divergent subject matter fields in vocational and practical arts education may profit greatly from taking courses together. In addition, this may help to decrease some of the suboptimization of resources which may exist throughout the discipline by merging previously overlapping courses.

Since the competencies of industrial educators are of an eclectic nature, more use might be made of coursework from fields such as psychology, the philosophy of science, economics, or sociology which are already available at institutions. Also, cooperation *between* institutions should be fostered since one institution may not be able to fulfill the instructional requirements of all students.

Program requirements. Although program requirements are often clearly specified, they are frequently couched as administrative concerns such as minimal acceptable grades, maximum time limit allowed to complete the program, or courses required for graduation (for instance cf. Sotzin, 1957). But it does not seem that the cognitive, affective, and social competencies needed by graduate students for successful performance in their future occupational roles have been carefully specified by graduate educators in industrial education. For example, it is obvious that non-credit activities such as residency, practicum, and internship experiences were conceived and are required by graduate educators, at least in part, for their socializing value. But, as is the case with other unexamined and unchallenged aspects of the graduate program, a coherent rationale for and means of implementing these requirements has rarely been explicated.

It would be difficult to speculate about the specific academic content of the ideal graduate program since, if individual aspirations, abilities, and needs would be acknowledged, the program may be quite different for each student. It is also recognized that a graduate program with such a flexible character might be opposed because it may destroy much of the arbitrary control that is imposed by some graduate administrators.

Process

Emphases. Since most undergraduate programs seem to emphasize technical competencies rather than professional competencies, it would not be surprising to find that many graduate students wish to carry this emphasis over to the graduate program. While it is subject matter competencies which differentiate among teachers from different fields in vocational and practical arts education, the overemphasis on technical competencies must be guarded against in the graduate industrial education program. For example, the master teacher of the future may be responsible for developing strategies for, as well as making decisions about, the interaction of learners and instructional systems rather than operating as an equipment specialist (Tzrebiatowski, 1969, pp. 76-77).

Expectations. A multitude of societal problems appear to demand the attention of educators. Educational problems such as those related

to atypical or disadvantaged students, or to alienated youth, are pervasive. Expectations for graduate students in industrial education frequently seem to be quite low and may not be even modestly related to these imposing educational tasks. If these assumptions are warranted, then the conditions that nurture the professional passivity described in this paper cannot be tolerated when the needs of society are considered. This does not mean that it should be more difficult to receive a passing grade in a graduate course. It is intended to stir students, faculty, and institutions to engage in an experiment to ignite curiosity, encourage commitment, and command intellectual honesty. Graduate students should be treated as though they were about to commit professionally beneficial acts. Perhaps it may happen!

Output

In this section, some of the outputs from the master's degree program are explored. *First*, the traditional requirement of some form of culminating experience for students is endorsed with a few modifications. *Second*, claims are made for the need to collect follow-up data from former master's degree students to assist in the evaluation of graduate programs. The evaluation question is extended to include the need for research on the economic return to the individual and society from master's degree programs in industrial education.

Culminating Experiences

Although this may be an unpopular notion among graduate students, there seems to be a need for a summary experience at the termination of the master's degree program. Students need to draw from and synthesize their coursework and other experiences in the graduate program. Traditional devices such as theses, comprehensive exams, graduate course papers, or field studies may be appropriate experiences. However, there is a need to minimize the anxiety, frustration, and empty feelings often associated with these terminal endeavors. Also, the culminating experience could be improved by loosening its traditional rigidity. This might be done by increasing the options available for such an experience.

Actually, since many master's degree programs have some sort of culminating experience, it is suggested that the status quo be maintained but that graduate faculty should be open to and, in fact, aggressively pursue creative options to these more traditional experiences.

Evaluation

Follow-up. Barlow (1971, pp. 4-5) reported that institutions vary considerably in the degree to which they collect follow-up data on their former master's degree students. Descriptive data on variables such as placement, geographic mobility, horizontal and vertical occupational mobility, or job satisfaction and satisfactoriness may provide useful information to graduate educators. While these descriptive data may be valuable, in order to examine the rate of economic return from master's degree programs in industrial education to the individual and society, additional data may be required.

Benefits-costs. The economic worth of master's degree programs in industrial education is a topic that has not received much attention. It is clear, however, that opportunity costs are accumulated by persons who have chosen to enter graduate programs. These persons could be employed and receiving an income from their employment but have decided, instead, to forego that income so that they may receive the benefits to be derived from additional education. Also, since no person pays the entire cost of his graduate education, society must make some investment in that person as a potentially valuable human resource. Both the individual and society expect the benefits derived to be greater than the costs involved. But certain circumstances may cause the rate of return on individual and societal investments in graduate education to be low. For example, such a situation might arise if a graduate student in industrial education has an inadequate and unrealistic perception of the demands of his future occupational role. This may cause him to be unproductive in that role or perhaps to withdraw from the role altogether. This situation would not yield maximal utility for either society or the individual since costs are probably not repaid in terms of benefits. Obviously, a clear specification of these costs and benefits is needed so that the economic return from master's degree programs in industrial education may be scrutinized by educational planners.

Concluding remarks

Historically, professional neophytes have had to acquire the prevailing *zeitgeist* and approach to problems held by the elders in their field in order to be initiated into a profession. Kuhn (1970) observed that this may be contrary to the growth of a profession. Clearly, societal demands may provide the impetus for industrial educators to engage in some critical thinking about their present paradigm so that novel approaches to present-day and future educational dilemmas may evolve.

In retrospect, this article resembles a Jackson Pollock painting rather than a draftsman's drawing. A smattering of criticisms and recommendations has been presented rather than an exact blueprint for success. Attention to some of the problems and issues discussed in this paper by someone who has had more experience than the author may have led to a different commentary. However, because of a student's proximity to the academic process, perhaps a different but equally fruitful perspective has been represented.

References

Arnold, J. P. Seminar on graduate education programs. Columbus, Ohio: Ohio State University, September 29-October 2, 1969, EDO45859.

Barlow, M. New directions for leadership development. Paper presented at a meeting of EPDA program directors, Washington, October 14-15, 1971.

Bondi, H. & Hogart, Rd. The objectives and character of graduate study. *University Quarterly*, 1964, 18, 261-280.

Borow, H. Development of occupational motives and roles. In L. W. Hoffman & M. L. Hoffman (Eds.), *Review of Child Development Research*, Vol. II. New York: Russell Sage Foundation, 1966.

Dolce, C. New directions for leadership devlopment. Paper presented at a meeting of EPDA program directors, Washington, October 14-15, 1971.

Edgar, D. E. & Warren, R. L. Power and autonomy in teacher socialization. *Sociology of Education*, 1969, *42* 386-399.

Evans, R. N. Trade and industrial education and industrial arts teachers should be educated in the same department. *Journal of Industrial Teacher Education*, 1968, 5 (2), 8-11.

Hammond, J. J. A reaction: trade and industrial education and industrial arts teachers should be educated in the same department. *Journal of Industrial Teacher Education*. 1968, 5 (2), 12-15.

Hill, A. D. Assumptions underlying in-service vocational teacher education programs. In R. N. Evans & D. R. Terry (Eds.), *Changing the role of vocational teacher education*. Bloomington, Ill.: McKnight, 1971.

Klapp, O E. *Collective research for identity*. New York: Holt, Rinehart & Winston, 1969.

Kuhn, T. S., *The structure of scientific revolutions*. Chicago: University of Chicago Press, 1970.

Lecht, L. A. *Manpower needs for national goals in the 1970's*. New York: Praeger, 1969.

Levitan, S. A. Evaluation of occupational data and their use in occupational planning. In G. A. March (Ed.), *Occupational data requirements for educational planning*. University of Wisconsin: Center for Studies in Vocational Technical Education, 1966.

McMahon, G. G. T and I and industrial arts teacher education programs should not be combined. *Journal of Industrial Teacher Education*, 1968. 5 (2), 17-19.

Moss, J. Industrial arts teacher education in the years ahead. *Journal of Industrial Teacher Education*, 1969, 6 (2). 41-48.

Moss, J. Assumptions underlying pre-service programs for beginning-level vocational teachers. In R. N. Evans & D. R. Terry (Eds.), *Changing the role of vocational teacher education*. Bloomington, Ill.: McKnight, 1971.

Passmore, D. L. Professional impotency among graduate students. *New Voices in Education*, 1972. 2 (2), 16.

Randleman, R. R. A reaction: T and I and industrial arts teacher education programs should not be combined. *Journal of Industrial Teacher Education*, 1968. 5 (2). 20-22.

Reich, C. A. *The greening of America*. New York: Random House, 1970.

Rosen, B. C. & Bates, A. P. The structure of socialization in graduate school. *Sociological Inquiry*, 1967. 37. 71-84.

Schulz, K. The evolution of graduate work in industrial arts. In R. P. Norman & E. R. C. Bohn (Eds.), *Graduate study in industrial arts: tenth yearbook of the American Council on Industrial Arts Teacher Education*. Bloomington, Illinois: McKnight & McKnight. 1961.

Sotzin, H. A. The problem of graduate study in industrial education. *Industrial Arts and Vocational Education*, 1957, *46* (8), 235-238.

Thompson, I. A. The children of Nuremburg. In J. W. Minter (Ed.), *The individual and the system*. Boulder. Colorado: Western Interstate Commission for Higher Education. 1967.

Trzebiatowski, G. Educational technology and the teacher. In R. Saxe (Ed.), *Contexts for education*. Toledo. Ohio: University of Toledo, 1969.

Wall, G. S. Some interesting facts concerning industrial teacher education. *Journal of Industrial Teacher Education*, 1968, 5 (2), 25-30.

Humanizing the human elements of graduate school

Gene W. Poor[1]

4

Over 200,000 master's degrees were awarded to students in the United States during the 1969-70 academic year. (Golenpaul, 1972) While in pursuit of their degrees, some of these persons have been described as exploited, anxious, confused by inconsistencies, and preoccupied with trivialities. For example, Altback (1970) capsulizes the following negative aspects of graduate student status:

> "Graduate students are adults in every sense of the term, but are often treated as children by their universities. Graduate students are often woefully exploited by individual professors, departments or universities, by way of inadequate remuneration . . . work loads which almost preclude. . . academic work, or occasional plagarism by senior professors . . . Graduate students are subject to arbitrary treatment by professors, departments or institutions, and have few means of resisting such treatment.
> "Graduate students are often almost totally dependent on their professors or departments for a livelihood, for certification as a scholar, and possibly for a future academic position. The role of a graduate student . . . with a senior professor is often ambivalent" [p. 564].

The paradigm

In an attempt to formulate a conceptual paradigm within which to examine the elements of graduate study, the writer has drawn primarily from the field of psychology. It was felt that a paradigm might aid in the visualization of the myriad of factors involved in such an examination. For this purpose it was decided to adopt with modifications, a diagram utilized by Feister (1969) and originally suggested by Dashiell (1949), and Schaffer and Shiben (1956) in describing the process of adjustment. (See Fig. 5 on the next page.)

The paradigm consists of three major dimensions and three interactive student response components. The three-tipped arrow represents the graduate student dimension as he enters graduate school. The student has an individual personality with a unique set of values and a distinct set of goals which he hopes to acquire. The rectangle illustrates the environmental dimension that the student progressively experiences during his graduate studies. Some of the elements that comprise this dimension function as blocks or hurdles which must be surmounted if the

[1]Mr. Poor is a doctoral teaching fellow in the Department of Industrial Education and Technology, Bowling Green State University.

ultimate goal of the master's degree is to be fulfilled. The paradigm is based on the Lewinian principle that behavior is a function of the interaction of the person with his environment, b = f (PE).

Further examination of the illustration indicates that there are three general student interactive responses to the graduate school environment. It must be recognized at this point that the student at any given time in his graduate program may accurately fit into one of the response categories, but it is more likely that throughout his program he will oscillate from one category to another depending on the environmental variables affecting him at that specific time.

As a departure point, the response category of "degree seeker" represents the student that goes through the program, does the work but does not dedicate his life to the academia surrounding his subject matter. He is "goal-oriented" not "knowledge-oriented". This student generally is "playing the game" and "psyching out the prof" and will ultimately acquire the "rewards of his efforts"—the master's degree.

In general terms the "knowledge-seeker" is indicative of the graduate student that fits perfectly into the program much like a puzzle piece and seldom thinks twice about the system and its possible flaws. Inherently, he is so deeply involved in the graduate school environment that he is

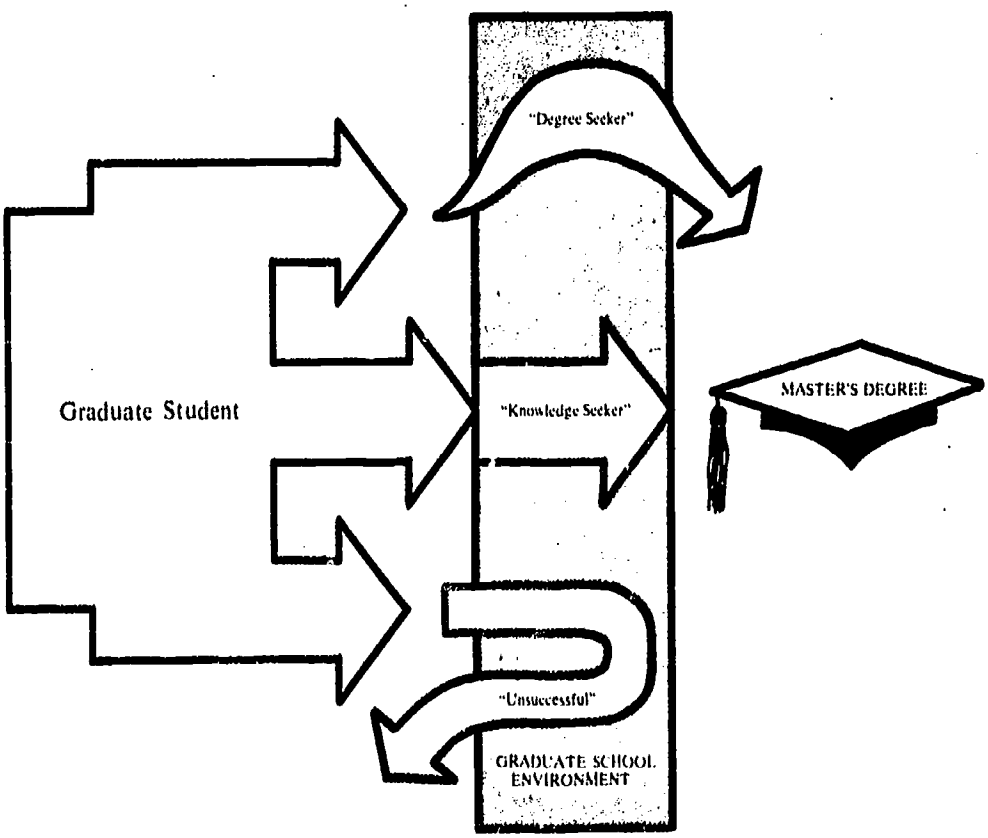


FIGURE 5.
A personal-environmental interaction paradigm of master's degree programs.

often unaware of the people that are co-producing as well as floundering around him. Being primarily knowledge-oriented, the master's degree is a by-product of his efforts.

In terms of complexity the "unsuccessful" response category represents the student who could have the most environmental variables playing on him at any given time. Anyone or a combination of these variables could, in fact, prevent the student from obtaining the master's degree because of an inability to perform at an acceptable level as deemed necessary by the graduate school environment. Some examples of these variables which could deter the student from acquiring his degree are: intellectual incapability, emotional immaturity, health and/or physical limitations, marital or non-marital problems, personality conflicts, financial problems, and housing problems.

The graduate student dimension

Refocusing our attention on the graduate student dimension, it is evident that it emcompasses his entire *background* which is comprised of such elements as age, parental education and occupation, socio-economic level, source of bachelors degree, past academic major, scholastic performance level, and the like.

His *motivational level* is also an important factor of the student dimension and includes such components as the student's incentives for pursuing a master's degree, the universities considered, as well as the one ultimately selected, and his future aspirations. Lastly, within the personal dimension is the graduate student's *expectations* as he enters his graduate studies. These include his preconceived notions concerning the amount of time necessary to complete the degree requirements, self-evaluation of his personal academic performance, the kinds of relationships that he desires to formulate with fellow students and faculty members and what the degree would mean in the way of self-aggrandizement. Therefore, when dealing with the graduate student dimension it is imperative that background, motivational level, and expectations be considered.

The environmental dimension

The second major portion of the conceptual paradigm is the environmental dimension which embraces both a non-human and a human factor. The non-human factor includes such aspects as university environment, housing, financial expenses, assistantships, recreational and cultural facilities and the many diversified academic events within the graduate student's program. These events would include course work requirements and electives, research tool requirements, comprehensive examinations, thesis option, and if chosen, thesis topic selection.

The human factor is concerned with the myriad of people with whom the graduate student interacts while pursuing the master's degree. This interaction would ordinarily include faculty, major advisor, fellow students, family, and friends.

The interactive dimension

Having closely examined the personal and the environmental dimensions, attention is now directed to the three general student interactive responses as illustrated in the model. Specifically, the emphasis will be upon the graduate student's interaction with the human factor of the graduate school environment (while more than likely oscillating between the three various responses), with its inherent challenges, hurdles, and frustrations. Therefore, it seems appropriate to explore some of the typical kinds of relationships that the graduate student maintains and develops with faculty, major advisor, and fellow students; since these are the people that directly affect his success in the graduate program.

Establishing ideal student-faculty relationships is not an effortless task no matter how effective the faculty may be. Many students completing four years of undergraduate school have not been confronted with having to formulte such relationships. Hence, it is logical to assume that it is difficult for the graduate student to develop relationships with the faculty due to personal reluctance, absence of felt need, or simply a lack of "know-how." Since this phenomenon is usually present, any deficiencies that are evident within the faculty system will only aggravate the situation. There will be imperfections that are peculiar to individual departments, but there are some common ones that will eventually surface at various stages in most graduate student programs.

The one deficiency that will surely present itself will be the inconsistency of faculty attitudes toward the importance of informal communication within student-faculty interaction. Many graduate students become easily frustrated when faced with the burden of constantly changing communication styles. With some members of the faculty, the student may be permitted the luxury of addressing a professor by first name, while with others he must use surname, degree, title and/or cloth.

Faculty appraisal of graduate students remains a viable environmental fault in the light that it too may stifle the development of personal interaction between student and faculty. The classroom, probably more than any other place, inherently displays a minimum of three guises of student evaluation.

The student is confronted with the knowledge that he is not only being evaluated academically, but personally and professionally as well. The appraiser in the above example may be passing these judgments both consciously and unconsciously, but none-the-less they are usually being made, and the student is very much aware of this phenomenon. It is really no wonder that with the student reacting to these pressures, that he becomes partially or even totally inhibited in developing student-faculty interaction. In addition, there is always the possible danger that evaluations are being exchanged casually between two or more faculty members over a cup of coffee. Thus, the makings of the paranoid or at least partially-paranoid graduate student are readily displayed. Consequently, dishonest student facades may emerge and eventually result in fraudulent interaction between student and faculty.

Student-to-student relationships are yet another concern within the evaluation fault parameters. In most situations, each student is evaluated to some extent by comparison with others, hence, in order to excel and vie for the attention of his professors, the student is driven into competition with his peers. Consequently, many students will not discuss substantive or methodoligical questions of interest with their counterparts for fear that their individual notions might be purloined. Engulfed within this kind of peer competition, the graduate student is denied of any purposeful and meaningful interaction that often develops within a healthy, non-threatening community of graduate students.

Other groups within the graduate student population have problems unique to themselves in student faculty interaction. The interaction that the "thesis option" graduate student experiences with his major advisor may provide another source of fault. All too often the graduate student selects a sponsor for less than ideal motives: to study with a professionally known man for his "pet" subjects or project (regardless of the man) or to ensure future employment opportunities. But, whatever the reason for his selection, most graduate students find it necessary to condescend to the immediate task of "psyching out" the professor's biases and quirks, and adjusting their "gamesmanship" accordingly.

The graduate teaching assistant is oftentimes placed in an even more precarious position by the fact that he may have to change roles many times during a single day. Unfortunately, rarely do the roles of teacher and student compliment one another. More often the graduate teaching assistant must stress one of the identities to the detriment of the other. Furthermore, the uncertainty of the graduate teaching assistant's status is related to various roles required of him. Even though he is expected to perform as a teacher, he has few of the privileges of full time faculty. Some of these may include social acceptance, department decision making, peer acceptance, fair renumeration, and undergraduate respect.

Summary and conclusions

A paradigm has been formulated to examine the myriad of elements involved in the pursuit of a master's degree. The three major dimensions of the model were the individual graduate student, the unique graduate school environment and ultimately, the master's degree procurement. Additional examination of the model revealed that there were three general responses that the student manifested while interacting with the graduate school environment. The three student response categories were labeled the "degree seeker," the "knowledge seeker" and the "unsuccessful." Furthermore, it was pointed out that graduate students at times oscillate from one response category to another depending on the environmental variables affecting them at that specific time.

Finally, special emphasis was placed on the interaction that generally transpires between the graduate student and the human aspects of the graduate school environment (particularly the faculty, major advisor and fellow student) and from this discussion the following recommendations have been made:

1. *New graduate students should be provided a meaningful, comprehensive orientation before their individual studies commence. In addition, seminars or workshops should be provided for teaching assistants, research associates, and other special groups within the graduate population.*

2. *Graduate education must seek faculty that are interested in students as human beings, that have a working understanding of the learning process, and that have compassion for student learners.*

3. *Graduate programs must strive to continually improve the level of instruction and to construct logical consistencies between faculty goals, expectations, and evaluation criteria.*

4. *Faculty members should induce students to grow and learn on an individual basis by providing environments that emphasize intrinsic goals.*

5. *Situations should be provided that encourage graduate students and faculty to "let down their social guards," thus providing them with opportunities to better know one another.*

In conclusion, it would seem that most graduate faculty and advisors model their behavior from peers and possible professors they had when they were graduate students. This being the case, it appears that graduate faculty must look inward or to other sources (e.g. social psychology, sociology, etc.) if they wish to resolve some of the "human" shortcomings of graduate study that have been outlined in this paper.

References

Altbach, P. G. Commitment and powerlessness on the American campus: the case of the graduate student. *Liberal Education*, 1970, 57, 562-82.

Dashiell, J. F. *Fundamentals of general psychology*. (3rd ed.) Boston: Houghton Mifflin, 1949.

Feister, W. J. *Factors related to successful completion of the Ph.D.* Unpublished doctoral dissertation, University of Iowa, 1969.

Golenpaul, D. (Ed.) *Information please almanac, atlas and yearbook*. New York: Simon and Schuster, 1972.

Schaffer, L. F. & Shoben, E. J. Jr. *The psychology of adjustment* (2nd ed.) Cambridge: The Riverside Press, 1956.

A summary of some issues in master's degree programs

Richard A. Swanson[1]

5

The purpose of this summary is to critique the preceding position papers on the master's degree in industrial education. The fact that both Passmore and Poor were pursuing doctoral degrees at the time of their writing was a purposeful factor in their selections as contributors to this monograph. One assumes that the perspective of the graduate student differs from that of graduate faculty. It is also assumed that the potential for problem identification and creative solutions is increased. It should also be known that the position of this writer is one of director of a graduate program.

This paper consists of two portions beyond this introduction. They are:

1. a combined synthesis and reaction; and
2. a summation

Synthesis and reaction

The criticisms of the master's degree programs in industrial education lodged by Passmore and Poor are devastating. For example, Passmore suggests a void of intellectual integrity in his review of the programmatic dimensions of the degree while, on the other hand, Poor chastises graduate faculty for their insensitivity to the human aspect of processing a graduate student. If these and their other observations are true, to what extent do we accept the criticisms? To what extent do these conditions result from faculty behavior or from student behavior? And to what extent are we willing to make adjustments in our practices? Hopefully, answers will surface as we proceed to analyze both papers.

Goals. The following discussion will be lodged in this assumption: *The respectibility and effectiveness of a graduate program is a management function and thus is ultimately a credit or discredit to the graduate faculty awarding the degree.*

Sound management, whether educational or industrial, is grounded in clearly defined goals. In both the preceeding papers an underlying theme of *goallessness* on the part of faculty and student is depicted. Passmore infers that a master's degree is becoming just an expected

---

[1]Dr. Swanson is Associate Professor of Industrial Education and Technology and Chairman of the Graduate Committee in Career and Technology Education at Bowling Green State University.

accomplishment by both public school teachers and teacher educators. Poor currently portrays the "degree seeker" as a person pursuing his goal out of context of knowledge. In such an atmosphere both professor and student can be blamed and are able to blame each other here. But, the graduate faculty must ultimately be held responsible. The situation seems analogous to a graduate-level psychology of learning lecture where 40 students sit in rows quietly listening to a 3 hour discourse by the professor on providing for individual differences. Possibly the student could have carefully framed a question so as to relate the lecture to his situation, or could have even suggested an alternative strategy. The more important point has to do with the purpose of this particular lecture. Resolving this question is the management of the professor, not the student. This obvious conflict between course content and teaching strategy is only one common symptom of *goallessness*.

While each graduate experience should be reviewed in terms of its purpose, the more significant question about the purpose of the total degree program should be asked beforehand. What is the goal of a master's degree in industrial education? Passmore suggests that graduate education actually is a negation of its stated goals and objectives. This can easily happen if goals are no more than a composite of cliches for special occasions. This being the case, possibly the *neutral* behavior of graduate students is simply a mirror-reflection of the graduate faculty. Poor implied this in his discussion of graduate student modeling for behavior. Further evidence is the subjective assessment of almost a complete void of master's programs that are committed to excellence, leadership, and the generation of new knowledge. This is not to say that most graduate program directors do not think they are doing a good job. It is assumed that most do. The biggest problem at the master's level is the ease with which graduate faculties are able to survive without articulating defensible program goals.

Once program goals are established, they can serve as a foundation for the program definition and human processing elements. These later tasks should be designed to be in support of the goals. The obvious danger is in facilitating an educational program that creates the least headaches and the most benefits for those professors managing the program. When in fact, the program should be designed primarily to create the least headaches and the most benefits for the student. There is some middle ground, but usually decisions tend to be supportive of the manager since he is "making the rules" in the first place. In terms of program elements, these *rules* seem to digress to trivia, as pointed out by Passmore. Obviously, this development lends support to the "degree seeker" rather than the "knowledge seeker" that were portrayed by Poor.

Beyond broad program goals, it becomes important to establish complete and logical goals for each program element. Without them a program could easily be dilluted in the implementation stages. An example here might be the defensibility of a comprehensive oral or written examination for the master's degree. It's the vogue to reject such traditional exercises in degree programs and one could easily be per-

suaded that it is simply an archaic exercise. It may well be that a master's degree program professing a goal of developing educational leaders would have a strong argument for not only maintaining, but increasing the rigor of such a test. Some form of articulation of problem solutions while "under fire" seems supportive of a leadership goal.

Intellectual Integrity. Passmore cut the intellectual integrity of the master's student to the ground in his section titled "Acquiescence." While agreeing with the qualitative student output he portrays, one must review Poor's mode of "Graduate Environment" and recognize that "game rules" are defined for the student. If faculty continue to give A's and B's to students who demonstrate no vision or creativity, we simply will be producing graduates with no vision or creativity. If faculty allow unsuccessful students to graduate and allow those who are "degree seekers" to graduate out of content of relevant intellectual functioning, we have gained nothing.

Possibly teachers of teachers have unique problems from other academic areas. Those entrenched in education have always approached education with a willingness to accept a wide range of performance and possibly we fail to discern the uniqueness of the graduate level. We have a history of compromise of standards. For the first time in public education it appears as though we generally have more teachers than jobs. Until now, we have consistently watered down our ranks and thus our standards. Although there has never been a real reason to compromise at the graduate level (except in those states that "legislate" a master's degree for permanent certification), it should be recognized that most graduate faculty in education have their philosophies firmly rooted in their public school and baccalaureate experiences. The result of this has put us in a position of generally asking an undergraduate to do high school-level work, a master's student to do undergraduate level work and a doctoral student to do master's work.

A compounding factor in the area of standards is that institutions are partially judged on a quantitative or production basis. Obviously, Poor's concern for purposeful personal, social, and professional interaction between graduate faculty and students is completely undermined by the quantitative quest for more graduates.

While agreeing with Passmore's position on the need for study in divergent areas by industrial educators, there seems a need for an even stronger stand. Though some people in the field cannot accept the notion of a graduate program combining industrial arts and trade and industrial education into an industrial education degree, this writer believes that the narrowness of a degree in industrial education should be challenged. On each campus all component areas that deal with some facet of career or technology education should join under one umbrella. Not only would component areas be able to retain their identity, but a more stimulating, efficient and effective program could develop. The uniqueness can be maintained through selected specialized courses, program advisement, and research advisement. The strengths come from the diverging views, increased base of faculty competencies, and the potential of eliminating

the overlap or duplication of course and administrative efforts. It should be noted that most of the dynamic graduate programs in our field function under such titles as Career and Technology Education, Occupational Education, and Vocational-Technical and Practical Arts Education and are marriages of two or more traditional subject areas.

Technical Courses. It is interesting to note that neither position paper made any mention of advanced technical work. The extreme range of activities among master's programs in industrial education can be characterized through the emphasis of technical coursework. Some have none, while others are heavily oriented toward technical laboratories.

Two television screens, one labeled bachelor's and the other master's, with identical images—this was a way one design student tried to suggest that a difference in the two degrees should be expected. For many institutions, their master's degree is an *instant replay* of their baccalaureate program. The notion that the undergraduate degree is more heavily weighted in the technical than the professional and that the master's degree is inverted, seems sound. Any master's degree program allowing over 25 percent of technical work should question its goals. The advent of the M.S. in Technology will be a natural avenue for those students wishing a technical degree.

Summation

For the most part, the master's degree in industrial education has not been taken seriously by those administering programs and those enrolled in them. Program goals are vague and the rigor non-existent. In all fairness, it should be noted that this is a problem the master's degree is facing in many fields of endeavor.

Inherent in these three position papers are criticisms that provide direction for change at the master's level. Specific suggestions are also made. If institutions, graduate faculty, and program directors are unwilling to grapple with the issues, than this writer recommends that some form of monitoring for the profession needs to take place. After review and recommendations have taken place, with an appropriate time for repairs, institutions awarding sub-standard master's degrees should have their "licenses" revoked.

Current issues in industrial education: specialist's certificate programs

PART III

The specialist's certificate is the newest and least frequently offered degree in industrial education. This is because some colleges and universities do not offer this degree, some industrial education graduate programs which could offer the degree have not yet made a decision to do so and in still other cases a decision has been made not to offer the specialist's certificate in industrial education. It is safe to say that the place of the specialist's certificate as a graduate program in industrial education is not firmly established. One of the purposes of Part III of this monograph is to present issues relative to the establishment of specialist's certificate programs in industrial education.

The articles in this part are structured with the first one arguing in favor of and the second one indicating questions regarding the need for specialist's certificate programs. The first article is by H. C. Kazanas and F. M. Miller of the University of Missouri where a specialist's certificate in industrial education if offered. This is followed with an article by Jerry Streichler and Michael J. Dyrenfurth, both associated with Bowling Green University at the time of writing. They present reasons why specialist's certificate programs should not be offered in industrial education. John McF. Pollock coordinated the writing of this part of the monograph and has written the summating statements in the third article.

Kazanas and Miller present some persuasive ideas for the co-equal acceptance with other graduate degrees of the specialist's certificate in industrial education. Their logic is generally that the degree is needed to fulfill the needs of society, the field of industrial education and individuals in the field. This is followed by a statement of characteristics of sixth-year programs, a description of the status and recommended procedures for the establishment of these programs.

Writing with equal persuasiveness, Streichler and Dyrenfurth argue against the specialist's certificate in industrial education. To a large extent, their argument is keyed against the argument by Kazanas and Miller. The intent of Streichler and Dyrenfurth is not to discredit the position of Kazanas and Miller but to provide constructive ideas for consideration by those contemplating the addition of specialist's certificates to their graduate programs in industrial education.

The nature and place of the sixth-year certificate program

H. C. Kazanas and F. M. Miller[1]

6

In recent years, a great deal has been said and written concerning the nature, value, place and future of the sixth-year programs in the higher education spectrum. Several descriptive national studies have been conducted to ascertain the current status and characteristics of the sixth-year programs. In addition, several nationwide conferences have been held to discuss the sixth-year programs in an effort to establish some operational guidelines for the ongoing programs and for those that are presently under developmental stages. These conferences have led to the publication of two brochures concerning the graduate degree programs, but with special emphasis placed on the nature of the sixth-year programs. The brochures were published by the American Association of State Colleges and Universities.

Although a great deal has been written about the sixth-year programs in education, very limited information is available concerning the status of the sixth-year certificate program in industrial education. There are many sixth-year certificate programs in industrial education in operation today and many institutions are thinking about and planning such programs in spite of the limited data available relative to the nature, need, scope and effectiveness of these programs. It is the purpose and intent of this paper, therefore, to present the point of view that the sixth-year certificate program in industrial education is a sound "innovation" in higher education needed to achieve certain objectives that cannot be achieved under the traditional structure of the master's and doctor's degree programs.

Forces influencing sixth-year certificate programs

The sixth-year certificate programs in industrial education have been a response to many societal forces. Among these forces are: (1) pressures of a credentialing society; (2) expansion of knowledge; (3) changing educational demands and; (4) changing roles of industrial education personnel.

The realities of a credentialing society. There is no doubt that many sixth-year programs have been developed by colleges and universities to meet the unprecedented demands for educational personnel with special-

[1]Dr. Kazanas and Dr. Miller are Professor and Assistant Professor, respectively, Department of Practical Arts and Vocational-Technical Education, University of Missouri—Columbia.

ized competencies (Dressel, 1971). Many school systems now authorize and provide salary schedules for positions requiring specialization beyond the master's degree but short of the doctorate. The steady growth and acceptance of a full array of support personnel for special resources and services related to teaching and administration which require sixth-year preparation have been reflected in job descriptions, salary schedules and contract negotiations. Moreover, state certification requirements and established standards for the professional associations increasingly specify the completion of a sixth-year program and endorsements in the field of education. But above the real need for support personnel with special competencies lie the realities of our credentialing society.

Dolce (1971) stated that we live in a credentialing society in which leadership in most areas of human endeavor is largely conferred by position. In higher education as in many other places, society has established a set of credentials which permeate the entire higher education structure. For example, society attaches the master's degree as the prerequisite of a doctoral degree and the whole society militates against the person with leadership qualities who happens not to have what is called the "professional credentials." While we might want and wish to get away from it, this is the way our society exists at the present time.

There seems to be little hope of that changing in the near future and therefore, the recognition of educational leadership will be based on professional credentials and not as much on leadership competence which in many cases may not be the same thing. Hence, the institutions of higher education become not only centers of knowledge but also major social mechanisms for credentialing individuals. The colleges and universities have the power which transcends the power to credential or not to credential an individual and in the absence of the credentials, we reduce the probability that the individual can get into a position of power and leadership regardless of his educational leadership potential.

Expansion of knowledge and the sixth-year program. A second major force which gave rise and justification to the sixth-year program is the expansion of knowledge. The growing complexity of American life and the specialization which such complexity has brought about makes specialization in education both necessary and desirable. Today, reading specialists, curriculum specialists, guidance and personnel specialists, school nurses, psychologists, education facilities planning specialists, and a host of other specialists are often found on the staffs of medium and large size school systems. The extension of knowledge and specialization also has invaded the classroom. Teachers are becoming specialists in teaching particular kinds of students such as the handicapped, the disadvantaged, and adults in different curricula such as the core curriculum, the "innovative" curriculum and now career education. It can also be argued that in many of these areas of specialization, the period of study necessary for assimilating the increasing store of professional knowledge and for developing the required professional competencies is often more than one year beyond the bachelor's degree.

Research evidence indicates that since the end of World War II, the master's degree has steadily depreciated. Newsome (1958) stated that the period of study has been reduced from two or three years to nine months. The thesis, once the backbone of the master's program, is now scarcely found. Language requirements have rapidly passed away. The old two-track master's program—one terminal and one leading on toward the doctorate—is now seldom found. Indeed, many master's degree programs are now in the process of being returned to undergraduate colleges where they are becoming standardized in terms of aims, curricula and procedures and are labeled the "fifth-year program." The once scholarly Master of Arts and Master of Science degrees are now giving way to newer master's degrees that signify by their names and abbreviations a type of education designed for school teaching.

Therefore, where the "fifth-year program" may be designed primarily for teaching, the "sixth-year program" is (or should be) designed for specialization in such fields as administration, supervision, guidance, testing and the like. Though all sixth-year programs are not necessarily studies beyond the master's degree, the trend seems to be in that direction. An examination of such titles given to the sixth-year programs as "Certificates of Advanced Study," "Certificates of Advanced Graduate Specialization," "Sixth-Year Certificate of Specialization," would indicate that those programs require a higher level of study and specialization than is found in most master's degree programs today.

Changing educational demands and the sixth-year program. A third reason supportive of the sixth-year program as a desirable innovation in higher education is the changing educational demands. At least three emerging trends in public education have had an impact in legitimizing the need for the sixth-year program. *The most significant trend* is the revolution taking place in the educational media and particularly in educational technology. The pervasive effect of educational technology can be seen in every classroom at any level of education. As a result, a new "breed" of educational specialists—educational technology specialists—came into existence.

A second trend in education closely related to the advent of new techniques and materials for improving learning is the increased proliferation of responsibilities within the total structure of education. As a result of these added responsibilities, many emerging positions have been created with the stimulation of increased federal monies made available to public education. These additional financial resources are used to meet the public's expectations for schools to provide more and better services.

It seems almost certain that teaching in the near future will encompass a variety of personnel, each contributing in some way toward the optimization of the learning potential of each student. Hierarchies of skills are emerging in education, much as the medical profession has already experienced. The implications seem quite clear that different levels of preparation programs in education will be needed to accommodate the varying skill levels on the hierarchy.

The third trend is the pressure to upgrade professional standards for public school personnel. Professional teacher's organizations and state departments of education have worked to increase the standards for school personnel. Competitiveness among school districts to improve their programs has also resulted in higher standards and salary schedules indexed to reward post-baccalaureate degrees.

The key function of the sixth-year programs must be similar to that seemingly stressed by the Harvard Report on The Graduate Study of Education (1966)—the need for a broad conception of education, one which links research and scholarship with technology and practice.

Changing roles of industrial education personnel. The changing educational demands and specialization characteristics of the sixth-year program have effected the roles of industrial education personnel in various ways. New positions and functions in the area of industrial education have been created that require specialized professional competencies. These competencies seem to fall on the spectrum of higher education, between the master's degree and the doctorate degree. Strom (1972) stated that administrators are looking for faculty members who are teaching-oriented and who have the technical competencies rather than for those who are research-oriented. Examples of positions requiring professional competencies at the sixth-year level would be supervisors of industrial arts, directors of area vocational schools, coordinators of industrial education, consultants for industrial arts, consultants in career education (or occupational education) and specialists in facilities planning, to name only a few.

However, in addition to the changing role of industrial education competencies and requirements, is the changing nature of industry and technology which affect the technical competencies of the industrial education teacher. The fast rate of change in materials, processes, products and occupations is a constant challenge to the industrial education teacher who trys to keep abreast in his specific technical area. Whether general or specific technical competencies, there are technical classroom functions that could best be met and attained through a specialized sixth-year program, designed to provide technical competencies at the graduate level.

The sixth-year program should be especially beneficial for the master's degree industrial education teacher who has been teaching for several years and needs to upgrade his technical competencies. With the present rate of technological change, this upgrading becomes essential for successful industrial education teaching.

Types of sixth-year programs recently identified. To achieve certain objectives in higher education that could not be reached through the traditional bachelor-master-doctor sequence, a variety of sixth-year programs have been established. Dressel and DeLisel (1967) reported from a national study that three distinctive types of sixth-year programs were discernible. *The first type* is the program characteristic for administration, supervision, curriculum and instruction. The courses for this program were from broad fields and from non-subject matter areas of

education. *The second type* was characteristic for auxiliary school service personnel. This program consists of an array of articulated comprehensive interdisciplinary and interdepartmental courses. *The third type* was characteristic for teaching specialists pursuing courses in the art and methodology of teaching and learning combined with the subject matter from the teaching disciplines. The level of course work included in these programs was about 50 percent at the fifth-year level (15 credits) and 50 percent at the sixth-year level (15 credits) or 25 percent undergraduate, 50 percent at the fifth-year level, and 25 percent at the sixth-year level.

The programs may serve either terminal or intermediate professional degree functions for well-qualified students who approach the study through the Master of Arts or Master of Science in a professional field with thesis. However, the sixth-year programs are not the usual or recommended route to the Doctor of Education.

Faculties have wrestled with at least two difficulties in defining the sixth-year programs. One is the possibility that the sixth-year program is designed and awarded for what is essentially a second master's degree. The other is that the specialist program may become a consolation prize for those not accepted in or unable to complete the doctorate, especially in institutions which offer both degrees. Thus, the program originally introduced as specifically terminal becomes anomalous and difficult to define.

Sixth-year degree versus the sixth-year certificate. Sixth-year degrees or certificates are usually awarded by a college or university to a student after successful completion of a minimum of two years of graduate study beyond the bachelor's degree or one year beyond the master's degree. Two types of sixth-year programs are available: (1) teaching-oriented degree programs such as the "Specialist in Teaching," "Master of Arts in College Teaching," and "Diplomate in College Teaching," and (2) professional degree programs such as the "Specialist in Education," "Certificate of Advanced Study," "Certificate of Advanced Graduate Specialization," and "Sixth-Year Professional Diploma."

The literature indicates that all programs do not lead to a formal degree. A nation-wide survey of sixth-year graduate programs in teacher education conducted by Koenker (1967) showed that the degree and the non-degree programs were similar in some respects, but dissimilar in many others. Degree programs were found more likely to require the following: That the student have a committee; a preliminary oral and/or written examination; a thesis; research paper or field study; final written and/or final oral examinations; and a practicum or internship experience. Non-degree programs (certificate programs) were more likely to be designed to meet state certification requirements and therefore not provide the flexibility needed for meeting a student's specific needs. Koenker observed that degree programs tended to be organized around a central theme or field of specialization while the non-degree programs tended to be a collection of courses in a specific department or over a number of departments. There is a definite evidence from the studies of Boylan

(1964) and Koenker (1967) to indicate when the program leads to a degree, it is of better quality than when it is a non-degree, diploma, or certificate program. In addition, degree programs are more likely to be considered for accrediation by regional and professional accrediting agencies than non-degree programs.

Standards and characteristics. According to recent studies, Dressel and Delisle (1967), American Association of State Colleges and Universities (1970) and Koenker (1967), several desirable standards and characteristics of the six-year programs were identified.

1. Purposes and objectives of graduate study at the sixth-year degree level should be clearly defined and consistent with the strengths and goals of institutions.
2. Admission requirements must be selective and based on the assessment of the person's promise as a successful professional worker.
3. Program should focus upon the field of specialization with adequate opportunities for inter-disciplinary courses and courses in cognate fields.
4. Provisions should be made for seminars, independent study courses, field and research projects, and an internship and/or practicum experiences under adequate supervision and guidance.
5. There is a need for courses and seminars that are designed for sixth-year candidates only.
6. The sixth-year program is not a research degree, but the student should become well acquainted with research in his field of specialization as a user of research.
7. A scholarly project appropriate to the student's field of specialization should be required part of the sixth-year program.
8. The student should have adequate professional experience related to his proposed area of specialization.
9. Residence requirements should be stipulated.
10. The institution should have a well established and high quality master's and/or doctor's program.
11. There should be definite need and demand for sixth-year graduates in the institution's service area.
12. The institution should have adequate financial resources to meet the expenses of the program.
13. The institution must have an adequate and well-trained staff with time to give students individualized help.
14. The institution must be willing to make the sixth-year a prestige program of high quality rather than merely a collection of courses.
15. The institution should possess outstanding library facilities, both book and non-book.

Status of the sixth-year program. The current status of sixth-year programs can be accurately reported as a result of two recent national studies, Dressel and DeLisle (1971) and Koenker (1967).

Koenker reports that there are at least 116 colleges and universities offering some type of an organized sixth-year program of study leading to

a degree, certificate, diploma or some similar type designation. This represents a significant increase from six prior to 1950, to 47 in 1957, to 116 in 1967. The number of institutions offering such a program has more than doubled in the last 10 years. This study also found that 37 percent of the programs lead to degrees while 63 percent were non-degree programs.

Dressel and DeLisle surveyed 82 institutions which offered 177 sixth-year programs. Designated as certificate programs were 44.6 percent; as degree programs 43.5 percent; and as diploma programs 11.9 percent.

Dominant emphasis among the 177 sixth-year programs are distributed in order of frequency among the following three major areas of professional training: (1) administration, supervision, curriculum and instruction; 40.1 percent; (2) guidance, counseling and other auxiliary school service personnel, 33.9 percent; and (3) teaching improvement programs at various levels of education, 26.0 percent.

Procedures for establishing sixth-year programs. Although various lists of guidelines for establishing a sixth-year program have been suggested, the following list suggested by the American Association of State Colleges and Universities seems to be the most representative:

1. It should be ascertained that there is strong faculty and administrative interest and support for the program.
2. A careful study should be made of sixth-year degree programs in selected institutions with particular reference to identifiable weaknesses and strengths of such programs.
3. Professional organizations and accrediting associations or agencies should be consulted.
4. A proposal for the sixth-year program should be developed, including the objectives, admission standards, degree requirements, procedures for administering the program and anticipated financial and other resources required and available.
5. After the program has been developed and cleared with institutional channels, consultants from the Council of Graduate Schools in the United States and/or regional accrediting associations should be invited to the campus to review the proposal.
6. Following a study of the recommendations submitted by the consultants, a statement of the proposed sixth-year program should be prepared for submission to the appropriate authorities for final consideration.

Summary and conclusions

The sixth-year program for preparing specialized personnel for education is definitely here to stay and its future development and expansion is no longer a matter of question or conjecture.

However, the integrity and future viability of the sixth-year programs requires a re-evaluation of meaning and purpose and a clarification of the rationale supporting the program emphasis, content, and the distinguishing features which characterize the sixth-year programs. Only then will the original promise of a significant program of professional preparation to

meet the important contemporary needs of society and youth be fulfilled.

In this report, an attempt was made to summarize prevailing practices in regard to sixth-year programs. It has been found through the review of the literature that these programs vary so greatly in nature and quality that unless some standards are developed and applied by appropriate accrediting agencies, they may fall into disrepute.

It is apparent that some former colleges of education, not empowered to offer the doctorate, have introduced the sixth-year program as a way-station on the road to doctoral programs. The disinterest of faculty and the resulting deterioration of the sixth-year program once the doctorate has been achieved, serves as evidence.

After a careful review of the literature, it is apparent that there is need for additional research on the sixth-year programs in industrial education if they are to become viable means for meeting the specialized needs of industrial education personnel and take their rightful place in the spectrum of graduate study in industrial education.

References

Boyland, L. C., *Sixth-year programs: A conference report.* Kansas State Teachers College, Emporia. Report at Midwest Conference on Graduate Study and Research, 1964.

Dolce, C., New directions for leadership development. Paper presented to the EPDA Directors Meeting in Washington, D.C., November 28-29, 1971.

Dressel, P. L. and DeLisle, F. H., The development of the educational specialist in higher education. *The North Central Association Quarterly,* 1971, 45, 305-315.

Harvard Educational Review, The graduate study of education: A discussion. 1966, 36, 3.

Koenker, R. H., Sixth-year graduate programs—Ten years later. *Proceedings of the National Conference on the Intermediate Graduate Degree,* Kansas City, Missouri, June 29-30, 1967.

Proceedings of the National Conference on the Intermediate Graduate Degree, Kansas City, Missouri, June 29-30, 1967.

Newsome, G. L., Sixth-year programs in teacher education: Some questions. *The Journal of Teacher Education,* March, 1958.

Strom, L. H., The Educational specialists are coming! *Man/Society/Technology,* 1972, 31, 180-181.

The Specialist Degree, Publication Sponsored Jointly by the American Association of State Colleges and Universities and the National Conference on the Intermediate Degree.

Issues and criteria for the sixth-year specialist's programs

Jerry Streichler and Michael J. Dyrenfurth[1]

7

Because sixth-year graduate or educational specialist degree programs in industrial education are advocated in the preceding article in this section of the monograph, the section editor suggested the development of an opposing point of view. To attain this end, early efforts identified the content and thrust of this paper with arguments which clearly negated the need for, and questioned the appropriateness of, programs other than those within the master's or doctor's degree framework. Reflection upon this approach, however, indicated that a more constructive tack was in order; although some questions regarding the need for sixth-year programs do remain.

The material in this article reveals issues which ought to help initiators design programs of quality and which are based upon substantive rationales. The discussion involves two major sections. The *first* investigates sixth-year programs and their rationales as well as the issues which confront degree advocates or which have resulted from the existence of these programs. Also, the discernible rationales which support the development and acceptance of such degree programs are explored.

The *second* section presents general criteria which constitute analytical aids to program developers and advocates. This particular discussion should be of practical value to those involved in academic development and may serve as a development paradigm for industrial education at all levels of post secondary education.

Overview. The issues which affect programs in industrial education do not necessarily arise within that field but emerge from the several domains of higher education and from other institutions in society. Because these origins are so diverse, so are the solutions, if any exist. Despite this, the unique role and function of industrial education must be the predominate criteria in program development. The goals, purposes, and procedures of other fields may not be applicable to industrial education. When they are, industrial educators need to delineate the substance and applicability of borrowed findings and procedures. Connected with this is a professional responsibility to respond to the real needs of

[1]Dr. Streichler is Professor and Chairman, Department of Industrial Education and Technology, Bowling Green State University, Ohio. Dr. Dyrenfurth is a former Doctoral Fellow in Educational Administration and Industrial Education, Bowling Green State University, Ohio, and Assistant Professor and Chairman, Department of Industrial Education, Valley City State College, North Dakota.

society, while maintaining and developing quality programs based upon rationales of substance.

"Quality" as used in this paper, refers to the degree to which programs are designed to: (a) satisfy client (student, institutional, societal) needs; (b) be appropriate to the level of education at which they are offered; (c) enlist faculty whose competencies are appropriate to the educational experiences included in the program; (d) include course work, internships, externships and other educational experiences which are truly appropriate to the program goals and to the level at which the program is placed in the educational continum; (e) avoid unnecessary duplication of existing educational programs; and (f) facilitate individual advancement and continuation in advanced academic work as necessary.

The contemporary higher education scene. American colleges and universities offer a dazzling universe of degrees. Galaxies of degrees, subjects, initials, programs, and levels confront the casual observer. Academic degree structures are confusing in terms of sheer number alone. Eells (1963), for example, noted that colleges and universities offered more than 1600 different degrees in 1960. Of the 1600 degree designations, more than 1000 are so unique as to be offered in one institution only. Interestingly, this was reported before the golden expansionist era of higher education in this country.

For some time, the growth of this universe occurred within the still predominate bachelor-master-doctor sequence. In recent years, however, two new galaxies have arisen in the skies of degreedom, each having their own constellations of subjects, initials, and programs. The newcomers are the post high school two-year associate degree and the graduate sixth-year programs including the Specialist degree; the latter being the concern of this paper.

The mechanisms by which such new programs evolve must be understood if program development is to be rational. One such mechanism was dramatized at a conference on Preparing College Teachers, at Bowling Green State University, on May 27, 1972. What was regarded by observers as an undesirable development in graduate degree offerings in a neighboring state was reported. Most colleges and universities in the state had received approval to offer the Doctor of Arts degree. To the outside observer, at least, this action was taken with little or no regard for institutional history, including performance record, or resource capabilities for conducting graduate work at the doctoral level. The rationale for the Doctor of Arts, in this instance, was not convincing. It lacked substance and qualitative dimension according to the reporter. While the degree of Doctor of Arts is not the subject of this paper, the described action deserves consideration. In terms of historical precedent, such action in a state is not unseemly. The history of higher education in America, particularly as it pertains to the area west of the Appalachians, is filled with such actions; witness the growth of the great land-grant institutions and state university systems in most states of the union which may be characterized as having grown into that which legislative action

(possibly unwittingly, but nevertheless resulting bold) chartered for them.

Today, however, the characteristics of a pioneer, westward-looking and growing society, simply do not exist. Our educational system is mature and, except for exceptional instances as the one cited above, legislatures and controlling boards are no longer willing, nor do they dare to "plant" a new university here or establish a new degree program there. On the contrary, in many states proposals for new programs are being scrutinized with greater care than ever before and existing programs are being evaluated relative to decisions concerning their continuation or cessation. Regardless of motive, the involvement and consequent influence of politicians upon higher education in states across the country particularly in the 1969-72 period has been extreme. In some states, budget cuts and program reductions have been, at least for the individuals who were directly affected, disastrous. It is within such a context that sixth-year graduate programs in industrial education must establish their appropriate role and receive acceptance.

Sixth-year programs

Sixth-year programs—overview. Spurr (1967) reports for the American Association for Higher Education that, "proposals for intermediate degrees between the baccalaureate and the doctorate fall into two general categories: those designed to identify progress along the main trunk toward the Ph.D. and those designed to mark a terminus in a branch" (p. 106). Thus, one "serves as an intermediate professional degree that requires advanced study but not the 'research emphasis' of a doctoral degree;" and the other is an attempt to eliminate the connotations attendant upon completing all-but-dissertation requirements for the doctorate (Spurr, 1970).

Sixth-year program interfaces. If an educational specialist degree is situated between the master's and doctor's degrees, and if these two circumscribing degrees are changing, then the viability of a sixth-year program is subject to question. What change has occurred in graduate degrees? Are innovations in traditional graduate degrees similar to developments in specialist degrees? In doctoral education, as reported in Phi Delta Kappa's (1971), the *Doctorate in Education,* "the most frequent type of change was program expension which accounted for 70.4% of participating institutions. The largest number of these expansions were developments in areas of concentrations" (p. 62). This movement would seemingly encroach on the purview claimed for the sixth-year programs.

Articulation, especially between degree programs and alternatives, is an important concern today. Educators try to avoid "closing doors" on potential students. This goal seems to be jeopardized by the development of a "terminal" degree. What occurs if the student subsequently seeks admittance to a higher degree program?

This latter problem introduces the spectre of the "stepping-stone syndrome." A two faceted problem, the syndrome can best be expressed by the following questions: "How can *students* be discouraged from using the sixth-year program as a stepping stone to lever admittance to the doctoral program?" And, "how can academic *departments*, when initially denied approval for a doctoral program, be prevented from establishing a sixth-year program and subsequently using this program as new ammunition in their reapplication?" Both the student and departmental strategems are not unwise. But are they the most efficient in resource utilization, in time, and do they positively contribute to one's professional development?

Flux in higher education has confused the purposes of most degrees, and it appears that purposes of sixth-year programs are, at best, equally confused. Can the Ed.S. be the degree that links research and scholarship with technology and practice? What about the Ph.D. and Ed.D.? Were they not charged with that purpose? It must be noted that according to the PDK (1971) study, many of the assumed traditional differences between the Ed.D. and Ph.D. are more wishful thinking than reality and that in fact, they represent a single degree. Furthermore, Dressel and DeLisle (1971) report "about 7 out of 10 educational specialist programs (69.5%) follow the same sequence of courses which leads to the Doctor of Education degree" (p. 308). The main conclusion that can be derived from these facts is that the sixth-year programs may be very similar to doctoral programs, at least in course requirements.

Problems posed by sixth-year programs. A *major problem* surrounding the sixth-year programs resides in the breadth vs. depth controversy. While the name of one sixth-year program, the educational specialist, implies depth, the situation is not that straightforward. For example, the North Central Association Quarterly (1971) reveals a pattern of inconsistency when reporting upon teaching oriented intermediate degrees. The report states that: "the program of study should focus mainly upon the subject matter field of specialization . . ." and on the other hand suggests that "the emphasis should be on breadth of preparation in a discipline rather than a narrow specialization" (p. 336). It appears that the role of foundation vs. concentration courses remains unresolved.

A *second controversy* centers on the degrees vs. certification approach; namely, determining the contribution that results from the awarding of a sixth-year degree as opposed to the result of issuing a certificate. Dressel and DeLisle (1971) note that "it would have been far better and simpler had these programs been developed on a certificate rather on a degree basis, but trends to date and emphasis on degrees in this country have effectively destroyed that prospect" (p. 314).

A *third problem* area centers on the contradictory interpretation of trends. Arguments for sixth-year programs have been based on the necessity of transmitting expanding knowledge and information bases to practitioners.

However, skills in transmitting and inculcating knowledge have also grown. This latter factor is one of the premises underlying recent proposals to shorten the baccalaureate to three years.

The fundamental source of these problems seems rooted in the need for professional workers in America's increasingly complex society. But professional individuals apparently need opportunities to garner credits in additional courses, which lead toward additional certificates and, which in turn, are prerequisite to climbing the ladder to higher paying (read "more responsible") jobs in education. While further education is encouraged throughout the government-enterprise system and in the professions, the field of education seems to have codified its credentialing system to a greater extent than other fields. Furthermore, because the link between educational preparation institutions and educational consumer institutions is probably more direct than most others, the consumer demands for credentialing procedures impinge directly on the decision makers in higher education. The following paragraphs present several of the unique aspects of "educational credentialing."

1. Numerous school systems have a published incremental salary system which rewards their professional personnel upon the attainment of higher degrees or the completion of a prescribed number of additional credit hours of course work. Clearly however, the relationship between courses taken, degrees earned, and an individual's work or improved job performance is at best varied. Often too, school district incentives are ill related to advanced certification as prescribed by state agencies; nevertheless, the local school district incentive program can be considered a form of "credentialing." The educator using the credentialing society argument as part of a rationale for graduate program development certainly will enumerate pressures emanating from the policies of state education agencies, regional educational accrediting agencies, and professional education societies. However, can rationales built around the credentialing argument offer sufficient evidence in support of a new graduate program?

2. The state agency responsible for the quality of state-wide educational policies is usually the primary "credentialing" force. Usually the published requirements, which include prescribed course work, work experience, and degree attainment, constitute an easily discernable and real credentialing force. As in the case of "local credentialing," there has been little systematic evidence presented that these "requirements" are in fact major variables contributing to job performance.

3. Finally, professional associations often formulate and promulgate credentialing policies. These may take the form of requirements for general membership or different categories of membership related to educational attainment; or organization policy which in effect prescribes sets of courses or higher education experiences which are judged necessary to produce a sound practitioner worthy of an appropriate title. However, professional organizations like the American Vocational Association and the American Industrial Arts Association and their affiliates seem not to

have taken stringent and definite action in their domains as have organizations in other fields. Educators, however, are cautioned against overworking the "credentialing society" argument. For example, The National Commission on Accrediting (1964) points out:

> Educators and public alike must remember that an academic degree is only one symbol of educational achievement. If students are required unnecessarily to obtain degrees as a requirement for employment, promotion, or recognition, and if their competence is judged more by this symbol than by the substance of their learning, then many of them may pursue higher education for no other purpose than to obtain degrees, and more bogus institutions will attempt to supply degrees. (p. 4)

This view seems to hold for all degrees including those resulting from a sixth-year of study.

Sixth-year programs: pro and con. Although more than fifteen years old, Newsome's assessment of the sixth-year graduate degree situation is still timely. Consequently, proponents of sixth-year programs may cite Newsome (1958), writing in the *Journal of Teacher Education,* who suggests that because of increasing complexity of knowledge in most fields, specialists appear to require more training than that which one year beyond the bachelor degree can provide. Educators may also point to certification requirements in some states which necessitate study beyond a Master's degree and which seem to be appearing more frequently. In this connection, Dressel and DeLisle (1971), report that, "Most specialist programs (98 percent) are also designed to meet current or probably certification requirements in certain states or to meet requirements for membership in professional associations" (p. 308).

Further, program advocates can point out that some school systems reward their teachers by salary or promotion methods for completion of sixth-year programs (Newsome, 1958). Reasons reported for this practice include (a) meeting the demands for specialists imposed by the development of new "Educational Technology", (b) the attempt to upgrade teaching staff through more education, and (c) the requirements created by differential staffing. The conditions listed here as necessitating sixth-year programs are noted with suspicion by the National Commission on Accrediting.

Although the foregoing seems to provide persuasive arguments for the development of sixth-year programs, Newsome (1958), who again speaks out of the still applicable past tells us:

> As yet there seems to be too little information at hand concerning needs, aim, and designs to adequately fashion sixth-year programs . . . Just what kinds of educational specialists are, or will be needed, and what special knowledge and professional competencies will be expected of each cannot be easily predicted. A sound approach to the problem, however, might be to survey professionel needs . . . until this is done, there is likely to be confusion concerning purposes of the sixth-year programs (p. 27) . . .
> Sixth-year programs cannot adequately be justified until they have been built in terms of unique aims, aims which are in some way different from

> those of regular degree programs . . . until these problems are solved by a careful examination of aims as ends and designs as means, sixth-year programs will continue to be a hodgepodge of useless courses (p. 28).

For sixth-year programs, the lack of a distinct and clear purpose and the inability to design programs with flexibility to meet individual needs was observed by Koenker (1958). Attempts to inject flexibility took the form of adding areas of study and new courses. It may be contended that the attempt to program individuality and flexibility is a futile practice that must inevitably end in failure. Dressel and DeLisle (1971) predict the effect of such an approach when they state: "we conclude with a conviction that these programs vary so greatly in nature and quality that unless some standards are shortly developed and applied by appropriate accreditation agencies, they will fall into disrepute (p. 313)."

Alternatives to sixth-year programs. Skepticism such as indicated by the prior sampling of the literature leads to a search for alternatives to sixth-year programs. *One major alternative* to introducing new sixth-year programs is to change existing programs. For example, Dressel and DeLisle (1971) note, "The two-year master's programs are more appropriate than the Ed.S., but they are unpopular because they constitute devalued currency in the doctorate-conscious field of higher education (p. 312)."

A *second alternative* which has been suggested, for those hiring people for whom the sixth-year program is considered an asset, is to look more closely at the products of revamped degree programs. Since the "old graduate just ain't what he used to be," Newsome's (1958) question still needs to be answered, "why not . . . seek specialists with doctor's degrees or master's degrees in specialized fields (p. 26)?"

Performance-based educational programs and professional progress based upon performance provide a *third alternative* to the sixth-year program (possibly to most existing higher education programs?). This approach fosters a de-emphasis upon degrees and collecting college credits. Rather, courses or educational experience are pursued wherever available to prepare individuals to perform specific professional functions. *Demonstration* of such competency suffices for acceptance into the professional role. Advancement within the professional role is accomplished in a similar manner.

Aids for developing industrial education programs

Although Strom (1972) stresses the need for educational specialists (graduates of the sixth-year programs) in the industrial education field, he does not present much evidence of this supposed need. In fact, the professional literature has also largely ignored this subject. By way of ferreting out some facts which may provide insight as to the actual situation, a review of two sources in the field yielded the following: Miller and Ginther (1965) reported 16 sixth-year programs in industrial education. A check of the 1971-1972 ACIATE/NAITTE *Industrial Teacher Education Directory* indicates only 15 such programs with 39

graduates. Over a seven year period, then, there was no increase in program offerings on the sixth-year level, even though the gross increase in institutional enrollments during this period is a matter of record and possibly astonishment. Table 15 presents a summary of the degree offerings as listed in the *Industrial Teacher Education Directory*.

Unfair as it may seem, one may conclude that if programs are indeed offered in accordance with the need for their product, then sixth-year programs appear relatively unnecessary. This contention seems to be reinforced by the findings of Miller and Ginther (1965). In their monograph the various programs were analyzed in terms of required courses. Only minor and seemingly insignificant differences are noted when comparing sixth-year programs to programs leading to the master's and doctor's degrees. Table 16 presents these findings.

TABLE 15

Tally of 237 institutions in ACIATE/NAITTE 1971-72 Directory

Programs Offered	Number of Institutions
Bachelors only	77
Bachelors and Masters	96
Bachelors, Masters, Ed. S.	8*
Bachelors, Masters, Doct.	26
Bachelors, Masters, Ed. S., Doctorate	4*
Masters only	3
Masters and Doct. only	4
Masters, Ed.S., Doctorate	3*
Doctorate only	1

*Note: only 15 specialist programs (6%) exist with graduates

TABLE 16

Comparison of average required semester hours for graduate industrial education degrees

Required Courses	Masters Average	Specialist Average	Doctoral Average
Research	6.13	10.71	12.35
Statistics	5.14	7.50	4.50
History/Philosophy IE	3.00	3.77	3.85
Curriculum IE	3.06	3.80	3.38
Administration IE	3.42	3.75	4.00
Instruction IE	3.00	4.00	4.50
Higher Education	3.83	3.00	3.50
Educational Psychology	2.82	2.67	5.67

One may question the significance of the reported existence of fewer than 39 graduates from 15 sixth-year programs in industrial education. Further, the omission of any reference to sixth-year programs in the *Proceedings of the 5th Annual National Vocational and Technical Teacher Education Seminar: Assessment of Graduate Programs* (1972) is cause for speculation. While the discussions at the seminar touched such topics as breadth and depth, extent of specialization within programs, internships, and changing nature of degrees, it appears that the topics were clearly addressed to the master's and doctor's programs. The view then, of vocational and technical education (including the industrial educators who participated) toward the sixth-year program, is clearly indeterminate. While this omission is not regarded as a negation of sixth-year programs, obviously, it cannot be regarded as an affirmation. The chosen interpretation is that the principles, problems, and solutions explored at the seminar, while applicable to master's and doctor's degrees (by the presenters' and participants' allusions), *may* be applicable also to the unmentioned intermediate degree if that degree or program can be designed to meet criteria which suggests that it can do better than what is done by the more traditional degrees or if it can do something that is not being done at all.

In this case, the failure to mention specialist degree programs, may align the seminar participants with the reporters here, that position being: acceptance of program *per se* is deferred. This is because the arguments for sixth-year programs which fall into the following categories: (a) new positions exist that require sixth-year training for faculty that are (i) teaching oriented and (ii) technically specialized, (b) the fast rate of technical change could be understood or compensated for by a sixth-year program, and (c) the sixth-year program could update older faculty; are not entirely convincing.

The degree to which industrial education has come of age as a field of study may be signalled, in part at least, by the ability of practitioners to establish independent approaches to program development. The preceding section discussed the forces, arguments, problems, and possibilities open to educational specialists (sixth-year) programs.

Criteria for developing sixth-year programs. The evidence that such programs should exist is inconclusive, but in order that they may be given every benefit toward development and growth (should the need in fact exist)—industrial educators with interest in this area of graduate studies are here offered a set of criteria applicable in the design stage and appropriate as well as evaluative criteria of continuing programs. These criteria[2] are listed in question form:

[2]Adapted from criteria developed by the Academic Development and Education Committee (ADEC) on which Dr. Streichler serves. Dr. E. Tonnesen, Associate Dean, College of Business at Bowling Green State University and chairman of a group of consultants to ADEC, is acknowledged for his contribution to the development of the original criteria.

1. Are the programs objectives and purposes clearly defined, with the desired outputs (theoretical, behavioral, etc.) identified?
   - 1.1 Are the clients that will be served (individuals, institutions, agencies) identified?
   - 1.2 Does the proposed program supplant existing programs or any portions thereof? (If yes, why is this desirable? If not, can the uniqueness of and need for the program be demonstrated?)
   - 1.3 Will the proposed program duplicate or integrate existing program functions? (If yes, why is this desirable? If not, can an additional program be justified?)
2. What problems surround the achievement of program objectives?
   - 2.1 Are the objectives being addressed at all? (Where, by whom, in what ways?)
   - 2.2 If not, what are the constraints that may account for this? (Resource, staff, financial, lack of priority, lack of perceived need, lack of theory, or method to make objectives operational, lack of sound administrative organization or support)
   - 2.3 If yes, what specific inadequacies suggest that current efforts at addressing objectives are inadequate?
   - 2.4 Have there been past efforts to achieve objectives at your institution or elsewhere? (If so, what resources were employed and what results were generated?)
3. Has the proposed program been clearly described?
   - 3.1 Are the characteristics of the program in its desired operating mode well detailed?
     - 3.1.1 How would the program function (steps in sequence)?
     - 3.1.2 Who would conduct the program (faculty and primary agencies)?
     - 3.1.3 What would the program cycle (time) be?
     - 3.1.4 What operating budget, manpower, and facilities resources would the program require?
   - 3.2 Are the program development stages properly detailed?
     - 3.2.1 How would development proceed (steps in sequence)?
     - 3.2.2 Who would be involved in development faculty, consultants, internal and external agencies)?
     - 3.2.3 What will be the development time?
     - 3.2.4 What will be the budget, manpower and facilities requirements for the development phase?
   - 3.3 What are the evaluation processes for program development and operation?
     - 3.3.1 What elements and stages can be identified as appropriate for evaluation?
     - 3.3.2 Is it appropriate to invite evaluation agencies (internal, external) and what are their qualifications?
     - 3.3.3 Is an evaluation sequence required and has it been delineated?
     - 3.3.4 What budget, manpower, and facilities resources will be required for evaluation?

4. Has the relationship between the proposed program and established programs (within your institution or at nearby institutions) been clearly described?
   4.1 Have such existing programs or other programs potentially affected by the proposed program been given an opportunity to review and respond to the proposal?
      4.1.1 Which programs have been so solicited and on what ground?
      4.1.2 What is the nature of the responses?
   4.2 What is the nature of support required from academic departments and other agencies at your institution or in nearby universities? Have they been solicited? If no, why not? If yes, are they willing to provide support?
5. Have the problems that the program *design* seeks to resolve been clearly delineated? Is the program emphasis experimental (theory testing)? Pedagogic (improved teaching-learning system)? Organizational (improved institutional structure)? Administrative (improved control system)? Implementational (application of improved methodologies) etc.?

The writers would be quick to agree that the foregoing may require extensive refinement. On the other hand, satisfactory responses to the set of questions must result in a powerful document in support of a program. Utilization of the set of questions, or reasonable facsimile thereof, by industrial educators can only enhance proposals, gain respect of colleges in other disciplines, and ought to contribute significantly to objective rather than subjective development of sixth-year and other programs in higher education.

References

American Council on Industrial Arts Teacher Education. *Industrial Teacher Education Directory*. ACIATE/National Association of Industrial and Technical Teacher Educators, 1971.

Dressel, P.L. & Delisle, F.H. The development of the educational specialist in higher education. *The North Central Association Quarterly*, 1971, 45: 305-315.

Eells, W.C. *Degree in higher education*. Washington: The Center for Applied Research in Education, 1963.

Gorman, A.M., Clark, J.F., & Miles, B.E. *Proceedings of the 5th Annual National Vocational and Technical Teacher Education Seminar: Assessment of graduate programs*. Columbus: The Center for Vocational and Technical Education, 1972.

Koenker, R.H. Sixth-year programs in teacher education: a survey. *The Journal of Teacher Education*, 1958, 9, 20-24.

Miller, W.R. & Ginther, R.E. *An analysis of graduate work in institutions with programs in industrial arts education personnel*. Monograph 1, American Council on Industrial Arts Teacher Education, 1965.

National Commission on Accrediting. *The integrity of the academic degree*. Washington: American Council on Education, 1964.

Newsome, G.L. Sixth-year programs in teacher education: some questions. *The Journal of Teacher Education*, 1958, 9, 25-31.

North Central Association. Guidelines for institutions offering advanced degree programs. *The North Central Association Quarterly*, 1971, 45: 327-341.

Phi Delta Kappa. *The doctorate in education: the institutions.* Bloomington: PDK, 1971.

Spurr, S.H. *Academic degree structures: innovative approaches.* New York: McGraw-Hill, 1970.

Spurr, S.H. New degrees for college teachers. In G. K. Smith (ed.), *In search of Leaders.* Washington: American Association for Higher Education. 1967.

Strom, L.H. The educational specialists are coming. *Man/Society/Technology*, 1972, 31, 180-181.

A summary of some issues in sixth-year specialist's program

John McF. Pollock[1]

8

All of society's institutions and programs are used, to some extent, differently than their intent. Although the sixth-year program may be used by some students as a stepping-stone or wedge into a doctoral program, or, used by a school or college of education as a means of securing approval for a doctoral program, there are more positive benefits to be derived from the program. Whether culminating in a certificate or a degree, sixth-year programs do attest to further professional preparation (competence) of the educator.

The question is not whether there should be specialist's programs—the programs do exist and can be expected to remain as a part of higher education. A legitimate and continual question for any program is: How effective is the program for the student, for the institution it serves, and for society in general? If the question does not result in a highly positive response, then it should be followed by: What is necessary for the program to be made highly effective? It would be incongruous with education to say that any level, step, or degree in education is not or cannot be effective for some segment of the population.

Certificate versus degree

A degree is more prestigious in our society and more academically respectable within the profession, the latter as evidenced by the requirements of certifications for some administrative and supervisory positions and for membership in some professional organizations. Present indications may lead us to expect more of the sixth-year programs to culminate in the award of a degree. Two studies noted by Kazanas and Miller show sixth-year programs reported as degree programs constituting from 37 percent to 43.5 percent. Of at least equal interest would be a study to determine, from persons who have completed a sixth-year program, what percentage have continued their education towards a doctorate. An assumption being that for the *larger* percentage of persons culminating their formal education with the sixth-year program, the more demand there will be for (i.e., selection of institutions that award) a degree rather than a certificate.

If there was a nationally accepted (and adhered to) distinction between a degree and a certificate, this aspect of programs would not occur.

---

[1]Dr. Pollock is Professor and Head of the Industrial Arts Education Department at the University of Georgia.

As it is, we might better address ourselves to the effectiveness of sixth-year programs on professional improvements.

Certification

There is a growing trend in the establishment of salary schedules to include a "step" in schedules for the sixth-year certificate and/or degree. Interestingly, in some instances a part of the requirement for sixth-year certification is three years of *successful* teaching experience.

Requirements for T-6 (sixth-year) certification in Georgia include three years of successful teaching experience. The 1972-73 state salary schedule provides $914 per year more for the teacher with a T-6 certificate over the teacher with a T-5 (Masters degree) certificate—both with three years teaching experience. With 14 years teaching experience, the T-6 scale is $1,960 more than that for the T-5.

Studies questioning the economic value of advanced degrees notwithstanding, certification is an impelling factor for teachers to continue their formal education.

The sixth-year program is often referred to as a "specialist" program, yet it appears more commonly sought as an advancement by regular classroom teachers planning to continue in that position. What may be intended and what transpires are to be questioned.

Specialization

Although the predominant terminology for the sixth-year degree is the *Specialist* degree or *Education Specialist,* practices indicate less specialization (i.e., courses in a subject-matter field) in a sixth-year program for which a degree is awarded than from a sixth-year program for which a certificate is awarded. It is to be expected that these practices will be debated by the students as well as professors in industrial education teacher training programs. Rapid increases in technology undoubtedly warrant continued study in and about laboratory equipment, materials, and techniques.

Government regulations (whether federal, state or local), court decisions, and societal changes also warrant study by the education specialist. Further understanding of research reporting and increased ability to find, digest and interpret current research is important to the education specialist. A deeper understanding of the nature of the learner and the psychology of the learning process is also important to the education specialist.

What, then, is to be included—and/or excluded—from a program for *specialization?*

Beyond the educational needs already mentioned, can we define sufficient needs on a regional or national basis for industrial education *specialists* in such areas as curriculum planning or implementation, facility planning, research and development or dissemination?

Streichler and Dyrenfurth have presented criteria in question form for use in designing and evaluating specialist programs. Kazanas and Miller have presented desirable *Standards and Characteristics* of and

Recommended Procedures for Establishing sixth-year programs. All of these are worthwhile and can be beneficial in planning new programs or evaluating established programs, but do not define *Specialization*.

Questionable uses of sixth-year programs

Kazanas and Miller point out that the specialist (sixth-year) program may become a consolation prize for those not accepted in or unable to complete the doctorate. Streichler and Dyrenfurth refer to the "stepping-stone syndrome" (i.e., students using the sixth-year program as a stepping stone to lever admittance to the doctoral program; and, *departments* using the sixth-year program as ammunition in their aim for approval of a doctoral program).

All of these practices have negative connotations although they may simply reflect attitudes towards rules, regulations, or edicts that hamper an individual or group from attaining a desired goal.

It is often difficult to document ulterior motives, however, it is apparent from conversations with and observed actions of colleagues that the sixth-year program has, at times, been initiated or supported in initiation by doctoral faculty members desiring to use the program as a side-track for doctoral students whom they do not intend to admit to candidacy. Too often there appears to be a lack of professional fortitude to tell the student what the score is.

Hypotheses

The sixth-year program, certificate or degree, will not only remain a permanent part of the educational ladder—there will be a further increase in the number of institutions using this program.

There will continue to be an increase in the number of industrial education majors enrolling in and completing the sixth-year program. To some extent, this will be perpetuated by school systems' requirement of continuing education for continued employment, salary increases, or promotion.

The sixth-year programs may continue to be identified as terminal programs, although in practice this will not be true. It is and will be possible for a doctoral student to complete the sixth-year program on the way to the Ed. D. or Ph. D. One who has completed the sixth-year program *without first having initiated a doctoral program* may go on towards the doctorate but most likely will find that total time and/or credit hours are increased.

Credit hours in the sixth-year program will be used to bring the laboratory instructor up-to-date in the technology of his specialties and to give him basic training in new technologies.

Current issues in industrial education: doctoral degree programs

PART IV

In two similarly titled articles, Donald G. Lux and Rupert N. Evans address themselves to issues in doctoral programs in industrial education. The similarity in article titles should not cause the reader to believe that the contents authored by the two writers are also similar. There are some basic differences in the views expressed by Lux from those expressed by Evans. The reader becomes the beneficiary as a result of these differences because the issues in doctoral degree programs in industrial education are thereby crystallized for him.

It is quickly noted that Lux, unlike other writers in this monograph, discusses programs in industrial arts. *This does not mean that he has written about a different topic from the other authors but that he has written from a different perspective. Lux has concerned himself with the foundations of industrial arts doctoral programs and the relationships to other fields of education. In two major subsections he has discussed questions of objectives and programs in doctoral education. His comparisons with the fields of engineering and veterinary medicine are useful in formulating ideas about program development.*

Evans, in his article, has selected five issues that "particularly stand out as being important and subject to modification". Readers will be especially interested in his positions on the selection of students for doctoral studies, the relationship of programs to demands of the labor market, ways of reading signs for change, evaluation and the relationship of industrial education to similar fields. These issues are presented with fresh insights in thought provoking ways.

The Part of this monograph dealing with doctoral programs was coordinated by Jerome Moss, Jr. He also wrote the concluding summary of issues.

Issues in industrial arts doctoral degree programs

Donald G. Lux[1]

9

One overriding problem leaves us ill-prepared to debate the issues in graduate programs in our field. It is not a new problem, but it should be mentioned again at the outset of this paper. In 1961, in the ACIATE tenth yearbook, *Graduate Studies in Industrial Arts,* Ray Karnes and this writer stated that "The problem . . . is not merely a discrepancy between practice and theory. The basic problem is with theory. Until this problem is resolved, one may anticipate that any and everything may go on under the name of industrial arts . . . graduate programs. . . ." Until we have a basic mission statement, founded upon consistent and logical theory, we will have little basis upon which to take a particular stand with regard to the many critical issues now facing advanced graduate programs in industrial arts. Stated differently and with regard to a specific example, we will have little basis, other than arbitrary preference, upon which to judge whether we should contract for certain performance levels within a doctoral program until we first establish the significance of program elements as well as of the program as a whole.

By means of the preceding statement, it is hoped to convey the concern that it may be purposeful to identify issues in doctoral level education, but serious work on resolving these issues probably ought to be preceded or accompanied by some rigorous philosophical debate. This in turn, might lead to some basic professional goals and standards. From there we ought to move aggressively to dispose of, or at least to ameliorate, problems and issues. At this point in time, we have more problems and issues than we have solutions or directives. Such is often the case when one is going but uncertain as to where.

Meanwhile, there are major issues confronting us, and a few now will be identified. They will be treated as they relate to objectives, program, and resource allocation. All are interrelated, but attempting to organize them about themes may help one to deal with them.

Objectives

A *first issue* is that the doctorate is more of the same, if we presume the major purpose of the master's level is to produce master teachers. An alternative is that it is to prepare researcher-scholars. A *corollary issue* has to do with whether any holder of the doctorate is one with a

[1]Dr. Lux is Chairman, Industrial Technology Education, College of Education, The Ohio State University, Columbus.

common core of understanding and minor specialization (an advanced-level generalist) or whether each should possess few program commonalities and achievements with his peers. On the first issue, one's position hinges on the extent to which he accepts the concept that the higher the level of education, the more one becomes a thinker than a doer.

On the corollary issue; if one holds to the well-established pattern for the high school, baccalaureate, and master's levels; he would probably opt for a minimum common program and extensive provision for specialization. Alternatively, one may well hold that all at a particular level should share a common core, with minimal specialization. In an allied profession, that of engineering, there is public agreement on a position that there shall be three main tracks in graduate studies, with little concern that an individual be able to switch from one to the other without additional work. The three tracks are described as preparing for engineering education, research, and industrial operations. Further, each graduate institution need not aspire to provide for all tracks. It may be observed here that this is just one of many areas in which we should look to engineering for our leadership, rather than to tradesmen.

For whom is doctoral-level work offered? It may be conceived to be for all who can afford it and/or have earned a master's degree. If it is not, what selection criteria shall be employed? Shall the number of candidates be determined by the number of undergraduate courses in which one may use (and in this instance an unsavory connotation of "use" may be entirely appropriate) lowly-paid graduate students as substitutes for fully-qualified, permanent faculty? Or, should the number be determined by how much federal and/or state money is available for fellowships? Here the basic issue is whether the number produced should be left to the vagaries of chance or politics or whether the profession should assess its needs and the efficient means of satisfying them and then exercise control to help assure that only quality programs, limited in number, be allowed to operate. Who should exercise this external control; ACIATE, state agencies, accrediting associations, or . . . ?

Under the present non-system, individuals have been screened out of programs with higher admission or retention standards simply to move on to those with lower ones. If the motto is "let the buyer beware," this may be defensible. Other standards also may be involved, such as length of residency. Presently, the number produced is almost directly proportional to the availability of financial support for candidates in residence, and the rigor with which admissions criteria are applied depends on the number needed to use up these funds. All of this seems to be indefensible, except for the difficulty of recommending and implementing a viable alternative when there is no coordinating authority. Again, engineering provides an exemplar. They are relatively much more influential, in policing their own profession, than is industrial arts.

One of the most prominent current issues has to do with the position that industrial arts graduate study shall maintain a primary concern for developing leaders who can extend industrial literacy for the several purposes of education. An alternative is that it should be primarily or

even exclusively concerned with preparing leadership for developing programs which aim at preparing people to make a living.

If industrial arts is concerned with the substance of education and with all those major purposes which liberal education may serve, then substantive concerns take the educational limelight and basic literacy is the essential educational concern. This point of view would reflect a philosophy which acknowledges that basic measuring, polishing, grasping, torquing, and striking skills and materials-processing knowledge may serve an individual as a dentist, a maker of his own fishing lures, an informed observer of a fellow craftsman, as a butcher, or in ways yet to emerge in our technology. Accordingly, doctoral candidates would become competent to research and develop instructional programs which provide basic technological literacy rather than mere occupational literacy.

As an alternative, industrial arts graduate programs may be designed to prepare leadership personnel to research and develop programs for particular educational purposes according to whichever momentarily are being specially funded and/or touted, hoping thereby to carry along the substantial and enduring basic elements of industrial technology as a body of knowledge. Such specialists might well be prepared, but they could not advance the comprehensive goals of industrial arts education.

Program

Especially where industrial arts finds itself embraced by vocational education, one may find a live issue with regard to who are appropriate *intellectual* bedfellows for industrial arts educators. Some would hold them to be farmers, tradesmen, clerks, salesmen, and homemakers. Others would hold them to be industrial sociologists, metallurgists, industrial managers, engineers, industrial psychologists, and other scholars of industrial technology, as well as our more traditional colleagues. Again, one must choose that which is compatible with his fundamental notions.

Related to the above is the issue of whether the technological element of the graduate program will be as predominantly or even solely one taught by educationists or whether individuals from other disciplines are to be involved. If a comprehensive program at the advanced graduate level should offer the industrial arts candidate the opportunity to study and work with leading scholars in any of the major disciplines of industrial technology, as well as in disciplines underlying the educative process, how many institutions possess such resource? If industrial vocationalists and their subject matter are seen as the basis for industrial arts substance, the first grouping above, farmers *et al*, is feasible. If industrial arts follows another drummer, only the alternative grouping is acceptable. In this case, vocational specialists, recreational specialists, and consumer specialists, for example, would relate exactly as do industrial arts specialists.

A whole host of issues exist with regard to program mechanics, after the substantive issues are settled. These have to do with the nature and purpose of the residency requirement, written and oral examinations, advisory committees, language and/or comparable requirements in statistics or anything else, thesis requirements, internships, and so forth.

Most of these issues can best be judged on the same basis as are all the others. Namely, are the procedures essential to and contributory to the program goals? When evidence suggests an affirmative response with regard to a procedure or requirement, it augers for its continuance. Unfortunately, we now have little empirical evidence to help us resolve any of these issues.

Allocation of resources

Certainly one of the most fundamental issues has to do with the way we allocate our resources, both intellectual and fiscal. One might advance the proposition that only the wealthiest of our states could afford a single doctoral program in industrial arts teacher education. In certain states, regional affiliations would provide the only defensible course of action for supporting such programs. Other professions have already disciplined themselves to such restrictions. Veterinary medicine is a case in point. In support of the affirmative, one only needs to analyze the cost-demand factors in the situation. These, coupled with the availability of quality and variety of faculty required to conduct an acceptable program, argue very strongly for following the veterinary medicine course of action.

Alternatively, we could continue the pattern already accepted at undergraduate and master's levels where nearly any institution which desired a program was authorized to offer one, regardless of the economic or academic feasibility of the requests, individually or collectively. In the short run, this seems politically astute, since everyone is happy, at least initially. As with many other narrowly conceived political solutions to educational problems, this procedure eventually leaves much to be desired. Basically, if the annual market in a particular five-state area is for ten doctoral candidates per year, these can be prepared in one fairly minimal program or they can be prepared in "x" number of sub-marginal programs. As taxpayers and professionals, the latter choice offers an indefensible solution to the need for advanced graduate programs.

One final observation will be made with regard to the allocation of resources, if in fact it relates to this particular issue. It may be presumed that because an institution has an outstanding undergraduate and/or masters level program that it inherently possesses the manpower with which to conduct a doctoral program. This is only true if the staff qualifications for each assignment are similar, and they are not. That is, they *are* if on the initial issue in this article one holds that the doctorate is simply more of the same. They *are not* if the doctoral program involves a marked difference in program emphasis and substance.

In summary, we are in a poor position from which to move immediately toward the solution of the many issues which face us in advanced graduate programs in industrial arts education. We do not have either the theoretical orientation or the supporting data which would assist us in making value judgments. However, the issues which do indeed confront us need to be addressed, as best they can be, while we concurrently attempt to improve our foundations.

Issues in industrial education doctoral degree programs

Rupert N. Evans[1]

10

Among the many issues in doctoral programs in our field, five in particular stand out as being both important and subject to modification: methods of selecting students, perceptions of relationship of programs to the job market, methods of determining desirable directions for change, and relationships with similar fields of study.

Selection of doctoral students

It is a nearly universal conclusion of educational research that if you have a hypothesis that "Method A will produce results which are no different from those produced by Method B," then that hypothesis will be tenable. If all else is equal, doctoral program A likely will produce graduates who are not identifiably different from those produced by doctoral program B. Therefore the primary key to the quality of a doctoral program would seem not to lie in its content or methods.

One place where it does lie is in the selection of able students. Professors who set policies for prestigious doctoral programs have known for years that if you were to select good enough students, it would be possible to produce the best doctoral students in the nation, even if the doctoral program were to do nothing for the persons so selected. Persons who operate mediocre doctoral programs either do not know this, or are willing to forget it in the urge to increase the size of their enrollment.

Students are selected for doctoral programs in one of two ways. Some departments have essentially an open door policy, and say to the prospective candidate, "Come here and try it for a while. If you do well, we will give you a degree eventually." Other departments screen students carefully, rejecting a sizeable proportion of applicants, but regard a student's failure to complete the degree as a major failure of the department. Either system can produce excellent products, but the former system works well only if a significant proportion of candidates really are washed out. The latter system works well only if the criteria used for screening are coorelated with department objectives and job success.

We need universities which use each of these methods of selection in order to enable students at the latter type of institution to move forward rapidly without the drag of less able students in graduate classes, and in order to accommodate, in the former type of institution, those students

[1]Dr. Evans is Professor, Division of Industrial Education, University of Illinois, Urbana.

who are "late bloomers" or who perform better in the program and on the job than they perform on screening tests. Without doubt, however, it is easier and more enjoyable to teach in a program where students are screened carefully before admission. Moreover, the pace of instruction can be more rapid and exciting without students who learn slowly and need direct and detailed supervision by the staff.

Preparation for the job market

Regardless of the job market for which a particular industrial education advisor prepares his doctoral students, each student is likely to be required to take one or more courses in administration and supervision. There is a certain rationale for this, since almost all graduates will either be administrators or will need to work with administrators in the field.

A high proportion of persons who receive doctorates, however, are preparing to enter or to continue in teacher education positions. It would appear not only logical but necessary for them to have at least one course which serves as an introduction to the rationale for and structure of teacher education. Not only is this rarely, if ever, provided, but few doctoral programs avail themselves of one of the now nearly universally available courses in higher education. The doctoral graduate who expects to make teacher education his career cannot consider himself prepared unless he has some understanding of the institution or program in which he is to work. And the doctoral program which fails to provide such instruction can only be regarded as inadequate.

Equally bad in terms of preparation for the current job market is the remarkable absence of doctoral instruction in labor economics and in industrial sociology and psychology. Few professors in our field are prepared to give first rate instruction in these areas, so other instructors must be found. Training programs for manpower specialists are being developed in many universities through departments of economics, labor and industrial relations, and vocational education. These not only prepare specialists, but also develop relationships which lead to more relevant instruction in labor economics and related fields which is useful for all doctoral candidates in practical arts education.

Many students and some professors are unaware that when a professor accepts a doctoral advisee, he also accepts an implicit, moral responsibility for seeing that the advisee completes the program successfully and is placed in a satisfactory job. Unawareness of this responsibility creates numerous tensions as the individual doctoral program is planned and carried out. The job market may change considerably within the five to seven year period in which many institutions insist that a doctorate be completed.

It, therefore, behooves both student and advisor to plan a program which is specific enough to provide skills and knowledges which will lead to employability, but general enough so that employment will be possible in any one of several related types of jobs. Equally important is the need to produce graduates who have the ability and motivation to change

their skills to meet the needs of the job market and to keep their self-respect. (Obviously this latter point also has implications for doctoral student selection. We should try to avoid selecting candidates who view the doctoral program as the culminating step in a career.)

"Dropouts" from doctoral programs are nearly always viewed with scorn by doctoral recipients. The ABD (All But Dissertation) "degree" is a common, but rarely respected accomplishment. Doctoral advisors generally feel that they have failed unless each advisee completes all the requirements for the degree before taking a job, for they have learned from bitter experience that trying to supervise a dissertation in absentia is a long and trying task.

Each doctoral candidate, however, is almost always sure that he is the exception who can take a new job, learn it, and also complete a dissertation on schedule. Basically, though, he often fears not to accept an early job offer, for a satisfactory job might not come along later at exactly the right time. These fears could be alleviated if the department arranged its budget so that each doctoral recipient could be offered a post-doctoral fellowship for a year. This would reduce anxiety, minimize the number of ABD's, and provide valuable additional experience for the new doctorate who does not find exactly the right position at the time he or she receives the degree.

Indicators of desirable directions for change

It is a basic fact that society does not change instantly. "Be not the first to change, nor yet the last to lay the old aside" recognizes the reality that change is accepted by some people more rapidly than others. This proverb is usually thought of as a recipe for individual survival, but it is also a description of a potent method of forecasting technological change, and of adapting programs to meet such change.

When leading industries adopt new methods, it is highly probable that other industries will adopt these same methods later. This allows educational programs to incorporate revised content long before this content has received universal acceptance. Similarly, when changes in educational programs are adopted by progressive schools, it is very likely that these changes will be adopted later by other schools, so the changes by bellwether institutions serve as leading indicators of changes in the job market for teachers and teacher educators.

Obviously this system is not directly usable by those teacher education institutions which themselves serve as innovators, but they survive by identifying, through basic research and demographic data, the most pressing needs for innovation, which they can then initiate. Bellwether institutions, whether they be industries, local schools, or teacher training institutions are those which have staff which are (a) broadly educated, so that they see needs for change which become apparent outside their own discipline; (b) secure, so that change is not a threat, either to them or to their institution; and (c) flexible enough that change in a desirable direction is welcomed, rather than opposed.

Evaluation

In the long run, the success of an industrial education doctoral program is determined as it is in any program which prepares a person for more effective performance in an occupation. The principal forces are those of the market: students select or reject a particular advisor or program, and their decision tends to be determined by the general reputation of the department and the institution, which is developed in part by the types of occupational success of the previous graduates of the program. This is the primary, and in some cases the only, evaluation of the program. Advisors and institutions can (and some do) reject applicants, but they cannot reject a student who does not apply for admission.

The brief history of Education Professions Development Act vocational education fellowships has changed this situation abruptly, but probably only temporarily. Some doctoral students essentially have been assigned to an institution. Obviously the evaluation in this case has been done by a government panel of experts, and the effect is quite different from that created by the G.I. Bill and other "portable" stipends which are expended largely on the school chosen by the trainee.

In choosing between two programs which otherwise appear equally attractive, students may be influenced by rumors about the attrition rate and the average time required to secure the degree. While these factors may affect the size of the program slightly, they have little effect on its objectives, at least in the short run. On the other hand, fellowships such as those which were supported by the Education Professions Development Act can affect objectives by encouraging the development of proposed programs which include objectives which are thought to be likely to be approved by Federal review panels.

The availability of assistantships adds the possibility of significant educational experience for the student. Obviously this can (and should) affect the objectives of other parts of that student's program. The amount of money involved in such assistantships and fellowships is large enough to affect markedly student choice between two programs which otherwise are equally attractive, but it is, or should be, far too small to induce a capable student to give up three years of higher earning unless the program leads to the kinds of jobs the student wants. In the long run, if graduates don't get good jobs, students don't signup, and the program dies or is killed.

Not all doctoral programs serve the same labor market. It has often been observed that the doctoral advisees of Professor X in Institution Y tend to continue to teach traditional shop courses in the institution where they were employed prior to taking the degree, while the former advisees of Professor Z in Institution A are likely to be employed by major universities in graduate teaching and research, and advisees of Professor B in Institution C tend to become directors of local school programs.

Although all three are called doctoral programs, and doubtless are of benefit to society, the student who wants one type of career is unlikely

to choose a professor or program whose graduates tend to enter a different type of career. Since professors help to choose their own colleagues, there is a sometimes regrettable tendency to staff an entire department with "Professor X's" instead of employing some of each type.

In a real sense, the student both evaluates and determines the objectives of every graduate program, but not in the way in which these terms are ordinarily used. Students may and should have other inputs, e.g., through proposing program modifications which meet their individual needs, but it is remarkable indeed how constant is the labor market served by any particular doctoral program, and how rapid is the change in enrollment when key changes are made in instructional personnel.

Relationship with similar fields of study

The most important issue which over-rides all others in importance in doctoral programs in practical arts education revolves around the relationships among industrial arts, trade and industrial education, vocational education, and career education. These four areas of work are interrelated, and doctoral programs in each of the four fields have more commonalities than differences.

The latter three clearly are listed in increasing order of generality, but the traditional concept of industrial arts has been at about the same level of generality as the concept of trade and industrial education. Neither covers the entire world of work, as career education purports to do. Neither covers even the nonprofessional world of work, as vocational education purports to do. Both industrial arts and trade and industrial education, as their names suggest, have emphasized the world of *industry*, and, within industry, have emphasized the production of goods far more than they have emphasized the production of services. Moreover, in both fields, the little emphasis which has been placed on the production of services has stressed the servicing of goods, rather than the providing of personal services.

Many economists and sociologists argue that the production of personal services is becoming more and more important in our society, while the production and servicing of goods is becoming relatively less and less important. They see the United States and other developed countries as having passed through an industrial age into a post-industrial economy.

Two indicators of this change are found in shifts in employment and in shifts in the ways in which wealth is determined. In the United States, the number of persons engaged in white-collar work first began to exceed the number of blue-collar workers some fifteen years ago. It now appears that the number of white *and* blue-collar workers engaged in producing and distributing foods, fibers, *and* manufactured goods is being exceeded by the number who provide services and information.

Wealth is now determined, not by the land we own (as it was up to the time of the Civil War), not by the production facilities we control (as it was until World War I), but by the knowledges, skills, and educational credentials possessed by individuals. It seems to be generally agreed

that the shift from an industrial to a post-industrial economy began to occur rapidly during the first quarter of the twentieth century. In retrospect, it seems that just at the time industrial arts and industrial education began to be accepted as useful terms, they were already obsolete as descriptors of the major portion of the post-industrial society.

This is not to say they are unimportant as parts of a whole. Industrial arts, trade and industrial education, and their combination, industrial education, describe significant (but less and less significant) parts of society and of the world of work. Most trade and industrial educators have recognized that they are concerned with only a part of vocational education. Most industrial educators (those who work in both industrial arts and trade and industrial education) similarly recognize that in both the name and the activities of their field they are concerned with only part of society and the world of work.

Industrial arts educators are not, however, so easily categorized. Some of them lead four-year colleges of applied science and technology which operate vocational programs of the same type they decry in secondary schools and community colleges. Others renounce vocational education altogether and place their current trust in technology (formerly they placed a similar trust in home mechanics and leisure time activities, successively) at a time when technology is being severely challenged by humanism as the dominant force in our society.

The problems of industrial arts come most sharply into focus at the junior high school level. Due in large part to the lethargy of other practical arts fields, home economics and industrial arts have dominated grades six through nine and have had virtually no competition in the earlier grades. With few exceptions, girls have been segregated in required home economics courses and boys in required industrial arts courses. This segregation by sex has never made sense, and equally nonsensical has been the claim that industry, as portrayed by industrial arts, has been the sole practical arts activity needed by young adolescent boys.

The study of the production of food and fiber, of the distribution of goods, and of the growing world of personal service has been omitted by design from virtually all junior high school industrial arts programs. Such important omissions in the name of general education are intolerable unless the gap is filled by complementary practical arts programs. The Pittsburgh, Pennsylvania occupational education program is one of the few which attempts to remedy this particular deficiency.

Career education offers promise of filling part, but not all, of this vacuum on a nation-wide scale. It promises to teach youth, beginning in early childhood, about the *entire* world of work and its relationship to our lives. Trade and industrial educators should have no great difficulty in relating to career education, for they see themselves as constituting a significant part, but only a part of career education. Industrial educators similarly should have little difficulty because they see industrial arts and trade and industrial education working together to form a part of

career education. Industrial arts educators, however, would seem to have *only one realistic choice,* to continue to exclude major portions of the world of work and of the post-industrial society from their purview and to dovetail their instruction with that presented by other practical arts and general educators to form a coherent whole general education program (including career education).

An *alternative course of action,* to expand our horizons beyond current definitions of industry, change the name of industrial arts and assume responsibility for implementing entire programs of career education hardly seems feasible or desirable, though expansion of the current definition of "industry" in industrial arts would have much to commend it. The worst possible actions which could be taken by any phase of industrial education would be to ignore career education or to attempt to excommunicate those who are involved in it.

If the *former* course is chosen, as appears likely, the basic issue in doctoral programs in our field becomes clear: how can we best build relationships among industrial arts, trade and industrial education, vocational education, and career education? Such relationships cannot be built effectively in doctoral programs which confine themselves solely to industrial arts or to trade and industrial education or even to vocational education in isolation from career education. Nor are successful doctoral programs in career education likely to be developed in isolation from the other three.

A summary of some issues in doctoral programs

Jerome Moss, Jr.[1]

11

Persistent questions about doctoral education and major differences among operating programs typically reflect our collective uncertainty about at least four philosophical and theoretical issues: a) Should the goals of our doctoral programs emanate primarily from the needs of the students or from the needs of the field? b) If the needs of the field are to determine goals, what are those needs? c) Should the doctoral program certify to experience provided or to competencies attained? d) Should the educational process be essentially activity-oriented or should it be designed to emphasize intellectual inquiry?

In the two preceding papers, Evans and Lux devoted most of their attention to questions dealing with the needs of the field, but for the sake of widening the scope of professional debate, the other issues will also be drawn briefly.

Student vs. field-oriented programs

It is possible to perceive the major purpose of doctoral programs as the further development of the powers of those individuals who are able to avail themselves of the experience. All of education, in this view, serves the end of actualization of human potential. Everyone should be provided with the opportunity to take as much education (including doctoral-level work) as they believe will benefit them. Each individual (especially mature persons with experience in the field) has the right to determine his/her own goals and to decide upon the experiences (after guidance) that will be of greatest benefit in achieving those goals. The program is the vehicle whose efficacy can only be measured by the extent to which it has succeeded in serving individual ends. Program strength, therefore, lies in the institution's capacity to respond quickly and relevantly to the varied needs of persons who wish to utilize its resources. Certainly, the experiences gained or competencies attained by students may be described to prospective employers, but it is, indeed, immoral to prescribe ends for them.

On the other hand, doctoral programs may justify their existence and shape their character from the needs of the field, however those needs may be defined. The curriculum is determined by the requirements of certain roles to be played, and the size of the program is a function of the num-

[1]Dr. Moss is Professor, Department of Industrial Education, University of Minnesota, Minneapolis.

bers of persons needed to play those roles. Individuals are selected and prepared to fit the desired competency pattern(s), within tolerance, as efficently as possible. (In practice, of course, proponents of this view usually *permit* students to make *some* of their own decisions.)

Both Lux and Evans appear to ascribe to the latter (field-oriented) approach. They evidence equal concern about clarifying and satisfying the needs of the field, and both begin to identify the needs that should be addressed (albeit differing in their perceptions). For example, Evans points to the importance of recognizing casual relationships between the employment market and doctoral programs, while Lux insists that achieving concensus about the mission of industrial arts is prerequisite to resolving the many critical questions now being faced by its doctoral programs.

Differences in the perceived needs of the field

The most significant conflict between Lux and Evans lies in their differing views about the principal mission of our "field", and, consequently, in identifying its intellectual boundaries and bedfellows. Lux argues for a very clear distinction between industrial arts and all forms of (and pseudonyms for) vocational education. He would cultivate a close association with the "major disciplines of industrial technology" in order to achieve distinctive ends of industrial arts education. By contrast, Evans believes that industrial arts, trade and industrial education, vocational education, and career education have more in common than they have differences. Thus, he advocates the development of doctoral programs that maximize meaningful relationships among these peas from the same pod.

Although they differ in conceptions about the breadth of our "field," Evans and Lux are equally aware of the problem of properly identifying the roles for which doctoral students should be prepared (within their respective definitions of field). The basic problem is often posed as a question about the relative amounts of common and specialized experiences that should be provided, as well as the nature of the specialties (roles) for which competencies should be developed. There are doctoral programs, for example, that require about the same experiences (e.g. courses) for all students, usually because of the belief that a "general" background will best prepare graduates for the wide variety of "leadership" functions which the field is expected to demand.[2] Other doctoral programs are built on the premise that "leadership" is best exercised *within* role specialties (e.g. laboratory instructors, curriculum developers, administrators, research-evaluators). The assumption in this latter case is that the growing maturity of the field requires greater role specialization, and that adequate performance in any of the roles demands increasing amounts of specialized preparation. To prepare a "jack-of-all-trades"

[2]In a few cases, all students are required to undertake the same experiences because the program is designed to prepare them for one specialized role.

is to prepare a master of none, and thus will impede the progress of the field at this stage of its development.

Evans and Lux share a concern for striking the right balance between these two views. Although they do not venture to identify the specialized roles they foresee as needed by the field, nor do they specify the appropriate balance of common and specialized experiences, it is clear they agree that the trend should be toward greater role, and therefore program, specialization.

Certifying experiences provided or competencies

Traditionally, institutions have certified (e.g. through transcripts) that they have provided students with certain experiences under controlled conditions (e.g. courses). Grades represent crude indices of the extent to which students have learned that which they have been taught. A positive relationship between what has been learned and subsequent role performance has been mainly assumed or argued on logical grounds.

The quest for greater and more clearly demonstrated relevance to role performance has led curriculum developers to specify the competencies needed in the role as an initial step in designing instructional experiences. But it is obvious that, once the desired competencies are specified, it is unimportant to prospective employers *how* they have been attained. It is only important that they have been attained and that this best be attested to by a reputable agency. Consequently, institutions are now beginning to be asked by those they serve to certify to *competencies* attained rather than to *experiences* provided.

Such a change in function is awesome, for it implicitly assumes that educational institutions will become responsible for identifying the competencies (both kind and amount) that make for successful role performance, and that institutions will become capable of measuring their attainment accurately. And the educational experiences that institutions will eventually provide will be only those that they can demonstate as more cost-effective (in terms of ultimate role performance) than can be provided by other agencies.

Activity orientation vs. intellectual inquiry

There are, of course, a great many questions that can be raised about the process of doctoral programs after the desired ends (goals) have been determined. However, since Lux and Evans chose to direct their concerns toward ends rather than means (process), this summary shall only briefly note one issue of process which will attract increasing attention from the profession in the future. It may be labeled activity-oriented vs. intellectual inquiry processes.

Traditionally, the residence requirement has forced doctoral students to engage in a form of on-campus internship. It has permitted students to become acquainted with the role of teacher educator (and to attain some of the values and attitudes appropriate to the role), and has given students an opportunity to apply what they have learned by other means

to some of the typical tasks of the role. As the need for specialities other than teacher educator become more widely recognized (and as the role of teacher educator itself is divided into multiple roles), there will be a concomitant need to provide students with opportunities for a wider variety of internship experiences—off campus as well as on-campus. The problem, now beginning to be perceived, is in determining the proper amount of the right kinds of internship activities (including live projects, field visitations, practicums, etc.) to utilize in the program.

The concept of learning by doing, utilizing hands-on-experience, and learning in the job context (activity-oriented) is familiar, and frequently personally appealing, to most industrial educators. But when doctoral programs are comprised of too high a proportion of this activity-oriented process, they take on many of the inefficient characteristics of an apprenticeship. By contrast, the more academic perception of graduate education is that it depends principally upon the process of intellectual inquiry. Graduate programs represent an opportunity to remove the student from the immediate problems of practice and to substitute orderly reflective thought and study, so as to widen intellectual horizons and develop new skills. It is believed that programs using this process build resources for subsequent application and practice throughout students' professional careers. But when carried to extreme, this approach is bound to become too antiseptic (and perhaps unrealistic) for efficient learning and adaptation to the role.

It will be a long time before cost-effectiveness studies can resolve this issue. In the meantime, as with all the foregoing issues, graduate educators should be cognizant of the choices they must make, and reach their own tentative decisions.

Freshly designed for a contemporary professional appearance, the format of this monograph features a single face, Times Roman, with text matter in 10 on 11 pt. size. This narrowed face, created for the London Times, allows a shorter line length for better readability. The ragged-right margin makes the narrowed right margin appear larger than it is, as well as aiding in the modern asymetrical style. The display numerals are lettered by PhotoTypositor in Clarendon Bold. Composition is by Linotype and Ludlow, allowing more freedom and accuracy in adjusting page make-up to exactly fit the three 32-page signatures. Reproduction in April of 1974 is by photo-offset lithography, all by Johnson Publishing Co. of Boulder, Colorado.