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AN ANALYSIS OF TEACHER EDUCATION INNOVATIONS WITH
RECOMMENDATIONS FOR THEIR UTILIZATION IN THE
PROFESSIONAL PREPARATION OF PROSPECTIVE
INDUSTRIAL ARTS TEACHERS

DISSERTATION

Presented in Partial Fulfillment of the
Requirements for the Degree Doctor of
Philosophy in the Graduate School
of The Ohio State University

By

Bill J. Frye, B.S., M.S.

* * * * *

The Ohio State University
1971

Approved by

Advisor
College of Education
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The investigator of this study wishes to express his appreciation to the many professionally minded industrial arts teacher educators who gave of their time and talents in supplying the data necessary for the completion of this study.

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VITA

April 25, 1940 . . . Born - Clay County, Indiana
1964 . . . . . . B.S., Indiana State University
Terre Haute, Indiana
1964-1966. . . . Industrial Arts Teacher
Plainfield, Indiana
1966-1967. . . . Link-Belt Corporation
Indianapolis, Indiana
1967 . . . . . . M.S., Indiana State University
Terre Haute, Indiana
1967-1968. . . . Instructor, Indiana State
University. Terre Haute, Indiana
1968-1971. . . . Research and Teaching Associate,
Industrial Arts Curriculum Project
and Industrial Technology Faculty,
The Ohio State University
Columbus, Ohio

PUBLICATIONS

"Co-op Students Link the Plant to the Campus," Industrial
Engineering, Vol. 1, No. 5, pp. 68-9, May, 1969,
Co-author.

"Bowl on a Budget," Industrial Arts and Vocational
Education, Vol. 58, No. 4, pp. 54-5, April, 1969.

FIELDS OF STUDY

Major Field: Education

Industrial Technology. Professor James J. Buffer
Teacher Education. Professor L. O. Andrews
Educational Development. Professor Robert Bargar
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CHAPTER I

INTRODUCTION TO THE STUDY

Industrial arts teacher education programs are presently undergoing change in the substantive part of their programs. Just as there was broad curriculum development in mathematics and science during the 1950's, so was there a parallel development in industrial arts in the 1960's. An indication of such change has been noted by Frederick Kagy (Stadt & Kenneke, 1970): "Within the last few years, one-third of the industrial arts teacher education programs have changed the titles of their departments to include the word technology (p. 1)." Kagy notes the position of various industrial arts teacher educators to include an emphasis on the understanding of technological practices in current teacher preparation programs.

Further evidence of the broad changes occurring in the substantive preparation of industrial arts teachers may be drawn from the numerous innovative curriculum projects which have recently evolved. Leslie H. Cochran (1970) has identified 20 such major innovative program
efforts. Included are such programs as the American Industry Project, Industrial Arts Curriculum Project, Partnership Vocational Education Project, Functions of Industry Concept, the Galaxy Plan, the Maryland Plan, and the Orchestrated Systems Approach.

An example of how the technical content of an industrial arts teacher education curriculum can change may be seen by reviewing the work of the Academic Faculty of Industrial Technology Education at the Ohio State University. This faculty, with the cooperation of selected staff from the Department of Vocational and Technical Education from the University of Illinois, began in 1965 to conceptualize the body of knowledge comprising industrial technology. The next six years saw the development of a new and exciting industrial arts curriculum for junior high school children by the Industrial Arts Curriculum Project (IACP). The culmination of this research-development-diffusion effort represents the work of hundreds of teacher educators, classroom teachers, and industrialists, as well as the involvement of thousands of school children. With the completion and wide acceptance of the IACP, the Academic Faculty of Industrial Technology Education was quick to revise the technical content of its undergraduate program so that the prospective industrial arts teachers at The Ohio State University would be
adequately prepared to teach the new program. As the demand spread for teachers qualified to teach the two IACP developed instructional programs, "The World of Construction" and "The World of Manufacturing," other colleges and universities sent their industrial arts teacher educators to The Ohio State University to learn about this innovative curriculum effort so that they might prepare IACP construction and manufacturing teachers in their respective institutions.

The above example of the innovative curriculum work by The Ohio State University is only one example of the sweeping change taking place in the technical aspects of industrial arts teacher preparation programs. Several other institutions are also involved in similar activities. Stadt and Kenneke (1970) seem to foresee even more change for industrial arts subject matter.

It is commonly maintained that industrial arts must undergo major curriculum changes. Unlike efforts in other subject matter areas, change in industrial arts must be so great that it will be unrecognizable as either "industrial" in scope or "arts" in substance (p. 17).

It is clear that the substantive content of industrial arts has changed greatly within the last few years and that such development will continue for some time in the future. As this change becomes even more widespread, more industrial arts teacher education programs will find
it necessary to modify their curriculum to reflect the new content.

Concurrent with change in the industrial arts curriculum in the past decade has been change in the professional aspects of teacher education. Many refinements and innovations for increasing the efficacy of teacher education have been developed and explored. In industrial arts teacher education programs, many of the technical innovations hold great promise for increasing the effectiveness of the entire teacher education program. Even more important is the impact that professional innovations might have if they too were incorporated in the total industrial arts teacher preparation program, both pre- and inservice.

A question one might ask of industrial arts teacher education institutions is whether or not the substantive part of a prospective industrial arts teacher's preparation has been enhanced at the expense of a similar enrichment and updating of his professional preparation. The profession is aware of the developmental efforts in the technical area of industrial arts, but there has apparently been little research and development effort in the development and testing of the educational technology segment of industrial arts teacher education. This apparent void requires the immediate attention of
teacher educators. A need exists to identify those institutions which have been working to update their professional courses, and to recognize the efforts they have made. Once current practices as well as current innovations have been properly identified, one may expect realistic recommendations to be made for the improvement of the professional preparation of industrial arts teachers.

**Statement of the Problem**

The overarching problem prompting this investigation was the absence of current information on the use of innovations by collegiate institutions in their professional preparation of industrial arts teachers. Professional preparation is considered in this investigation to include the methods courses taught by an industrial arts department staff, as well as all departmentally supervised field experiences.

The investigator sought to establish a sound basis upon which realistic recommendations for the upgrading of industrial arts professional preparation might be made. Clearly, however, a void exists in current national data on the nature and status of such professional programs. Without both a profile of current patterns and an indication of the variety of innovations presently being employed within these programs, the investigator did not
feel that realistic recommendations could be made. Also, such information would surely reduce a duplication of professional efforts by researchers.

**Purpose of the Study**

The purpose of this investigation was the development of recommendations for the use of innovations in the professional preparation of industrial arts teachers. Allied with this central purpose were the problems of determining the extent of current usage of innovations by industrial arts teacher educators, and to retrieve information from the responding individuals using the innovations relative to the inherent features of their use.

The specific objectives of this investigation were:

1. To review what is being practiced in teacher education in general by conducting an extensive review of current related literature.

2. To attempt to identify those industrial arts teacher preparation institutions which have made efforts toward implementing innovative practices in their professional programs.

3. To determine which innovative practices have been implemented in industrial arts professional programs.
4. To ascertain from the identified institutions the inherent problems and benefits encountered in the implementation of these innovations.

5. To attempt to obtain assessment data about those innovative practices identified which are currently being utilized by industrial arts teacher educators.

6. To make recommendations for the utilization of various innovations examined in this investigation.

Significance of the Study

The professional part of an industrial arts teacher's preparation is relatively short when compared to the time required for the completion of his general education and major/minor requirements. His professional preparation, however, may be of great importance in determining his success as a beginning teacher, his continued success in teaching, and his ability to relate to new curricular and societal developments.

The professional sequence for prospective industrial arts teachers is generally comprised of methods courses and student teaching, an alliance representing theory and practice. The closer an alliance of methods courses and field experience becomes, the more perfect will be the realization of the theory into practice concept. In order to assess both theory and practice in
industrial arts teacher preparation, careful attention must be given to each. Therefore, in methods courses and student teaching alike, one must evaluate the effectiveness of recent educational techniques and practices, such as: interaction analysis, micro-teaching, simulation, critical incident films, video tape recording, etc.. The work of Flanders, Bush and Allen, Cruickshank, Twelker, and Broadbent, among others, are examples of recent developments in educational technology that would be invaluable for such a study.

Particular care must be exercised in the examination of the field experience aspects of the teacher's training. The importance of this phase of the professional sequence is perhaps best expressed by E. Graham Pogue, Director of Student Teaching, Ball State University, Muncie, Indiana (Edelfelt, 1969).

... of all the components of a teacher education program, the element considered most vital and essential is student teaching.

Follow-up studies of beginning teachers reveal that student teaching was the most valuable course in their preparation programs (p. 17).

Student teaching and other related field experiences are considered to be the heart of an effective teacher preparation program. It is during student teaching that prospective teachers first have an opportunity to apply
theoretical methods of instruction with students under controlled (supervised) conditions.

Particular attention must be given to current practices in industrial arts teacher preparation institutions, since an understanding of what has already been done to enhance the student teaching experiences of our prospective teachers bears directly on the possibility of implementing the recommendations proposed in this study. Of special interest in this investigation is the type of experience and preparation the student teacher receives prior to his field observation and participation experiences. A conference conducted in Baltimore, Maryland in October, 1968, under the auspices of the United States Office of Education, determined that numerous innovative student teaching programs are now underway at several institutions throughout the United States (Edelfelt, 1969). Some of these programs incorporate the prior field experiences of prospective teachers.

The developing use of innovations in teacher education is equalled perhaps by the great interest generated in industrial technology by the current research and development conducted on content and curriculum. However, the question must be asked: Has industrial technology been preoccupied with substantive innovation to the neglect of professional teacher preparation innovation?
The question thus posed neither states nor implies that curriculum studies devoted to technical subject matter are not needed in industrial arts. It serves, rather, to point out that considerable emphasis has been given to this area of investigation during recent years. In their review and synthesis of research in industrial arts education during the period 1966 through 1969, Householder and Suess (1969) state:

Curriculum development has provided one of the major thrusts of industrial arts research efforts during recent years.

Unfortunately, the studies devoted to the professional aspects of the industrial arts teacher's training have been somewhat meager. The position of this investigation is that data on industrial arts professional courses are vital, particularly so in view of the current, and doubtless continuing, emphasis on the technical content of industrial technology programs.

**Overview of Methodology**

A brief outline of the methodology employed in this study is presented below. A more extensive explanation of the details of the methodology, instrument development, and survey techniques may be found in Chapter III.
The methodology was comprised of three primary phases: (a) identification of current innovations found in the literature - Chapter II, (b) development of instruments to determine if and by whom various innovations are being used - Chapter III, and (c) synthesis and application of findings to develop application recommendations - Chapter V.

The procedure selected for obtaining the data for this investigation included the use of two questionnaires. A brief description of each of the two instruments follows. It is noted that the Primary Questionnaire consisted of several parallel but different instruments.

**Preliminary Questionnaire**

This instrument was designed primarily to serve the following functions.

1. Identify those institutions which have worked toward the implementation of innovative practices in their professional preparation of industrial arts teachers.

2. Identify the particular innovations which the institutions so identified have employed.

3. Identify the individuals within the institutions who have been responsible for incorporating the innovation.

4. Seek cooperation from respondents to accept the second questionnaire.
The instrument was as brief as possible and solicited information on the following innovations.

1. Video tape recorder
2. Simulation
3. Critical incident films
4. Closed circuit television
5. Computer assisted instruction
6. Interaction analysis
7. Micro-teaching
8. Sensitivity training
9. Field experience prior to student teaching

The above nine innovations were selected as a result of the review of the related literature dealing with educational technology. It was anticipated by the writer that these innovations would be the ones most likely to be receiving emphasis by industrial arts teacher educators. A report on each of the nine innovations will be further developed in the review of the related literature.

In addition to the above innovations, the instrument was also used to identify other professional teacher education innovations currently used by the responding individuals by requesting that they specify other innovations which they were currently using. In addition, the instrument provided a basis for the selection of institutions to receive the second questionnaire.
Primary Questionnaire

A set of questions was prepared to obtain from the institutions identified by the Preliminary Questionnaire specific information about the innovations which have been used. The following questions represent the basic areas of information which this instrument was designed to cover.

1. How long has the innovation been employed?
2. Under what conditions does the innovation work best?
3. At what point in the professional sequence of preservice teaching preparation should the innovation be employed?
4. What are the major strengths of the innovation?
5. What are the major limitations of the innovation?
6. What evaluation data is available on the effectiveness of the innovation for prospective industrial arts teachers?
7. What research studies have been conducted to assess effectiveness of the innovation?

Sample

The first instrument (Preliminary Questionnaire)
was administered to all institutions in the continental United States which graduated eight or more industrial arts majors during the 1968-1969 school year. The names of the institutions were taken from the 1969-1970 American Council On Industrial Arts Teacher Education (ACIATE) Directory which identified all institutions granting baccalaureate degrees with a major in industrial arts (Wall, 1969). This included 161 institutions. Institutions which responded to the Preliminary Questionnaire and indicated use of specific innovations and a willingness to participate in the study received the Primary Questionnaire.

An examination of the efforts of industrial arts professional teacher training institutions would seem to be necessary if realistic recommendations for effective use of innovations are to be made. By examining the actual practices employed by institutions using the innovations and by reviewing the literature pertaining to the innovations, a comprehensive analysis of the use of innovations in professional industrial arts teacher preparation could be accomplished. It follows, then, that the identification and reporting of institutions now working to improve the professional training of industrial arts teachers is information to be shared with the profession at large.
Assumptions

This investigation is predicated upon nine assumptions.

1. Industrial arts teacher educators are receptive to change.

2. All industrial arts teacher education programs consist of professional courses and other curricular experiences directed by industrial arts faculties.

3. Innovative industrial arts teacher educators are willing to share their experiences.

4. Instruments can be developed to gather pertinent data on the use of industrial arts professional teacher education innovations.

5. Respondents to the Preliminary Questionnaire would be willing to write-in innovations, not included on the face of the instrument, which they were currently using as requested in the questionnaire.

6. Innovations can be effectively incorporated to improve the functioning of a teacher.

7. Innovations can be utilized to improve teacher education.

8. The information can be synthesized and applied to industrial arts professional teacher education.

9. The information received from the questionnaires was assumed to be accurate and complete.
Limitations of the Study

1. All industrial arts teacher preparation institutions are not included in this investigation; only those which graduated eight or more industrial arts majors during the 1968-1969 school year.

2. The term "innovation" may be subject to varied interpretation by the respondents to this investigation.

3. The use of mailed questionnaires for information retrieval limited this investigator's communication with the respondents to the written word.

4. The recommendations for the use of the innovations examined in this study cannot account for the diverse scheduling, faculty, and resource variations in institutions which may wish to apply the recommendations.

Definition of Terms Pertinent to this Study

In order to provide a common basis for understanding certain terms used in this study, it was necessary to provide the following definitions. A list of the defined terms which accompanied the Preliminary Questionnaire may be found in Appendix A, page 203.

Closed circuit television. A typical installation might include cameras in a nearby school classroom, with monitors in another classroom, to enable an entire class
of pre- or inservice teachers to observe and discuss an actual teaching situation.

**Computer assisted instruction (CAI).** Computer programs which enable the prospective teacher to study on an individual basis. The two most common types of such programs would be drill-and-practice and tutorial systems. These programs would typically be used by students to supplement conventional classroom instruction.

**Critical incident films.** Films which present typical classroom problem situations. They are used to stimulate discussion of the problem viewed and conclude at the point where the viewer assumes the role of the teacher and must take action to resolve the problem.

**Field experience prior to student teaching.** A direct field experience, required of preservice teachers during the sophomore or early junior years, in which the preservice teacher spends sufficient time in a school to extend his professional experiences beyond mere observation.

**Industrial arts.** An organized study of the knowledge of practice within that subcategory of the economic institution of society which is known as industry (Towers, Lux & Ray, 1966, p. 43).

**Industrial technology.** In the scope of this investigation the meaning of industrial technology will be synonymous with industrial arts.
Innovation. A new way of presenting professional techniques and practices to prospective industrial arts teachers to prepare them to be efficient and effective teachers.

Interaction analysis. A technique which enables an observer to record the types of verbal interaction between a teacher and his class. It is designed to be used by a trained observer as a research tool in collecting reliable data concerning classroom behavior. The system developed by Ned Flanders is one of the earliest examples.

Micro-teaching. A technique by which complex teaching acts are broken down into manageable five-to-fifteen minute units which are presented to a small group of pupils. Feedback on teacher performance is provided through teacher evaluations by the pupils and other observers.

Professional preparation. The methods courses taught by industrial arts department faculty and all departmentally supervised field experiences. More specifically, courses in which prospective industrial arts teachers study learning theories are coupled with opportunities for individual practice of this theory.

Sensitivity training. A technique designed to develop greater awareness of oneself and a heightened sensitivity to others. Ideally, the successful
sensitivity trainee would become more effective in working with individuals and groups of students.

Simulation. Constructed experiences and situations presenting typical teaching problems to which preservice teachers must propose solutions. The simulation packages developed by Cruickshank, Broadbent, and Bubb are characterized by filmed critical incidents with accompanying background information on the students involved and on the school and community in which the incidents take place.

Video tape recorder (VTR). A device for recording both the audio and video portions of teaching activities for instant and subsequent replay on a television monitor.

Chapter Summary

The necessity for the examination of the use of innovations in the professional preparation of industrial arts teachers was presented. In addition, the assumptions, limitations, and an overview of the methodology was offered. The primary problem was identified as the development of recommendations for the use of teacher education innovations in the preservice preparation of industrial arts teachers.

The remaining portions of this study represent the
review of related literature (Chapter II), an examination of the methodology employed in the completion of the study (Chapter III), a reporting of the findings of the study (Chapter IV), an analysis and interpretation of the findings with recommendations for application of the examined innovations (Chapter V), and the summary, conclusions, and recommendations for further study (Chapter VI).
CHAPTER II

REVIEW OF RELATED LITERATURE

In attempting to survey the literature pertinent to this investigation, the writer has sought to develop the review from a general to a specific perspective. A brief description of the four sections of the review follows.

AN OVERVIEW explores certain of the broad implications of emerging innovations upon the educational scene. In this section, several broad forces which are eminently affecting change in teacher education are examined. A relatively broad diversity of influences are reviewed in terms of their influence upon the role of teacher education, and the implications of the increasing use of innovations are identified. In particular, the complexity of the teacher's role and the consequent requirements for teacher education are explored.

THE PROFESSION AT LARGE attempts to examine briefly significant professional action concerning contemporary educational innovations. In this section, the
National Council for Accreditation of Teacher Education (NCATE) is identified as an agency capable of initiating significant change in teacher education. In this regard, the policies of NCATE relative to teacher education innovation are examined. The Multi-State Teacher Education Project (M-STEP), and The Teacher Education and Media Project (TEAM Project) are identified as significant professional efforts toward in depth feasibility studies of the use of various innovations. The efforts and conclusions of these two projects are examined in terms of benefits to be derived from the use of innovations in teacher education.

INNOVATION IN INDUSTRIAL ARTS TEACHER PREPARATION PROGRAMS presents a review of the literature concerning the implementation of contemporary educational innovations within the professional areas of industrial arts teacher preparation programs. The primary search in this section centered on the identification and explication of significant professional influences within the area of industrial arts which could provide leadership in the introduction of innovations in teacher education. A search was also made within the periodical literature for concerted departmental efforts to develop professional programs which utilize contemporary teacher education innovations.
SELECTED INNOVATIONS is a review of literature pertaining to the nine selected educational innovations. In this section, information concerning the theoretical ends to be achieved by a particular innovation was reviewed. Literature reporting the application of the various innovations was sought, but the newness of some prevented the review from reaching any great depth in the application or practice phase. Insofar as possible, this section sought information about the particular innovation from sources which reported actual utilization, as opposed to theoretical proponents only. Each section, however, does present a rationale for the use of the innovation as presented by various advocates.

Overview

The Complexity of Effective Teacher Functioning

In attempting to identify the substance for teacher education programs, a reasonable beginning would be to examine the typical teacher's responsibilities or roles. William Clark Trow (1963) has prepared a listing of roles which the typical teacher must assume during the execution of his responsibilities.

Related teacher roles:
1. Custodian
2. Clerk
3. Foster-parent
4. Disciplinarian
5. Examiner
6. Audio-visualist and technician
7. Librarian
8. Student advisor
9. Therapist
10. Recreation leader
11. Responsible citizen

Teaching function roles:

1. Communicate with pupils having a wide range of mental abilities.
2. Plan and prepare lessons and develop instructional materials.
3. Assess readiness for instruction.
4. Demonstrate equipment, skills and processes.
5. Give out information.
6. Explain facts and their relationships leading to the development of concepts and generalizations.
7. Provide educational feedback, reinforce, and motivate student efforts.
8. Lead discussions so as to arouse questions and develop original thinking and creativity. For a proper background, keep up with the professional and content literature and conduct research. (p. 46)

Gregory Trzebiatowski (1969) refers to the above complex of roles as the input overload on the teacher.

Trzebiatowski supports the position that this "overload" is becoming unmanageable for the conscientious teacher.

The responsibility for preparing teachers to function under existing conditions rests upon the teacher.
educators, already burdened with a similar overload. Our colleges demand that the educators who instruct our prospective teachers be keenly knowledgeable in their subject matter areas, as evidenced by the degree requirements and/or proven excellence in their fields. Paradoxically, as pointed out by R. Buckminster Fuller (1962) many of these creative and knowledgeable educators are forced to repeat their lectures numerous times throughout the year.

The various pressures exerted upon teacher education have fostered a situation which will likely create change in teacher preparation programs. The following section explores a few recommendations for meeting these demands for change.

Innovation by Necessity

With regard to complexity of roles referred to in the previous section, Trow (1963) offers the following alternative.

Instead of trying to force these divergent roles on all teachers, whatever their varied aptitudes, skills, and interests, it might be wiser to change the jobs, to reduce the roles, in other words, to reconstruct the school organization. Specialization along the lines of particular interests and talents would assure not only greater proficiency but also greater satisfaction. The advent of teaching machines, television, and other
innovations provide the occasion for a reorganization of the various responsibilities of the teaching personnel in the interest of greater efficiency and effectiveness. This cannot be brought about by administrative fiat, but rather by cooperative planning by teachers and administrators (p. 46).

The types of differentiated staffing patterns to which Trow refers are supported by many educators. Most of the designs which have been suggested center on the use of various innovations.

There will no doubt be fewer 'general practitioners', and more people who are specialists whether or not they are called teachers. We already have curriculum specialists, audio-visualists, school librarians, visiting teachers, counselors, and school psychologists, to say nothing of the subject matter specialists. Others may be expected to develop. (Trow, 1963, p. 92)

Fuller (1962) recommends the utilization of contemporary recording media to overcome the tedious repetition of college instructors.

We are not going to ask them (faculty leaders in research or in teaching) to give the same lectures over and over each year from their curriculum cards, finding themselves confronted with another roomful of people and asking themselves, "What was it I said last year?" This is a routine which deadens the faculty member. We are going to select, instead, the people who are authorities on various subjects - the men who are most respected by other men within their respective department and fields. They will give their basic lecture course just once to a group of
human beings, including both the experts in their own subject and bright children and adults without special training in their field (p. 36).

The new role of the teacher is also seen by Robert Schaefer (1967) to be much different with the advent of new educational technology. Schaefer feels that the use of new technology would free the teacher from the bonds of typically routine tasks, and allow him to become a diagnostician, assigning educational experiences to meet the needs of the individual child.

Lewis (1961) explores some of the specific uses for contemporary media.

1. Centralized electronic distribution of motion picture films and other visuals direct to where it is wanted.

2. Remote monitoring of corridors, play, and other areas.

3. Central storage of personnel records or other data that are immediately available for remote visual examination or direct copying from the television screen.

4. Electronic hook-up of widely separated school buildings or locations for conference purposes.

5. Ease of pupil viewing of demonstrations procedure in shops and laboratories.

6. Extension and expansion of audience and spectator facilities.

7. Kinescope of video tape recordings or presentations and programs for repeated use later the same day or in the future. (pp. 89-90)
Patrick Suppes (1966) concisely treats the relationship between the advocates of technical teacher training innovations and the advocates of traditional teaching methods.

Many of those most concerned with the preservation of humanistic or individualistic traditions view the increasing importance of computer technology in our society as a threat to those traditions. If such critics understood better the scientific world in which we live, they would realize that this technology offers a possibility of individual fulfillment in education hardly conceivable fifty years ago (p. 24).

Section Summary

The preceding section has attempted to present a broad view of teacher education and its relationship to contemporary technical innovations which are affecting it. To summarize the findings of this section, the following points are offered.

1. Teacher education must combine various innovations with differential staffing patterns to more efficiently conduct education of teachers.

2. The knowledge explosion, which demands increased specialization, is making the task of teacher education more difficult for the individual instructor; technology must help carry the load.
3. Taxpayers who support public education, grades one through college, are demanding both efficiency and accountability from education. Innovative educational hardware must be utilized to counter these forces.

4. The reality of finding sufficient numbers of qualified instructors, with outstanding ability to meet the needs of the increasing number of students, must be challenged. Innovations must be utilized to enable large numbers of students to share the experience of outstanding instructors.

5. Educators must become informed and acquainted with the current innovations, and increase their research and work on the real effectiveness of these innovations. If educators do not meet this challenge, technicians and engineers may become responsible for not only the hardware, but the software as well.

In short, a combination of many forces is making imperative a change in teacher education. It seems inevitable that most of this change can be accomplished by the utilization of selected innovations.
The Profession-At-Large

The professional literature echoes with cries for the improvement of teacher preparation programs. A significant number of the writings address themselves, both implicitly and explicitly, to the need for the adoption of various innovations as well as for research and testing on others. Although the direction of many of the writings indicates dispersion as far as which innovations should be implemented, the theme remains consistent that change and updating must occur to help improve the preparation of teachers.

National Council for Accreditation of Teacher Education

In the search for influences which would likely effect change in teacher education on a broad professional spectrum, this investigator identified the National Council for Accreditation of Teacher Education (NCATE) as such a force able to effect significant change. Although only 470, or 38 per cent of the 1,246 teacher preparation institutions are NCATE accredited, this 38 per cent represents 80 per cent of the total number of newly graduated teachers each year (Stinnett, 1969). Upon review of the Council's recently adopted standards, there seemed to be important implications for the type of innovations under investigation in this study.

NCATE recently concluded an intensive three-year
study aimed at the development of significant teacher education standards.

While developed primarily for accreditation purposes, they may also be viewed as general guidelines for the improvement of preparation programs for professional school personnel (American Association of Colleges for Teacher Education, AACTE, 1969, foreword).

The standards were approved and adopted in January, 1970, and became effective during the 1971-1972 school year. It seems important that these new standards be examined. Moreover, NCATE is highly receptive to innovation and experimentation as evidenced by the following statement which serves to introduce the standards.

Responsible experimentation and innovation are essential to improvement of teacher education programs. A deliberate attempt has been made in these standards to encourage individuality, imagination, and innovation in institutional planning (AACTE, 1969, p. 2).

Although none of the 22 standards compiled for the "Basic Teacher Education Program" directly cites the need for the use of specific innovations, the interpretative information provided by NCATE does deal more directly with innovations. By way of example, in examining teaching and learning theory with laboratory and clinical experiences, the standards forward the following statement.

Clinical teaching involves the student in the diagnosis and 'treatment' of the individual problem, under the guidance
of an experienced teacher. Because it is now possible to simulate many of these situations or to display a selection of real problems electronically, and because the prospective teacher's efforts can be recorded, viewed, and reviewed, it is now feasible to give much effective clinical experience outside the school classroom (AACTE, 1969, p. 5).

Without citing specific innovations, the above statement clearly has implications for the use of simulation, video tape recording, and closed circuit television.

In a discussion of the necessity for materials and instructional media centers, the standards include the following position.

A program for the preparation of teachers includes the use of teaching-learning materials and instructional media in two important ways: prospective teachers are instructed how to devise and use modern technologies in their teaching, and modern technologies are utilized by the faculty in teaching standards (AACTE, 1969, p. 11).

The standards approved and adopted by NCATE point clearly to the fact that institutions seeking accreditation must develop an acceptance of various innovative practices, and must also be quick to incorporate them into their total programs of teacher education. In presenting the standards, NCATE leaves no doubt that they are minimum standards for acceptability. Furthermore, NCATE urges institutions to set even higher standards for themselves and to strive for better ways to prepare teachers.
The position of NCATE, as an influential agency in teacher education, leaves no doubt that institutions must exhibit an innovative attitude toward teacher education. It may be safely assumed that NCATE has witnessed a variety of well conceived and effectively initiated innovations in institutions prior to the development of its own standards.

Multi-State Teacher Education Project

With regard to action taken by various agencies, the work of the Multi-State Teacher Education Project (M-STEP) must be considered. In addressing itself to the issue of what must prevail in the teacher education of the future, M-STEP states unequivocally that the way must be opened for experimentation and innovation. In addition, the network for sharing and working together on such developments must be established.

In their comprehensive study on the uses of television and related media in teacher education, M-STEP undertook the following three specific tasks.

1. To learn what was being done in adapting video media to teacher preparation programs in American colleges and universities.

2. To search for potential contributions of video processes to unmet needs in teacher education.
3. To create, use and evaluate sets or series of video tapes and films of exemplary teaching patterns. (Bosley, 1969, pp. 37-38)

As a result of efforts toward achieving the above objectives, the following comments serve to convey the conclusions reached by the personnel of M-STEP. T. H. Bell, Utah State Superintendent of Public Instruction, states:

Evidence of progress is already apparent. Micro-teaching and other uses of the video tape recorder are indicative of significant changes that are taking place in the preparation of teachers. But we have witnessed only the beginning! Seeds have been sown which could result in a major overhaul of teacher education programs (Bosley, 1969, p. 43).

N. Blaine Winters, Administrator of Teacher Personnel, Utah State Board of Education, states:

The M-STEP Project . . . has had a great effect upon developing new practices in student teaching in this and the other states. The use of instructional media, especially television, has been explored and accepted as an important factor to be used in improving student teaching (Bosley, 1969, p. 43).

Similarly, George W. Hopkins, Director, Office of Teacher Education and Certification, South Carolina State Department of Education states:

The M-STEP Project has had a great impact upon student teaching in South Carolina. It has caused a focus on new ways to attain the objectives of student teaching. The use of television, closed circuit broadcast,
and video tapes has been extensively explored. All colleges and universities now use one or more of these in their teacher preparation programs (Bosley, 1969, pp. 43-44).

The statements of the above individuals, as well as of many others associated with M-STEP, make a rather convincing argument for the adoption of several innovations. The argument bears considerable credence by virtue of the magnitude of this project. The credibility is further strengthened by the high decision levels occupied by the individuals involved in the project. As spelled out by the findings of M-STEP, the contributions which can be made by television in its various forms are both broad and significant. With regard to specific contributions, a thorough treatment of various ways in which television can be effectively used was explored by M-STEP.

M-STEP (Bosley, 1969) undertook a comprehensive examination of exemplary practices in the use of television in the preparation of teachers. Twenty programs and projects utilizing television in teacher preparation institutions were reported. A review of all these reports would be too long to include in this investigation. A very brief description of some of the practices reported is given below.
Bert L. Sharp - University of Florida: Closed circuit television installed, 19 originating stations in laboratory school, 10 receiving stations in college classrooms.

Robert C. Jones - University of Massachusetts: Recording classroom incidents on video tape recorders and reviewing in college classrooms.

Hazen J. Schumacher, Jr. - University of Michigan: Video tape recorders for reviewing student teaching performance, observation, and recording guest lecturers.

Nathan Stoller and Robert Brock - Hunter College: Have been working since 1964 to build up a library of kinescopes of various instructional situations.

D. W. Allen and David Young - Stanford University: Utilization of video tape recorders with micro-teaching sessions.


Donald R. Cruickshank - University of Tennessee: Use of the video tape recorder in simulation experiences for teacher preparation.

Earl W. Harmer - University of Utah: Use of the video tape recorder to record student teacher presentations and to aid in their evaluation.

The foregoing represent only a sampling of the efforts being made by prominent educators and institutions in developing relevant contemporary teacher education programs. It is evident from such a sampling that the profile of teacher education programs is being rapidly
and significantly changed in certain institutions.

Teacher Education and Media Project

An additional large-scale effort to examine innovative practices was conducted by the American Association of Colleges for Teacher Education (AACTE). Referred to as the "TEAM Project", this study entailed a two-fold effort to critically examine both the curriculum and the related media for the professional portion of teacher education. The media segment of the TEAM Project concerned itself with "the acquisition and reporting of current research and utilization patterns of new media in teacher education (AACTE, July, 1968, p. 1)."

The TEAM Project conducted a national survey of all teacher preparation institutions in an attempt to ascertain the extent of new media utilization and the availability of instructional materials. Of 1,204 survey instruments sent by TEAM, 606 usable questionnaires were returned. Based upon this number of returns, the following generalizations were drawn (AACTE, July, 1968, pp. 13-15).

1. **Sound films and filmstrips** are the preferred choice (of teacher education institutions) followed by disc and tape recordings and overhead transparencies.
2. Instructional Television: Almost one-in-three teacher preparation institutions had television facilities operable during the year 1964-65. These were mostly closed circuit television installations concentrating on programing for directed observation originating from the campus laboratory school, for instruction in techniques of television utilization in the classroom, and for large-group instruction of lower division courses. Video tape recorders . . . will be in use during the coming year in almost one-in-four teacher preparation institutions.

3. Programed Instruction: Of the 352 commercially available programs listed in the United States Office of Education sponsored Programs '63 (1963), not one was designed for the traditional content of the professional education sequence. Continuing surveys by the Project have discovered about 90 programs related to the professional sequence being developed, revised and used by individual faculty members concerned with this content area. . . . the programs in use are typically concerned with educational methods, measurement and statistics, and psychological foundations.

4. Multimedia Presentation Systems: This system programed by the instructor from his electronic lectern, permits, through rear-screen projection, the instantaneous use of large-screen television, motion pictures, slides, filmstrips, and prerecorded audio tapes. Some systems permanently record the instructor’s lecture and multimedia cuss on tape for later use in multi-sectional courses in the absence of the instructor.

5. Single Concept Films: Several teacher education institutions are using 8mm films to record the performances of student teachers, and rear-screen projectors are now available which will
take continuous loop cartridge
sound films up to 28 minutes in
length.

6. Simulation: TEAM reported only one
simulation facility; that of Bert
Y. Kersh through a pilot program
at the Teaching Research Laboratory
of the Oregon State System of Higher
Education.

One additional point of information on the TEAM
questionnaire pertained to the prediction, by the survey
recipients, of media utilization through 1970. Essential-
ly, utilization was predicted to remain fairly
constant, excepting the following three points.

1. Programed instruction will get greater emphasis.

2. Computer assisted instruction will receive an
increased emphasis.

3. The greatest quantitative growth to be made
will be in the development and utilization of televised
education at the higher education level.

Section Summary

In searching for significant professional influ-
ences upon the adaptation of various educational
innovations in teacher training institutions, the efforts
of NCATE, M-STEP, and the TEAM Project were identified.
NCATE was found to be highly supportive of such innova-
tions. Also, their newly adopted standards seem to
present an incentive for institutions to demonstrate innovative attitudes and practices.

M-STEP identified several teacher education programs which have exhibited successful use of various innovations. Primary in their studies were programs utilizing various forms of television. The evidence presented by this study indicates that such uses of television offer considerable potential for teacher education institutions.

The TEAM Project identified some successful innovative programs. Although their survey indicated that such programs are not typical of most teacher education institutions, their predictions that computer assisted instruction, programed instruction, and various forms of television will receive considerable emphasis during the 1970's does seem encouraging.

In light of the review presented in this section, the following three specific conclusions are offered.

1. The impetus has been provided for the study and adaptation of innovative practices in teacher education programs.

2. Certain institutions and individuals have exhibited forward-thinking attitudes toward the implementation of various innovations in their teacher education programs.
3. Studies such as the M-STEP and TEAM Projects offer a foundation for the implementation of various innovations by providing a framework of operation, by virtue of their "consumer report" analyses.

Innovation in the Professional Preparation of Industrial Arts Teachers

Industrial arts teacher preparation is presently undergoing significant change with respect to the technical aspects of its programs. Similarly, the innovations introduced into professional teacher preparation appear to be significant. The central purpose of this section of the review is to search for significant trends in the adaptation of contemporary innovations in the professional preparation of industrial arts teachers.

This section focuses primarily upon the roles of the American Council on Industrial Arts Teacher Education, the American Industrial Arts Association, and upon the published contributions from other sources influential among industrial arts teacher educators. Efforts by individuals to use a particular innovation in the preparation of industrial arts teachers are examined in the following major section of this chapter.

American Council on Industrial Arts Teacher Education

Within the area of industrial arts, one of the
most prominent broad scale efforts to determine innovative practices in teacher preparation was sponsored by the American Council on Industrial Arts Teacher Education (ACIATE) and reported in the 4th Yearbook.

This yearbook presents a profile of the educational frontier in industrial arts teacher education at the undergraduate level. It reports on concepts and practices where our people have been resourceful and diligent and where these efforts have resulted in defensible, professional achievement. It reports also on concepts and practices where the energy and creativity have been somewhat less and where progress has been slow or halting. The emphasis, however, is on the positive side and it is placed there by reporting on superior practices wherever they were to be found (Hornbake & Maley, 1955, p. 1).

The method of investigation of the ACIATE was simple and direct; all colleges and universities in the continental United States which were known to have industrial arts undergraduate programs were contacted and asked to complete an inventory instrument. The topics examined in this investigation were:

1. Student Personnel Practices
2. General Education
3. Early Professional Experiences
4. Later Professional Experiences
5. Student Teaching
6. Technical Education (Shopwork and Drafting)
7. Technical Education (Exclusive of Shopwork and Drafting)
8. Program Evaluation
   (Hornbake & Maley, 1955, p. 3)

Of 192 schools receiving the inventory, 147
completed and returned it. This represented a 77 per cent return from eligible schools. Each of the institutions was asked to identify those teacher education practices which they performed in a superior manner. A total of 221 teacher education practices were included on the instrument. Each of the practices was described in a very brief statement. In addition, each category provided the opportunity and space for the institutions to insert practices within that category which the inventory did not include.

In is noted that none of the statements directly referred to the use of any of the innovations under examination in this investigation. However, certain of the questions and the accompanying responses by institutions have implications for this study. Those questions which were deemed pertinent by the investigator are offered below.

*212-The student is given opportunities to develop competence in his ability to communicate with others. (This implies not only skills and techniques of communication, but also those values and attitudes which make interchange of ideas possible.)

NO RESPONSE PERTINENT TO THIS ITEM

*304-Contacts are provided with children and youth in structured situations so that the student may learn how he reacts to them and they, in turn, to him.

NO RESPONSE TO THIS ITEM

* The number preceding each of the statements is the original item number as used in the ACIATE study.
*307—There are planned and supervised visits in elementary and secondary schools. (NOTE: probably laboratory schools.)
SIX RESPONSES TO THIS ITEM

*309—Opportunity is provided for the observation and study of pupils as they participate in classroom, laboratory, and school shop activities.
ONE RESPONSE TO THIS ITEM

*313—There are opportunities for the teaching of others (either classmates or younger age groups).
FOUR RESPONSES TO THIS ITEM

*315—There is an initial, short-time participatory experience in an elementary or secondary school (i.e., engaged in a teaching situation but not as a student teacher).
ONE RESPONSE TO THIS ITEM

*316—There is an initial, short-time student teaching assignment during the freshman or sophomore years.
NO RESPONSE PERTINENT TO THIS ITEM

*408—Students have opportunities to work with peer groups on their common professional problems.
NO RESPONSE PERTINENT TO THIS ITEM

*409—Specific experiences are directed toward understanding what resources are available to teachers and how these should be used.
FOUR RESPONSES PERTINENT TO THIS ITEM

*415—There are planned and supervised observations of elementary and/or secondary school problems.
FOUR RESPONSES TO THIS ITEM

*418—Students observe and practice a variety of teaching-learning procedures (e.g. group planning, developing an assignment, testing, group evaluations).
NO RESPONSE TO THIS ITEM
The student teacher is provided with teaching experiences involving a variety of instructional techniques and media (e.g. films, field trips, guest speakers, group projects, mass-production units, experimentation, etc.).

NINE RESPONSES TO THIS ITEM
(Hornbake & Maley, 1955, pp. 55-86)

In light of the results of this study, it appears that very little innovating was in progress in the field of industrial arts during the period prior to 1955. This, of course, must be tempered with the realization that several of the innovations examined by this investigator were in developmental stages during this period. Nevertheless, the glaring "no response" in some of the significant categories necessitates the conclusion that very few significant efforts were made in the area of industrial arts professional teacher preparation during the mid-1950's.

A later ACIATE Yearbook, published in 1962, addressed itself to the nature of the industrial arts undergraduate curriculum. This text presented a comprehensive look at the general, technical, and professional education aspects of the undergraduate program. The professional education section addresses itself straightforwardly to the curricular aspects of this segment of an industrial arts teacher's preparation. Sound recommendations are made for both scope and sequence of
experiences, as well as for the relationship of the professional preparation to the total program.

In spite of the superior reporting by this yearbook, the absence of any treatise on the use of the contemporary innovations is noted. It would seem that a writing as recent as the 1960's, dealing specifically with the professional preparation of industrial arts teachers, should at least account for the new and imaginative ideas in teacher education which were emerging during this period. By way of example, the yearbook subscribes fully to the notion of early involvement in real classroom situations as an integral part of the preservice preparation of industrial arts teachers. However, the several means by which this could be achieved, other than by bodily placing the students in a classroom, were not mentioned. It is noted that the 20th ACIATE Yearbook was at press during the writing of this dissertation. This yearbook addresses itself to several of the innovations under investigation in this study.

American Industrial Arts Association

A review of recent American Industrial Arts Association (AIAA) Convention Proceedings reveals very little emphasis being placed on innovations in teacher education. David Bushnell, one of the primary speakers at the 1968 Convention, succinctly expresses the condition
that the investigator found to exist.

Their (educational leaders and classroom teachers) awareness is coupled with a growing sense of frustration at hearing of the many innovations in teaching. Such innovations as individually prescribed instruction, programmed learning, computer aided instruction, team teaching, flexible scheduling, ungraded classrooms have been amply demonstrated as feasible and desirable. The popular media are continually reporting the favorable results of these techniques. However, most of these valuable new tools are not commonplace practices. A coordinated application incorporating various innovations into even a small percentage of schools has yet to be worked out.

Educational researchers have made significant advances in their understanding of the learning process, the need for curriculum innovation, and the use of new instructional technology. How distressing it is when one considers the tremendous lag time between initial research findings and implementation of these findings. (1968, p. 19)

In support of Bushnell's comments, the recent American Industrial Arts Association Yearbooks include a few addresses which support and encourage the implementation of contemporary innovation, but a trifling few which exemplify efforts to make such implementation a reality. No significant department-wide efforts to adapt innovative professional education programs were identified by the investigator. Nevertheless, several well informed industrial arts educators have, through the professional literature, built substantial rationales for the implementation of contemporary innovative practices in the
professional preparation of industrial arts teachers.

Government Influence

The apparent void in the reporting of professional innovations in industrial arts teacher preparation programs during the 1950's and 1960's seems almost paradoxical in light of the support given such development by the federal government. As early as 1917, which marked the passage of the Smith-Hughes Act, special provision was provided for the development of instructional materials for the preparation of teachers (Strong, 1958). Although this provision was designed for the preparation of vocational teachers, the proximity of industrial arts to vocational education during the 1950's and 1960's was such that a development in one would likely represent a development for both.

The vast array of books and pamphlets produced and distributed by the United States Department of Health, Education and Welfare and by special presidential committee bear witness to the concern of the government for industrial arts and vocational education teachers. One such committee report, published in 1963 by the Department of Health, Education and Welfare, lists the following specific needs for instructional materials.
1. The development of programmed learning materials, and materials of other new media such as closed circuit television.

2. Instructional materials for use with the overhead projectors.

3. The design and development of pilot models of three-dimensional teaching aids, with plans and instructions for local production.


In further support of the development of instructional materials for teacher preparation, a 1964 government publication noted the need for emphasis on the development of innovations such as motion pictures, television, tapes, and programmed instruction for teacher preparation (Innovation and Experimentation, 1964). The panel also advocated the development of films showing real situations to aid in the pedagogical instruction of teachers. This position represents an endorsement of simulation films as they are now known.

Section Summary

Within the area of industrial arts, the leadership for the development of innovative professional programs in teacher preparation could not be found in this review. With a few exceptions, the literature concerns itself primarily with the technical content and curricular aspects
of the prospective industrial arts teacher's education. In general, it ignores the several innovations available for the improvement of professional preparation.

Perhaps the most significant conclusion to be reached from this review is the discovery that encouragement and support by the various industrial arts professional organizations for innovative professional preparation practices could not be found. Moreover, no evidence of significant department-wide efforts toward such innovation could be found. However, the recent undertaking of the ACIATE 20th Yearbook authors apparently has been designed to help fill this seeming lack of professional materials for innovative industrial arts teacher educators.

Selected Innovations

The innovations reviewed in this section were selected based upon the following criteria:

1. Innovations discussed and supported by L. O. Andrews in various courses taught by him at The Ohio State University and attended by the investigator.

2. Innovations supported by major investigations such as those briefly reported in earlier portions of this chapter.

3. Innovations which the investigator has studied
during his graduate studies at The Ohio State University.

The nine innovations examined within this section include:

1. Video tape recorder
2. Simulation
3. Critical incident films
4. Closed circuit television
5. Computer assisted instruction
6. Interaction analysis
7. Micro-teaching
8. Sensitivity training
9. Field experience prior to student teaching

Video Tape Recorder

The video tape recorder offers several very real and unique advantages. Perhaps uppermost in attributes is its capacity for instant playback, eliminating the extended time consumption and uncertainty accompanying the utilization of motion-sound films. In addition, relatively inexpensive portable units are available which afford the user the opportunity to transport the equipment to almost any location which has at least electricity and normal lighting. The portable units are simple to operate, and require only a few minutes of instruction for operation. The simplicity of operation offers the distinct advantage of enabling both pre- and inservice teachers the opportunity to use the equipment without the presence of a trained technician.
Perhaps the most common use for the video tape recorder is the recording of teacher prepared and presented material. Studies by Baron (1969), Entorf (1969), and Armstrong (1969) indicate that this use of the video tape recorder is just as effective as conventional methods for presenting material to classes. Oregon Technical Institute (Dierks, 1968) and Arizona State University (Frust, 1968) are examples of institutions which have been working for some time to utilize the video tape recorder toward these instructional ends.

Dealing specifically with the professional aspects of industrial arts teacher education, Andrews (Monograph VII, no date) and Jenkins (1970) support the contention that the "mirror image" is one of the most significant benefits derived from the video tape recorder. In this regard, several instances are reported wherein this "mirror image" is achieved as an integral part of video taped micro-teaching sessions. Two such instances are East Tennessee State University (Eggers, 1968), which utilizes the video tape recorder in micro-teaching sessions conducted in methods classes, and The Ohio State University (Jenkins, 1970), which uses the video tape recorder to record student teaching activities in the cooperating school.

In a booklet prepared by the Association for
Student Teaching, the following items were listed as being potential uses for the video tape recorder.

1. Instant playback or delayed retrieval of real classroom situations and teacher behaviors for group or individual study with a clinical teacher.

2. Micro-teaching feedback, self-evaluation of skill development, and guidance by a clinical professor.

3. Peer evaluation techniques: the clinical student's fellow learners view the playback and analyze the techniques and strategies used.

4. Simulated problem situations presented for discussion, analysis, and teacher decision-making; the case study or critical incident type of problem solving, planned and directed by a clinical professor.

5. Demonstration teaching episodes with analyses.

6. Model teacher behavior in functional categories; informal or operational research set up by a curriculum professor.

7. A sequential record of progress of the clinical student, before and after comparisons prepared by a clinical teacher or clinical professor.

8. Interaction analysis data organized by a clinical professor.

9. Evaluation data of the clinical student's performance for use by the clinical professor in conferences, or by the student alone as a self-evaluation technique. (Smith, 1970, pp. 42-43)
Simulation

Simulation, as a training technique, is quite old. Within the area of industrial arts, the first example may well have been observed by John Runkle at the Philadelphia Centennial Exposition in 1876. Runkle was affected by the models for the teaching of manipulative skills (Bennett, 1937). These models, exhibited by the Russians, were intended to serve essentially the same function that simulation attempts. The Russian models afforded the students an opportunity to gain skills in chipping, filing, and forging without the risk of ruining valuable parts. In this case, the students could experiment with techniques with minimum danger from errors. Properly conducted teacher training simulation can afford this same opportunity.

Professional educational simulation experiences can broadly expand a beginning teacher's base for decision making by affording him the opportunity to become involved in a variety of educational problem situations. Ideally, the problem situations encountered in simulation experiences would be typical of those problems which a teacher traditionally encounters in the first few years of teaching. Within a simulation experience, the prospective teacher has an opportunity to examine deliberately such problems, make mistakes in responding to them and, perhaps
most importantly, discuss the problems with other students and his instructor. Such a situation holds considerable advantage over facing such problems during the first teaching job, when he will likely be forced to quickly respond because he is held accountable for that response. Obviously all such problems which teachers encounter could neither be anticipated nor treated by simulation. However, such experiences would certainly aid the student in resolving future problems.

The purpose of educational simulation, as described above, is to serve as a bridge between theory and practice, a function which student teaching has been performing. Student teaching, however, is typically a one-shot experience at or near the conclusion of the prospective teacher's preparation. Consequently, the student teacher is placed in a stressful situation, often without adequate base for coping with the multitude of problems typically encountered. Field experiences and simulation activities throughout the student's education are designed to facilitate the transition between theory and the practical aspects of professional teacher preparation.

In a review of the development of educational simulation, Donald R. Cruickshank (1969) notes that one of the first reported uses of the technique was reported by
Hemphill, Griffiths and Frederikson in 1962. This experience involved the establishment of a common setting wherein the problem solving behavior of administrators performing routine tasks could be analyzed.

A second benchmark in the application of simulation to professional education occurred when the NDEA provided research funds to the Oregon System of Higher Education to measure technical effects of the use of filmed simulation materials on the learner. (Cruickshank, 1969, p. 20)

Cruickshank and Broadbent (1969) define simulation as follows:

Simulation is a process that by design permits a trainee to become well acquainted with significant aspects of work he may not be able to encounter in any other way. The experiences provided are carefully controlled and programmed; it is possible for example, to have the trainee encounter in just two weeks the most critical problems he will face in his first year of teaching, in a threat free, failure free environment unlike that of student teaching (pp. 24-25).

Cruickshank (1970) presents four basic arguments for the development of simulated experiences.

1. Many of the actions of a student teacher are simply a rote repetition of the cooperative teacher's behavior.

2. The preparation of simulation materials will force teacher educators to better understand the teacher's environment.
3. The rapid expansion of media.
4. NCATE's support (as reported on pages 30 through 33 of this chapter).

Beck and Monroe (1969) contend that simulation may be properly employed in any of three ways.

1. To evaluate or analyze an existing system (operations analysis).
2. To develop and evaluate a model or plan for a new system (experimentation, prediction).
3. To provide a learning environment that represents a life situation (training, transfer). (p. 45)

It is noted that a close parallel exists between the ends which simulation can serve as described above by Beck and Monroe and the four basic arguments for its use described by Cruickshank.

Beck and Monroe (1969) also note the following advantages of simulation as compared to traditional lecture-reading instruction.

1. Covers wider range of educational objectives; affective as well as cognitive.
2. Greater transfer from training situation to life situation.
3. Provides responsible environment.

As well, simulation offers a cost savings, a time controlled situation and the opportunity for experimentation
which direct experiences do not readily offer (Beck & Monroe, 1969).

A study on simulation conducted by Cruickshank and Broadbent (1969) offers some very interesting conclusions for teacher educators. The purposes of the study were to:

1. Examine the methodology of simulation in order to judge its effectiveness in presenting critical teaching problems.

2. Determine whether or not exposure to simulated critical teaching problems and subsequent decision making has any observable effect on a trainee's student teaching behavior. (p. 54)

This study concluded that simulation training was an unqualified success as a teaching device to motivate and involve students. It was reported that although simulation was only partially successful in changing the student teacher's behavior, it was at least as effective as an equal amount of student teaching (Cruickshank & Broadbent, 1969). The results of this one study will need to be substantiated by future investigators but the findings offer considerable promise.

Areas of simulation requiring further investigation include: when in the student's career the experience should be given; how long the training should be; who should have the experiences; and how the experiences should be integrated into the course content (Bond, 1965).
In spite of all these unanswered aspects of simulation, the apparent potential of the technique and the use of commercial simulation packages by over 300 universities make it an innovation worthy of professional attention (Cruickshank, 1970).

**Critical Incident Films**

The critical incident idea is not a new technique. As early as 1950, a publication of the American Institute of Research (1950) reports the utilization of the technique. This publication describes the critical requirements for an activity as those which are crucial in the sense that they have been frequently observed to make the difference between success and failure in that activity. An efficient technique for determining critical requirements has been developed. This technique is called the Critical Incident Technique. Critical incidents are descriptions of things people did which were especially effective or ineffective in accomplishing specific tasks. These descriptions provide job analysis data which are less dependent on vague hunches and general impressions, data which are detailed and specific.

John C. Flanagan was one of the most significant early advocates of the critical incident technique. During the early 1950's, he made several contributions to
the literature of the subject. He described the technique in the following manner:

The critical incident technique consists of a set of procedures for collecting direct observations of human behavior in such a way as to facilitate their potential usefulness in solving practical problems and developing broad psychological principles (Flanagan, 1959, p. 327).

Within the context of teacher education, the major obstacle to the use of this technique is the identification of the proper incidents to include in the experiences of prospective teachers. Some teacher educators have attempted to identify typical incidents with which teachers are normally presented. Hunter (1962), Greene (1959), and Keach (1966) have compiled books which present incidents for discussion with prospective teachers. The incidents given in these texts are primarily case studies. However, their representativeness of actual teaching incidents may or may not be valid. Incidents presented in this manner, through written accounts, leave the methods instructor in a rather precarious position when he attempts to use such accounts as discussion stimuli in his classroom.

Incidents which must be read by students have their impact somewhat diminished by virtue of the medium through which the incidents are related, viz., the written word. Moreover, such books leave the methods instructor
to discover his own insights in the incidents being discussed. Although the books are explicit in presenting the incidents, reactions by other teacher educators to the incidents are not included. In this way, the methods instructor is handicapped since he is limited to his own perceptions and opinions in leading a discussion on the incident.

A text prepared by Corsini and Howard (1964) would seem to be a marked improvement over the ones mentioned above. The format for the development of this text entailed the identification of 500 names from educational journals, each person being asked to submit an incident in teaching with which he was familiar. Three hundred incidents were assembled, edited, rated, and classified as to duplication, reducing the number of incidents to 50. These 50 incidents were rated by experienced teachers, thus identifying the best incidents. Next, the selected incidents were sent to 200 potential contributors requesting their reactions to the incidents. From these reactions, 17 incidents with from four to six reactions were selected for inclusion in the text. Within the text, the incidents are presented with a summary of what the teacher did in reaction to the incident. This is followed by the various reactions of what others thought should have been done. Within the confines of a written
presentation for critical incidents, Corsini and Howard appear to have done an outstanding job in identifying significant incidents, and securing adequate professional reaction to the incidents.

Gliessman and Williams have followed much the same format as Corsini and Howard in the development of their Critical Moments In Teaching film series.

A unique feature of the films in this series is that they were developed on an empirical basis. The reactions of college students, college professors of education, and practicing public school teachers were systematically gathered, beginning with the initial selection of problems to be filmed, and continuing through the final development of the film series (1969).

The medium of the motion-sound film adds considerably to the impact of the critical incidents presented. The quality of the professionally prepared films in this series can very dramatically move the viewer. Sixteen of these films are currently available, with seven more in the planning stages. Each film ends at the point when the teacher must take action as a result of the problem presented.

These films do not include a summary of professional reactions to each incident. However, they are accompanied by a guide which appears to have been developed from such professional review. The guide (Gliessman, no date) contains topically outlined questions regarding
each of the films. In addition, data concerning the student and/or teacher involved in a particular film are provided. For example, certain films which require insightful examination of a child include cumulative records of the child, everything which would typically be found on such a record, including comments and remarks by teachers.

The combined effect of the professionally produced film and the accompanying discussion and study guide can provide very dramatic stimulus for methods class discussions. Over 18 teacher education institutions have adopted these films, at costs ranging from $100 to $145 per film. Of the total of 23 films (16 completed, 7 to be produced), 10 depict incidents appropriate for elementary school children, four junior high school incidents, and nine secondary school incidents. Unfortunately, the literature reveals no evidence of critical review of the effectiveness of these films by persons not directly associated with their development.

Closed Circuit Television

Pleas by concerned teacher educators for more involvement of prospective teachers in real teaching situations early in their preparation have been consistent. Typically, the preliminary field experience would entail observation of real classrooms by the prospective
teachers. Such direct observations have some inherent disadvantages.

An obvious weakness of preliminary direct observation by classes of prospective teachers is the problem of physically transporting the students into schools. Assuming a normal methods class size of 35 students, it is apparent that considerable planning would be required for such a maneuver.

A second, perhaps greater, weakness is that direct field observations have the distinct disadvantage of presenting a situation in which all of the observers do not see the same thing. Several factors eliminate the feasibility of placing 30 or 35 observers in one school classroom. Consequently, when whole-class observations are attempted, it is usually necessary to divide into smaller groups and have each of these smaller groups observe a different class. After observations of this nature, the methods class instructor is severely handicapped in attempting to synthesize such observations since the total methods group does not see the same things, nor can he himself possibly observe all the classes at the same time.

A third, related disadvantage, is the problem of interpretation of the observations made. When methods classes are divided into smaller groups and each group
observes classes without the attendance of the methods instructor, the reporting of the incidents occurring in the classroom is subject to the observing students' interpretations. Thus, when the smaller groups reassemble in the methods class, the methods instructor must rely upon these interpretations as his stimulus for discussion. Such a circumstance severely hampers a methods instructor in developing significant discussions from such diverse sources.

One possible alternative to direct field observations is the closed circuit television.

Advantages of classroom observation by closed circuit television over direct observation are numerous. For example, far greater numbers of students can observe the lesson via television; traditional classrooms are not designed to accommodate large numbers of visitors or observers (Sharp, 1969, pp. 53-54).

M-STEP identified several teacher education institutions which utilize closed circuit television as well as video tape recordings as a substitute for direct observations. As an example of such an installation, the efforts of the College of Education at the University of Florida are reported. This system was installed, in 1964, between the College of Education and the laboratory school one-half mile away.

One of the main purposes of the closed circuit system was to decrease the student observation load at laboratory
schools. During the year preceding installation of the system, eight teacher education courses had demanded in excess of twenty thousand hours of student observation in the laboratory school. Many hours were spent coordinating observations, and attending to problems associated with handling such large numbers of students.

The closed circuit system connected nineteen originating stations of the laboratory school with ten receiving stations (classrooms) in the College of Education. Two Vidicon cameras were mounted on top of a portable, rack-mounted amplifier. One camera was a fixed focus with a nonmoveable mounting. The second camera had an adjustable zoom. An extra length (150 feet) of extension cable made possible the use of portable amplifiers and cameras outside of the nineteen originating stations.

Remote controls that were relatively simple to operate were installed in the College of Education building. The remote controls allowed the professor directing the observation to operate the cameras and thus eliminate the need for a central studio and cameraman (Sharp, 1969, pp. 53-54).

Closed circuit television installations such as those of the University of Florida are not without accompanying problems. The obvious ones are cost and the problem of educating methods instructors in the use of the equipment. However, the system appears to afford numerous advantages for the concerned teacher educators.

Computer Assisted Instruction

Computer assisted instruction (CAI) or computer based learning has only very recently been put to
extensive use. Unfortunately, the computer technology field is growing so rapidly, it is difficult to completely realize the full potential of this technique.

Essentially, the computer's impact on the educational scene may be seen as being two-pronged: the managerial function and the instructional function. The managerial function is already much in evidence in most large institutions. Operations such as registration, record keeping, information storage and retrieval, etc., are commonplace. In fact, many public school systems have access to computers to help alleviate much of the paper shuffling so aptly described in Bel Kaufman's, *Up The Down Staircase*.

The second function, that of substantive instruction, is the primary concern of this review. Individualized instruction is the keynote of this function. Programed instruction based upon the precepts of S. L. Pressey and B. F. Skinner (Oettinger, 1969) represents primary efforts to achieve learning on psychologically sound principles and through individualized means. The computer affords extension of this concept with an almost infinite number of combinations.

Patrick Suppes (1967) states that there are three levels at which computers may be used to individualize instruction. The following briefly describes these three levels.
1. **Drill and Practice Systems:**
   This level of interaction is nearly supplementary to the regular curriculum taught by a teacher. The point of a computer system at this level is to provide a simple, straightforward, and INDIVIDUALIZED approach. The most important difference from traditional methods is that we are not committed to giving each child the same problems, as we would be if textbooks or materials prepared by the school were used.

2. **Tutorial Systems:**
   In systems of this type, in contrast to the drill-and-practice systems, the aim is to take over the main responsibility for developing skill in the use of a given concept. By using the auditory capacity of a computer to "hear" as well as "speak", and a light pen attached to a CRT (cathode-ray tube), it is possible to analyze each child's comprehension in a greater depth and detail than is usually possible for a teacher of thirty students in a classroom. It will be the teacher's responsibility to move to the much more challenging and important task of troubleshooting, of helping those children who are not proceeding successfully through the tutorial program and who need some sort of special attention.

3. **Dialogue Systems:**
   Interacting at this level are computer programs and appropriate terminal equipment able to conduct a genuine dialogue between the student and the program. Such dialogue systems exist now only as elementary prototypes, and successful developments in any depth demand the solution of some relatively difficult technical problems. Also, it is a very difficult task to write programs that will recognize and provide answers to freely constructed
questions of a general and/or complex nature (Suppes, 1967, p. 300).

Of 26 significant projects using CAI applications, reviewed by Karl L. Zinn (1967), a broad variety of such programs are examined. In light of this review, it is apparent that the primary barrier to the introduction of such programs for almost any area of study is the ability of the motivated person to write the program; this, of course, exempts the availability of the hardware. In other words, the fact that virtually none of the 26 reviewed studies dealt directly with professional teacher education may be attributed to the inability of teacher educators to write the programs. However, as pointed out by Zinn, several efforts toward developing simplified systems for other languages are now in progress. The work of IBM, Leonard Uhr, PLATO, Bolt, Berandk, Newman, Starkweather, and Systems Development Corporation (Bushnell & Allen, 1967) is leading toward programming which may be readily completed by a teacher educator without the need for specific detailed training. "The exactness and organization required by the author should be no greater than that demanded for preparation of effective self-instruction materials that do not use a computer (Zinn, 1967, p. 84)."

In a comprehensive examination of CAI, a Phi Delta Kappan article attempted to synthesize the research and development on the subject (Bundy, 1968). The following
represents those conclusions which could be safely substantiated.

1. Students seem to learn at least as well with CAI as with conventional classroom instruction.

2. CAI can provide learning and retention equivalent to conventional techniques in the same amount of time.

3. The computer learning program can make logical decisions and adjust to individual student differences with regard to learning sequence, depth and mode of material, and rate of progress.

4. The computer can reduce certain kinds of tedious work usually required of the student.

5. The computer can record and manipulate a wide variety of learning data about the student during instruction.

6. The computer program can integrate and control a wide variety of audio-visual aids in the learning program, for enrichment and motivation.

7. Time sharing (a number of students using the same computer simultaneously, perhaps at remote distances from the computer) is within the capabilities of present technology.

8. A broad range of courses can be programmed for CAI. No known limits have been reported as yet to the
kinds of subject matter or conceptual level that can be programed. Well structured subjects, in particular, can be easily handled by CAI tutorial systems.

9. Students are generally interested in and like the CAI form of instruction.

10. Learning time and learning effectiveness with CAI depend on a number of factors.

11. Already existing curriculum materials can be readily used in development of computer courses.

12. The computer has been shown to provide an excellent opportunity for an experimental research lab to study learning.

13. Computer simulated laboratories can be helpful for:

a) teaching lab procedures;

b) exposing students to a variety of analytical problems and physical processes in less time than actual lab analysis;

c) providing an excellent adjunct to conventional instruction;

d) reducing student stress in learning by allowing freedom to manipulate objects normally not permitted.

14. The beginnings of a versatile computer programing logic have been developed.
15. Time for qualified personnel to write, de-bug, and validate one hour of CAI instruction may be from 75 to 150 man hours. Total cost, including machine time, may be several thousand dollars.

Robert Bundy (1968) thoughtfully summarized the above 15 points and stated the conclusions drawn from his own comprehensive study.

1. It is important in evaluating CAI to keep clearly in mind the distinction between pedagogical and technological issues. The computer is a powerful tool for gathering and manipulating data, but by itself it tells us nothing about learning or how learning occurs.

2. CAI would appear to offer significant potential in providing individualized instruction.

3. For some time in the future, one of the most critical and important applications for CAI will be as a school laboratory to learn about learning and perhaps ultimately to build a theory of instruction. Education has never had such a unique facility available to perform this task.

4. We can expect for some years to come that CAI will have to be heavily subsidized, because of its high costs and the lack of thoroughly tested and high quality instructional programs.

5. One of the current dangers is that schools will erroneously attempt an involvement with CAI based
only on faddism or a sincere but naive understanding of what is involved.

6. Legitimate research with CAI should be strongly encouraged, but schools should be realistically aware of the kinds of skills required, the kinds of commitment needed from personnel and the costs that will be incurred.

7. Critical needs exist, therefore, for well-designed and well-executed research extending over long periods of time, coupled with well-planned dissemination of research results. Also, vital are periodic professional assessments of the research to maintain a balanced perspective of this emerging technology.

The case which has been made for the computer and its multitude of instructional applications is presented not as a catholicon for the ills of education; rather, it is offered as one of the more significant of the several contemporary innovations currently enjoying the emphasis of professional literature. The success of CAI seems to depend largely upon the use of the available hardware by individual efforts toward designing the necessary software. Teacher educators may well find CAI a valuable addition to their repertoire of teaching devices; not as a fad, but as a viable complement of their effectiveness.
Interaction Analysis

Interaction analysis, as the name implies, refers to a variety of techniques for categorizing and recording the verbal and nonverbal interaction between a classroom teacher and his pupils. Several such systems have evolved since the first such system was reported by H. H. Anderson in 1939 (Amidon & Hunter, 1966). Notable are the systems of Withall, Flanders, Medley and Mitzel, Hughes, Smith, Bellack, Gallagher and Aschner, Taba (Amidon & Hunter, 1966), and Hough and Amidon (Amidon & Hough, 1967).

The system which has received the most acceptance and use seems to be that of Amidon and Flanders. This system deals with the verbal behavior of both teacher and pupil, as well as resultant silence or confusion. In light of its apparent broad acceptance, only this system will be examined in this review.

The Flanders system of interaction analysis was originally used as a research tool and continues to serve this function. As such, it is employed by a trained observer in order to collect reliable data regarding classroom behavior as a part of a research project.

As it is designed here, the system is meant to be used as an inservice training device for teachers. It may be employed by a teacher either as he observes someone else teach or as he categorizes a tape recording of his own classroom behavior. In either case the method is the same (AECTE, Dec., 1968, p. 27).
The system, identified by the acronym "VICS" (Verbal Interaction Category System), is based upon Flanders' work (Amidon & Hunter, 1966). The following illustrates the twelve categories within this system, as well as the major divisions into which each of the categories is grouped (Amidon & Flanders, 1968).

SUMMARY OF CATEGORIES FOR INTERACTION ANALYSIS

1. Teacher Talk

1.1 Indirect Influence

1.1.1 Accepts Feeling: accepts and clarifies the feeling tone of the students in a nonthreatening manner. Predicting and recalling feelings are included.

1.1.2 Praises or Encourages: praises or encourages student action or behavior. Jokes that release tension, not at the expense of another individual, nodding head or saying "uh huh?" or "go on" are included.

1.1.3 Accepts or Uses Ideas of Student: clarifying, building, or developing ideas or suggestions by a student. As teacher brings more of his own ideas into play, shift to category five.

2. Student Talk

2.1 Student Talk-Response: talk by students in response to teacher. Teacher initiates the contact or solicits student statement.

2.2 Student Talk-Initiation: talk by students which they initiate. If "calling on" student is only to indicate who may talk next, observer must decide whether student wanted to talk. If he did, use this category.
3. **Silence or Confusion**; pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer. (pp. 26-27)

The use of VICS involves the recording of the verbal interaction within a classroom at three-second intervals. It is noted that this categorization and recording can be accomplished "live" by an observer within a classroom, or from an audio recorder or video tape recorder. When the recording apparatus is employed, a preservice teacher can record his own behavior. The knowledge of a few ground rules and a suggested summary matrix are necessary for utilization of this technique. However, the entire system is straightforward and relatively simple to use.

A recent *Phi Delta Kappan* article by Campbell and Barnes (1969) reports a survey in which the authors examined the available research studies which have been conducted on interaction analysis. The following briefly summarized the findings of this investigation (chronologically ordered).

**Flanders, 1955-56**

**Flanders, 1957**
Both studies showed that classes of the indirect teachers had higher levels of attitude development (.01).

**Flanders and Amidon, 1961-62**
Seventh and eighth-grade students had significantly higher achievement and attitude development in the indirect group.
Brown, 1960
Higher achievement for pupil-centered classes.

LaShier, 1966
Significantly higher achievement and attitude qualitatively for indirect methodology.

Nelson, 1966
Improved compositions, both quantitatively and qualitatively for indirect methodology.

Bellett, Weber and Amidon, 1966
Greater achievement gains produced by indirect teachers.

Soar, 1967
Vocabulary growth greater for indirect groups.

Furst and Amidon, 1967
In a study of high and low achievement groups, it was found that the high groups had more indirect teachers.

Davidson, 1968
Indirect teachers produced higher levels of critical thinking.

Powell, 1968
Indirect classes showed higher scores on SRA achievement tests.

Archer, 1968
Indirect class had higher scores on verbal creativity.

Campbell, 1968
Indirect group was significantly better in terms of achievement (STEP test) and scientific attitude development (Scientific Curiosity, Cause and Effect, Suspended Judgment).

It appears that a teacher equipped to conduct the verbal interaction of his classroom at an indirect level,
i.e., a) accepts feeling, b) praises or encourages, c) accepts or uses ideas of students, and d) asks questions, is in an excellent position to improve the achievement of his students. The assertion that conscientious teacher educators should make prospective teachers aware of the function and use of interaction analysis for examination of their verbal teaching behavior seems reasonable.

**Micro-teaching**

L. O. Andrews (1969) states that micro-teaching has thus far had its greatest impact in the development of basic, fundamental teaching skills. Essentially, this technique involves breaking-down the complex act of teaching into more manageable components. Bush and Allen (1968) utilized the video tape recorder with most of their micro-teaching studies, although the practice of micro-teaching can certainly be accomplished without its use. When utilizing the technique for building teaching skills, however, the use of the video tape recorder enables the subject (prospective teacher) to examine his own behavior, as well as affording the supervisors the opportunity to replay the tape and show the subject more precisely what it is they are trying to achieve.

Bush and Allen (1968) suggest that micro-teaching is a suitable technique for teaching the following skills:
1. Establishing set
2. Establishing appropriate frames of reference
3. Achieving closure
4. Using questions effectively
5. Recognizing and obtaining attending behavior
6. Control or participation
7. Providing feedback
8. Employing rewards and punishments (reinforcement)
9. Setting a model (pp. 36-38)

It is noted that the above categories are not in all respects mutually exclusive. Consequently, in attempting to achieve competence in each of the skills, considerable overlap exists between various categories.

Bush and Allen (1968) report an experimental study to determine the effectiveness of micro-teaching in pre-service teacher training. The study, begun in 1963, consisted of randomly assigning trainees into two groups. One group was given the standard classroom observation and teacher aide experience; the second group received concentrated training in the micro-teaching clinic at Stanford. The following is the format utilized in the clinic.

1. **Diagnostic Phase** - Before entering training each intern demonstrated before a supervisor and a video tape recorder his raw skill in teaching a ten-minute lesson in his teaching field to a group of five high school students.

2. **Training Phase** - During this phase of the training, interns received formal training and immediately-related practice sessions in six skills.
a. Establishing set (2 weeks)
b. Achieving closure (1 week)
c. Recognizing attending behavior (1 week)
d. Controlling participation (1 week)
e. Building instructional alternatives (1 week)
f. Disciplining a class (1 week)

3. Concluding Evaluation - At the conclusion of the clinic, the intern trainee demonstrated his teaching competence before a class of ten pupils in a fifteen-minute lesson. (Bush & Allen, 1968, p. 40)

The primary sources of evaluation for this experiment were pupils' and supervisors' judgments, recorded on the Micro-teaching Appraisal Guide. The correlation of pupils' and supervisors' ratings was .81 on the post-test for the total group. Test - retest reliability was .89 and .84 reliability on split-half test. The findings of this experiment follow.

1. Candidates trained through micro-teaching techniques over an eight week period and spending less than ten hours a week in training, performed at a higher level of teaching competence than a similar group of candidates receiving separate instruction and theory with an associated teacher-aide experience - involving a time requirement of between 20 and 25 hours per week.

2. Performance in the micro-teaching situation predicted subsequent classroom performance.

3. Over an eight week period, there is a significant increase in the accuracy of the candidate's self-perception of his teaching performance through
identification of weaknesses as well as strengths.

4. Candidates receiving student appraisal of their effectiveness improved significantly more in their teaching performance than candidates not having access to such feedback.

5. Ratings of video transcriptions of teaching encounters are correlated with live ratings of the same encounters.

6. Trainees' acceptance of the value of micro-teaching is high.

7. Students' ratings of teaching performance is more stable than any other — including those of supervisors.

8. The skills subjected to experimental treatment in micro-teaching produced significant changes in the performance of intern teachers. (Bush & Allen, 1968, pp. 40-41)

M-STEP reports a similar study conducted by Lillian C. Smith (1969) which resulted in the following significant findings.

1. The use of micro-teaching is justified. If used in conjunction with other effective procedures which are known to influence teaching behavior, the results could be highly encouraging.

2. Students who took part in the micro-teaching process made larger gains than the control group in mastering questioning techniques for gathering data.

3. A moderate degree of superiority was developed by the experimental (micro-teaching) group in asking probing questions, inferential questions, inquiry, and in verbal and nonverbal
reinforcement. Students who were not involved in micro-teaching showed deterioration in four of the six skills studied. (p. 44)

James J. Buffer (1971) very succinctly summarizes the overriding benefits to be achieved from the use of micro-teaching.

Micro-teaching helps refute the outmoded idea that a teacher only needs to know his subjects well to be able to transmit knowledge of it to his students. Although one cannot perceive micro-teaching as the answer to all problems of teaching as some people have suggested, it has become, and will probably continue to be, an integral and essential part of preparing teachers (p. 174).

**Sensitivity Training**

Sensitivity training is designed to produce increased awareness of oneself and greater sensitivity to others. The importance of effective interpersonal relationships between teachers and students cannot be overstated. Sensitivity training appears to hold a potential for increasing the teacher's capacity for effective communication with students. However, as is clearly shown by Weschler and Reisel (1959) in their insightful look into a sensitivity group, much of the success or failure of such experiences depends upon the group leader. It may be noted, that much of the current controversy over the value of T-groups stems from groups which may have had
poor leadership. Nevertheless, the potential of this experience should not be discounted.

Sensitivity training is founded on the belief that human relations, understanding and skills can be developed. Its aim is to help the participants FEEL differently - and not merely THINK differently - about the many human relations problems which they are likely to face. This is brought about, first, by helping them to increase their awareness of how others think, feel, and are likely to behave (social sensitivity); and second, by helping them to acquire the ability to act appropriately in varying interpersonal situations (behavioral flexibility). As participants gain understanding of themselves, of others, and of the various social pressures generated by human relationships, it is hoped that they will become able to function more productively in face-to-face and in group situations, that they will become more aware of their own individual strengths, and that they will distinguish between real and imaginary pressures and thus increase their capacity to speak and act as free, strong, and considerate individuals (Weschler & Reisel, 1959, p. 1).

In his account of sensitivity training, Smith (1966) offers an interesting scheme for examining the constituents of sensitivity. Figure 1 graphically portrays these parts and these relationships (Smith, 1966, p. 18).
SMITH'S SCHEME OF SENSITIVITY RELATIONSHIPS

Judging Habits of the Perceiver  

His Level  
His Spread  

Interaction  

His Empathy  
His Observations  

His Knowledge of the Person  

His Stereotypes  
His Knowledge of the Individual  

FIGURE 1

Perceiver's Level: His general tendency to rate others as low, average, or high, as deserving of an F, C, or A grade, etc.. The leveling habits of instructors are typically highly varied among individuals.

Perceiver's Spread: His general tendency to rate himself and others over a narrow or a wide range. The narrow spreader sticks close to his level, tending to give all people on all traits about the same rating. The wide spreader tends to rate at the extreme; very high or very low, F or A, etc..

Empathy: The ability to transpose oneself imaginatively into the feeling, thinking, and acting of another. It is the best known, but most elusive idea in the field of sensitivity.

Observation: What we hear a person say and see him do has much to do with the inferences we make about him.

Stereotyping: Our present judgments of an individual are influenced by our past judgments of the groups
to which the individual belongs. Teachers are often accused of such stereotyping with regard to ethnic and socio-economic groups.

Our level, spread, empathy, observations, and the differentiations we make between groups exert an independent influence on the predictions we make about a person. What remains as a determinant of our judgments is the influence of our differentiations between individuals. Many important judging situations show this determinant in a nearly pure form: the admissions office must select freshman from a group that all have equally good grades and references, a clinician must select individual patients for therapy from a group of patients that all have equally good prognoses (Smith, 1966, p. 20).

Smith's schema of objectives of sensitivity training seems viable. However, many of the writings on experiences in sensitivity groups tend to exploit the sensationalism of the interaction. Carl Rogers (1969), a noted social scientist, has spent some time in examining T-groups. In a summative writing on the subject, he identified categories such as "Revealing Self" and "Confrontation" within which he is able to codify behavior in such groups. The point of difference between Rogers' viewpoint as contrasted to Smith's seems to be that Smith would design topics and activities for predetermined ends, while Rogers would allow the group to direct itself largely by emotion. It is noted that Rogers' pattern is much more prevalent in the literature identified. It
would appear that the majority of T-groups are directed to stay together for a given period of time and interact; since the intensity of the group creates a normal socializing process in a very brief time period.

The investigator is not prepared to render judgment on which technique is best suited for prospective teachers. However, an attempt has been made to point out the wide disparity between various advocates of the techniques. The absence of empirical data on the outcomes of such sessions adds to the subjectivity of its value.

The overall value of sensitivity training for teachers shall not be resolved in this review. The investigation concludes with an interesting back-to-back view of the subject which appeared in *Phi Delta Kappan*. Donald Thomas (1968) states that "as now practiced, sensitivity training is a good idea gone bad (p. 458)." He goes on to make a case for sensitivity training for teachers as a misuse of money. Norman Paris (1968) expounds the virtues of such training by presenting his opinion of the same points raised by Thomas.

A study coordinated by the National Commission on Teacher Education and Professional Standards reports that six teacher training institutions were identified which incorporated sensitivity training into their programs (Edelfelt, 1969). The people involved with these programs
seem highly supportive of sensitivity training for teachers. However, all of the programs are quite new, some being funded experimental programs, and no hard data on outcomes of the experiences were reported.

It appears that the ends which sensitivity group advocates propose are undeniable valuable for teachers. The degree to which present methods achieve these ends, however, remains to be concluded. It is further noted that a key to the conduct of such groups seems to rest upon the intent of the sensitivity group leader. Within this review, the investigator uncovered reports and diaries of sensitivity groups, with the leaders offering their opinions of what was happening within the groups. However, little was found which could be interpreted as specific objectives of such group encounters.

Field Experience Prior to Student Teaching

During the period 1920 to 1940, student teaching was, for the most part, legislated into the curriculum of teacher education institutions (Andrews, 1964). During the Depression of the 1930's, college enrollments grew and we were faced with an excess of teachers. This societal condition created an atmosphere in which institutions developed a variety of field experiences as an integral part of teacher preparation programs. World War II,
however, reversed this trend by creating a teacher shortage.

Field experience for preservice teachers has evolved into its present status of a one-shot experience at or near termination of a teacher's preparation. The literature abounds with cries for more student involvement in real teaching situations. People who have worked with student teachers can attest to the constant feedback from returning student teachers of the value of the experience, how they wish they could have had a longer stay in the school, and how much more meaningful the methods courses would have been if they could have had some preservice teaching experience prior to their methods courses.

L. O. Andrews (1964) has developed and concisely stated values to be derived from direct experiences at various points in the teacher education curriculum.

1. Providing a basis for a personal decision to become or not to become a teacher.

2. Developing readiness for professional courses, professional experiences, professional growth, and for full-responsibility teaching.

3. Developing mature professional purposes and attitudes.

4. Strengthening understanding by exposure to reality which adds feeling and other sensory impressions to verbalized knowledge.
5. Providing an opportunity to acquaint, use, and test information.

6. Developing professional understanding of concepts and theories from professional and related disciplines.

7. Developing skill in the use of professional techniques.

8. Developing insight and judgment in applying professional knowledge.

9. Providing a basis for evaluating professional, social, and personal growth.

10. Providing a feeling of significant personal worth - the satisfaction that comes from giving useful professional service. (pp. 23-24)

The innovative program study coordinated by the National Commission on Teacher Education and Professional Standards (NCTEPS) of the National Education Association (NEA), reports several institutions which have successfully integrated a variety of field experiences into their total programs of teacher preparation (Edelfelt, 1969).

It is noted that several of these programs reported by NCTEPS are funded, experimental programs. As such, they are functioning in ways which may extend beyond the capacity of many institutions whose programs are differently structured.

A variety of factors point clearly to the notion that teacher training will be extended to five years in the near future. The acute teacher shortage during the past several years has inhibited the development of such
programs. Nevertheless, the growing oversupply of teachers in most areas will likely change this emphasis. A five-year program for teachers would greatly alleviate the problem of inadequate time in the current curriculum of most teacher training institutions and allow for the inclusion of an extended field experience early in the preservice teacher program. The constant vying for additional credit hours on the part of general education, subject matter areas, and the professional portion of a teacher's program, further complicates the inclusion of an early field experience.

A curriculum plan developed by L. O. Andrews (1967) designed to produce career teachers, posits the type of field experience which should be integrated into a successful teacher education program. Andrews' plan, it should be noted, is a total plan, involving clinical experiences as well as internship and residency requirements.

Andrews (1967) proposed a "Pre-Internship Experience" (PIE) which would normally occur at the beginning of the junior year.

Normally, students would be assigned to a certified teacher in pairs, spending about as much time in the school as student teachers do now in minimum-length experiences, receiving slightly less credit (such as, four to six semester hours), examining all the roles of the teacher, and engaging in a variety of carefully planned exploratory teaching
activities. Assignment in pairs would permit the selection of the most competent half of the cooperating, supervising teachers now used, and the two students working together would provide strong psychological support for each other and for cooperative learning. Each student would serve as a member of this three-teacher team, very much as student teachers did in the laboratory schools of a previous era, and would be guided to prepare very thoroughly and for a limited amount of exploratory teaching with individuals, small groups and full classes (pp. 234-246).

Although taken out of the context of the total plan, the above excerpt capsulizes the intent of the PIE as Andrews has envisioned it. In his summary of the objectives of this experience, Andrews (1967) enumerates the following three points.

1. It (PIE) would provide an experience which should develop readiness for later professional experiences and learnings.

2. It would provide a more adequate basis for students to select or reject teaching as a career while there is still time to transfer to other curricula without any great loss of time or credit.

3. It would give a behavioral and experiential basis for selecting and guiding the student into, or out of, the full professional teacher education curriculum and for courses and experience planning. (p. 240)

Andrews' total teacher education curriculum plan offers considerable promise for the institution striving for excellence in teacher education. Within the focus of
this particular review, a field experience such as that outlined above and occurring near the middle of a prospective teacher's education seems to offer numerous advantages.

Section Summary

This section of the review has attempted to examine the nine selected innovations under investigation in this study. In light of the review, several of the innovations appear to offer considerable promise for teacher educators. The value of sensitivity training, and the feasibility of complicated CAI programs, however, remain unanswered. Nevertheless, all of the innovations seem worthy of examination and experimentation by teacher educators.

Several of the innovations appear to have an adequate research base to afford teacher educators a degree of confidence in initiating them. However, the majority seem to need more development, trial, and experimentation. Most of the innovations reviewed revealed examples of such study, but most did not reveal significant research efforts to examine the efficacy of the particular innovation.

Theoretically, each of the nine innovations reviewed may be summarized as affording considerable potential for improved teacher education. However, most
of the innovations need additional testing to determine more precisely the ends which can be achieved by their adaptation.
CHAPTER III

METHODOLOGY

The central purpose of this study was the development of recommendations for the application of innovations to the professional preparation of industrial arts teachers. Allied with this central purpose were the problems of determining the extent of innovation practiced by industrial arts teacher educators, and the problem of retrieving information relative to the inherent features of the use of the innovations. The specific objectives of the investigation were:

1. To attempt to identify those industrial arts teacher preparation institutions which have made efforts toward implementing innovative practices in their professional programs.

2. To determine which innovative steps have been implemented in industrial arts professional programs.

3. To attempt to ascertain from the identified institutions the inherent problems and benefits encountered in the implementation of these innovations.
4. To attempt to obtain assessment data about those innovative practices which are identified.

5. To make recommendations for the pattern and sequence of a desirable industrial arts teacher preparation program.

In the attempt to achieve the above objectives, the following sequence of primary events was followed.

**TABLE 1**

**MAJOR STEPS IN THE CONDUCT OF THE INVESTIGATION**

<table>
<thead>
<tr>
<th>Phase I</th>
<th>Review of Related Literature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Determination of Sample for Preliminary Instrument</td>
</tr>
<tr>
<td></td>
<td>Development of Preliminary Instrument¹</td>
</tr>
<tr>
<td></td>
<td>Determination of Innovations Suitable for Further Investigation</td>
</tr>
<tr>
<td>Phase II</td>
<td>Development of Primary Instruments²</td>
</tr>
<tr>
<td></td>
<td>Determination of Institutions to Receive Primary Instruments</td>
</tr>
<tr>
<td></td>
<td>Synthesis of Findings of Primary Instruments</td>
</tr>
<tr>
<td>Phase III</td>
<td>Development of Recommendations for Application of Findings</td>
</tr>
</tbody>
</table>

¹See Appendix A, page 203
²See Appendixes C through K, pages 211 through 253

The format for this chapter is drawn from the explication of the above steps.
**Questionnaire Construction Guidelines**

Two primary sources for item construction guidelines were utilized for the development of both the Preliminary and the Primary Questionnaires. The following guidelines served to help structure the items.

1. Use simple words which are familiar to all potential informants.
2. Formulate the questions to yield exactly the information desired.
3. Avoid "double-barreled" or multiple-meaning questions.
4. Avoid leading questions, i.e., questions worded in such a way as to suggest the answers.
5. Avoid "danger words," catchwords, stereotypes, or words with emotional connotations.
6. Be cautious in the use of phrases which may reflect upon the prestige of the informant.
7. Decide on whether to personalize some of the questions.
8. Make the alternatives in multiple choice questions realistic.
9. Plan to include a few questions that will serve as checks on the accuracy and consistency of the questions as a whole.
10. Avoid questions that call out responses toward socially accepted norms or values. (Parten, 1950, pp. 199-213)

In addition to the above guidelines, similar criteria for item construction developed by Rummel (1958)
were valuable in the development of the questionnaires.

1. Express the item as clearly as possible.

2. Choose words that have precise meanings whenever possible.

3. Avoid complex or awkward word arrangements.

4. Include all qualifications needed to provide a reasonable basis for response selections.

5. Avoid the inclusion of non-functional words in the item.

6. Avoid the inclusion of trivial questions.

7. Avoid unessential specificity in the item question or in the responses.

8. Make the suggested answers for selection as simple as possible.

9. Be sure the items apply to the situation from the standpoint of the respondent.

10. Refrain from asking questions of opinion unless opinion is what is specifically required.

11. Avoid items that are too suggestive or too unstimulating. They should not lead a respondent to go beyond the facts, nor should they fail to enlist responses that would not, at the time, occur to him.

12. Phrase questions to avoid the academically or socially acceptable responses. Make it possible for the respondents to answer truthfully without embarrassment.

13. Avoid questions that may be checked with multiple responses when only one response is desired.
14. Whenever possible, questions should be worded in such a way that they can be answered simply by a check-mark.

15. Ask questions in such a manner that they will relieve the respondent of as much complex thinking as possible.

16. Avoid the use of words which are susceptible to different interpretations: e.g., moral or immoral, good or bad, rich or poor, intelligent or ignorant, laborer or capitalist, etc.. (pp. 97-98)

The preceding guidelines, as well as information gleaned from the review of related literature and suggestions by several teacher educators at The Ohio State University, contributed significantly to the development of the questionnaires for this investigation.

**Development of Preliminary Survey Instrument**

The substance of this questionnaire was developed from the review of the related literature and from discussions directed by L. O. Andrews about various teacher education innovations. The criteria for selection of the nine innovation categories included on the questionnaire are as follows:

1. Innovation must be contemporary.
2. Innovation must bear evidence of utilization.
3. Innovation must be supported by literature.
4. Innovation must be feasible for implementation.
5. Innovation must be appropriate for industrial arts professional teacher education experiences.

6. Innovation must be educationally sound.

Numerous educational innovations met the above criteria. However, the practical limitations of this investigation necessitated that the final list be pared to those innovations which appeared to hold the greatest potential for the improvement of the professional preparation of industrial arts teachers. As well, the innovations on the face of this questionnaire were projected by the investigator as those being most likely to be receiving utilization by industrial arts teacher educators. This projection was based upon the innovations which were emphasized in teacher education literature. Moreover, the investigator was influenced in his selection of innovations by his studies in teacher education innovations at The Ohio State University. In addition, the instruments contained a solicitation and space for the listing of other innovations which the responding institution might be using. The assumption was made that industrial arts teacher educators who were using other innovations would, in fact, indicate such use as requested.

The Preliminary Questionnaire sought responses from institutions on the following innovations.

1. Video tape recorder
2. Simulation  
   2.1 Commercial  
   2.2 Own production  

3. Critical incident films  
   3.1 Commercial  
   3.2 Own production  

4. Closed circuit television  

5. Computer assisted instruction  

6. Interaction analysis  
   6.1 Flanders technique  
   6.2 Other  

7. Micro-teaching  
   7.1 In conjunction with video tape recorder  
   7.2 Without video tape recorder  

8. Sensitivity training  

9. Field experience prior to student teaching  

The Preliminary Questionnaire had three primary functions:  

1. To identify those institutions and individuals who were currently using the innovations included in the above list.  

2. To identify innovations used by the responding individuals which were not included in the nine listed.  

3. To obtain the consent of the respondents for participation in the second phase of the study.
In its final form, the Preliminary Questionnaire consisted of a checklist for determining present usage of the nine examined innovations, space for the names of the individuals who supervise the innovation, and a provision for checking if the individual was willing to participate in the second phase of the study. The questionnaire was accompanied by a brief description of the nine listed innovations to provide a common base for response.

Preliminary Questionnaire Sample

Financial constraints eliminated the possibility of including all industrial arts teacher preparation institutions in this study. Consequently, from a total of approximately 194 institutions listed in the 1969-1970 ACIATE Industrial Teacher Education Directory which had undergraduate industrial arts teacher education programs, all institutions which graduated eight or more majors were included in this phase of the study (Wall, 1969). One hundred sixty-one such institutions were identified, representing approximately 82 per cent of the total population. The decision was made to use this criterion for selection as opposed to a random selection technique. It was felt that a greater possibility of identifying innovative departments would exist when those with relatively larger faculties were polled. Conversely, a random
selection could well have eliminated several institutions of relatively large faculty size.

Preliminary Questionnaire Mailing

The Preliminary Questionnaire was accompanied by a cover letter, an information sheet describing briefly each of the nine innovations, and a self-addressed, stamped envelope. The questionnaire, information sheet, and cover letter (Appendix A, page 203) were all reviewed and revised by several industrial arts teacher educators at The Ohio State University.

Development of Primary Survey Instruments

Based upon the findings of the Preliminary Questionnaire, the following innovations which were included on the preliminary instrument were eliminated from further investigation (the number following each innovation indicates the total possible number of individuals who could complete Primary Questionnaires):

1. Independently produced critical incident films (2)
2. Computer assisted instruction (2)
3. Sensitivity training (5)

Items 1 and 2 above were eliminated solely on the basis of low positive responses. Item 3 was eliminated on the
basis of low positive responses and high negative reaction to its use. In all three cases, it was concluded that such a limited number of potential respondents, discounting typical questionnaire attrition, would not permit concrete summaries sufficient to justify the development of questionnaires.

Space was provided on the preliminary instrument for the respondents to write-in professional teacher education innovations which they were using but which were not included on the instrument. Almost no institutions responded by writing in other innovations which they were using. It was anticipated that any innovation which indicated substantial use and which was not included within the structure of the preliminary instrument, would be reviewed in the available literature, and that a Primary Questionnaire would be developed for further investigation. However, only seven innovations were identified by the preliminary instrument responses, as reported on page 116.

The Primary Questionnaires were all developed essentially around the following format.

1. Recommendations for sequence of usage for the innovations.

2. General description of the nature of the particular experiences.

3. Specific content recommendations (when appropriate).
Although each questionnaire varied in specific content to meet the needs of the innovation being examined, each was developed essentially around the above points. These criteria were established in collaboration with Dr. James J. Buffer.

The Primary Questionnaires were comprised essentially of open-ended questions and questions which could be responded to with check-marks, thus permitting the respondent to reply in his own words. The content of each questionnaire was developed from two primary sources. First, the review of the literature provided the basis for relevant questions. Second, the assistance given by Dr. James J. Buffer, who worked in the development and revision of each item. His perspective in teaching methods courses for pre- and inservice industrial arts teachers served as an aid in structuring questions to obtain information beneficial for one in a similar capacity.
Primary Questionnaire Sample

The individuals receiving these questionnaires were identified by the findings of the Preliminary Questionnaires. Individuals receiving the Primary Questionnaires had to meet the following criteria:

1. Must presently be using the innovation.
2. The innovation must be under departmental supervision.
3. Must have consented to participate in the second phase of the study.

In addition to the above points, no one institution was sent more than three questionnaires. It was projected that a particular individual receiving more than three questionnaires would seriously reduce the possibility of having him complete and return them. Ideally, each institution would have been sent only one, or perhaps two questionnaires. However, the small number of institutions presently using several of the innovations would have necessitated mailing a small number of Primary Questionnaires in all of the categories. Consequently, compromises had to be made on the maximum number of questionnaires which could be sent to each institution, with reasonable projected assurance that they would be completed and returned. As a result of these constraints, Table 2, which follows, represents the number of Primary
Questionnaires which were sent for each innovation.

**TABLE 2**

**SUMMARY OF NUMBER OF PRIMARY QUESTIONNAIRES MAILED FOR EACH INNOVATION**

<table>
<thead>
<tr>
<th>Innovation</th>
<th>Number Sent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Tape Recorder</td>
<td>31</td>
</tr>
<tr>
<td>Simulation</td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td>5</td>
</tr>
<tr>
<td>Own Production</td>
<td>8</td>
</tr>
<tr>
<td>Critical Incident Films</td>
<td>16</td>
</tr>
<tr>
<td>Closed Circuit Television</td>
<td>18</td>
</tr>
<tr>
<td>Interaction Analysis</td>
<td>11</td>
</tr>
<tr>
<td>Micro-teaching</td>
<td></td>
</tr>
<tr>
<td>With VTR</td>
<td>31</td>
</tr>
<tr>
<td>Without VTR</td>
<td>9</td>
</tr>
<tr>
<td>Field Experience Prior to Student Teaching</td>
<td>27</td>
</tr>
</tbody>
</table>

As identified by the Preliminary Questionnaire, numerous institutions were using several of the innovations. Consequently, the maximum limit of three questionnaires to any one institution forced the investigator to compromise on the number of questionnaires mailed for each innovation. The method employed for determining which innovations would be excluded was to
delete those which received the greater number of positive responses (i.e., video tape recorder, field experience prior to student teaching, and micro-teaching with video tape recorder), in order that others with fewer positive responses (i.e., simulation and micro-teaching without video tape recorder) could be included.

Chapter Summary

This chapter has presented the procedures employed for conducting the study. Particular attention was paid to the development of the ten questionnaires (one preliminary and nine primary instruments) utilized for gathering the data. In addition, the rationale for the selection of those institutions which received questionnaires was presented. The following chapter presents the data which were retrieved from both the Preliminary and Primary Questionnaires.
CHAPTER IV

FINDINGS OF THE STUDY

One phase of this study was designed to determine industrial arts teacher educators' utilization of selected innovations in their professional courses. To accomplish this goal, two surveys were conducted. The preliminary survey sought to determine which innovations were being utilized, the person responsible for supervising the innovation, and the willingness of the respondents to participate in the primary phase of the study. Within the primary phase, a series of instruments was developed and sent to individuals identified in the preliminary phase. This chapter presents the findings from the use of the Preliminary and Primary Questionnaires.

**Preliminary Questionnaire Findings**

The Preliminary Questionnaire was sent to 161 institutions. Each institution receiving the instrument was selected from the 1969-1970 American Council of Industrial Arts Teacher Educators (ACIATE) Directory.
TABLE 3
PRELIMINARY QUESTIONNAIRE FREQUENCY AND PERCENTAGE RESPONSE TOTALS

<table>
<thead>
<tr>
<th>Responses</th>
<th>Presently Using</th>
<th>Familiar with and Anticipate Initiation</th>
<th>Have Tried and Abandoned</th>
<th>Familiar with but do not Anticipate Using</th>
<th>Unfamiliar with this Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Video Tape Recorder</td>
<td>76</td>
<td>24</td>
<td>22</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2. Simulation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Commercially Available Type</td>
<td>12</td>
<td>11</td>
<td>20</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>B. Own Production</td>
<td>26</td>
<td>24</td>
<td>17</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>C. Other</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3. Critical Incident Films</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Commercially Available Type</td>
<td>21</td>
<td>21</td>
<td>20</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>B. Own Production</td>
<td>4</td>
<td>4</td>
<td>14</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>C. Other</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4. Closed Circuit Television</td>
<td>41</td>
<td>40</td>
<td>31</td>
<td>29</td>
<td>2</td>
</tr>
<tr>
<td>5. Computer Assisted Instruction</td>
<td>10</td>
<td>9</td>
<td>13</td>
<td>31</td>
<td>0</td>
</tr>
<tr>
<td>6. Interaction Analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Flanders Technique</td>
<td>18</td>
<td>17</td>
<td>17</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>B. Other</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>7. Micro-teaching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. In Conjunction with video tape recorder</td>
<td>63</td>
<td>59</td>
<td>20</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>B. Without video tape recorder</td>
<td>25</td>
<td>26</td>
<td>9</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>8. Sensitivity Training</td>
<td>14</td>
<td>13</td>
<td>13</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>9. Field Experience Prior to Student Teaching</td>
<td>60</td>
<td>56</td>
<td>26</td>
<td>24</td>
<td>4</td>
</tr>
</tbody>
</table>

* Includes both industrial arts departmental and non-industrial arts departmental supervision.
A total of 194 institutions were identified by the Directory as graduating industrial arts majors during the period July, 1968 through June, 1969. Approximately 83 per cent of this total number received the Preliminary Questionnaire. The selections were made to include all institutions which graduated eight or more industrial arts majors during the specified period.

Approximately 70 per cent or 112 of the Preliminary Questionnaires were completed and returned. Of this number, five were discarded due to meaningless responses and an inability to tabulate the results for further use. The figures and percentages given in Table 3 represent the responses of 107 usable questionnaires. Attention must be paid to the fact that the values depicted in Table 3 include responses about the utilization of innovations practiced by industrial arts departments as well as other departments within the particular institution. For example, the "Presently Using" column includes responses about both industrial arts departmental supervision of the innovations as well as the use of the innovation under the supervision of a different department within the institution. It should be noted that the total number of responses to each innovation varies since all respondents did not respond to every category as requested. Therefore, since percentages were combined from the 107 usable questionnaires, the combined percentage from each row may
<table>
<thead>
<tr>
<th>TABLE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUMBER AND PERCENTAGE OF INDUSTRIAL ARTS</td>
</tr>
<tr>
<td>DEPARTMENTS PRESENTLY USING AND SUPERVISING THE INNOVATIONS</td>
</tr>
<tr>
<td>1. Video Tape Recorder</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>2. Simulation:</td>
</tr>
<tr>
<td>A. Commercially Available Type</td>
</tr>
<tr>
<td>B. Own Production</td>
</tr>
<tr>
<td>C. Other</td>
</tr>
<tr>
<td>3. Critical Incident Films:</td>
</tr>
<tr>
<td>A. Commercially Available Type</td>
</tr>
<tr>
<td>B. Own Production</td>
</tr>
<tr>
<td>C. Other</td>
</tr>
<tr>
<td>4. Closed Circuit Television</td>
</tr>
<tr>
<td>5. Computer Assisted Instruction</td>
</tr>
<tr>
<td>6. Interaction Analysis:</td>
</tr>
<tr>
<td>A. Flanders Technique</td>
</tr>
<tr>
<td>B. Other</td>
</tr>
<tr>
<td>7. Micro-teaching:</td>
</tr>
<tr>
<td>A. In conjunction with</td>
</tr>
<tr>
<td>video tape recorder</td>
</tr>
<tr>
<td>B. Without video tape recorder</td>
</tr>
<tr>
<td>8. Sensitivity Training</td>
</tr>
<tr>
<td>9. Field Experience Prior</td>
</tr>
<tr>
<td>to Student Teaching</td>
</tr>
</tbody>
</table>
not equal 100.

Table 4 depicts the number of industrial arts departments which were using the selected innovations under their own supervision. The percentage figures are based on 107 usable questionnaires.

As indicated by a comparison of Table 3 and Table 4, several of the categories were reduced substantially when the "Presently Using" column was examined solely in terms of usage under industrial arts departmental supervision. Table 3 also reveals that several of the innovations are receiving very limited usage. The exceptions to this are video tape recorder, micro-teaching with video tape recorder, and field experience prior to student teaching.

Table 5 represents the frequency and percentage for those institutions which met the following three criteria as explained in Chapter III of this study.

1. Presently using
2. Under departmental supervision
3. Willing to complete Primary Questionnaire

In light of the low positive responses received by critical incident films - own production and computer assisted instruction, both of these categories were eliminated as areas to be included in the Primary Questionnaire phase. In addition, sensitivity training received only
TABLE 5

INSTITUTIONS PRESENTLY USING THE INNOVATION
AND WILLING TO COMPLETE A
SECOND QUESTIONNAIRE

<table>
<thead>
<tr>
<th>Innovation</th>
<th>Number</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Video Tape Recorder</td>
<td>46</td>
<td>43</td>
</tr>
<tr>
<td>2. Simulation:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Commercially Available Type</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>B. Own Production</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>C. Other</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3. Critical Incident Films:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Commercially Available Type</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>B. Own Production</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>C. Other</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4. Closed Circuit Television</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>5. Computer Assisted Instruction</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>6. Interaction Analysis:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Flanders Technique</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>B. Other</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>7. Micro-teaching:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. In conjunction with video tape recorder</td>
<td>39</td>
<td>36</td>
</tr>
<tr>
<td>B. Without video tape recorder</td>
<td>20</td>
<td>19</td>
</tr>
<tr>
<td>8. Sensitivity Training</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>9. Field Experience Prior to Student Teaching</td>
<td>32</td>
<td>30</td>
</tr>
</tbody>
</table>
five responses which could be utilized, and received 57 responses in the "Familiar with but do not Anticipate Using" category. In view of the high negative response to this activity, it also was eliminated from further investigation. In all three cases, it was concluded that such a limited number of potential respondents, discounting typical questionnaire attrition, would not provide a sufficient base to justify the development of questionnaires.

With the deletion of the above three innovations, and with a maximum limit of three questionnaires to any one institution, the number of institutions which received Primary Questionnaires is depicted in Table 6.

The essential function of the Preliminary Questionnaire was to identify the institutions utilizing innovative practices in the professional preparation of industrial arts teachers. As well, the instrument sought to identify the individuals responsible for the supervision of the innovations, and obtain their consent to participate in the Primary Questionnaire phase of this investigation.

The portion of this questionnaire asking individuals to list any innovations which they were currently using other than those listed on the Preliminary Questionnaire elicited only seven responses. The following are the
### TABLE 6

**SUMMARY OF NUMBER OF PRIMARY QUESTIONNAIRES MAILED FOR EACH INNOVATION**

<table>
<thead>
<tr>
<th>Innovation</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Tape Recorder</td>
<td>31</td>
</tr>
<tr>
<td>Simulation</td>
<td></td>
</tr>
<tr>
<td>A. Commercially Available Type</td>
<td>5</td>
</tr>
<tr>
<td>B. Own Production</td>
<td>8</td>
</tr>
<tr>
<td>Critical Incident Films:</td>
<td></td>
</tr>
<tr>
<td>Commercially Available Type</td>
<td>16</td>
</tr>
<tr>
<td>Closed Circuit Television</td>
<td>18</td>
</tr>
<tr>
<td>Interaction Analysis:</td>
<td></td>
</tr>
<tr>
<td>Flanders Technique</td>
<td>11</td>
</tr>
<tr>
<td>Micro-teaching:</td>
<td></td>
</tr>
<tr>
<td>A. In conjunction with</td>
<td></td>
</tr>
<tr>
<td>video tape recorder</td>
<td>31</td>
</tr>
<tr>
<td>B. Without video tape recorder</td>
<td>9</td>
</tr>
<tr>
<td>Field Experience Prior</td>
<td></td>
</tr>
<tr>
<td>To Student Teaching</td>
<td>27</td>
</tr>
</tbody>
</table>
seven responses received.

1. Post-student teaching seminars and visits
2. Written responses to written critical incident films
3. Single concept films
4. Role playing
5. Work experience internship program
6. Professional semester
7. "Unipacs," single concept film loops, multimedia (35mm slides, 16mm film and CCTV) presentations, program instruction

Primary instruments were not developed for the above seven innovations because of the limited responses (only one per item) received. This indicates that the projected innovations were fairly well predicted on the basis of the review of the literature.

In light of the 70 per cent return on the Preliminary Questionnaire, its function was fairly well achieved. The following is a summary of findings resulting from the preliminary phase of the study.

Innovations Receiving Substantial Use

The use of video tape recorder, micro-teaching, and field experience prior to student teaching were indicated as being used by approximately 51 per cent, 40 per cent, and 35 per cent respectively, of the
participating industrial arts departments. These innovations appear to have received substantial acceptance and usage. In addition, as reported in Table 3, each of these categories received a relatively high percentage of responses indicating anticipated use.

**Simulation.** Simulation was briefly explained, as were all of the innovations studied, in the information sheet (Appendix A, page 203) which accompanied the Preliminary Questionnaire. In addition, the packages developed by Cruickshank, Broadbent, and Bubb were mentioned. Notwithstanding this definition, several remarks on the returned Preliminary Questionnaires indicated confusion on this type of experience. The "Commercial Simulation" category contained a total of 78 responses. Of this number, 26 per cent indicated that they were unfamiliar with this innovation. In light of these findings, it appears that information on this innovation has not been broadly disseminated. Several (26) institutions indicated that an independently developed form of simulation was practiced.

**Critical incident films.** Nearly an equal number of the individuals responding to critical incident films were "Unfamiliar with this Innovation" as those which were "Presently Using." This may indicate again that adequate dissemination has not been achieved. As well, the value of the films may also be in question, in light of the
numerical balance between: (a) "Presently Using" - 23 responses and "Familiar with and Anticipate Using" - 21 responses, and (b) "Familiar with and do not Anticipate Initiation" - 24 responses and "Unfamiliar with this Innovation" - 22 responses.

Closed circuit television. A substantial proportion of the individuals responding to the closed circuit television category indicated "Presently Using" or "Familiar with and Anticipate Initiation." The only other column receiving significant responses was "Familiar with but do not Anticipate Using."

Computer assisted instruction. Approximately 48 per cent of the individuals responding to the computer assisted instruction category stated "Familiar with but do not Anticipate Using." The relatively high response to this statement may well have been predicted by the possible lack of resources for computer facilities. However, 44 per cent responded that computer assisted instruction was presently being used or initiation was anticipated, indicating that hardware was available, and that the appropriate software was forthcoming.

Interaction analysis. Interaction analysis was not heavily favored by the respondents. Ninety-eight responses to Flanders Interaction Analysis Technique category were received, and 30 per cent were unfamiliar with it. Thirty-five per cent were familiar with it but
did not anticipate using it. However, approximately 36 per cent indicated it was presently being used or initiation was anticipated.

**Micro-teaching.** Micro-teaching, both with and without the use of a video tape recorder, received substantial responses indicating that it was presently being used or initiation was anticipated.

**Sensitivity training.** Sensitivity training received a substantial number of responses in the "Familiar with but do not Anticipate Using" column. Information on this innovation appears to have been disseminated reasonably well, with, however, resultant negative conclusions. Unlike computer assisted instruction, sensitivity training does not require expensive equipment for utilization. Consequently, the substantial number of negative responses seemed to indicate that the activity was not deemed educationally valuable as an industrial arts teacher preparation experience by the respondents.

**Field experience prior to student teaching.** Field experience prior to student teaching received substantial "Presently Using" responses. As well, several responses indicated that initiation of this experience was anticipated. It is noted that certain of the respondents who indicated that they were "Familiar with but do not Anticipate Using" also noted that university scheduling
prohibited a departmental initiation of this experience.

Conclusions

In view of the findings of the Preliminary Questionnaire, as outlined above, the following innovations were eliminated from further investigation.

1. Independently produced critical incident films
2. Computer assisted instruction
3. Sensitivity training

It must be noted that only three of the innovations which were examined in the preliminary phase of this investigation were indicated as receiving substantial usage; i.e., video tape recorder, micro-teaching, and field experience prior to student teaching. It was found that the remainder of the innovations, for which data were collected in the preliminary phase of this study, were receiving limited use.

Primary Questionnaire Findings

A total of nine different Primary Questionnaires were developed for this phase of the investigation. All of the instruments were mailed February 10, 1971 with an accompanying cover letter requesting that these questionnaires be completed and returned by March 1, 1971. A
total of 156 instruments were mailed to 70 different institutions which met the criteria and volunteered to participate in this phase of the investigation. On March 5, 1971, a follow-up letter (Appendix B, page 208) was forwarded to those individuals who had not yet returned the questionnaires asking them to do so. As of March 20, 1971, 102 instruments were returned.

The following is a compilation of the findings of each of the primary instruments. The reader is referred to the Appendixes for copies of each of these instruments. Each innovation reported is prefaced with an accounting of the number of questionnaires mailed, number returned, number discarded, and the number of usable returns. Certain questionnaires were discarded due to either frivolous responses, or otherwise uninterpretable responses.

Video Tape Recorder

<table>
<thead>
<tr>
<th>Number Mailed</th>
<th>= 31</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Received</td>
<td>= 24</td>
</tr>
<tr>
<td>Number Discarded</td>
<td>= 2</td>
</tr>
<tr>
<td>Usable Returns</td>
<td>= 22</td>
</tr>
</tbody>
</table>

Table 7 represents a summary of the reported ratios between the number of video tape recorder units, the number of students, and the indicated adequacy of the ratio. It is noted that these data were compiled from
responses about the undergraduate enrollments, the number of video tape recorders presently available, and the adequacy of this ratio as indicated by the respondents.

**TABLE 7**

**RATIO OF VIDEO TAPE RECORDERS TO NUMBER OF STUDENTS AND ADEQUACY OF THIS RATIO AS REPORTED BY THE RESPONDENTS**

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Adequacy</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/40</td>
<td></td>
<td>1/40</td>
</tr>
<tr>
<td>1/50</td>
<td></td>
<td>1/50</td>
</tr>
<tr>
<td>1/60</td>
<td></td>
<td>1/60</td>
</tr>
<tr>
<td>1/100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/30</td>
<td>Very</td>
<td></td>
</tr>
<tr>
<td>1/100</td>
<td>Adequate</td>
<td></td>
</tr>
<tr>
<td>1/120</td>
<td>Adequate</td>
<td></td>
</tr>
<tr>
<td>1/210</td>
<td></td>
<td>1/210</td>
</tr>
<tr>
<td>1/200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/250</td>
<td>Undecided</td>
<td></td>
</tr>
<tr>
<td>1/400</td>
<td>Strongly Favor Additional Units</td>
<td></td>
</tr>
<tr>
<td>1/285</td>
<td>Favor Additional Units</td>
<td></td>
</tr>
<tr>
<td>1/365</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8 represents the responses of 19 individuals indicating the percentage of video tape recorder use for various technical and professional activities. The values given represent the combined percentage figures from these 19 responses.
Nine respondents indicated that taped model teaching episodes were used for instructional purposes, and 15 indicated that no such tapes were used. Of the nine institutions that are using these tapes, seven respondents indicated that the tapes were outstanding student tapes from previous classes. Most indicated that the use of the tapes was successful.

Eleven respondents agreed, and 11 strongly agreed that training prospective industrial arts teachers in the operation and use of video tape recorder units is a necessity. No respondents disagreed or were undecided on the value of training prospective industrial arts teachers in the use of video tape equipment. Seventeen respondents indicated that they were presently training students in its use, and five were not.

The average purchase price for a video tape recorder unit which the responding individuals felt was worthy of recommendation was $2,640.63 (range = $1,500 to 4,000). It is noted that of the 13 individuals responding to this question, 2 responses were eliminated from this average. These two responses recommended an expenditure of $10,000 and $40,000 for equipment. These figures appeared spurious in light of the relative consistency of the other recommendations.

Fourteen responses were received concerning recommendations for video tape equipment; 10 recommended a
<table>
<thead>
<tr>
<th>Technical Courses</th>
<th>Combined Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Presentation of instructional tapes in technical courses</td>
<td>9.2%</td>
</tr>
<tr>
<td>2. For individual student use to view or review demonstrations or presentations.</td>
<td>5.1</td>
</tr>
<tr>
<td>3. For use in taping student presentations and/or demonstrations in classes, primarily for increased technical competencies.</td>
<td>9.5</td>
</tr>
<tr>
<td>4. Other</td>
<td>0</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>23.8%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional Courses</th>
<th>Combined Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Taping micro-teaching sessions</td>
<td>35.5%</td>
</tr>
<tr>
<td>2. Classroom viewing of previously recorded model teaching tapes.</td>
<td>10.8</td>
</tr>
<tr>
<td>3. For use in taping student teacher demonstration/presentations in cooperating schools.</td>
<td>27.9</td>
</tr>
<tr>
<td>4. Other: (Experimentation, Audio-visual instruction Research</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>76.2%</strong></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>
half-inch Sony unit, 3 recommended a one-inch Ampex, and 1 recommended a half-inch Shibaden. A summary of specific equipment recommendations that were recorded follows:

1. ⅛" Sony; Port-A-Corder
2. ⅛" Sony; CVC - Z100A, Attache Case Camera Unit and TCV - 2010 Recorder with Monitor
3. Portable with zoom
4. ⅛" Sony with zoom and wide angle lenses
5. ¼" Sony; 2 cameras, 3 mikes plus amplifier and mixer

The following represents a summary of the listed advantages of the use of a video tape recorder in the professional preparation of industrial arts teachers. The numbers within the parentheses indicate the number of respondents making the comment.

- Mirror image effect for students (13)
- Self-evaluation facilitated (6)
- Evaluation spectrum increased (5)
- Bring public school experience into the classroom (4)
- Excellent feedback technique (1)
- Feedback as motivation (1)
- Enlightening for self-evaluation of speech, mannerisms, and appearance (1)
Often so much student interest. "They bring wives or girl friends to review sessions." (1)

The listed disadvantages to the use of a video tape recorder are summarized below.

- Expensive (4)
- High maintenance factor (4)
- Difficult to transport (4)
- Time consuming (3)
- Lengthy set up time (3)
- Abuse of equipment by faculty and students (2)
- Lack of interest in this medium by teacher educators and students (2)
- Often small monitors (2)
- Unpredictable equipment (2)
- Tends to perpetuate teaching mannerisms (1)
- Industrial arts people seem compelled to always "improve" the quality of the recorded image (1)
- Lack of editing capability (1)
- Lack of training in use of equipment by faculty (1)
- Not used enough for technical courses (1)

Nineteen respondents to the questionnaires indicated that no research had been conducted on the effectiveness of the use of a video tape recorder. Three reported that studies had been conducted, but no summaries were included.
Field Experience Prior to Student Teaching

<table>
<thead>
<tr>
<th>Number Mailed</th>
<th>= 27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Returned</td>
<td>= 21</td>
</tr>
<tr>
<td>Number Discarded</td>
<td>= 0</td>
</tr>
<tr>
<td>Usable Returns</td>
<td>= 21</td>
</tr>
</tbody>
</table>

All respondents recommended, 17 strongly recommended, that field experience prior to student teaching be required for all prospective industrial arts teachers. Figure 2 depicts the time in the student's preparation that this field experience normally occurs, as well as indicating when the respondents recommended that the experience should occur.

The recommended duration and percentage of time in the school for the field experience follow. It is noted that several of the respondents indicated that the experience be reoccurring with the student spending time in public schools two or three times during his education. Recommended number of weeks for field experience are:

Average = 9.8 weeks
Range = 2 to 36 weeks

Percentage of day in school for each student:

<table>
<thead>
<tr>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>one class</td>
</tr>
<tr>
<td>25%</td>
</tr>
<tr>
<td>50%</td>
</tr>
</tbody>
</table>
Respondents recommended that public school teachers who will be assigned prospective industrial arts teachers should possess essentially the same qualifications as a student teaching cooperative teacher. Emphasized in the responses were the teacher attributes of enthusiasm and proven teaching ability.

PRESENT AND RECOMMENDED TIME OF FIELD EXPERIENCE

--- = Recommended
--- = Present

Table 9 represents a summary of the 21 responses to the recommended level of involvement by the students in the public school experience.
TABLE 9
RECOMMENDED LEVEL OF STUDENT INVOLVEMENT IN PUBLIC SCHOOL EXPERIENCE

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation Only</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Individual help with pupils</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Teach one or two lessons</td>
<td>6</td>
<td>28</td>
</tr>
<tr>
<td>Partnership between teacher</td>
<td>11</td>
<td>53</td>
</tr>
<tr>
<td>and student</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Build to responsibility level</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>similar to a student teacher</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>21</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

The recommendations received indicating the competencies that a student should possess prior to his field experience are represented in Table 10. It is noted that for each competency listed, the respondents were requested to check one of the following four categories: Not Important, Questionable, Important, and Very Important. In summarizing this data, these reactions were assigned numerical values: Not Important = -1, Questionable = 0, Important = +1, and Very Important = +2.

The recommended hours of coursework, prior to the field experience, to instill the recommended competencies were a mean of 3.2 semester hours or 4.8 quarter hours.
TABLE 10

RECOMMENDED COMPETENCIES WHICH STUDENTS SHOULD POSSESS PRIOR TO FIELD EXPERIENCES

<table>
<thead>
<tr>
<th>Competency</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not Important (-1)</td>
</tr>
<tr>
<td>Planning presentations</td>
<td>1</td>
</tr>
<tr>
<td>Planning instructional materials</td>
<td>3</td>
</tr>
<tr>
<td>Execute demonstrations/discussions</td>
<td>2</td>
</tr>
<tr>
<td>Discipline</td>
<td>1</td>
</tr>
<tr>
<td>Testing</td>
<td>3</td>
</tr>
<tr>
<td>Interpretation of test results</td>
<td>3</td>
</tr>
<tr>
<td>Managerial responsibilities</td>
<td>4</td>
</tr>
<tr>
<td>Counselor responsibilities</td>
<td>4</td>
</tr>
<tr>
<td>Student/family/teacher conferences</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 11 indicates the recommendations for the manner in which students might be assigned for their field experiences.

Twenty responses were received in answer to the question asking if college supervision should be maintained during the field experience; 17 recommended that such supervision was necessary and 3 felt that it was not
TABLE 11

RECOMMENDED METHODS FOR ASSIGNING STUDENTS TO FIELD EXPERIENCE

<table>
<thead>
<tr>
<th>Method Description</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>To one industrial arts teacher only</td>
<td>7</td>
</tr>
<tr>
<td>To an industrial arts department</td>
<td>6</td>
</tr>
<tr>
<td>To a school system, with activities in several schools</td>
<td>2</td>
</tr>
<tr>
<td>Assign on an individual basis</td>
<td>3</td>
</tr>
</tbody>
</table>

necessary. Of those who recommended college supervision, Table 12 indicates the recommended means for achieving this supervision.

TABLE 12

RECOMMENDED METHOD OF COLLEGE SUPERVISION OF STUDENTS DURING FIELD EXPERIENCES

<table>
<thead>
<tr>
<th>Method Description</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>College seminar</td>
<td>11</td>
</tr>
<tr>
<td>School visitation</td>
<td>9</td>
</tr>
<tr>
<td>Video tape recorder</td>
<td>5</td>
</tr>
<tr>
<td>Student written report</td>
<td>2</td>
</tr>
</tbody>
</table>

Briefly, the following represents a summary of the listed advantages of a field experience prior to student teaching. The numbers within the parentheses indicate the number of respondents making the comment.
An orientation experience (13)
Create readiness for subsequent professional courses (12)
Help the student reach a career decision/commitment (9)
Present the reality of teaching (8)

The reported disadvantages of this experience are listed below.

Finding competent cooperating teachers (6)
Scheduling problems (5)
College instructor time/adequate supervision (5)
Proper evaluation of experience (2)
Adequately preparing students for field experience (2)
Finding suitable cooperating schools (1)
Disruptive to schools (1)

Twenty-one responses were received in answer to the question concerning research which the individual or department might have conducted on the outcomes of field experience prior to student teaching; 20 indicated no research had been conducted, 1 indicated that research had been conducted but did not indicate the findings as requested.
Nineteen responses were received in answer to the question asking respondents to indicate if micro-teaching experiences were an integral part of a required methods course at their institution. Seventeen individuals agreed that these experiences are an integral part of required methods courses. From a total of 20 responses, 12 individuals "Strongly Agreed" that these experiences should be required for all industrial arts majors, 7 "Agreed," and 1 was "Undecided."

The mean size of classes which participated in micro-teaching experiences was 23.9, with a recommended mean class size of 14.6 for optimum effectiveness of the technique.

Figure 3 depicts the indicated time in the student's preparation when micro-teaching experiences occurred. Also depicted is the recommended time when these experiences should occur.

Eighteen responses were received in answer to the question concerning the use of a plan-teach-review-reteach cycle; 11 indicated the use of the cycle, 7 indicated the
cycle was not used because the "reteach" phase was eliminated.

PRESENT AND RECOMMENDED TIME FOR MICRO-TEACHING

![Graph showing the number of responses by year of study]

Key ——— = Recommended
——— = Present

FIGURE 3

The mean reported number of times a student had the opportunity for a video taped micro-teaching session was 2.3. The recommended mean number of times for such experiences was 5.8. It is noted that the 5.8 figure is based upon 14 responses, with others recommending that the experiences continue until a specified performance level is attained.

In response to a request for a description of the manner in which these sessions are generally conducted,
nearly all respondents indicated either classwide peer teaching or small group peer teaching was employed. Two respondents indicated that certain of the experiences were video taped in a laboratory school.

Four respondents indicated that commercial films which exemplified teaching skills were employed. Two of these respondents gave only "Acceptable" endorsements for the particular films they were using. Only one of the two films receiving an "Acceptable" rating was specified. This one was a Rhode Island state owned film entitled *Motivating Students*. The remaining two respondents gave "Good" endorsements for the following two films (all the information which was provided about these films is included below).

1. **Source:** General Learning Corporation  
   **Title:** Teaching Skills: Allen-Ryan  
   **Cost:** $?

2. **Source:** Stout State University Film Library  
   **Title:** Giving A Shop Demonstration  
   **Cost:** $?
   **Description:** "Navy film that can be stopped and analyzed to point out what is happening."

Nine respondents indicated that previously recorded student micro-teaching tapes were successfully used as models.

The items on this questionnaire pertaining to evaluation instruments used in conjunction with micro-teaching experiences were answered as follows: 4 individuals reported no instruments were used, 12 used their
own instrument, and 3 reported adopted instruments were endorsed as "Good." The following are the descriptions of these two instruments as reported on the questionnaires.

1. **Flanders Interaction Analysis** - as demonstrated at the 1968 American Industrial Arts Association Convention.

   **Comments:** Takes a little time, but removes much of the student's feeling about subjectivity of his ratings.

2. **Withall's Social Emo'tional Climate Index**

   **Comments:** This instrument is hardly appropriate for micro-teaching but focuses on teacher verbal behavior which is one segment of effective teaching.

Twelve institutions were using their own instruments for evaluation, and five submitted copies as requested on the questionnaire. Although too lengthy to include in this investigation report, a series of instruments submitted by Dr. Neal W. Prichard of Stout State University appear to offer significant evaluation criteria for micro-teaching experiences. These instruments included:

1. Evaluation of instructional pupil outline
2. Introducing a lesson (set)
3. The use of questions (cognitive)
4. Variation of stimulus (psychomotor)
5. Summarizing a lesson (psychomotor)
6. Teaching a complete lesson (cognitive)

Copies of each of these instruments may be found in Appendix L, page 254.

In response to an evaluation of the suitability of nine specific teaching skills (Bush & Allen, 1968,
for micro-teaching experiences for prospective industrial arts teachers the following data are offered (see Table 13). It is noted that the skills have been ranked in terms of their weighted values. The weighted values in Table 13 were arrived at by the following values: Very Important = +2, Important = +1, Undecided = 0, Unimportant = -1, and Superfluous = -2.

The following represents a summary of the listed advantages of the practice of micro-teaching with a video tape recorder as reported by the respondents. The numbers within the parentheses indicate the number of respondents making the comment.

. Mirror image for students (7)
. Enables self-evaluation (7)
. Immediate feedback (5)
. Better prepared for student teaching (2)
. Effective in developing a high level of skill development for beginning teachers (2)
. Enables meaningful reteach session (1)
. Realistic experience (1)
. High interest motivator (1)

The disadvantages to micro-teaching with video tape recorder listed by the respondents are offered below.

. Time and scheduling problems (9)
. Expensive (2)
. Artificial (2)
. Stressful situation for students (2)
. Perpetuates prevalent teaching methods (1)
. Difficult to get high school students for participation (1)

**TABLE 13**

**RECOMMENDED TEACHING SKILLS TO BE EMPHASIZED IN MICRO-TEACHING ACTIVITIES**

<table>
<thead>
<tr>
<th>Skill</th>
<th>Frequency (Superfluous, Unimportant, Undecided, Important, Very Important, Weighted Values)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providing feedback</td>
<td>5 13 31</td>
</tr>
<tr>
<td>Using questions effectively</td>
<td>7 11 29</td>
</tr>
<tr>
<td>Control of participation</td>
<td>3 5 10 25</td>
</tr>
<tr>
<td>Recognizing and organizing attending behavior</td>
<td>1 11 6 23</td>
</tr>
<tr>
<td>Achieving closure</td>
<td>2 10 6 22</td>
</tr>
<tr>
<td>Establishing appropriate frames of reference</td>
<td>1 2 10 5 19</td>
</tr>
<tr>
<td>Establishing set</td>
<td>1 3 8 6 19</td>
</tr>
<tr>
<td>Setting a model</td>
<td>3 11 4 19</td>
</tr>
<tr>
<td>Employing rewards and punishments (reinforcement)</td>
<td>2 1 11 4 15</td>
</tr>
</tbody>
</table>
Twenty responses were received to the question concerning departmental research on the effects of this experience; 19 reported no research had been conducted, and 1 reported research was in process.

**Interaction Analysis - Flanders Technique**

<table>
<thead>
<tr>
<th>Number Mailed</th>
<th>= 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Returned</td>
<td>= 8</td>
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<tr>
<td>Number Discarded</td>
<td>= 2</td>
</tr>
<tr>
<td>Usable Returns</td>
<td>= 6</td>
</tr>
</tbody>
</table>

Only four institutions reported that an understanding of and participation in interaction analysis activities should be required for all prospective industrial arts teachers. Five institutions reported that students had an opportunity to analyze their own verbal behavior; four of these institutions indicated that students had this opportunity an average of 5.3 (range = 2 to 8) times. No discernible value could be arrived at on the recommended number of such experiences for students.

Four of the six respondents indicated that interaction analysis was used "primarily" in conjunction with micro-teaching activities; two indicated it was used "somewhat" with micro-teaching. Four respondents indicated that a video tape recorder was used to record verbal
behavior, one indicated an audio recorder only, and one indicated that both were used.

Only four respondents completed the questions asking what period in a student's preparation interaction analysis experiences presently occur, and the recommended time for such experiences. In light of the low response to this request for information, a clearly discernible pattern for present and recommended use of interaction analysis experiences could not be identified by this investigator.

Table 14 depicts the responses of five individuals to the Flanders and Amidon "teacher talk" categories. The respondent's feelings on the importance of each category for emphasis in industrial arts teacher preparation is shown. The weighted values in Table 14 were arrived at by the following values: Not Important = -1, Questionable = 0, Important = +1, and Very Important = +2.

A summary of five responses to a request for a listing of the steps normally employed in the use of interaction analysis follows:

1. Coverage of the effects of communication
2. Establish need for teachers skillful in communicating
3. Establish optimism that the above can be learned
4. Listening as a learned behavior
5. Introduction to a system for examining verbal behavior
6. Familiarization with system
7. Practice in recording behavior
8. Utilization of prepared lessons and recording devices for self-examination by students

<table>
<thead>
<tr>
<th>TABLE 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERBAL CATEGORIES RECOMMENDED FOR EMPHASIS IN INDUSTRIAL ARTS TEACHER PREPARATION</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indirect Influence</th>
<th>Frequency</th>
<th>Weighted Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not Important (-1)</td>
<td>Questionable (0)</td>
</tr>
<tr>
<td>Accepts or uses ideas of students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accepts feeling</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Praises or encourages</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Asks questions</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Direct Influence</th>
<th>Frequency</th>
<th>Weighted Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not Important (-1)</td>
<td>Questionable (0)</td>
</tr>
<tr>
<td>Gives directions</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Lectures</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Criticizes or justifies authority</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
The following is a summary of the listed advantages of interaction analysis as a teacher education technique. The numbers within the parentheses indicate the number of respondents making the comment.

- An objective, scientific evaluation tool (2)
- Expand teacher's capacity for verbal communication (1)
- Emphasizes student involvement by revealing the teacher's involvement (1)
- Industrial arts teachers are not typically verbally oriented; interaction analysis helps point out the verbal aspects of teaching (1)
- A means of self-examination (1)

The disadvantages that the respondents listed are offered below.

- Lack of student interest (2)
- Difficult to use in laboratory courses (1)
- Considerable time required for student familiarization with tabulation system (1)
- A cursory evaluation; does not account for voice quality, eye contact, appearance, introduction, and motivation (1)
- Limited by equipment availability (1)
- Can not stand alone in providing motivation, must be put in a larger, more meaningful context (1)
Not easily transferable to classroom situation (1)

Easily forgotten (1)

Examines only one aspect of behavior (1)

More valuable as a research tool (1)

All six responses to the questions concerning research on interaction analysis indicated that no such studies had been completed.

**Micro-teaching without Video Tape Recorder**

<table>
<thead>
<tr>
<th>Number Mailed</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Returned</td>
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<tr>
<td>Number Discarded</td>
<td>2</td>
</tr>
<tr>
<td>Usable Returns</td>
<td>3</td>
</tr>
</tbody>
</table>

The three usable questionnaires received for this innovation prevented the compilation of meaningful patterns of response. Essentially, these three responses seemed to parallel the patterns reported in the Micro-teaching with Video Tape Recorder section of this chapter. The one significant difference between these three responses and the previously reported data was in the pattern of the micro-teaching experiences. The three respondents indicated that the "reteach" phase of this experiences was eliminated.

It appears that the absence of a video tape
recorder for use with micro-teaching experiences limits
the use of this phase of the plan-teach-review-reteach
cycle; a phase which micro-teaching proponents would sup­
port as a valuable part of the cycle.

**Independently Developed Simulation**

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<tr>
<td>Number Returned</td>
<td>3</td>
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<tr>
<td>Number Discarded</td>
<td>0</td>
</tr>
<tr>
<td>Usable Returns</td>
<td>3</td>
</tr>
</tbody>
</table>

The three questionnaires which were returned
provided sparse data on which to base meaningful summaries
for this innovation. However, the following briefly
describes the general nature of the simulation employed
by the three respondents.

As described by two of the respondents, their
simulation experience involved student role playing with
prepared scripts. In light of the situations posed by the
role playing, the students, through open classroom discus­
sions, would analyze the possible factors responsible for
the problem.

In answering the question asking about the use of
media in the simulation experiences, one respondent indi­
cated the use of closed circuit television, strip films,
and a written description of the child portrayed. One indicated the use of video tape recorder, audio recorder, and a written description of the child. Neither of these two questionnaires included information concerning the methods in which these media were utilized.

**Commercial Simulation**

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<tbody>
<tr>
<td>Number Mailed</td>
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<tr>
<td>Number Discarded</td>
<td>= 1</td>
</tr>
<tr>
<td>Usable Returns</td>
<td>= 1</td>
</tr>
</tbody>
</table>

The one usable questionnaire received concerned a commercial simulation package available from Interact Company at a cost of approximately $20.00. It is noted that the respondent was "Undecided" about the suitability of this experience for industrial arts teacher preparation.

As described by the respondent, the simulation involved the use of prepared scripts for role playing. The analysis of the problems posed by the role playing was accomplished through classwide discussion, as well as written statements submitted to the instructor.

This package was indicated to contain scripts, textbooks, a written description of the child, and a description of the community.
The respondent indicated that a primary weakness in the use of simulation in the preparation of industrial arts teachers was the "lack of good simulation experiences."

Closed Circuit Television

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<tr>
<th>Number Mailed</th>
<th>= 18</th>
</tr>
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<tbody>
<tr>
<td>Number Returned</td>
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<tr>
<td>Number Discarded</td>
<td>= 11</td>
</tr>
<tr>
<td>Usable Returns</td>
<td>= 1</td>
</tr>
</tbody>
</table>

In light of the literature review on closed circuit television, the instrument which was developed concerned itself with camera installations in public or laboratory schools with monitors in the college classroom. It was projected that such installations were being used, since 21 institutions responded on the Preliminary Questionnaire that they were "Presently Using" this innovation (See Table 4). However, when the Primary Questionnaires were returned, it was revealed that the respondents were referring to video tape recording units and not closed circuit television installations as defined on the information sheet which accompanied the Preliminary Questionnaire.

The findings of the Primary Questionnaire on
closed circuit television indicated that no installations, as defined by the questionnaire, were in use.

Critical Incident Films

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<tbody>
<tr>
<td>Number Returned</td>
<td>7</td>
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<td>Number Discarded</td>
<td>7</td>
</tr>
<tr>
<td>Usable Returns</td>
<td>0</td>
</tr>
</tbody>
</table>

This questionnaire was designed to retrieve information concerning the use of commercially available critical incident films in the professional preparation of industrial arts teachers. The nature of the instrument was such that data was sought on the Critical Moments In Teaching series produced by Holt, Rinehart and Winston. In addition, the instrument had provisions for data collection covering other such films which were indicated on the Preliminary Questionnaire as being used.

All seven questionnaires returned were blank.
CHAPTER V
DISCUSSION AND APPLICATION OF THE FINDINGS

The major purpose of this investigation was the development of recommendations for the use of selected innovations in the professional preparation of industrial arts teachers. Allied with this central purpose was the task of identifying industrial arts teacher educators who utilized the innovations within their professional courses. Once these individuals were identified by the results of the Preliminary Questionnaire, Primary Questionnaires were developed to retrieve information on various factors relative to the use of a particular innovation.

Chapter II of this study reported the findings of the literature search concerning the writings of proponents of the various innovations under investigation. Chapter III reported the methodology employed in the completion of this investigation. Chapter IV reported information received from industrial arts teacher educators who were actually using the innovations.

Chapter V represents a synthesis of the information obtained from the literature search and the data gathered
from the survey portion of the investigation. This synthesis is reflected by the later section of this chapter which deals specifically with recommendations for application of the examined innovations. In addition, the recommendations which were compiled from both the literature and the survey, include specific equipment and procedural recommendations, insofar as is possible from the available data.

**Interpretation of Preliminary Questionnaire Findings**

The Preliminary Questionnaire was designed primarily to serve the following three functions.

1. To identify those institutions and individuals who were using the examined innovations.

2. To identify other innovations used by the responding institutions which were not included on the Preliminary Questionnaire.

3. To obtain the consent of the respondent or another representative of the institution for participation in the primary phase of the study.

This instrument successfully achieved the above functions. However, item two above elicited only seven responses as explained on pages 115 and 116 of this study. This low response clearly indicated that very little in
the way of professional industrial arts teacher preparation innovation was occurring beyond certain of the innovations included on the Preliminary Questionnaire.

The remaining portion of this section of Chapter V discusses the findings of the Preliminary Questionnaires only. The specific recommendations for each innovation are covered in the section of this chapter dealing with the interpretation of the Primary Questionnaire findings.

The figures reported in Table 4, page 111 indicated that certain of the examined innovations were being employed by a substantial number of industrial arts teacher educators. In addition, the findings reported in Table 3, page 109 indicated that several institutions were familiar with certain innovations and anticipated their initiation.

By combining the "Presently Using" and "Familiar with and Anticipate Initiation" categories, as reported in Table 3, page 109, it is evident that the following three innovations have received substantial acceptance by industrial arts teacher educators.

1. Video tape recorder
2. Field experience prior to student teaching
3. Micro-teaching with video tape recorder

Interestingly, all of the innovations except video tape recorder and closed circuit television received some responses indicating that the respondents were unfamiliar
with the innovation. It also must be noted that numerous respondents failed to respond in any manner to several of the innovations. If all categories had been completed by all respondents, it is the opinion of the investigator that the "Unfamiliar with this Innovation" values would have been considerable higher in certain categories. Those categories which did receive responses indicating unfamiliarity with certain innovations follow.

1. Flanders interaction analysis (27%)
2. Commercially available critical incident films (21%)
3. Commercially available simulation (19%)
4. Sensitivity training (11%)

Specific interpretations of the data on each of the innovations included on the Preliminary Questionnaire follow.

**Video Tape Recorder**

This device appears to have achieved substantial acceptance by industrial arts teacher educators, as indicated by the 100 respondents who said they were presently using a video tape recorder or were anticipating its use.
Commercial Simulation

Thirty-two respondents indicated that they were presently using commercial simulation, or were anticipating its use. However, 46 individuals said they were unfamiliar with it or were familiar with commercial simulation but did not anticipate its use. Initially these responses indicated a negative reaction to this activity. However, as indicated by the Primary Questionnaire returns, commercial simulation was essentially considered by the respondents to be role playing. In light of this inconsistency between the definition of commercial simulation, which accompanied the questionnaire and the type of responses received, it appears that the provided definition was inadequate, the respondents were unaware of any form of commercial simulation, or the definition was not read or understood by the respondents.

Simulation - Own Production

This form of simulation was also found to be considered essentially as role playing. As such, 26 respondents indicated that they were using their own form of simulation. Twenty-one respondents said they were unfamiliar with this innovation or had no plans for initiating it. Based upon these responses, guarded optimism is expressed for the continued and/or expanded use of this activity in the near future.
Commercial Critical Incident Films

Twenty-three respondents indicated that they were presently using commercial critical incident films, with 21 indicating they were anticipating their use. However, 22 individuals said they were unfamiliar with them, and 24 were familiar with commercial critical incident films but did not anticipate their use. On the surface, these figures indicate a controversy might exist over the value of these films. However, as pointed out by the Primary Questionnaire returns reported in the next section of this chapter, none of the respondents were actually using the Critical Moments In Teaching series which was described in the Preliminary Questionnaire, or any other such films. It is submitted that information on these films may not have been adequately disseminated, or the accompanying definition was not read by the respondents.

Critical Incident Films - Own Production

Fourteen respondents indicated they were familiar with this innovation and anticipated usage, four respondents indicated they were presently using them. Nine individuals stated they were unfamiliar with noncommercial critical incident films, while 17 were familiar with them but did not anticipate their use. Based upon these values, the probability of independent efforts to develop these films appears somewhat questionable until industrial arts
Closed Circuit Television (CCTV)

Forty-one respondents indicated that they were presently using CCTV, while 31 were anticipating its use. Twenty-eight respondents said they were familiar with CCTV but did not anticipate its use. No respondents indicated unfamiliarity with CCTV. These values indicate that this innovation was highly supported, and that a significant proportion of industrial arts teacher preparation institutions are, or soon will be, using closed circuit television. However, as indicated by the Primary Questionnaire findings, most of these positive responses were indicative of present or anticipated use of video tape recorder units, rather than permanently installed equipment for observing functioning public, laboratory, or experimental schools. This study did not identify any institution which was using permanently installed CCTV equipment such as that originally described in the Preliminary Questionnaire phase of the study.

It appears that either the definitions for video tape recorder and closed circuit television were inadequate or they were not read. This apparent confusion could also have resulted from the current compactness of both permanent and portable television equipment.
Computer Assisted Instruction (CAI)

Ten respondents indicated that they were presently using CAI, and 33 were anticipating its use. Forty-seven respondents indicated they were familiar with it but did not anticipate its use, and eight were unfamiliar with CAI. It is noted, however, that only three of these responses indicated CAI was being used under the supervision of the industrial arts faculty. The expense of the hardware for this type of innovation may be prohibitive for institutions with limited budgets. In addition, the ability to prepare effective learning programs often requires specialized programming training. Whatever the reason for the lack of utilization, it is clear that little has been done to initiate industrial arts teacher education professional computer assisted instruction.

Interaction Analysis - Flanders Technique

Thirty-five respondents indicated that they were presently using or anticipated the use of Flanders Interaction Analysis. Thirty-four individuals indicated that they were familiar with it but did not anticipate its use, and 29 respondents were unfamiliar with the innovation. The high negative response to this innovation indicates a lack of information dissemination to a large segment of industrial arts teacher educators.
Micro-teaching with Video Tape Recorder

Eighty-three respondents indicated that they were presently using micro-teaching with video tape recorder, or were anticipating its use. Fourteen respondents said they were unfamiliar with the innovation or were familiar with it but did not anticipate its use. This practice seems to occupy a position of relatively high acceptance with industrial arts teacher educators.

Micro-teaching without Video Tape Recorder

Thirty respondents indicated that they were presently using or anticipated the use of micro-teaching without a video tape recorder, while 12 respondents said they were unfamiliar with the innovation or did not anticipate its use. It is noted that out of 107 usable questionnaires, only 59 responses were received for this practice. Most institutions indicated that either micro-teaching with a video tape recorder or without a video tape recorder was used; few responses indicated that both were practiced.

Sensitivity Training

Twenty-seven respondents indicated that they were presently using sensitivity training or were anticipating its use. However, 69 respondents indicated they were unfamiliar with it or were familiar with sensitivity training but did not anticipate its use. As this innovation requires no capital expenditure beyond that
necessary for equipping a traditional classroom, the high number of negative responses indicated a lack of acceptance of this innovation. This apparent lack of acceptance might also be attributed to a reluctance to attempt sensitivity training without a solid background in psychology and group dynamics. The extent and nature of the background needed was not made clear by the review of the literature dealing with the use of sensitivity training in teaching, but it does seem apparent that a sensitivity training group leader would require more than a superficial knowledge of psychological techniques.

Field Experience Prior to Student Teaching

Eighty-six respondents indicated present or anticipated usage, while 13 respondents indicated no anticipated usage of field experiences. This practice indicates high acceptance by industrial arts teacher educators.

Section Summary

Based upon the findings of the Preliminary Questionnaire, the indication is that industrial arts teacher educators are striving to incorporate a few innovative practices into the professional preparation of industrial arts teachers. However, as pointed out by the examination of the findings of the Primary Questionnaires which are reported in the following section, certain of the responses on the Preliminary Questionnaire were not in agreement with the descriptions of the innovations which accompanied the preliminary instrument.
As a result of the findings of the preliminary phase of this investigation, it was necessary to eliminate the following innovations from the primary survey phase.

1. Independently developed critical incident films
2. Computer assisted instruction
3. Sensitivity training

The findings of the Preliminary Questionnaire indicated that the above innovations were receiving such limited usage that the development of primary instruments for each was not feasible. In addition, the small number of possible responses for these categories would have sharply hampered the development of meaningful recommendations. The review of the above three innovations as reported in Chapter II indicates that each could make a contribution to the preparation of industrial arts teachers. The lack of use of these innovations by industrial arts teacher educators cannot be accounted for; however, the findings of this study clearly indicate that this lack of use does exist.

The following represents a synthesis of the review of the literature and the findings of the Primary Questionnaires. In light of the very limited use of several
examined innovations, as indicated by the Primary Questionnaire findings, only the video tape recorder, micro-teaching, and field experience prior to student teaching could be properly treated. Recommendations for these three innovations were adequately supported by the review of the literature and the Primary Questionnaire findings. It was not possible to develop adequate recommendations for the remaining innovations due to their very limited use by the responding industrial arts teacher educators. However, certain facets of these innovations which were brought to light in the review of the literature are pointed out in the following sections. It is noted that only those features of each innovation examined in the review of the literature which were supported by the questionnaires findings are incorporated into the following recommendations.

**Video Tape Recorder**

The use of a video tape recorder as a tool to aid in professional teacher education instruction for industrial arts majors is highly recommended. The benefits of mirror image, self-evaluation, and feedback are supported both by the literature and the findings of the Primary Questionnaire. A recommendation for the ratio of pupils per each video tape recording unit which could be valuably employed cannot be conclusively offered.
However, as a result of this investigation, nine insti-
tutions with an average ratio of one unit per 155 students
recommmended additional units. Five institutions with an
average ratio of one unit per 229 students strongly
recommmended additional units. By averaging these recomm-
mendations, an approximate value of one complete unit for
every 110 students seems to best reflect the recommen-
dations of the respondents. The key to the number of
units required for a particular industrial arts department
rests upon the extent to which equipment would be used by
various faculty members.

Prevalent responses to the disadvantages or
limitations of the video tape recorder, as reported in
Chapter IV, included:

- Equipment is expensive
- High maintenance factor
- Difficult to transport
- Time consuming (assumed to be instructor
  set up time)
- Lengthy set-up time

Video tape equipment which could be left in a
"studio" with a minimum of equipment tear-down and set up
could, perhaps, eliminate certain of the complaints
dealing with high maintenance and excessive time consump-
tion in setting up the equipment. In addition, the
reduction of these problems would likely enhance the
probability of instructors using the equipment.

The findings of the questionnaire on the video tape recorder indicated that 76 per cent of the recorder use was devoted to professional activities. The literature review reported studies which indicated that the use of the video tape recorder for technical instruction is just as effective as a teacher directed presentation. This would suggest that college instructors could profit from recording certain demonstrations for initial viewing by the class, as well as having such tapes available for review by students. The institutions reporting in this investigation indicated that approximately 24 per cent of the recorder usage was for such purposes.

Survey findings indicated that typical activities for the use of the video tape recorder in professional programs would be: taping micro-teaching sessions, taping student teacher presentations in cooperating schools, and viewing previously recorded model teaching tapes. The use of the recorder for micro-teaching sessions will be covered in a later portion of this chapter.

Taping student teachers in cooperating schools obviously requires that the equipment used be portable, and in the case of industrial arts courses, be protected as much as possible from dust in the air. The use of laboratory assistants to do the field taping would greatly alleviate the strain on the supervising teachers' time.
The simplicity of operation of the equipment which will be recommended is such that assistants could be readily trained in the use of the equipment. Ideally, each cooperating public school would have compatible television recording equipment eliminating the need for transporting the equipment. In addition, it is noted that the newer video tape equipment which is being introduced is much more compact than earlier models.

As indicated in Chapter IV, all of the responding institutions agreed that prospective industrial arts teachers should be trained in the use of video tape recording equipment. In addition, 17 respondents, out of 22 individuals responding to the question, indicated that they were already providing training in the use of the video tape recorder to their undergraduates. It appears that the feasibility and value of such training has been substantiated by these findings.

Equipment recommendations. Based upon the findings of the Primary Questionnaire dealing with the video tape recorder, equipment with the characteristics of the one-half inch Sony portable unit seemed to be the most popular. In addition, zoom and wide angle lenses were also recommended by the respondents. Such lenses would help account for the variety of physical arrangements which field taping would likely require.

It was previously noted in this section that the
use of a "studio" where video tape equipment could be permanently left would alleviate much of the maintenance and time consumption normally entailed in having to set up all the equipment each time it is used. It is also noted that such a "studio" could serve as a video tape library for storing and viewing previously recorded technical course tapes. The review of the literature indicated that the video tape recorder could be productively used for both professional and technical courses. A video tape library or "studio" could provide a place for student viewing of previously recorded technical course tapes as well as a location for professional course activities such as micro-teaching.

The probable monetary expenditure for quality video tape equipment was found to be $2,640.63 as reported in Chapter IV. It is noted, however, that certain Primary Questionnaire respondents recommended equipment which cost as little as $1,500.00.

**Specific recommendations.** The following are specific recommendations for video tape equipment and its use by industrial arts teacher educators. These recommendations are based upon the findings of the review of the literature and the findings of the Primary Questionnaire on the video tape recorder. These recommendations are the culmination of the synthesis of the findings and discussion presented in this section.
1. An industrial arts teacher education faculty could productively utilize video tape recorders at a ratio of one complete unit per every 110 students.

2. Space should be provided in which video tape recording equipment could be set up and utilized as a recording studio as well as a video tape library.

3. Instructors should be encouraged to have certain of their key lectures and demonstrations recorded on video tape and placed in the department video library.

4. Work-study students or laboratory assistants should be made available for transporting and recording with the video equipment. They should be available for on-campus course recordings as well as off-campus taping of student teachers, etc..

5. Wide angle and/or zoom lenses should be available for use with the camera so that a wide variety of physical arrangements may be properly recorded.

6. The video tape recorder should be consistently used by both professional course instructors and technical course instructors.

7. An expenditure of approximately $2,600.00 per unit should be anticipated for the purchase of quality video tape recording equipment.

8. Students should be trained in the use of video tape recording equipment.
Field Experience Prior to Student Teaching

The necessity for the inclusion of field experiences in the prospective teacher's preparation was well substantiated by the review of the literature contained in Chapter II. However, the problems connected with such experiences are numerous. The survey portion of this study identified industrial arts teacher educators who were using field experiences, and attempted to gain insight into how the experiences can be successfully accomplished, the types of experiences best suited to prospective industrial arts teachers, and related experiences and activities which should accompany and precede field experiences.

The following discussion represents a synthesis and discussion of the findings of the review of the literature and the findings of the Primary Questionnaire on field experience prior to student teaching.

Before beginning the discussion on field experience prior to student teaching it is necessary to point out the existence of a major barrier which must be overcome before significant levels of involvement in public schools by preservice industrial arts teachers can be achieved. This barrier is the establishment of consistent lines of communication and cooperation between the practicing industrial arts teachers and the institutions responsible for preparing industrial arts teachers. It
seems almost ironic that significant levels of interaction between the institutions which prepare industrial arts teachers and the schools in which the students will teach are not already established. Teacher educators have seemingly long recognized the importance of student involvement in real school situations during their education. However, until definite inroads for such involvement are broadly established, proper field experiences by prospective industrial arts teachers will continue to be a topic of discussion by teacher educators, and not a practice.

**Discussion of the findings.** It is initially noted that all respondents to the Primary Questionnaire on field experience recommended that field experience prior to student teaching be required for all prospective industrial arts teachers.

The professors responding to the Primary Questionnaires on field experience prior to student teaching indicated that, at the time the survey was conducted, their field experiences were conducted solely during the junior and senior years of the prospective teacher's training. However, their recommendations for when the experience should occur indicated that field experience should begin during the beginning of the prospective teacher's preparation, be concentrated in the sophomore and junior years, and extend through the senior year.
This recommendation seems consistent with the literature review on field experiences.

The total recommended average number of weeks in public schools for prospective teachers was 9.8 or 10 weeks. However, this value must be combined with the above stated recommendation for field experience throughout the student's preparation. Consequently, this 10 week value would be a total of the recommended time devoted to field experiences and does not refer to a single 10 week experience.

Respondents to the questionnaire indicated that the students participating in public school field experiences should spend 25 per cent (1 or 2 classes) of the day in the public school. This recommended percentage would, of course, vary greatly depending upon such factors as proximity of the participating public school to the university, pupil transportation, and scheduling factors of the university.

The survey portion of this investigation elicited responses indicating the public school teachers selected for cooperatively working with college students during field experiences should possess about the same qualifications as student teaching cooperating teachers. Emphasized in the responses were the difficult to measure qualities of enthusiasm and proven teaching ability. Considering the elusiveness of the desirable
characteristics of a cooperating teacher and the importance of his impact upon the student who will work under his supervision, considerable care should be exercised by the college staff in selecting candidates to receive cooperating students. This would require that the college faculty have a working relationship with the public schools so the selected teachers would not be alien to the expectations of the college.

Respondents to the questionnaire indicated that a cooperating student should be assigned to a particular industrial arts teacher or to a specific industrial arts department, as opposed to assigning him to a school system with activities in several schools. This recommendation appears to have been made to allow the student to become better acquainted with and more involved in the total activities of a particular school. This recommendation does not, however, discount the importance of involvement in a variety of settings, such as inner city, suburban, and outer city schools. As the discussion has already recommended several field experiences throughout the student's preparation, it would seem reasonable that students be exposed to a variety of school situations as they progress through their field experiences.

Questionnaire respondents recommended the following competencies when answering the question as to
what kinds of skills a student should possess prior to participatory field experiences.

- Planning presentations
- Planning instructional materials
- Execute demonstrations/discussions

In addition to the above competencies which received the greatest emphasis, several respondents indicated that the student should also have had experiences dealing with discipline problems prior to his participatory field experiences.

Questionnaire respondents recommended that college supervision be maintained during student field experiences. The primary recommended method of supervision was the use of college seminars during the field experiences. Also recommended were school visitations by industrial arts faculty members, and the use of a video tape recorder to monitor student performance.

Proposed sample procedures for the conduction of field experiences prior to student teaching. It seems reasonable that early field experiences should begin with observation of public school classes. The early observation experiences could be a part of the basic introductory course to industrial arts teacher preparation which frequently occurs during the freshman year. During these early experiences, the student might be asked to observe and record data on such things as the following:
1. Size of class observed
2. General nature of activities
3. Reaction statement from a review of the instructor's course guide and possibly an overall outline of this guide
4. A brief observer statement of discipline problems which may have arisen during the observation.
5. An outline of the teacher's daily teaching and assignment schedule

Subsequent field experiences might be coupled with micro-teaching activities as described in a later section of this chapter. Likely occurring during the late sophomore year and lasting throughout the junior year, these experiences should build toward the student becoming actively involved in a public school class. This involvement should progress from observation activities to providing individual help with students through a shared responsibility with the teacher. The final stages of these experiences should find the prospective teacher involved in nearly all phases of the instruction of a particular class.

Two major problems connected with field experiences prior to student teaching are collegiate program scheduling and cooperation and availability of public
school personnel. Although difficult to overcome, the initial observation experiences might entail only three days for approximately two quarters. The individual pupil assistance and related participatory experiences could also involve relatively small amounts of time. For example, during the advanced stages of field experiences, when the student attempts to cooperatively conduct a public school class, the student might well accomplish this by attending the public school class as little as three or four hours per week for approximately three weeks. Given the grounding of previous observation and participatory experiences, as well as micro-teaching activities, the student could become a contributing member of a classroom situation.

For a similar and more comprehensive experience plan outlined in the context of a total teacher preparation program, the reader is referred to the writing of Dr. L. O. Andrews (1968), "A Curriculum To Produce Career Teachers for the 1990's." Andrews' plan includes early field experiences as well as an outline for graduated responsibility roles for the beginning teacher.

Specific recommendations. The following are specific recommendations for field experience prior to student teaching and its use by industrial arts teacher educators. These recommendations are based upon the findings of the Primary Questionnaire on field experience
prior to student teaching. These recommendations are the culmination of the synthesis of the findings and the discussion presented in this chapter.

1. Field experiences should be included as an integral part of required professional courses for prospective industrial arts teachers.

2. Field experiences prior to student teaching should extend throughout the student's education.

3. The prospective industrial arts teacher should have 10 weeks of field experience prior to student teaching.

4. The prospective teacher should spend approximately 25 per cent of the day in the cooperating school.

5. Cooperating teachers should possess the same qualifications as required of student teacher cooperating teachers. This will likely include a requirement that he possess a masters degree.

6. Cooperating teachers should be carefully selected by the college staff to assure that such teachers exhibit good teacher behavior.

7. Participatory field experiences should involve assignments to a specific cooperating teacher or to a particular industrial arts department.

8. The student should have experiences to build competencies in the following teaching skills prior to this experience:
a) planning presentations
b) planning instructional materials
c) execute demonstrations/discussions

9. Students should have collegiate classes/seminars relating professional techniques and practices to their field experiences. These meetings should be small enough to allow for free interaction among the participants.

10. Preliminary field experiences should be observation only, and should entail visits to a variety of school situations, i.e., inner city, suburban, rural, etc..

11. The student should initially work individually with students, then teach one or two lessons before assuming a partnership arrangement with the teacher for one class.

**Micro-teaching**

Recommendations for micro-teaching both with and without the use of a video tape recorder are covered in this section. The few differences which were found to exist between micro-teaching activities with the use of a video tape recorder and similar activities without the use of a video tape recorder are reported in the section of this chapter dealing with micro-teaching without the use of a video tape recorder.
Recommended procedures for the conduction of micro-teaching activities. The review of the literature of micro-teaching indicated that it has its greatest impact in the development of basic, fundamental teaching skills. The findings of the Primary Questionnaire on micro-teaching indicated that numerous industrial arts teacher educators were utilizing this innovation for such skill development.

The findings of the survey portion of this study clearly indicated that micro-teaching activities should be an integral part of required methods courses for prospective industrial arts teachers. In addition, the findings of the survey also indicated that micro-teaching experiences should begin during the student's sophomore year and extend through the senior year. Early experiences could be designed to sensitize students to the "teaching" aspects of their chosen field of study. These early experiences, perhaps only one or two lessons, would not strive to develop strong teaching competencies, but rather to serve as a base for later discussions on teaching techniques. These experiences would likely be peer teaching only, and would serve as an introduction to more comprehensive micro-teaching activities which could occur later in the student's preparation.

During the junior year, students should concentrate on greater depth in skill development. These
micro-teaching sessions should entail, initially, only peer teaching until a predetermined level of competence is obtained. It is noted that neither the review of the literature nor the survey revealed exactly how this competence level should be quantified or determined. Then, the students should have the opportunity to present short lessons to public school classes. These presentations should be video taped and reviewed later on campus. In addition, only lessons which have been previously taught before peers and evaluated by the individual, the observers, and the college supervisor should be presented in public schools. Insofar as possible, this experience should be a positive one for the student. This result can best be achieved if the student has been well prepared for the presentation. Furthermore, successful student presentations in the public schools will likely assure continued cooperation for such activities by the public school personnel.

During the senior year, particularly during student teaching, the student should have the opportunity for additional taping and review of presentations. Student teaching seminars afford an excellent opportunity for students to review and interact on each other's teaching techniques. The video tape recorder serves as a means for presenting these recordings to a group.

As was pointed out in Chapter IV, adequate time
and scheduling problems are among the most prominent barriers to the conduction of micro-teaching activities. In addition, attempting micro-teaching activities in public schools adds additional problems. However, public school micro-teaching activities could remove much of the artificiality, noted by several Primary Questionnaire respondents, which often accompanies micro-teaching activities.

The recommendation for the number of opportunities for micro-teaching which a prospective industrial arts teacher should have was indicated by the questionnaire respondents as being 5.8 or 6 times. However, several respondents indicated that the activities should continue until a specified level of performance was attained. Working on micro-teaching activities until a predetermined level of attainment is reached appears much more realistic in terms of allowing for individual differences in student performance.

When asked about evaluating student micro-teaching activities, respondents stated that efforts should be made to help remove the subjectivity from the evaluations. The survey portion of this investigation requested information about recommendations for, and copies of, evaluation instruments used by the respondents. Five evaluation instruments were submitted, with one set receiving a high recommendation by the respondent. This
set (see Appendix L, page 254) was the most comprehensive of the instruments received by the investigator. The set was being used by Stout State University, Wisconsin.

Structure for conducting on-campus micro-teaching sessions. When class sizes are 15 students or less, the instructor can divide the class into smaller subgroups of approximately five students per group. This technique was recommended by the questionnaire respondents. These groups could then work as a team, each one presenting a lesson to the other four members who would each role play as pupils. After each presentation, all five students could review the video recording and complete evaluation forms on the presentation.

If a room is provided for the video tape equipment, as was recommended in the section on video tape recorders, students could schedule their micro-teaching at hours other than regular class time. In addition, the employment of laboratory assistants or work-study students to operate the equipment would free the instructor from having to personally attend all the micro-teaching sessions scheduled by the students. The operation of the equipment by only designated assistants might also be more beneficial in terms of equipment maintenance. Much of the abuse suffered by the equipment might be alleviated if only a few trained people operated it. However, as indicated by the survey portion of this investigation, all
students should be trained in the use of the equipment. In making the decision to have only laboratory assistants or only students operate the video tape equipment, it must be considered that the least amount of equipment abuse would likely result if only a few trained individuals were responsible for the equipment use and maintenance. In addition, the use of laboratory assistants to maintain and operate the video tape equipment could help alleviate the significant time and scheduling problems which were pointed out by the Primary Questionnaire respondents.

No commercial films or commercial video tape sources could be identified in the survey which could be used as model tapes to accompany micro-teaching activities. However, several respondents to the questionnaire indicated that previously recorded student micro-teaching tapes were successfully used for models of a particular teaching skill.

In answer to the question as to which particular teaching skills should be emphasized in industrial arts micro-teaching sessions, all nine skills forwarded by Bush and Allen received responses from the survey indicating importance for each. However, the following skills received the greatest emphasis by the respondents.

- Providing feedback
- Using questions effectively
- Control of participation
Recognizing and organizing attending behavior

Achieving closure

The conventional plan-teach-review-reteach cycle for conducting micro-teaching activities was not refuted by the findings of the survey. Inherent in the design of micro-teaching activities is the idea that students may receive meaningful feedback on their teaching performance; then, if necessary, repeat a particular lesson in an effort to improve a particular teaching skill. The video tape recorder and suitable evaluation instruments are necessary for providing effective feedback to the student. The feedback function of the video tape recorder was borne out in the survey portion of this study. It is submitted that micro-teaching activities which do not afford the student the opportunity for reteaching a particular lesson are neutralizing much of the real value of the activity by not allowing the student to reflect on his own behavior.

After the above described sessions have been completed, the tapes and evaluation sheets should be directed to the class instructor for review. The instructor should review both the tapes and the student evaluation forms. In light of the valuable feedback function of micro-teaching activities, brought to light in the survey, it seems important that the instructor's reactions to the tapes be communicated to the student.
This communication might be achieved in the following manners:

1. By reviewing the tape in the presence of the student.

2. By reviewing the tapes privately, then recording (video and audio) on the tape following the particular presentation being evaluated. This tape could then be directed back to the student accompanied by the instructor's evaluation form. The student could then read the form, review his tape, and see and hear the instructor's reactions to the presentation.

3. By the instructor's presence at the initial micro-teaching session where he could share his reactions with the students who were role playing.

4. By the instructor viewing the tape and making comments into an audio recorder, and directing both the video and audio tapes back to the student.

When the instructor evaluates the micro-teaching tapes, he should make the decision as to whether or not the student has achieved an acceptable level of competence on a particular teaching skill.

**Specific recommendations.** The following are specific recommendations for micro-teaching activities for prospective industrial arts teachers. The recommendations are the culmination of the findings of the Primary Questionnaire, and the discussion presented in this
1. Micro-teaching should be included as an integral part of required professional courses for prospective industrial arts teachers.

2. The recommended maximum class size for micro-teaching activities is 15 students. However, a subgroup of 5 students appears to be more suitable for effective participation.

3. Students should have at least six opportunities for presenting micro-teaching lessons. To allow for individual differences, such presentations should continue until a specified level of performance is achieved.

4. Micro-teaching activities should begin during the sophomore year, be concentrated in the junior year, and extend through the senior year.

5. The use of previously recorded, superior student tapes are recommended for models of a particular teaching skill.

6. The micro-teaching evaluation instruments found in Appendix L, page 254 are recommended.

7. Teaching skills which are recommended for emphasis in micro-teaching activities include:
   a) Introduction of a lesson, including verbal presentation of the objectives of the lesson.
b) Effective use of various types of questions.
c) Method for controlling participation by students.
d) Summarizing a lesson.

8. The use of a video tape recorder with micro-teaching activities is recommended.

9. A plan-teach-review-reteach cycle for micro-teaching activities is recommended.

**Interaction Analysis - Flanders Technique**

The reader's attention is called to the fact that only six usable returns for interaction analysis were received, as reported in the survey section of Chapter IV. Only four respondents, of the six usable questionnaires, recommended that an understanding of and participation in interaction analysis activities should be required for all prospective industrial arts teachers. As verbal categorization systems are among the earliest of the innovations examined in this investigation, it must be assumed that this technique is not attractive to most industrial arts teacher educators.

The several research studies reported by Campbell and Barnes (1969), as cited in Chapter II, indicate that an indirect form of teacher verbal classroom behavior creates an increase in achievement and attitude
development within pupils. Based upon these findings, it would appear that interaction analysis activities for prospective teachers could be a valuable experience. However, as indicated by the findings of this investigation, industrial arts teacher educators are not, for the most part, using this system.

The findings of this investigation indicate that the merits of interaction analysis for prospective industrial arts teachers may be in doubt. However, the findings of the studies reported by Campbell and Barnes cannot be overlooked. It seems realistic to recommend that prospective industrial arts teachers be exposed to the significance of the indirect form of verbal communication with a class. It is, however, noted that in planning interaction analysis activities for students, the use of Flanders' plan for charting and reporting verbal behavior may be varied. For example, the investigator developed a simple adaptation of Flanders technique for evaluating micro-teaching tapes. The procedure involved a simple grid, with each vertical line representing five-second intervals (the normal period for recording behavior), and each horizontal line representing Flanders categories. By having all the teacher talk categories in one-half of the grid, all the student talk categories in the other half, and connecting all the grid recordings in a line graph, it is quickly apparent how much of the
interaction was student directed and how much was teacher directed.

If interaction analysis activities are attempted, the following may serve as a guide for planning the experiences. This represents a compilation of the steps normally employed in conducting these activities as reported by five respondents to the Interaction Analysis Questionnaire utilized in this investigation.

1. Coverage of the effects of communication.
2. Establish need for teachers skillful in communications.
3. Establish optimism that the above can be learned.
4. Listening as a learned behavior.
5. Introduction to a system for examining verbal behavior.
6. Familiarization with system.
7. Practice in recording behavior.

**Micro-teaching without Video Tape Recorder**

This topic was, in general, covered in the section of this chapter dealing with micro-teaching with the use of a video tape recorder. The only major difference between the two activities was pointed out to be a lack
of self-evaluation on the part of the student. And, as indicated by the three usable questionnaires which were received in the survey phase of this investigation, the "reteach" phase of the micro-teaching cycle was eliminated when the video tape recorder was not used. However, it is noted that reteach sessions could be conducted without the use of a video tape recorder, but the important dimension of self-evaluation would be eliminated.

The absence of a video tape recorder should not stifle the use of micro-teaching activities. However, it is recommended that evaluation instruments such as those used by Stout State University, included in Appendix L, page 254, be used for feedback to the student. It is further recommended that either a video or audio recorder be used for such activities.

**Independently Developed Simulation**

The three questionnaires which were returned in the survey phase covering this area did not provide an adequate base for making recommendations relative to the nature and use of individually developed simulation activities. In addition, the review of the literature did not identify examples of independently developed simulation activities. However, the literature on simulation examined in Chapter II did indicate that simulated experiences could make a contribution to the preparation of
teachers.

**Commercial Simulation**

No use or knowledge of the commercial simulation packages marketed by Science Research Associates was identified in the survey portion of this investigation. Although over 300 universities, as pointed out in Chapter II, have adopted the use of the above simulation packages, the respondents to the Primary Questionnaire on commercial simulation were apparently not among that 300.

The one application of a commercially available simulation package which was discovered in the survey received an undecided endorsement. It is noted that this investigator later personally questioned the respondent about this package, and found him to be dissatisfied with it. He related a need for packages designed specifically for industrial arts teachers.

The myriad of potential uses for simulation experiences in the preparation of industrial arts teachers seems limitless. Utilization of motion/sound films, video tape recorders, and computers offer considerable potential for presenting simulation experiences in a meaningful manner. However, as discovered by this investigator, the impetus for such development by industrial arts teacher educators has not yet surfaced.
Closed Circuit Television

The use of television cameras in public school industrial arts classes with monitors in a college classroom for observation by prospective industrial arts teachers would indeed bring a real classroom situation into the college classroom. However, as indicated by the survey portion of this investigation, no such installations were discovered. Although such installations were reported in Chapter II, none dealt specifically with industrial arts teacher preparation. In light of the expense of such an installation, this investigator recommends that information from those institutions reported in Chapter II be obtained before considering such an installation.

It is recommended that portable video tape equipment, such as that recommended in a previous section of this chapter, be considered as a possible alternative to permanently installed closed circuit systems. The flexibility and relative ease of transporting portable video tape equipment very well may negate much of the necessity for permanent equipment by being able to perform nearly the same function at a marked reduction in cost.

Critical Incident Films

No use or knowledge of the Critical Moments In Teaching series produced by Holt, Rinehart and Winston was
identified in the survey portion of this investigation. In addition, the review of the literature on these films did not reveal any research studies conducted on their effectiveness. Furthermore, at the time the review of the literature was conducted, only 18 teacher education institutions were reported to be using these films.

This investigator has, during classes at The Ohio State University under Dr. L. O. Andrews, had the opportunity to observe a few of these films. The films reflected a high quality production, and were effective in stimulating concern over the possible factors contributing to the problem presented in the film. In this regard, the medium of the motion/sound film adds considerable impact to the observer's feeling of involvement in the problem depicted.

The quality of these films seems sufficient to merit examination by industrial arts teacher educators. The value of the films for industrial arts teacher preparation remains to be determined. However, an innovation of this nature seems at least worthy of examination by industrial arts teacher educators.
CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The central purpose of this investigation was to examine the current usage of innovative practices in the preservice professional preparation of industrial arts teachers. This information could then be used for the development of recommendations for the use of the various contemporary innovations in the professional preparation of prospective industrial arts teachers. The specific objectives of the investigation were:

1. To review what is being practiced in teacher education in general by conducting an extensive review of current related literature.

2. To attempt to identify those industrial arts teacher preparation institutions which have made efforts toward implementing innovative practices in their professional programs.

3. To determine which innovative steps have been implemented in industrial arts professional programs.
4. To attempt to ascertain from the identified institutions the inherent problems and benefits encountered in the implementation of these innovations.

5. To attempt to obtain assessment data about those innovative practices so identified which are currently being utilized by industrial arts teacher preparation institutions.

6. To make recommendations for the utilization of various innovations examined in this investigation.

The major phases of the methodology employed in the investigation included:

1. The identification of selected contemporary teacher education innovations through a search of the literature.

2. A preliminary survey to determine the present usage of selected innovations identified in the literature review, and other innovations being employed by industrial arts teacher preparation institutions.

3. A primary survey to obtain pertinent data about the utilization of innovations being employed by institutions identified in the preliminary phase of the study.

4. A synthesis of the literature review and the survey data to develop recommendations for the application of the examined innovations.
The preliminary survey sought specific responses about the nine innovations listed below.

1. Video tape recorder
2. Simulation
3. Critical incident films
4. Closed circuit television
5. Computer assisted instruction
6. Interaction analysis
7. Micro-teaching
8. Sensitivity training
9. Field experience prior to student teaching

These nine were selected by the investigator, based upon the review of the literature, as those innovations most likely to be utilized by industrial arts teacher educators. The Preliminary Questionnaire (Appendix A, page 203) also contained a provision for respondents to indicate innovations which they were using other than the nine included on the preliminary instrument. This instrument also sought the approval of the respondents for participation in the primary phase of the study.

Within the preliminary phase, teacher educators were asked to respond to each of the above innovations by indicating if any were being employed. In addition, they were asked to list other innovations which they were using. A 70 per cent return on this instrument indicated that its function was fairly well achieved.
The primary phase of the study sought to obtain data from the participating institutions on various aspects of the application of the examined innovations. The type of data sought by the Primary Questionnaire included information on the use of the various innovations which might be unique to industrial arts teacher education. Uppermost, the Primary Questionnaire sought recommendations from the respondents, those industrial arts teacher educators who had been identified as using the innovations, which could be made on the basis of their experience with the use of the innovation. The innovations examined in the primary phase were determined by the results of the Preliminary Questionnaire, i.e. only those innovations which were receiving adequate usage to justify the development of questionnaires were included. This phase focused on the following innovations.

1. Video tape recorder
2. Simulation
3. Critical incident films
4. Closed circuit television
5. Interaction analysis
6. Micro-teaching
7. Field experience prior to student teaching

As a result of the findings of the primary phase of the investigation, it became evident that certain innovations which had been indicated as being used by
respondents to the Preliminary Questionnaire were actually not being used according to the definitions of the study. Consequently, adequate information for the development of recommendations for the application of all of the innovations examined in the primary phase of the study was not provided. The reasons for the discrepancy between the indication on the Preliminary Questionnaire by several respondents that they were using a particular innovation, and feedback on the Primary Questionnaire indicating the use of an activity other than that originally defined on the Preliminary Questionnaire cannot completely be accounted for. Within the discussion of the Primary Questionnaire responses received for each innovation, in Chapter IV, an attempt was made to account for possible reasons for these discrepancies.

The limited information received on the Primary Questionnaires enabled the development of application recommendations for only the following innovations.

1. Video tape recorder
2. Field experience prior to student teaching
3. Micro-teaching
4. Interaction analysis (limited responses)

Findings

The following information briefly describes the status of each specific innovation which was examined in
this investigation as concluded by this investigator.

**Video Tape Recorder**

This innovation has received substantial acceptance by industrial arts teacher educators. Fifty-one percent of the responding teacher educators reported present use of the video tape recorder. In addition, 22 percent of the respondents indicated anticipated usage.

Twenty-two primary questionnaires were completed and returned, which, combined with the findings of the review of the literature provided an adequate base for the development of application recommendations for the use of a video tape recorder by industrial arts teacher educators.

**Simulation - Commercial**

Six respondents to the Preliminary Questionnaire indicated the use of commercially produced simulation such as those distributed by Science Research Associates. However, the findings of the Primary Questionnaire revealed that only one commercially available simulation package, was in fact, being used. This one package (not produced by Science Research Associates) was not recommended for general use by industrial arts teacher educators by the professor who was using it. In view of the lack of information retrieved by the Primary
Questionnaire, application recommendations could not be developed.

The review of the literature on commercial simulation indicated that several teacher education institutions have adopted simulation packages, such as those produced by Science Research Associates, indicating that they may be worthy of examination by industrial arts teacher educators.

Simulation - Own Production

Nineteen respondents to the Preliminary Questionnaire indicated an independently developed form of simulation was currently being used. However, the results of the three Primary Questionnaires which were completed and returned indicated the simulation being practiced was actually a form of group role playing in which the instructor would pose a typical problem and the students would collectively react to the problem.

The limited questionnaire return on independently developed simulation prevented the development of application recommendations.

Critical Incident Films

The Preliminary Questionnaire findings indicated that 18 institutions were using critical incident films such as those distributed by Holt, Rinehart and Winston.
However, the findings of the seven Primary Questionnaires which were returned indicated that none of the respondents were, in fact, using the Holt, Rinehart and Winston films, or other films similar to them.

The review of the literature on critical incident films did not reveal substantial assessment data on the value of these films. However, the intended use and quality of these films would appear to merit examination by industrial arts teacher educators.

Closed Circuit Television (CCTV)

The Preliminary Questionnaire findings indicated that 21 industrial arts teacher education faculties were currently using CCTV installations, with an additional 31 anticipating initiation. However, the findings of the 12 Primary Questionnaires on CCTV which were returned indicated that no permanently installed CCTV equipment such as that described in this study was being used.

It was concluded that respondents to the Preliminary Questionnaire who indicated current use of CCTV installations were, in fact, most likely referring to the use of video tape recording equipment. Consequently, the Primary Questionnaire, which was structured for responses on permanently installed equipment, did not retrieve information which could be utilized for the development of application recommendations.
Computer Assisted Instruction (CAI)

The Preliminary Questionnaire findings indicated that three respondents were currently using CAI, and that an additional 33 were anticipating initiation. However, as only three respondents indicated the actual use of CAI at the time of the preliminary survey, a primary instrument was not developed to collect data relative to CAI. A maximum possible number of returns of three questionnaires would not likely have been an adequate base for the development of application recommendations.

The review of the literature on CAI indicated that a computer has the potential for handling a wide variety of instructional components and still provide individualized instruction. In this regard, CAI appears to have the capacity for benefiting industrial arts teacher educators.

Interaction Analysis

Twelve respondents to the Preliminary Questionnaire indicated that Flanders Interaction Analysis was currently being practiced. However, only six usable Primary Questionnaires were received. In light of the low number of responses indicating the use of this innovation, it appears that interaction analysis has not been well accepted by industrial arts teacher educators. This lack of acceptance is interesting when one considers the
favorable aspects of interaction analysis which were brought to light in the review of the literature.

The low number of usable Primary Questionnaires returned for interaction analysis prevented the development of application recommendations.

Micro-teaching

Micro-teaching activities were found to be both widely used and highly recommended by industrial arts teacher educators. The findings of the Preliminary Questionnaire revealed that a total of 68 respondents were using micro-teaching either with or without the use of a video tape recorder. Twenty-five Primary Questionnaires on micro-teaching were returned, 23 of which were usable. This return combined with the results of the review of the literature on micro-teaching provided an adequate base for the development of application recommendations.

Sensitivity Training

Ten Preliminary Questionnaire respondents indicated that sensitivity training was currently used. However, 57 respondents indicated they were familiar with sensitivity training but did not anticipate its use. Due to the high negative response to this innovation, a Primary Questionnaire was not developed for sensitivity training.
The review of the literature on sensitivity training indicated that the ends sought by this type of activity are indeed valuable for teachers. However, the review also brought to light the importance of the role of the group leader in encounter groups. It is suggested that for sensitivity groups to become an integral part of industrial arts teacher preparation programs, the group leader should be knowledgeable and well experienced in group psychology techniques.

Field Experience Prior to Student Teaching

This innovation has received acceptance by industrial arts teacher educators. Thirty-eight respondents to the Preliminary Questionnaire indicated current usage of a departmentally supervised field experience prior to student teaching for prospective industrial arts teachers. The use of and recommendation for this activity was highly supported by the Primary Questionnaire respondents.

The review of the literature and the 21 usable Primary Questionnaires which were completed and returned provided an adequate base for the development of application recommendations for field experience prior to student teaching.
Conclusions

Based on the critical analysis of the related literature and the results of the questionnaires utilized in this investigation, the following conclusions seem appropriate.

Evidence supports the contention that innovative practices can be incorporated into teacher education programs to help improve the preparation of beginning teachers as well as improve their eventual effectiveness.

Industrial arts teacher educators are not doing much relative to innovative practices in educational technology within their professional courses.

A need is apparent to improve the diffusion of information about teacher education innovations to industrial arts teacher educators.

The major conclusion to be reached from this investigation is that industrial arts teacher educators are doing relatively little innovating in the professional portion of the programs for teacher education. Although substantial work is being done in the substantive or technical portion of industrial arts curriculum development, there appears to be a lag existing between this development and a similar upgrading of professional experiences.
Recommendations for Further Investigation

The following represents the investigator's recommendations for areas which could benefit from further study by industrial arts teacher educators interested in examining the use of professional education innovations:

. To account for the possible reluctance of respondents to write-in descriptions of innovations which they might be using, a similar study with a preliminary questionnaire containing a listing of all reasonably possible innovations in a check list form is recommended.

. Better techniques of diffusing information relative to innovative practices and new development must be developed and implemented.

. The American Council on Industrial Arts Teacher Educators, the American Industrial Arts Association, and state and regional professional associations should assume the leadership for helping to inform the profession about various contemporary innovations.

. Government grants are needed to foster professional preparation of industrial arts teachers.

. Efforts are needed to implement and further examine the information offered by Dr. James J. Buffer and Dr. Richard A. Swanson in the 20th American Council on Industrial Arts Teacher Educators Yearbook.

. In depth analyses of various innovations being
used by other teacher education curriculums are needed.

- Analyses of the attitudes of the officers of state and national industrial arts associations toward professional teacher education innovations.

- Comprehensive analyses of the programs of industrial arts teacher education institutions which have integrated several innovations into their professional programs.

- Studies which would attempt to identify critical incidents unique to industrial arts teachers and attempt to develop critical incident films and/or simulation activities around these incidents.

- Studies involving committee work by professional industrial arts teacher educators toward the critical evaluation of the feasibility of using available simulation packages and critical incident films for the preparation of industrial arts teachers.

- Team efforts by innovative faculties for presenting operational information about the innovations at state, regional, and national conventions.

- The development of innovative experimental professional programs for prospective industrial arts teachers.

- Experimental studies to determine the effectiveness of various professional innovations upon the preparation of prospective industrial arts teachers.
APPENDIX A

PRELIMINARY QUESTIONNAIRE, COVER LETTER AND DEFINITIONS
January 1, 1971

Dear Sir:

The attached questionnaire is a part of a doctoral dissertation being conducted at The Ohio State University. The study is being supervised by Drs. James J. Buffer, Donald G. Lux, and L. O. Andrews.

The investigation deals with the professional education experiences of prospective industrial arts teachers. For the purposes of this study, "professional experiences" refers to activities which are conducted within departmental methods courses, student teaching, and other departmental courses which are specifically designed to develop the teaching skills and abilities necessary for your graduating industrial arts teachers.

I am aware that teaching and related professional and personal activities heavily tax a college instructor's time. However, your cooperation and assistance in taking ten minutes to complete and return the questionnaire in the enclosed postage paid envelope will be greatly appreciated.

Thanking you in advance for your time and assistance,

Sincerely,

Bill J. Prye
Teaching Associate

Enc. 2
I. Please indicate those innovations listed below which your department employs as a part of the professional preparation of industrial arts teachers. You are asked to place a check (✓) in the appropriate one of the first five columns for each of the nine innovations listed. For each innovation which has a check in one of the first three columns, please place a check (✓) in one of the last two columns indicating who supervises the innovation.

(A brief description of the innovations listed below is provided on an accompanying page.)

<table>
<thead>
<tr>
<th>Innovation</th>
<th>Presently Using</th>
<th>Familiar With And Anticipate</th>
<th>Have Tried And Abandoned</th>
<th>Familiar With And Anticipate Using</th>
<th>Use For Instruction</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. VIDEO TAPE RECORDER:</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[For use in professional courses including student teaching]</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2. SIMULATION:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Commercially Available Type</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>B. Own Production</td>
<td></td>
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<tr>
<td>C. Other [Please Specify]</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3. CRITICAL INCIDENT FILMS:</td>
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<td></td>
</tr>
<tr>
<td>A. Commercially Available Type</td>
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<tr>
<td>B. Own Production</td>
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<tr>
<td>C. Other [Please Specify]</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. CLOSED CIRCUIT TELEVISION</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5. COMPUTER ASSISTED INSTRUCTION</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>6. INTERACTION ANALYSIS:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Flanders Technique</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Other [Please Specify]</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. MICRO-TEACHING:</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>A. In Conjunction with Video Tape Recorder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Without Video Tape Recorder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. SENSITIVITY TRAINING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. FIELD EXPERIENCE PRIOR TO STUDENT TEACHING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: If the above list does not include innovations which you presently may be using or preparing to use in your professional courses, please indicate the innovation and the person responsible for it in Part III, point 10 on the following page.

*Space is provided in Part III under the appropriate heading.
II. After the attached questionnaire has been returned, a sampling of the cooperating institutions will be asked to complete a second brief questionnaire concerning a particular innovation which has been indicated as being used. If, as a result of the attached questionnaire your institution is selected, would you please indicate your willingness to receive the second questionnaire. Assurance is given that the second questionnaire will be as brief as possible.

_____ YES, we are willing to complete the second questionnaire.

_____ NO, we would prefer to not participate.

III. If "YES", please indicate the individual within your department who supervises the indicated activity. This information is sought only as a means for securing the individual's name to whom a second questionnaire can be sent.

1. VIDEO TAPE RECORDER
2. SIMULATION
   (other-from page 1)
3. CRITICAL INCIDENT FILMS
   (other-from page 1)
4. CLOSED CIRCUIT TELEVISION
5. COMPUTER ASSISTED INSTRUCTION
6. INTERACTION ANALYSIS
   (other-from page 1)
7. MICRO-TEACHING
8. SENSITIVITY TRAINING
9. FIELD EXPERIENCE PRIOR TO STUDENT TEACHING
10. INNOVATIONS NOT LISTED WHICH YOU EMPLOY IN YOUR PROFESSIONAL PROGRAM:

IV. PERSON COMPLETING THIS QUESTIONNAIRE (title): (name):

INSTITUTION
VIDEO-TAPE-RECORDER (VTR) - A device for recording both the audio and video portions of teaching activities for replay on a television monitor.

SIMULATION - Constructed experiences and situations which present typical teaching problems to which pre-service teachers must propose solutions. The simulation packages developed by Cruickshank, Broadbent, and Bubb are typified by presenting filmed critical incidents with accompanying background information on the students involved as well as the school and community in which the incidents take place.

CRITICAL INCIDENT FILMS - Films which present typical classroom problem situations. The films normally conclude at the point where the teacher must take action in the problem. These films are typically used to stimulate classroom discussion of the particular problem viewed.

CLOSED-CIRCUIT TELEVISION - A typical installation might include cameras in a near-by school lab, with monitors in the college classroom. Enables an entire class to observe and discuss a real teaching situation.

COMPUTER ASSISTED INSTRUCTION - Computer programs which enable the prospective teacher to study on an individual basis. The two most common types of such programs would be 1-Drill-And-Practice, and 2-Tutorial Systems.

INTERACTION ANALYSIS - A technique which enables an observer to record the types of verbal interaction between a teacher and his class. The system, developed by Ned Flanders, represents one of the earliest as well as simplest such techniques.

MICRO-TEACHING - A technique in which complex teaching acts are broken down into manageable 5-15 minute presentations. This practice enables the pre-service teacher to concentrate on the development of specific teaching skills.

SENSITIVITY TRAINING - A technique designed to develop greater awareness of oneself and heightened sensitivity to others. Ideally, the successful sensitivity trainee would become more effective in working with groups of students.

FIELD EXPERIENCE PRIOR TO STUDENT TEACHING - A direct field experience required of pre-service teachers. Typically entails an experience during the sophomore or early junior years, in which a pre-service teacher spends sufficient time in a school that his experiences extend beyond observation.
APPENDIX B

LETTER ACCOMPANYING PRIMARY QUESTIONNAIRE
AND FOLLOW-UP LETTER
February 10, 1971

Dear Sir:

This letter conveys my sincere gratitude for your professional assistance in taking the time to complete the questionnaire which was recently sent to you. As you may recall, the questionnaire concerned selected teacher education innovations which you use in your professional preparation of industrial arts teachers, and sought your approval for participation in this phase of the study.

Your further assistance is sought in completing the attached questionnaires and returning them in the enclosed self-addressed, stamped envelope. If at all possible, the return of the questionnaires by March 1 will be greatly appreciated.

Thanking you in advance for your time and assistance in the completion of this study.

Sincerely,

Bill J. Frye
Teaching Associate

It is my opinion that this study can make a significant contribution to the professional preparation of industrial arts teachers. Your assistance in supplying the requested information will be greatly appreciated.

Dr. James J. Buffer
Associate Professor
March 5, 1971

Dear Sir:

Recently you should have received questionnaires concerning your use of certain innovations in your professional preparation of Industrial arts teachers. The cover letter which accompanied the questionnaires requested that you please return them by March 1, 1971. If you have not yet had an opportunity to complete them, your help in doing so will be appreciated. If you have already completed them, please disregard this letter.

If you have found something amiss in the questionnaires received or you no longer wish to participate, please note this on the questionnaires and return them.

Your cooperation will be greatly appreciated.

Sincerely,

Bill J. Frye
Teaching Associate
APPENDIX C

PRIMARY QUESTIONNAIRE
ON VIDEO TAPE RECORDER
DIRECTIONS

This questionnaire concerns various aspects of the video-tape recorder which you utilize in your professional preparation of Industrial Arts teachers. If the following questions do not adequately cover the significant aspects of your use of the video-tape recorder, please feel free to add notations in margins or on an attached sheet.

1. Approximately how many undergraduate Industrial Arts majors does your department have? ________________

2. How many video-tape recording units does your department have?
   2.1 Number permanently assigned or purchased by department? ________________
   2.2 Are other units available for departmental use (University, Media Center, Audio-Visual Department, etc.)? Yes ____ No ____
       Comments: __________________________

3. Do you feel that the number of units your department has is adequate?
   (Please check one)

<table>
<thead>
<tr>
<th>Very Adequate</th>
<th>Adequate</th>
<th>Undecided</th>
<th>Favor Additional Units</th>
<th>Strongly Favor Additional Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
   Comments: __________________________________________________________________
   ____________________________________________________________________________

4. With a combined total of 100%, please estimate the percentage of use for your video-tape unit in both technical and professional courses within your department.

<table>
<thead>
<tr>
<th>TECHNICAL</th>
<th>COMBINED TOTAL</th>
<th>PROFESSIONAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Presentation of instructional tapes in technical courses.</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>2. For individual student use to view or review demonstrations or presentations.</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>3. For use in taping student presentations and/or demonstrations in classes - primarily for increased technical competencies.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Other, please specify</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Taping micro-teaching session (teach-evaluation/review-reteach).</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>2. Classroom viewing of previously recorded model teaching tapes.</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>3. For use in taping student teacher demonstrations/presentations in cooperating schools.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Other, please specify</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total = 100%
5. Do you presently have a bank of taped model teaching episodes?
   Yes ___ No ___

5.1 If yes, were the recorded tapes purchased? ___ or developed within your department? ___

5.2 If purchased, please list: (Space is provided for two descriptions; if others, please provide additional information on the back.)
   Source ____________________________
   Title ____________________________
   Cost ____________________________

   Suitability for Industrial Arts teacher preparation
   Inappropriate | Acceptable | Good | Excellent

   Comments: __________________________________________
   ____________________________
   ____________________________

   Source__________________________
   Title__________________________
   Cost__________________________

   Suitability for Industrial Arts teacher preparation
   Inappropriate | Acceptable | Good | Excellent

   Comments: __________________________________________
   ____________________________
   ____________________________

5.3 If your model teaching episodes were developed within your department, please describe the content, manner of use and success of the tapes.
   __________________________________________
   ____________________________
   ____________________________
   ____________________________
   ____________________________
   ____________________________

6. Do you feel that prospective Industrial Arts teachers should be trained in the operation and use of video-tape units?
   Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree

   Comments: __________________________________________
7. Do you train your Industrial Arts students in the operation and use of video-tape units? Yes____ No____
   Comments: ____________________________________________________________

8. What would you estimate the total initial cost would be for a video-tape recording unit equipped the way you feel would be fully functional for Industrial Arts teacher preparation? $ ______________________________
   8.1 Do you have any specific equipment recommendations? (i.e. tape size, brand names, camera lenses, etc.)
      ______________________________

9. Have you had the opportunity to conduct any research or investigations into the effectiveness or outcome of the use of the video-tape recorder in conjunction with the preparation of Industrial Arts teachers? Yes____ No____
   9.1 If yes, please comment regarding your findings or include an abstract or summary of your report.
      ______________________________

10. What do you feel are the primary strengths or advantages of the use of video-tape recording units for Industrial Arts teacher preparation? Please comment:
    ______________________________

11. What do you feel are the primary weaknesses or limitations of video-tape recording units for Industrial Arts teacher preparation? Please comment:
    ______________________________

Do you wish a summary of this study when completed? Yes____ No____

Institution ____________________________________________________________
Person completing this form _____________________________________________

Thank you for your time and assistance.
APPENDIX D

PRIMARY QUESTIONNAIRE
ON COMMERCIAL SIMULATION

215
COMMERCIAL SIMULATION

DIRECTIONS

This questionnaire concerns various aspects of commercial simulation which you utilize in your professional preparation of Industrial Arts teachers. If the following questions do not adequately cover the significant aspects of your program, please feel free to add notations in margins or on an attached sheet.

1-A. Are you presently using one of the following simulation packages available through Science Research Associates?

1.1 Inner-City Simulation Laboratory (D.R. Cruickshank)
   Yes  No

1.2 Teaching Problems Laboratory (Cruickshank, Broadbent and Bubb)
   Yes  No

1-B. If you have answered "NO" to the above, please complete the following information relative to the source of your simulation package:

1.1 Producer/Supplier

1.2 Approximate Cost $

2. Please list the steps typically followed in this simulation experience:

3. Approximately how long have you been using this simulation?

4. At what point in the student's education does this experience normally occur?
   (Please check one)
   Quarters
   Semesters

5. Please indicate with a "0" on the above chart the time which you feel this simulation would be most appropriate for students.
   Comments:
6. What types of behavior do you feel can be effectively developed through the use of simulation techniques? (Please check below)

<table>
<thead>
<tr>
<th>PUPIL BEHAVIOR</th>
<th>TEACHER BEHAVIOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pupil motivational</td>
<td>1. Planning instructional materials</td>
</tr>
<tr>
<td>2. Pupil adjustment</td>
<td>2. Planning demonstrations</td>
</tr>
<tr>
<td>3. Socio-economic/cultural differences</td>
<td>3. Execute demo/discussions</td>
</tr>
<tr>
<td>4. Pupil attitudes</td>
<td>4. Counselor functions</td>
</tr>
<tr>
<td>5. Pupil emotions</td>
<td>5. Managerial functions</td>
</tr>
<tr>
<td>6. Pupil intelligence</td>
<td>6. Pupil relations</td>
</tr>
<tr>
<td>7. Pupil learning problems</td>
<td>7. Testing</td>
</tr>
<tr>
<td>8. Discipline problems</td>
<td>8. Interpreting student data</td>
</tr>
<tr>
<td>10. Other, please specify</td>
<td>10. Other, please specify</td>
</tr>
</tbody>
</table>

7. Would you recommend that all prospective Industrial Arts teachers have the opportunity to participate in simulation experiences? (Check one)

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Necessary</td>
<td>Possible Advantage</td>
</tr>
<tr>
<td>Advantageous</td>
<td>Strongly Recommend</td>
</tr>
</tbody>
</table>

Comments:

8. Please list recommendations pertaining to what professional courses/experiences you feel an Industrial Arts student should have prior to participating in this simulation experience.

---

Comments:
9. How do students respond to the problem situations posed by simulation? (Please check one)

1. Collective Open Discussion During Class
2. By Written Statements Submitted To Instructor
3. In Booklets Which Ask Specific Questions
4. Other, Please Specify

10. Does your simulation experience involve the utilization of any of the following media? (Please check any that apply)

<table>
<thead>
<tr>
<th>Media</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video-tape recorder</td>
<td>A written description of child</td>
</tr>
<tr>
<td>Closed Circuit Television</td>
<td>Description of community</td>
</tr>
<tr>
<td>Motion/Sound films</td>
<td>Strip films and/or slides</td>
</tr>
<tr>
<td>Audio recorder</td>
<td>Other, please specify</td>
</tr>
<tr>
<td>Loop films</td>
<td></td>
</tr>
<tr>
<td>Textbooks</td>
<td></td>
</tr>
<tr>
<td>Cumulative Records</td>
<td></td>
</tr>
</tbody>
</table>

Comments:
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

11. What do you feel are the primary strengths or advantages to the use of this simulation experience for Industrial Arts teacher preparation?
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

12. What do you feel are the primary limitations or weaknesses of this simulation experience for Industrial Arts teacher preparation?
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

13. Have you been able to conduct any research or investigation within your department relative to the effectiveness of simulation? Yes____ No____

13.1 If yes, please summarize the findings of this study or include an abstract or summary of your report.
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
14. Please rate the suitability of this simulation for Industrial Arts teacher preparation. (Please check one)

<table>
<thead>
<tr>
<th>Inappropriate</th>
<th>Acceptable</th>
<th>Undecided</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
</table>

15. Please comment regarding your professional recommendation for this package to other Industrial Arts teacher educators.

________________________________________________________

________________________________________________________

________________________________________________________

________________________________________________________

Do you wish to receive a summary of this study when completed? Yes___ No___

Institution_______________________________________________________

Person completing this form_________________________________________

Thank you for your time and assistance.
APPENDIX E

PRIMARY QUESTIONNAIRE
ON INDEPENDENTLY DEVELOPED SIMULATION

220
INDEPENDENTLY DEVELOPED SIMULATION

DIRECTIONS

This questionnaire concerns various aspects of simulation experience which you have developed for use in your professional preparation of Industrial Arts teachers. If the following questions do not adequately cover the significant aspects of your simulation, please feel free to add notations in margins or on an attached sheet.

1. Approximately how long have you been using this simulation? ________________

2. At what point in the student's education does this experience normally occur? (Please check one)

   Quarters
   Freshman | Sophomore | Junior | Senior

   Semesters

3. Please indicate with a "0" on the above chart the time which you feel this simulation would be most appropriate for students.
   Comments: __________________________________________________________
   __________________________________________________________
   __________________________________________________________

4. Please list the steps typically followed in this simulation experience:
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

5. Would you recommend that all prospective Industrial Arts teachers have the opportunity to participate in simulation experiences? (Check one)

   Not Necessary
   Possible Advantage
   Advantageous
   Strongly Recommend

   Comments: __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
6. What types of behavior do you feel can be effectively developed through the use of simulation techniques? (Please check below)

PUPIL BEHAVIOR
1. Pupil motivations
2. Pupil adjustment
3. Socio-economic/cultural differences
4. Pupil attitudes
5. Pupil emotions
6. Pupil intelligence
7. Pupil learning problems
8. Discipline problems
9. Health problems
10. Other, please specify:

PUPIL BEHAVIOR
1. Pupil motivations
2. Pupil adjustment
3. Socio-economic/cultural differences
4. Pupil attitudes
5. Pupil emotions
6. Pupil intelligence
7. Pupil learning problems
8. Discipline problems
9. Health problems
10. Other, please specify:

TEACHER BEHAVIOR
1. Planning instructional materials
2. Planning demonstrations
3. Execute demonstrations/discussions
4. Counselor functions
5. Managerial functions
6. Pupil relations
7. Testing
8. Interpreting student data
9. Student/family/teacher conferences
10. Other, please specify:

7. Please list recommendations pertaining to what professional courses/experiences you feel an Industrial Arts student should have prior to participating in this simulation experience.

8. How do students respond to the problem situations posed by simulation? (Please check one)

1. Collective open discussion during class
2. By written statements submitted to instructor
3. In booklets which ask specific questions
4. Other, please specify:
9. Does your simulation experience involve the utilization of any of the following media? (Please check any that apply)

<table>
<thead>
<tr>
<th>Media</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video-tape Recorder</td>
<td>A Written Description of Child</td>
</tr>
<tr>
<td>Closed Circuit Television</td>
<td>Description of Community</td>
</tr>
<tr>
<td>Motion/Sound Films</td>
<td>Strip Films and/or Slides</td>
</tr>
<tr>
<td>Audio Recorder</td>
<td>Other, please specify:</td>
</tr>
<tr>
<td>Loop Films</td>
<td></td>
</tr>
<tr>
<td>Textbooks</td>
<td></td>
</tr>
<tr>
<td>Cumulative Records</td>
<td></td>
</tr>
</tbody>
</table>

Comments:__________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

10. What do you feel are the primary strengths or advantages to the use of this simulation experience for Industrial Arts teacher preparation?

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

11. What do you feel are the primary limitations or weaknesses of this simulation experience for Industrial Arts teacher preparation?

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

12. Have you been able to conduct any research or investigation with your department relative to the effectiveness of simulation? Yes No

If yes, please summarize the findings of this study or include an abstract or summary of your report.

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________

__________________________________________________________________________________
13. Please rate the suitability of this simulation for Industrial Arts teacher preparation. (Please check one)

<table>
<thead>
<tr>
<th>Inappropriate</th>
<th>Acceptable</th>
<th>Undecided</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
</table>

14. Please comment regarding your professional recommendation for this package to other Industrial Arts teacher educators.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Do you wish a summary of this study when completed? Yes    No

Institution

Person completing this form

Thank you for your time and assistance.
APPENDIX F

PRIMARY QUESTIONNAIRE
ON COMMERCIALY AVAILABLE
CRITICAL INCIDENT FILMS

225
COMMERCIALLY AVAILABLE CRITICAL INCIDENT FILMS

DIRECTIONS

This questionnaire refers primarily to the CRITICAL MOMENTS IN TEACHING series developed by Holt, Rinehart and Winston. If you are using any of the films from this series, please complete PARTS B and C only. If you are using other films, please complete PARTS A and B only. If the following questions do not adequately cover the significant aspects of your Critical Incident Films, please feel free to add notations in margins or on an attached sheet.

PART A. (Films other than Holt, Rinehart and Winston.)

1. Please complete the following information relative to the source of this film. (Space is provided for two descriptions, if others, please provide additional information on the back of this page.)

1.1 Producer/Supplier

1.2 Description (10 mins., silent, 8 mm., loop; 12 mins., 16mm., sound, color; etc.)

1.3 Approximate cost $

1.4 General description of the content of this film (scene, purpose, conclusion, etc.)

1.5 Recommendation (Please check)

| Inappropriate | Acceptable | Good | Excellent |

Comments:

2. Additional film

2.1 Producer/Supplier

2.2 Description (10 mins., silent, 8mm., loop; 12 mins., 16mm., sound, color; etc.)
2.3 Approximate Cost $

2.4 General description of the content of this film (scene, purpose, conclusion, etc.)

2.5 Recommendation (Please check)

<table>
<thead>
<tr>
<th>Inappropriate</th>
<th>Acceptable</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
</table>

Comments:

PART B. (Both Holt, Rinehart and Winston and Other Commercial Films)

1. At what point in the Industrial Art student's education does he normally have the opportunity to review and discuss these films. (Please check ✓ below)

<table>
<thead>
<tr>
<th>Quarters</th>
<th>Freshman</th>
<th>Sophomore</th>
<th>Junior</th>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semesters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Please indicate with a "0" on the above chart the time which you feel the films would be most appropriate for student experiences.

2.1 Briefly state why

3. Do all Industrial Arts majors normally view these films? Yes No

4. Would you recommend these films as an integral part of a required methods course for Industrial Arts majors? Yes No

Comments

5. Have you had the opportunity to conduct any research or investigations into the effectiveness of these films? Yes No
5.1 If yes, please comment regarding your findings or include an abstract or summary of your report:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

6. Please comment regarding:

6.1 Primary strengths or advantages of these films as they apply to Industrial Arts teacher preparation:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

6.2 Primary weaknesses or limitations of these films as they apply to Industrial Arts teacher preparation:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

7. Are you aware of any other films similar to the ones you are using which would be applicable to Industrial Arts teacher educators? Yes ___ No ___

7.1 If yes, please specify:
Producer/Supplier
________________________________________________________________________

Description (10 mins., silent, 8mm., loop; 12 mins., 16mm., sound, color; etc.)
________________________________________________________________________

Approximate Cost: $
________________________________________________________________________

General description of the content of this film (scene, purpose, conclusion, etc.)
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Recommendation (Please check)

<table>
<thead>
<tr>
<th>Inappropriate</th>
<th>Acceptable</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
</table>

Comments:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
8. Please list topics specifically related to Industrial Arts which you feel lend themselves to the development of critical incident films:

<table>
<thead>
<tr>
<th>Backfire</th>
<th>Presently Using</th>
<th>Would Recommend This Film</th>
<th>Strongly Recommend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Far Than The Arrow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What Do I Know About Benny?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tense: Imperfect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report Card</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Julia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Image In A Mirror</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Child Who Cheats</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The First and Fundamental R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I Walk Away In The Rain</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>The Bicycles In The Driveway</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One For You and One For Me</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Give Me Instead A Catastrophe</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Welcome To The Third Grade</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Some Courses Don't Count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Just A Simple Misunderstanding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Name Of The Game Is Teaching</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Time To Speak</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Judge Without Jury</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explorers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Day The Insects Took Over</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poetry In Paul</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments:_________________________________________________________________
2. Do your students use the Independent Discussions and Study Guide which accompanies the above films? Yes____ No____

2.1 If yes, please indicate below how you would recommend this Guide to other Industrial Arts educators. (Please check (✓) below)

<table>
<thead>
<tr>
<th>Not Necessary</th>
<th>Possible Advantage</th>
<th>Advantageous</th>
<th>Strongly Recommend</th>
</tr>
</thead>
</table>

Comments:__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________

3. Do you feel that the effectiveness of these films would be improved if you had a teacher's guide containing several professional opinions or alternate suggestions for solutions to the problems presented in these films? (Please check (✓) one)

<table>
<thead>
<tr>
<th>Not Necessary</th>
<th>Possible Advantage</th>
<th>Advantageous</th>
<th>Strongly Recommend</th>
</tr>
</thead>
</table>

Comments:__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________

4. Please react to the following statement:
HOLT, RINEHART, WINSTON CRITICAL INCIDENT FILMS REMOVE THE NEED FOR DEVELOPING SIMILAR FILMS DEALING SPECIFICALLY WITH INDUSTRIAL ARTS PROBLEMS.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

Comments:__________________________________________________________________________________________
__________________________________________________________________________________________
__________________________________________________________________________________________

Do you wish to receive a summary of this study when completed? Yes_____ No____

Institution_____________________________________________________________________________________

Person completing this form_______________________________________________________________________

Thank you for your time and assistance.
APPENDIX G

PRIMARY QUESTIONNAIRE
ON CLOSED CIRCUIT TELEVISION

231
CLOSED CIRCUIT TELEVISION

DIRECTIONS

This questionnaire concerns various aspects of the closed circuit television installation which you utilize in your professional preparation of Industrial Arts teachers. If the following questions do not adequately cover the significant aspects of your installation, please feel free to add notations in margins or on an attached sheet.

1. Please estimate the percentage of student closed circuit television viewing time devoted to each of the following:

<table>
<thead>
<tr>
<th>Enter percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical courses</td>
</tr>
<tr>
<td>Professional courses</td>
</tr>
<tr>
<td>Total = 100%</td>
</tr>
</tbody>
</table>

Comments: ____________________________________________________________

2. What type of activities are most often viewed via closed circuit television? (Please specify) ____________________________________________________________

3. Is the viewing of this closed circuit television a part of a required Industrial Arts class? Yes No

4. Is it viewed in the Industrial Arts facility (as opposed to going to a different building or room for viewing)? Yes No

5. Please describe the physical characteristics of your closed circuit television installation (i.e. camera locations, monitor locations, etc.).

   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

6. Please describe a typical situation which might be viewed in an Industrial Arts professional course. ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________
7. Are elementary or secondary Industrial Arts classes viewed?
   Yes _____ No _____ Occasionally _____
   Comments: _____________________________________________________________

8. Approximately how many undergraduate Industrial Arts majors are currently enrolled in your department? (Please specify) ________________________________

9. How many monitor terminals can be concurrently viewed? ______________________

10. Approximately how many of your students could reasonable view a closed circuit television presentation concurrently? ________________________________

11. If possible, please estimate the monetary expenditure for a closed circuit television installation which you would feel comfortable recommending.
   $ ________________________________
   Comments: _____________________________________________________________

12. Have you had the opportunity to conduct any research or investigations into the effectiveness of Industrial Arts professional instruction via closed circuit television? Yes _____ No _____

12.1 If yes, please summarize the findings of this study or include an abstract or summary of your report.
   _____________________________________________________________

13. Please comment regarding your professional recommendation for closed circuit television to other Industrial Arts teacher educators.
   _____________________________________________________________

14. What do you feel are the primary strengths or advantages of the use of closed circuit television for Industrial Arts teacher preparation?
   _____________________________________________________________
15. What do you feel are the primary limitations or weaknesses of the use of closed circuit television for Industrial Arts teacher preparation?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

16. Do you feel that the objectives achieved with closed circuit television could be accomplished as effectively with a video-tape recorder? (Check one)

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

Comments:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Do you wish to receive a summary of this study when completed? Yes_____ No.____

Institution_______________________________________________________________

Person completing this form______________________________________________

Thank you for your time and assistance.
APPENDIX H

PRIMARY QUESTIONNAIRE ON

INTERACTION ANALYSIS - FLANDERS TECHNIQUE
INTERACTION ANALYSIS - FLANDERS TECHNIQUE

DIRECTIONS

This questionnaire concerns various aspects of interaction analysis - Flanders technique, which you utilize in your professional preparation of Industrial Arts teachers. If the following questions do not adequately cover the significant aspects of your use of interaction analysis - Flanders technique, please feel free to add notations in margins or on an attached sheet.

1. Do you feel that an understanding of and participation in interaction analysis should be: (Please check one)

   1.1 Required for all prospective Industrial Arts teachers? 
   Comments: ________________________________
   ________________________________
   ________________________________

   1.2 Remedial Only 
   Comments: ________________________________
   ________________________________
   ________________________________

2. At what point in the student's education does this experience normally occur? (Please check below)

   Quarters
   ________________________________
   ________________________________
   ________________________________

   Semesters
   ________________________________
   ________________________________
   ________________________________

3. Please indicate with a "0" on the above chart, the time which you feel interaction analysis experience would be most valuable for prospective Industrial Arts teachers.
   Comments: ________________________________
   ________________________________
   ________________________________

4. Do students have an opportunity to analyze their own verbal teaching behavior? Yes____ No____

   If yes, please answer the following:
   4.1 How many times would you estimate each student has such an opportunity for charting his own verbal behavior? 
   Comments: ________________________________
   ________________________________
   ________________________________

   4.2 How many times would you recommend that students have this opportunity.
   Comments: ________________________________
   ________________________________
   ________________________________
4.3 Is the technique employed in conjunction with micro-teaching activities?
Not at all
Somewhat
Primarily
Solely
Comments:

4.4 Please indicate (✓) which of the following devices are normally used to record the student's verbal interaction.
- Video-tape recorder
- Audio recorder only
- Other, please specify

5. The following are the "TEACHER TALK" categories for interaction analysis which Amidon and Flanders list. Please indicate those categories which you feel should be emphasized in Industrial Arts teacher preparation activities.

<table>
<thead>
<tr>
<th>INDIRECT INFLUENCE</th>
<th>Not Important</th>
<th>Questionable</th>
<th>Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accepts feeling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Praises or encourages</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accepts or uses ideas of students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asks questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DIRECT INFLUENCE</th>
<th>Not Important</th>
<th>Questionable</th>
<th>Important</th>
<th>Very Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gives Directions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criticizes or justifies authority</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Please list the steps that you would recommend for the effective conduction of interaction analysis activities.
7. Have you had the opportunity to conduct any research or investigations into the effectiveness of interaction analysis experiences for prospective Industrial Arts teachers? Yes______ No______

7.1 If yes, please summarize findings or include an abstract or summary of your report.

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

8. Please comment regarding:
8.1 Primary strengths or advantages of interaction analysis experiences for prospective Industrial Arts teachers.

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

8.2 Primary weaknesses or limitations of interaction analysis experiences for prospective Industrial Arts teachers.

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Do you wish to receive a summary of this study when completed? Yes______ No______

Institution______________________________________________________________

Person completing this form____________________________________________

Thank you for your time and assistance.
APPENDIX I

PRIMARY QUESTIONNAIRE ON
MICRO-TEACHING WITH VIDEO TAPE RECORDER
MICRO-TEACHING WITH VIDEO-TAPE RECORDER

DIRECTIONS

This questionnaire concerns various aspects of micro-teaching with video-tape recording unit which you utilize in your professional preparation of Industrial Arts teachers. If the following questions do not adequately cover the significant aspects of your use of micro-teaching with video-tape recorder, please feel free to add notations in margins or on an attached sheet.

1. Is micro-teaching with video-tape recorder an integral part of a required methods course for Industrial Arts majors? Yes____ No____

2. Micro-teaching experiences should be required for all Industrial Arts majors. (Please indicate reaction below)

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

   Comments: ____________________________________________________________

3. Is micro-teaching practiced by your students as an integral part of certain of their technical courses? Yes____ No____

   Comments: ____________________________________________________________

4. What is the average size (student enrollment) of your professional courses which utilize micro-teaching? ______________________________

5. What size class would you recommend for optimal effectiveness of the micro-teaching sessions? ______________________________

   Comments: ____________________________________________________________

6. At what point in the student's education does this experience normally occur? (Please check one)

<table>
<thead>
<tr>
<th>Quarters</th>
<th>Semesters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>Sophomore</td>
</tr>
</tbody>
</table>

7. Please indicate with a "0" on the above chart the time which you feel micro-teaching experience with a video-tape recorder would be most effective for prospective Industrial Arts teachers.

   Comments: ____________________________________________________________
8. Do you normally employ a PLAN-TEACH-REVIEW-RETEACH cycle? Yes  No
Comments: _____________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

9. Please describe the manner in which you conduct these experiences (i.e. small group, class wide, peer teaching, etc.).
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

10. How many times would you project that the typical Industrial Arts major in your department has the opportunity to be video-taped while micro-teaching?
_______________________________________________________________________

11. Please comment regarding your recommendations for the optimum number of times a student should have the opportunity for these experiences to achieve desirable results.
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

12. Do you have films or video-tapes which exemplify teaching skills which you may be trying to develop within your students?
Films: Yes  No  
Video-tapes: Yes  No

12.1 If yes, please indicate if these exemplary films/tapes are:
A. Commercially produced
B. Own production

12.2 If commercially produced, please indicate: (NOTE: Space is provided below for descriptions of two films/tapes. If you have more than two please include requested information on the back of this page.)

<table>
<thead>
<tr>
<th>Source</th>
<th>Title</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Appropriateness for Industrial Arts teacher preparation

<table>
<thead>
<tr>
<th>Inappropriate</th>
<th>Acceptable</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
</table>
12.3

Check

<table>
<thead>
<tr>
<th></th>
<th>Film</th>
<th>Tape</th>
</tr>
</thead>
</table>

Source
Title
Cost

<table>
<thead>
<tr>
<th>Appropriateness for Industrial Arts teacher preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inappropriate</td>
</tr>
</tbody>
</table>

General description of content of this film/tape:

13. Do you utilize instruments to aid in the evaluation of students' micro-teaching tapes? (Please check one)

<table>
<thead>
<tr>
<th>Use an &quot;adopted&quot; instrument</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilize own instrument</td>
</tr>
<tr>
<td>No instrument used</td>
</tr>
</tbody>
</table>

13.1 If "adopted" instrument is used, please indicate:
Source (Would you please include a copy if available)

<table>
<thead>
<tr>
<th>Your opinion of this instrument: (Please check one)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inappropriate</td>
</tr>
</tbody>
</table>

Comments:

13.2 Own instrument (please include a copy if available). Comments regarding effectiveness of this instrument:
14. The following are nine specific skills which Robert Bush and Dwight Allen have indicated as being suitable for micro-teaching. Please check (/) those skills which you feel are most significant for emphasis in micro-teaching experiences for Industrial Arts teachers.

<table>
<thead>
<tr>
<th>Skill</th>
<th>Very</th>
<th>Important</th>
<th>Undecided</th>
<th>Unimportant</th>
<th>Superfluous</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Establishing set</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Establishing appropriate frames of reference</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Achieving closure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Using questions effectively</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Recognizing and obtaining attending behavior</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Control of participation</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>7. Providing feedback</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>8. Employing rewards and punishments (reinforcement)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>9. Setting a model</td>
<td></td>
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<td></td>
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<tr>
<td>10. Other, please specify</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. Have you had the opportunity to conduct any research or investigations into the effectiveness of micro-teaching? Yes____ No____

15.1 If yes, please summarize findings or include an abstract or summary of your report.

16. Please list primary strengths of micro-teaching as it applies to Industrial Arts teacher preparation.

17. Please list weaknesses of micro-teaching as it applies to Industrial Arts teacher preparation.

18. If you have a student outline or syllabus available covering the student involvement in micro-teaching, please include a copy.

Do you wish to receive a summary of this study when completed? Yes____ No____

Institution

Person completing this form

Thank you for your time and assistance.
APPENDIX J

PRIMARY QUESTIONNAIRE ON
MICRO-TEACHING WITHOUT VIDEO TAPE RECORDER
DIRECTIONS

This questionnaire concerns various aspects of micro-teaching which you utilize in your professional preparation of Industrial Arts teachers. If the following questions do not adequately cover the significant aspects of your use of micro-teaching, please feel free to add notations in margins or on an attached sheet.

1. Is micro-teaching an integral part of a required methods course for Industrial Arts majors? Yes No

2. Micro-teaching experiences should be required for all Industrial Arts majors. (Please indicate reaction below)

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
</table>

   Comments:

3. Is micro-teaching practiced by your students as an integral part of certain of their technical courses? Yes No

   Comments:

4. What is the average size (student enrollment) of your professional courses which utilize micro-teaching?

5. What size class would you recommend for optimal effectiveness of the micro-teaching sessions? 

   Comments:

6. At what point in the student's education does this experience normally occur? (Please check one)

<table>
<thead>
<tr>
<th>Quarters</th>
<th>Freshman</th>
<th>Sophomore</th>
<th>Junior</th>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semesters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7. Please indicate with a "0" on the above chart the time which you feel micro-teaching experiences would be most effective for prospective Industrial Arts teachers.

   Comments:
8. Do you normally employ a PLAN→TEACH→REVIEW→RETEACH cycle? Yes____No____
   Comments:__________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

9. Please describe the manner in which you conduct these experiences (i.e. small group, class wide, peer teaching, etc.).
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

10. How many times would you project that the typical Industrial Arts major in your department has the opportunity to do micro-teaching? _______________

11. Please comment regarding your recommendations for the optimum number of times a student should have the opportunity for these experiences to achieve desirable results.
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________
   ________________________________________________________________

12. Do you have films or video-tapes which exemplify teaching skills which you may be trying to develop within your students?
   Films: Yes____No____
   Video-tapes: Yes____No____

12.1 If yes, please indicate if these exemplary films/tapes are:
   A. Commercially produced____
   B. Own production____

12.2 If commercially produced, please indicate: (NOTE: Space is provided below for descriptions of two films/tapes. If you have more than two please include requested information on the back of this page.)
   Check
   ________________
   ________________
   ________________
   ________________
   ________________
   ________________
   ________________
   ________________
   ________________
   ________________
   ________________
   ________________
   ________________

   Source:________________________________________________________
   Title:_________________________________________________________
   Cost:________________________________________________________________

   Appropriateness for Industrial Arts teacher preparation
   Inappropriate | Acceptable | Good | Excellent
   ______________________ | ______________________ | ______________________ | ______________________
General description of content of this film/tape:

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

12.3

Check

Film
Tape

Source
Title
Cost

Appropriateness for Industrial Arts teacher preparation
Inappropriate Acceptable Good Excellent

General description of content of this film/tape:

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

13. Do you utilize instruments to aid in the evaluation of students' micro-teaching tapes? (Please check one)

- Use an "adopted" instrument
- Utilize own instrument
- No instrument used

13.1 If "adopted" instrument is used, please indicate:
Source (Would you please include a copy if available)

Your opinion of this instrument: (Please check one)
Inappropriate Acceptable Good Excellent

Comments:

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

13.2 Own instrument (please include a copy if available).
Comments regarding effectiveness of this instrument:

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
14. The following are nine specific skills which Robert Bush and Dwight Allen have indicated as being suitable for micro-teaching. Please check (/) those skills which you feel are most significant for emphasis in micro-teaching experiences for Industrial Arts teachers.

<table>
<thead>
<tr>
<th></th>
<th>Very Important</th>
<th>Important</th>
<th>Undecided</th>
<th>Unimportant</th>
<th>Superfluous</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Establishing set</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Establishing appropriate frames of reference</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Achieving closure</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>4. Using questions effectively</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>5. Recognizing and obtaining attending behavior</td>
<td></td>
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<td></td>
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<tr>
<td>6. Control of participation</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>7. Providing feedback</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Employing rewards and punishments (reinforcement)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Setting a model</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Other, please specify</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. Have you had the opportunity to conduct any research or investigations into the effectiveness of micro-teaching? Yes | No

15.1 If yes, please summarize findings or include an abstract or summary of your report.

16. Please list primary strengths of micro-teaching as it applies to Industrial Arts teacher preparation.

17. Please list weaknesses of micro-teaching as it applies to Industrial Arts teacher preparation.

18. If you have a student outline or syllabus available covering the student involvement in micro-teaching, please include a copy.

Do you wish to receive a summary of this study when completed? Yes | No

Institution

Person completing this form

Thank you for your time and assistance.
APPENDIX K

PRIMARY QUESTIONNAIRE ON
FIELD EXPERIENCE PRIOR TO STUDENT TEACHING
DIRECTIONS

This questionnaire concerns various aspects of field experience prior to student teaching which you utilize in your professional preparation of Industrial Arts teachers. If the following questions do not adequately cover the significant aspects of your program, please feel free to add notations in margins or on an attached sheet.

1. When in the student's education does this field experience normally occur? (Please check one)

| Quarters | | | | |
|----------|----------|----------|----------|
| Freshman| Sophomore| Junior   | Senior   |

| Semesters| | | | |
|----------|----------|----------|----------|

2. Please indicate with a "0" on the above chart the point which you feel this experience should occur.
Comments: 

3. Would you recommend that this experience be required for all prospective Industrial Arts teachers? (Check (✓) one)

<table>
<thead>
<tr>
<th>Would Not Recommend</th>
<th>Undecided</th>
<th>Recommend</th>
<th>Strongly Recommend</th>
</tr>
</thead>
</table>

Comments: 

4. Please indicate your recommendation for the duration of this type of experience.

4.1 Number of weeks ______

4.2 Percentage of time in cooperating school each day. (Please check below)

25%  50%  75%  100%

5. Please list the qualifications which you feel a Cooperating Industrial Arts teacher should have to work with students during this experience.

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________
6. Many advocates of field experience recommend that it be participatory on the part of the student, extending beyond observation and individual help with slower pupils. Do you feel this is a viable recommendation? (Please check below)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Observation only</td>
<td></td>
</tr>
<tr>
<td>2. Individual help</td>
<td></td>
</tr>
<tr>
<td>3. Teach one or two lessons</td>
<td></td>
</tr>
<tr>
<td>4. Partnership arrangement between teacher and student</td>
<td></td>
</tr>
<tr>
<td>5. Student build to a fully responsible position (in the manner of student teaching)</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Scale is additive from 1 to 5

Please comment:

__________________________________________________________________________

__________________________________________________________________________

7. To enable the student to function at the above specified level, what competencies do you feel he should have preceding this experience?

| Planning instructional materials |   |
| Planning presentations |   |
| Execute demonstrations/discussions |   |
| Counselor responsibilities |   |
| Managerial responsibilities |   |
| Testing |   |
| Interpreting test results |   |
| Student/family/teacher conferences |   |
| Discipline |   |

Please check:

<table>
<thead>
<tr>
<th>Not Important</th>
<th>Questionable</th>
<th>Important</th>
<th>Very Important</th>
</tr>
</thead>
</table>

Comments:

__________________________________________________________________________

__________________________________________________________________________

8. How many credit hours of Industrial Arts professional coursework would be required to instill these competencies in students prior to this experience? (Please estimate) Quarters Semesters

Comments:

__________________________________________________________________________

__________________________________________________________________________
9. Please comment regarding specific recommendations which you would make relative to assigning students to schools (Example: assigned to one Industrial Arts teacher, to an Industrial Arts Department only, to a school only, etc.).

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

10. Do you feel that the student should receive college supervision during this experience? Yes  No  

10.1 If yes, please comment regarding how such supervision could best be achieved (video-tape, school visitations, college seminar, etc.).

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

11. Have you or your college had the opportunity to conduct any research or investigations into the effectiveness of your field experience prior to student teaching? Yes  No 

11.1 If yes, please summarize or include an abstract or summary of your report.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

12. What do you feel are the primary strengths or advantages to an Industrial Arts field experience prior to student teaching?
13. What do you feel are the primary limitations or weaknesses of an Industrial Arts field experience prior to student teaching?

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Do you wish to receive a summary of this study when completed? Yes  No

Institution______________________________________________________________

Person completing this form_____________________________________________

Thank you for your time and assistance.
APPENDIX L

MICRO-TEACHING EVALUATION FORMS
EVALUATION OF INSTRUCTION TOPIC OUTLINE

Each assigned mini-lesson will require an outline for you to use during your presentations to insure complete and adequate coverage of the topic. These outlines will be handed in at the completion of the lesson and will be returned to you after it has been checked. All of the outlines will be paper clipped or stapled together and handed in with this evaluation sheet at the end of the quarter. Your instructor will evaluate your topic outlines using the criteria listed below.

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>EVALUATION</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Appropriate topic for assigned lesson.</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>2. Written behavioral objective.</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>3. References listed.</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>4. Instructional aids listed.</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>5. Introduction listed on all topics.</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>6. Presentation listed except on number 1 (Cognitive—outline, psychomotor—steps).</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>7. Questions listed.</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>8. Summary and/or evaluation included on appropriate lessons.</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
</tbody>
</table>

COMMENTS:

Student

hour

Instructor
INTRODUCING a LESSON (S.A.T.)

Behavioral Objectives:
1. The student will present a one to three minute introduction in which he will obtain a score of three or better on each item on this evaluation sheet.
2. The student will "set the stage" for learning by involving and motivating his students with questions, relating incidents, and other techniques.
3. The student will include in the introduction the what, why, how, and when in terms of student behavior.

5 Excellent Displayed outstanding characteristics
4 Good Displayed above average characteristics
3 Average Displayed characteristics at acceptable level
2 Poor Repeat lesson, below mastery level
1 Very Poor Repeat lesson, requirement undesirable or not included

CRITERIA EVALUATION COMENTS

<table>
<thead>
<tr>
<th>Did the instructor in the introduction:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Relate to prior knowledge and/or experience of the students?</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>2. Motivate the students through an interesting opening?</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>3. State in terms of student behavior what the objectives were for the lesson?</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>4. State in terms of need, why the objectives were important?</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>5. State how the students will proceed to accomplish the objective?</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
<tr>
<td>6. Explain when the students will know the objective has been accomplished?</td>
<td>5</td>
<td>4 3 2 1</td>
</tr>
</tbody>
</table>

COMMENTS:

Student Observed
Class hour
Observer
Behavorial Objectives:

1. The student will present a three to five minute mini-lesson in which he will obtain a score of three or better on each item on this evaluation sheet.

2. The student will ask verbally at least three different types of questions from the question package.

3. The student instructor will employ positive rewards to the students' answers and questions in the form of positive comments, gestures, and enthusiasm.

4. The student will formulate clear and concise questions that will emphasize the major points of the lesson.

5. Excellent Displayed outstanding characteristics

4. Good Displayed above average characteristics

3. Average Displayed characteristics at acceptable level

2. Poor Repeat lesson, below mastery level

1. Very Poor Repeat lesson, requirement undesirable or not included

When using questions during the lesson, did the instructor:

1. Introduce effective with behaviorally stated objective? 5 4 3 2 1

2. Use questions to emphasize the major points in the lesson? 5 4 3 2 1

3. Ask a question, pause to allow time to think, then call on one student? 5 4 3 2 1

4. Refrain from repeating the students' answers? 5 4 3 2 1

5. Give each student an equal opportunity to respond? 5 4 3 2 1

6. Reward the students who answered correctly or asked a good question by positive words such as "fine, good," etc.? 5 4 3 2 1

7. Encourage the students' answers by nonverbal cues such as smiling, nodding his hand, etc.? 5 4 3 2 2

8. Respond to the students' questions and answers with enthusiasm? 5 4 3 2 1

9. State the different types of questions in clear and concise terms? 5 4 3 2 1

---

Student Observed

Class hour

Observer
VARIATION OF STIMULUS (PSYCHOMOTOR)

Behavioral Objectives:
1. The student will present a lesson using the demonstration method maintaining a score of three or better on each item on this evaluation sheet.
2. The student instructor will incorporate at least six gestures using his hands, head, and body movements throughout the entire presentation.
3. The student will vary his voice pitch and rate of delivery at least four times during the demonstration. Questions, answers, and other techniques should be used.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Evaluation</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Excellent Displayed outstanding characteristics</td>
<td></td>
<td>5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>4 Good Displayed above average characteristics</td>
<td></td>
<td>5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>3 Average Displayed characteristics at acceptable level</td>
<td></td>
<td>5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>2 Poor Repeat lesson, below mastery level</td>
<td></td>
<td>5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>1 Very Poor Repeat lesson, requirement undesirable or not included</td>
<td></td>
<td>5 4 3 2 1</td>
<td></td>
</tr>
</tbody>
</table>

In the demonstration, did the instructor:

1. Introduce effectively with behaviorally stated objective? 5 4 3 2 1
2. Include well-worded and appropriate situation questions? 5 4 3 2 1
3. Maintain eye contact so that he was aware that his listeners were with him? 5 4 3 2 1
4. Refrain from talking to tools, materials or chalkboard? 5 4 3 2 1
5. Move about easily and perform the operation skillfully? 5 4 3 2 1
6. Convey extra meaning with gestures using the hands, head, and body? 5 4 3 2 1
7. Position himself so that his teaching could easily be observed? 5 4 3 2 1
8. Vary the pitch of his voice? 5 4 3 2 1
9. Change the rate of his delivery by speaking faster at times, pausing, and asking questions? 5 4 3 2 1
10. Use correct grammar and choose wording for the students' level of comprehension? 5 4 3 2 1
11. Change focus of students' attention to chalkboard or other visual aid? 5 4 3 2 1

Contents:

<table>
<thead>
<tr>
<th>Student Observed</th>
<th>Class Hour</th>
<th>Observer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SUMMARIZING A LESSON (PSYCHOMOTOR)

Behavioral Objectives:
1. The student will present a three to five minute lesson using the demonstrative technique maintaining a score of three or better on each item of his evaluation sheet. Safety must be included in the lesson.
2. The student will have the class members summarize after each main point within the lesson as well as at the end of the lesson.
3. The student will have all needed tools, equipment, visual aids and materials ready and perform the operation skillfully with not more than one unexpected technical problem during the demonstration.
4. The student will emphasize and practice all safety precautions for the operation and involve at least one student with the safety precautions during the demonstration and in the summary.

CRITERIA EVALUATION COMMENTS

During the demonstration and in the summary, did the instructor:

1. Introduce effectively with behaviorally stated objective?
2. Use questions with appropriate teacher responses?
3. Vary stimuli during the lesson?
4. Emphasize and practice safety precautions and involve at least one student during the demonstration and in the summary?
5. Have all needed tools, equipment, visual aids and materials ready before the lesson?
6. Perform the operation skillfully during the demonstration?
7. Emphasize continuity between previously known material, currently presented material, and future learning?
8. Have the students summarize in their own words the main concepts and ideas during the lesson?
9. Summarize major points and ideas at the end of the lesson?

COMMENTS:

Student Observed: [Student's Name]
Class hour: [Time]
Observer: [Observer's Name]
Stout State University
Menomonie, Wisconsin

Methods of Teaching
Industrial Teacher Education
Mini-Lesson V

TEACHING A CO-OPERATIVE LESSON (COGNITIVE)

Behavioral Objectives:
1. The student will present a five to seven minute lesson using the discussion method maintaining a score of three or better on each item on this evaluation sheet.
2. The student will incorporate a majority of previously stressed points from the introduction, use of questions, variation of stimulus, and summary mini-lessons.
3. The lesson chosen should be of interest and appropriate level for at least three of the four 8th and/or 9th grade boys who will be the students during this mini-lesson.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Evaluation</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Did the instructor in the INTRODUCTION:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Relate the lesson to the students past knowledge or experience?</td>
<td>5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>2. State specifically what the objective/s were in terms of student behavior and why the objective/s were important to the students?</td>
<td>5 4 3 2 1</td>
<td></td>
</tr>
<tr>
<td>3. State how the students might achieve the objectives and when they would know that they had achieved them?</td>
<td>5 4 3 2 1</td>
<td></td>
</tr>
</tbody>
</table>

| Did the teacher in the PRESENTATION: | | |
| 4. Talk to the students and not to the instructional materials? | 5 4 3 2 1 | |
| 5. Present each idea or step in a logical sequence? | 5 4 3 2 1 | |
| 6. Present only one idea or method of doing an operation at a time? | 5 4 3 2 1 | |
| 7. Present the information or skill with ease? | 5 4 3 2 1 | |

| Did the teacher in the SUMMARY: | | |
| 8. Provide an opportunity for the students to show how well they had learned? | 5 4 3 2 1 | |
| 9. Have the students summarize the key points rather than doing it himself? | 5 4 3 2 1 | |
| 10. Clarify any key points not clarified by the students? | 5 4 3 2 1 | |

| Did the teacher in the LESSON: | | |
| 11. Use instructional materials that enhanced the lesson? | 5 4 3 2 1 | |
| 12. Provide an opportunity for students response and/or participation? | 5 4 3 2 1 | |
| 13. Vary the pace and methods of conducting the lesson? | 5 4 3 2 1 | |
| 14. React favorably to students’ questions, answers, and comments? | 5 4 3 2 1 | |
| 15. Use correct English and speech techniques? | 5 4 3 2 1 | |

Student Observed | Class hour | Observer
BIBLIOGRAPHY

Books


Published Reports


Yearbooks


Periodicals

Andrews, L. O. "Challenges and Needed Developments In Teacher Education." Monograph VII. Teacher Education In Transition: Emerging Roles and Responsibilities, no date.


Larson, Milton E. "Recently Completed Doctoral Research In Industrial Education." Journal of Industrial Teacher Education, Vol. 6, No. 4 (Summer, 1969), 64, 73.


Unpublished Materials


