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ABSTRACT

This second of two volumes resulting from a seminar attended by 232 vocational-technical leaders from 34 states and the District of Columbia, covers the general sessions and the sub-seminar on micro-teaching and video recording. General session presentations on teacher education by Martin W. Essex, Virgil S. Lagomarceno, and William G. Loomis are included. The six studies reported involved the use of micro-teaching and audio- and videotaping for feedback purposes in preservice and inservice teacher education as well as in a workshop for teacher educators. Some other factors considered in the various studies were: (1) teaching high school students versus teaching peers, (2) the length of lessons taught by student teachers, (3) use of the telephone and the mail in remote supervision of teachers, (4) the use of instruction models, and (5) the relative effectiveness of critique by self, student taught, fellow teachers, and teacher educators. The report of each study is followed by discussion of its implications. The report of the sub-seminar on teaching the disadvantaged is available as VT 010 163. (JK)

LEADERSHIP SERIES NO. 25
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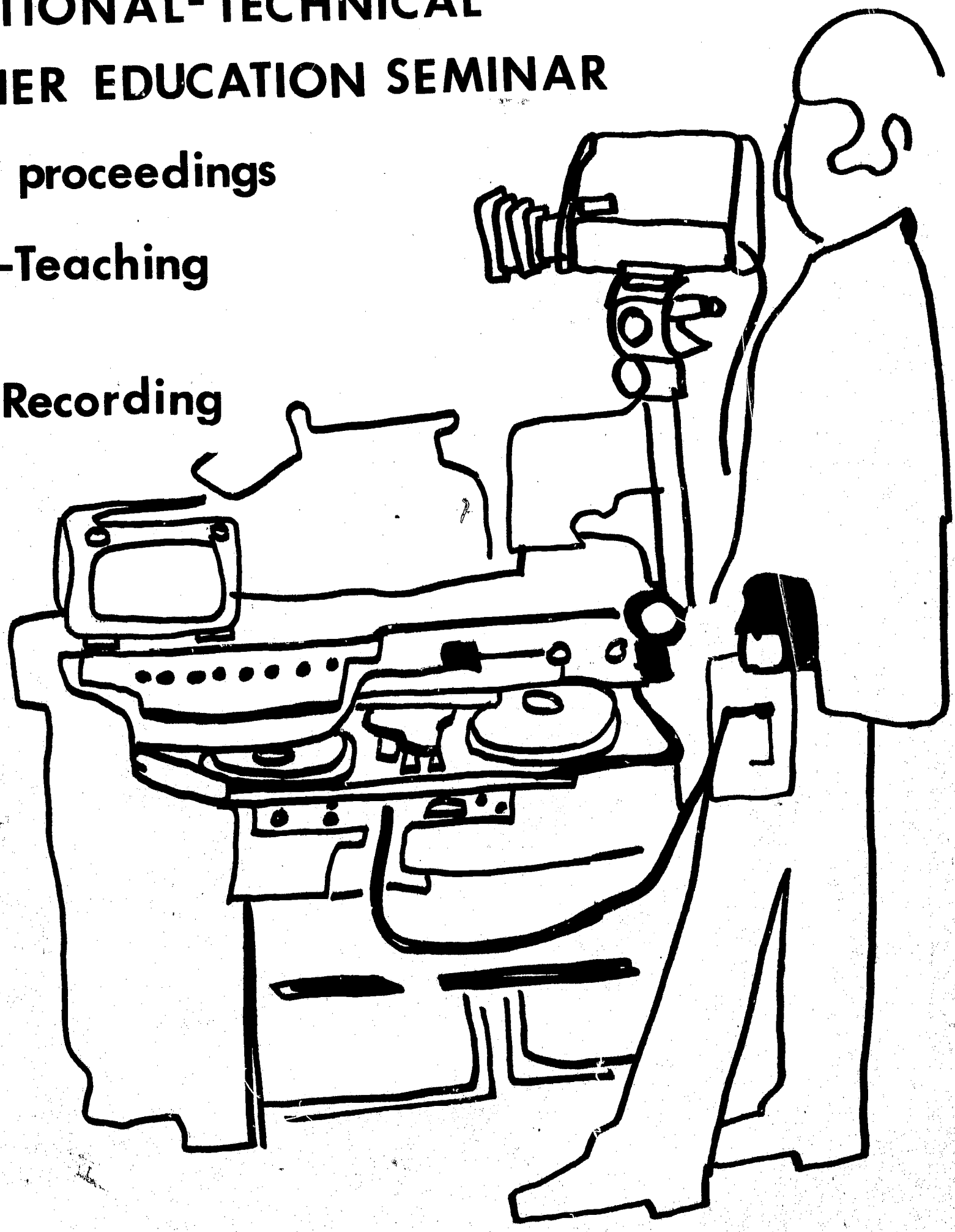
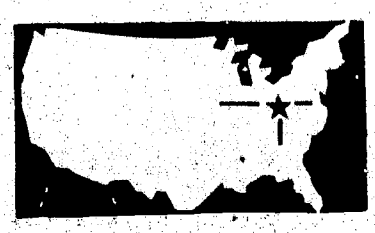
THIRD ANNUAL NATIONAL VOCATIONAL-TECHNICAL TEACHER EDUCATION SEMINAR

proceedings

Micro-Teaching and Video Recording





THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY, 1900 Kenny Rd., Columbus, Ohio, 43210

The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Comprehensive and Vocational Education Research, U. S. Office of Education. It serves a catalytic role in establishing consortia to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and inservice education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the *E*ducational *R*esources *I*nformation *C*enter located in the U. S. Office of Education.

LEADERSHIP SERIES NO. 25
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FINAL REPORT
ON A PROJECT CONDUCTED UNDER
PROJECT NO. 7-0158
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THIRD ANNUAL NATIONAL VOCATIONAL-TECHNICAL TEACHER EDUCATION SEMINAR PROCEEDINGS

MICRO-TEACHING AND VIDEO RECORDING

OCTOBER 20 THROUGH 23, 1969 MIAMI BEACH, FLORIDA

EDITED BY

CALVIN J. COTRELL

GARRY R. BICE

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY
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COLUMBUS, OHIO 43210

JANUARY 1970

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U. S. DEPARTMENT OF
HEALTH, EDUCATION AND WELFARE

Office of Education
Bureau of Research

PREFACE

Two hundred thirty-two leaders in vocational-technical education from 37 states and the District of Columbia registered for the Third Annual National Vocational-Technical Teacher Education Seminar. The purpose of the Seminar, conducted in Miami Beach from October 20-23, 1969, was to focus the attention of vocational education leadership on two problems considered to be critical to the future development and improvement of vocational-technical teacher education. The problem areas of 1) micro-teaching and video recording, and 2) teaching disadvantaged youth were identified by leaders in the field and participants at the Second Annual Teacher Education Seminar sponsored by The Center in October, 1968.

It was the intent of the Seminar planning committee and The Center for Vocational and Technical Education to have the Seminar serve as a vehicle to disseminate information on the 10 studies of The Center's research project in the area of micro-teaching and video recording and as a mechanism through which supervisors, teacher educators and teachers could concentrate their efforts to bear most effectively upon problems relating to the preparation of personnel to teach disadvantaged youth.

The report of the Seminar this year is in two volumes. This volume consists of a compilation of the three presentations given during the general sessions and the presentations on micro-teaching and video recording. Another volume consists of those presentations at the general sessions and the presentations given during the sessions related specifically to teaching disadvantaged youth.

Recognition is due to the co-chairmen of the Seminar: James W. Hensel, Professor and Chairman, Department of Vocational, Technical and Adult Education, University of Florida; Edward T. Ferguson, Jr., Specialist in Distributive Education at The Center for Vocational and Technical Education; and Calvin J. Cotrell, Specialist in Trade and Industrial Education at The Center; and Garry R. Bice, Research Associate who served as seminar coordinator; to other members of the Center staff; to members of the Ohio

State University College of Education for their valuable assistance; and to others who made presentations and served as discussion leaders. Acknowledgement is also given the Seminar planning committee whose members are recognized elsewhere in this report.

Robert E. Taylor
Director
The Center for Vocational
and Technical Education

INTRODUCTION

During the past five years many teacher educators in vocational and technical education have been hearing about micro-teaching and video recording and the promise these innovations hold for helping teachers and teacher educators improve instruction. Since a number of these leaders had no experience with micro-teaching and video recording, they were concerned whether these were fads or promising practices. To take some of the mystery out of these innovations and to demonstrate their potential value through laboratory and field testing, The Center for Vocational and Technical Education began a project in June, 1967. The sub-seminar on micro-teaching provided the opportunity to begin the dissemination of the results of this effort, Project 44--"Assessment of Micro-Teaching and Video Recording in Vocational and Technical Teacher Education," which consisted of 10 studies. Six of the studies were field tests which were the product of mutually beneficial joint efforts of The Center and several cooperating institutions. This report contains the summaries of presentations of the Seminar and is divided into four parts.

In Part I, you will find the presentations of the general sessions. These were stimulating presentations for all seminar participants, which provided the keynote, focus on the problems and closure for the teacher education seminar.

Part II consists of the summaries of presentations on five studies reported in the sub-seminar on micro-teaching. The first paper discusses four studies and includes three laboratory studies (Phases 1-3), which provided the foundation for field testing, and the report of the first field testing in a pre-service teacher education class (Phase 4), a cooperative effort with the Distributive Education Service of The Ohio State University. Also included, are papers on Phase 8, "A Study of Remote Supervision in Student Teaching" completed through a cooperative effort with the Home Economics Education Department, The Ohio State University. This part concludes with a report of Phase 5, "A Study of Micro-Teaching in a Pre-Service Workshop" completed through a cooperative effort with the Trade and Industrial Service, The Ohio State University.

Part III consists of the presentations on three in-service teacher education field testing studies reported in the sub-seminar. The Phase 6 report on a feasibility test of "Feedback Techniques for In-Service Education of Post-Secondary Teachers"

was conducted in cooperation with The Columbus Technical Institute, Columbus, Ohio. Phase 7 of the project, "Micro-Teaching and Video Feedback of Actual Classroom and Laboratory Teaching" was conducted in cooperation with the State University of New York at Oswego and the City University of New York. The third study reported is Phase 10, "Remote Feedback Techniques for In-Service Education" which was completed in cooperation with the Department of Vocational Education, Colorado State University.

Part IV contains the sub-seminar presentations on Phase 9, "Micro-Supervision" which was designed to test the feasibility of a workshop for the preparation of teacher educators.

The Appendices include the seminar program, special evening program, seminar staff, and list of participants in the micro-teaching sub-seminar.

We wish to acknowledge the outstanding contributions of the seminar staff whose papers are presented in this report and whose roles with the project have been cited in the footnotes on the first page of each paper. In addition to those citations, recognition is due Mr. Niyazi Karasar, research associate, who served as data processing coordinator and statistical consultant for the 10 studies. The assistance and cooperation of the many teachers, teacher educators and other members of the cooperating institutions and departments and the Center staff and administration are also gratefully acknowledged. It was a pleasure to work with so many cooperative and industrious professionals in the 10 phases of the project and in the first formal effort for dissemination of the project findings through the micro-teaching sub-seminar at Miami Beach. We trust you will find this collection of summaries of presentations interesting and beneficial.

C. J. Cotrell
Principal Investigator
Project 44
Chairman, Micro-Teaching
Sub-Seminar

CONTENTS

PART I

GENERAL SESSIONS

TEACHER EDUCATION IN A POST-INDUSTRIAL ERA

*MARTIN W. ESSEX**

I should remind you that I am a general practitioner, and hence, cannot qualify either as a theoretician or as an established scholar in the field of teacher education. In this respect, I am undoubtedly pushing the "Peter Principle" to its limit.

In the current climate, there is a heightening concern for a redesign of the traditional approaches to the preparation of teachers in all disciplines, including vocational education. Perimeters are pushed outward by the sweeping changes in our economy.

If you were asked to identify the most far-reaching development in your lifetime, in what direction would you go? Many would point to the nearly incomprehensible advancements in the electronics of communication. Through man-developed satellites, such as Telestar, words and pictures can be transmitted instantaneously throughout the world. Our "one giant leap for mankind" was dependent upon the capacity to communicate clearly over the 240,000 miles for the Moon landing. As you know, it came through, both picture and sound, in flawless manner. More recent developments in the sophistication of computers are equally phenomenal. The countdown and control element of the computer was another essential in the exploration of outer space. The combination of the communication advancement and the computer into "systems" may well be the most astounding and advanced scientific design of our time, and, of course, in the history of the human race.

It is needless to say to this erudite audience, that vocational education was an essential element in this startling state of progress. A decade ago, when the USSR lofted the first satellite into earth orbit, I was disturbed to note many of my fellow Americans castigating American education in a most venomous way. They blamed everyone, including the third grader, whom they accused of not studying hard enough. Unfortunately, when our spectacular success of recent months was attained, little, if any, credit was given to the essential factor of education. The IBM Corporation, for which I have great respect, chose to purchase a full page advertisement in the "New York Times" to state that they were

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*Dr. Essex is Superintendent of Public Instruction, State of Ohio, Columbus, Ohio.

proud to be associated with the other 20,000 companies that made this achievement possible; no mention was made of education.

Perhaps the reason that little attention was given to education was the growing Welfare syndrome. To illustrate the dimensions of this American malignancy, I note, with great concern, that the Ohio Legislature, during its recent session, appropriated $900 million for welfare payments--nearly a stand-off with the appropriations for elementary and secondary education. The most discouraging aspect, however, was the fact that the additional costs for the current biennium were in the order of $250 million, and that sum is for increased recipients--not higher rates of payment. Regrettably, this growth comes at a time of unprecedented affluence in our nation.

Why do I refer to our Systems development and our Welfare syndrome in addressing vocational education teacher educators? In my opinion, each of these developments presents colossal challenges to the design of the teacher education programs for vocational technical education. One certainly accentuates the need for skilled craftsmen; the other demands vocational teachers who will associate with a new design to blunt and reverse the conditions causing this human degradation.

In the American vernacular, we use the phrase--"It's a new ball game." Such was the atmosphere after the 1967 study of vocational education in this country was concluded. There was a sense of urgency and expectancy as we viewed the elements associated with the start of the second 50 years of vocational education in the USA. Apparently the Congress, in its near unanimity of enactment of the 1968 amendments, was caught in the same spirit of redesign. The study of the national scene had brought salient elements into focus.

- Forty percent of our youth, as a minimum number, should be prepared for an occupational pursuit when they leave the secondary school.
- A wider spectrum of occupations should be included in vocational education.
- The new urgency was not restricted to serving the economy or the job market as had been our historic posture in vocational education, but rather, the continuing crisis was to bring the Welfare syndrome to manageable dimensions.
- No longer could the nation's schools wait until the eleventh and twelfth grades or post-high school, to develop a work-readiness; an earlier start became imperative.

- Equally apparent was the fact that narrow approaches to vocational preparation must be replaced with a multi-outlook, and, perhaps, above all other elements in the design, vocational education must be a part of the general or regular school operations to avoid the European class separateness and to eliminate another great hurdle in the way of the acceptance of vocational education.

One would be naive, indeed, to overlook the salient character of teacher preparation and certification as a central force in the far-reaching decisions now before us.

On the threshold are compelling reasons for a vast redesign of American education, and it must be as sweeping as the three great movements of the past--Horace Mann's famous concept for a grammar school for all--the Kalamazoo Decision, legalizing the American high school--and the G. I. Bill, which opened higher education to great masses. The vehicle to lead a fourth revolution in American education could well be the acceptance of vocational preparation as an integral part of the total school program from kindergarten through graduate education.

It is our function in this conference to get on with the many aspects of a truly meaningful design of teacher education for vocational preparation of our fellow Americans. As a general practitioner, I welcome the privilege of humbly placing some proposals into the mix for your expert thinking.

There is reason for encouragement in the vocational education teacher area. The 1968 amendments give attention to the development of vocational education personnel. Special consideration can be directed toward training teachers in new occupations; federal grants may be used for the exchange of vocational teachers with technicians and supervisors in industry; in-service programs or institutes are encouraged.

For the first time, there appears to be recognition of the importance of vocational teacher education in a broad perspective. Hence, there are compelling reasons to support the funding for this and other portions of the Act.

The most nagging confrontation the Advisory Council had during the entire 1966-67 study was to associate vocational education with the regular school operations. The opinion among vocational educators that inadequate support from general educators and other aspirations has led to a continued movement for separateness. The basic philosophy that undergirds teacher preparation will be a central force in uniting the profession. The final decision could alter the basic structure of American education far beyond our present thinking. It could affect our entire culture and our unity as a people. Hence, I appear for your most

scholarly and comprehensive judgment as you prepare for an expanded teacher education program in vocational and technical education.

The second "do or die" issue that confronts vocational teacher education is a national urgency to come to grips with the Welfare cycle. The teacher's self-image will be a salient element in dealing effectively with this third generation issue.

As one visits vocational schools, he soon learns of the pride in high admission standards. The Council's study confirmed that the '63 Act was not reaching the unemployable prone youngster in either the ghetto or elsewhere.

We have reached what appears to be an insurmountable barrier in providing the amount of suitable education for the 20 percent of our fellow citizens who cannot pursue the high school program successfully and, no doubt, many others who do receive the diploma but who are not prepared for employment. When the Congress took its action on the 1968 law, it was thinking of a new kind of education which would blunt and reverse the welfare cycle and would bring dignity to millions of persons who have been rendered useless by our advancing technology. I urge teacher educators to prepare persons who can be philosophically equipped with a missionary zeal.

Stated simply, will vocational education become acceptable and effective in the ghettos and the rural poverty pockets? Can vocational education be made as effective and acceptable for the ghetto kid as it was for the farm boy?

A third element that looms larger and larger in teacher education is the urgency to develop a teacher-administrator who can function in a vast expansion of cooperative education. School and work experiences properly coordinated have proven to be very successful. New legislation encourages the cooperative approach. It will require, however, a new kind of administrator and understanding on the part of industry and business to make it function effectively. Likewise, to accept the learner who does best by repeated experiences rather that the abstract approach which requires a transfer of learning.

Recent conversations with Sidney Marland, Jr., who heads the Institute of Educational Development, gives evidence that there is a growing awareness of the potential and the need for improved liaison between business-industry and the cooperative school programs. The preparation of manpower for such functions would appear to be an integral part of a teacher preparation design.

Five years ago, I led a return study to the USSR with the primary objective of making an analysis of their work experience program. You may recall that in the late 50's the USSR officials launched a work experience and school associated project of huge dimensions. As originally conceived, it provided for pupils in grades nine, 10, and 11 to spend two days of the six-day week in employment. The initial approach provided for one day of employment each week and expanded their 10-year school to an 11-year school. Unfortunately for the Soviet Union, Chairman Kruschev, and the others who designed it, made the primary objective one of teaching respect for labor rather than a vocational or occupational preparation. Hence, as we viewed the operation in 1964, it was apparent that moving youngsters in and out of places of employment one day a week was disruptive to industry and unpopular with parents. Perhaps the lack of acceptance was due to the fact that the assignments were not vocational preparation oriented. Anyway, the practice was abandoned. Whereas, I hold firmly to the concept that we need to teach an improved understanding of the economy and respect for work, the Russian experiences confirm that we should move toward work related vocational preparation because it can accomplish both objectives.

A fourth area of concern relates to the need for a new kind of teacher-administrator in the residential vocational school. We have had a rough go with the Job Corps. Persons who are knowledgeable in vocational education and who are prepared for the residential managerial responsibilities will be needed. For many reasons, we will have disoriented youngsters who will need the residential school experience.

Fifth, I am more and more of the opinion that we need to prepare persons who are basically knowledgeable in the vocational area but who can be sufficiently flexible to function effectively as new occupations emerge. This assumption includes the cluster concept. The broadly prepared individual can come from a program which provides basic course and experience patterns.

Here is a tremendous challenge to all areas of teacher education. The elements of knowledge about the learning process, the organization of learning materials, the management of students, and a host of related elements that make a professional person, should constitute a core of the preparation program for all. Specialization in certain occupational areas is an essential and this aspect of learning should be tied in with summer employment and part-time employment. In some instances, it should follow the Antioch College approach. Here also is where we come to grips with the acceptance and design of differentiated teaching services. How can we have the best of two worlds?

I should like to direct the remainder of my remarks to a design which I have been projecting over the last three years

and which I believe offers the breakthrough to making teaching a profession and to equate it with the conditions of the last third of this amazing century.

First, let us dispel a delusion that has existed in our country for at least a century. It is the falacious assumption that the master teacher is obtainable for every classroom.

This is a myth that simply isn't attainable in a post-industrial society where highly talented persons are in demand for the many professional and managerial responsibilities required by an advanced economy.

People of exceptional ability come in limited quantities--they're not put up in mass production packaging. The concept of a master teacher implies apprentices and aides as well. Our thinking should move toward a unit concept.

Permit me to explore briefly with you some of the dimensions.

Let us use the professional teacher as a base. The professional in our emerging system must be regarded as the career teacher. For our time, this means the master's degree, with graduate work concentrated in the disciplines taught. He earns and exercises the privilege and responsibility of supervising the work of student teachers or interns.

He ranks in preparation, experience and salary above the bachelor-degree provisional teacher. He is qualified to guide the beginning bachelor degree, journeyman, student or intern teacher. He may be assisted by apprentices or technical and clerical aides. Thus, we have a unit potential for a number of pupils which could include the professional teacher, journeyman, provisional teacher, beginner, intern or student teacher, and aides. There is, however, a competency needed that goes beyond the levels implied by these concepts and one which is demanded by the complexities of our new frontier.

I choose to label this level the executive teacher. Otherwise, we have team teaching that is leaderless. Recognizing the facts of life regarding the distribution of abilities within a population, we must conceive means for sharing the exceptional abilities of superior teachers with more children and to hold within the teaching service our most talented persons. We must halt the drain of talented teachers who may become only average administrators.

The quality which distinguishes the executive teacher from the professional is that the former can work effectively with adults as well as children. This is a competency for which few

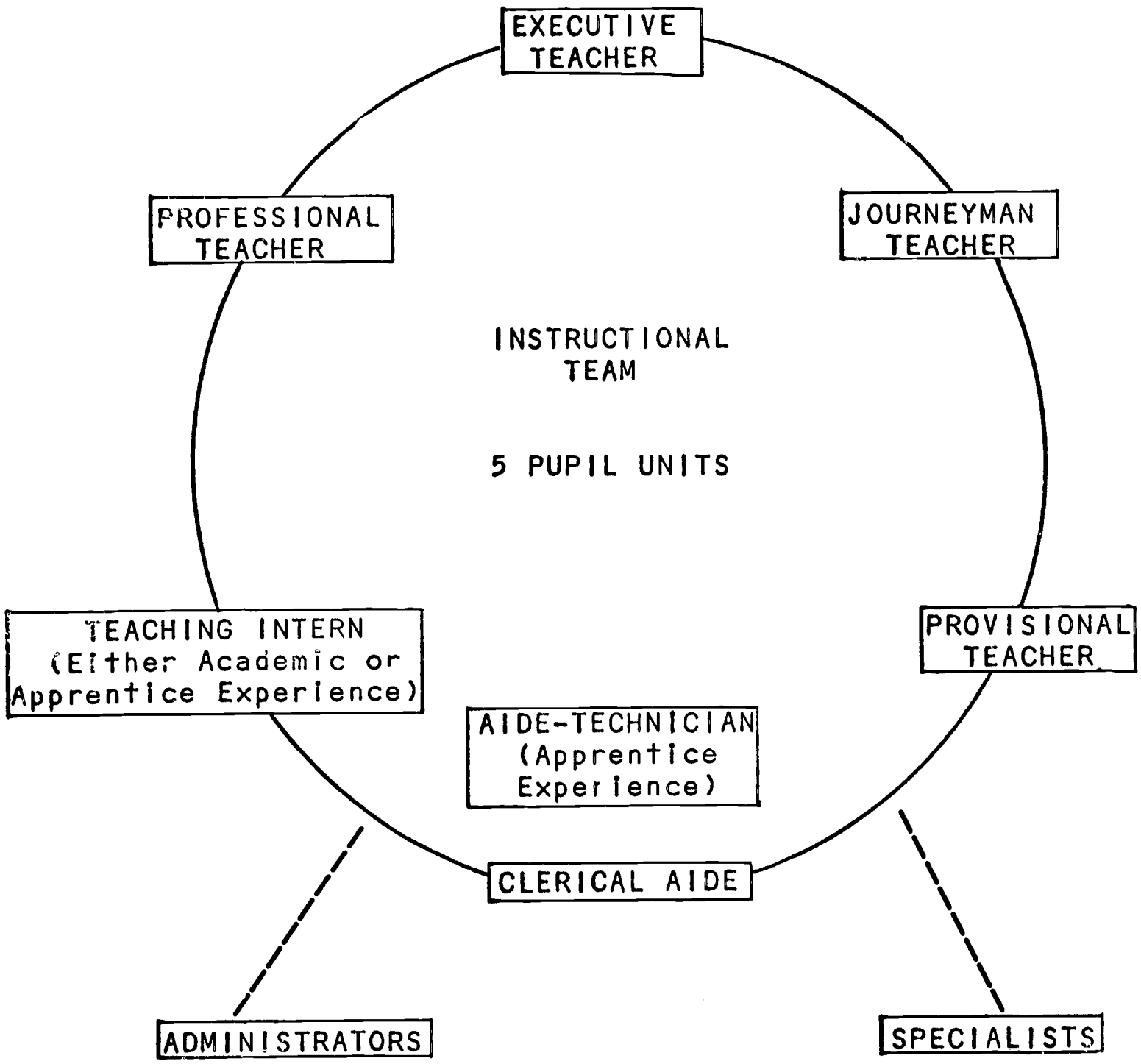
teachers have been prepared. This became evident in our inner cities with the burst of pre-school and compensatory services the past few years.

Thus, the preparation programs by which we may prepare journeymen, aides and interns for future teaching will also need to encompass the retraining of teachers to utilize assistants.

Manager of the total instructional team, however, would be the executive teacher. In addition to teaching, the major components of his role would be:

- To organize and direct the total team effort
- To assume responsibility for long-range planning of instructional units and curriculum goals
- To direct or measure the dimensions of individual needs of pupils through an understanding of testing, diagnostic and guidance processes
- To direct or prepare visual and lecture materials
- To direct or schedule and organize equipment
- To consult with parents and deal with home problems associated with school progress
- To plan and schedule special services including health, speech therapy and psychological services
- To associate with research, both as a participant and a consumer of research findings from elsewhere.

Now, where does the executive teacher fit in the structure of a team or unit deployment of manpower? At the top, in a position roughly comparable to that traditionally occupied by the elementary principal in terms of pay and prestige. Here is how the instructional team might be organized.



In terms of preparation, the team would be composed of--

Executive Teacher	M.A. plus
Professional Teacher	M.A.
Journeyman Teacher	B.A. or Journeyman Experience
Provisional Teacher	B.A. or Journeyman Experience
Teaching Intern	(Student Teacher
	(Retraining Teacher
	(M.A.T. Program
Aide Technician	Minimum H.S. or Apprentice Experience
Clerical Aide	Minimum H.S. or Apprentice Experience

Within such a team, there is room not only for the advanced and experienced teacher, but also the aspiring and beginning one. The clerical aide or apprentice might or might not have potential for future teaching, depending upon the concept of skill and service associated with the position. The apprentice or aide-technical role, however, could be conceived as a nonprofessional job for housewives, college students and others on a part-time or full-time basis who aspire to become teachers. Their experience in setting up equipment; laying out the day's tests, tools and reference books according to plan; inventorying materials; setting up projects and demonstration of tools; assisting pupils with cooperative work schedules; would be invaluable parallel preparation to their collegiate courses.

The teaching intern with either academic or apprentice experience, if paid a salary as a supplement, could extend his supervised initial classroom experiences to a year or more full-time, rather than the part-time teaching that predominates present preparation patterns. Depending upon the plan of preparation to fit the needs of the school and the objectives of the colleges, the internship might be part of the student teaching experience or the initial year of the B. A. degree teacher's service. There is no insurmountable barrier to such a program in vocational teacher education. Varied approaches should be tried as a means of attracting persons of ability in volume.

Both the technical-aide and journeyman positions, however, offer means of attracting, identifying and holding promising prospects for future teaching careers. The clerical aide--concentrating on child accounting, test scoring, fund collection and the like, might also be a similar source for future teachers if selection criteria were suitable.

The provisional teacher or journeyman represents the basically prepared and qualified person in roles of lesser responsibility--working with small groups, conducting teaching routines and supervising ordinary classroom functions. His commitment to continued service, willingness to accept professional responsibilities, and progress in graduate study would determine his advancement to professional status.

The position of executive teacher would await those exceptional and dedicated scholars and practitioners whose drive and desire mark them for leadership, whose dedication and enthusiasm invite additional responsibility, and whose personal qualities and reputation earn them distinction in the school community. He is paid at a rate significantly higher in accordance with his additional duties and responsibilities. In terms of ratios, the pay scale might look like this:

Executive Teacher	1.25
Professional Teacher	1.00
Journeyman Teacher	.85
Provisional Teacher	.85
Intern	.40
Aide-Technician	.35
Clerical Aide	.30
Total for 5 Pupil Units	5.00

Thus, this is no pie-in-the-sky plan--no dream of grandeur. Using the professional, or master's degree teacher, as the base of the system, the total equivalency after adding the aide-technician and clerical aide remains at five teachers equivalents for five groups of pupils. If the base were, at say, $12,000--an executive teacher could expect to earn $15,000. An intern could begin at $4,800--equivalent to many college fellowships. Thus, the instructional team, while providing more prestige and greater resources for the teacher also gives the taxpayer the services he wants without additional cost.

Now, let us summarize the advantages of an instructional team headed by an executive teacher.

- It permits a graduated pay scale for varied responsibilities and status that have characterized professions other than teaching.
- It brings to teachers the personal recognition and rewards of advancement through achievement.
- It brings added dignity and prestige to the teaching profession, hopefully a new level which it has not attained in the past in our society.
- It augments the manpower supply by bringing more persons to the realm of the classroom and gives them sound experience as a basis for making a career choice in education.
- It encourages the able to remain in teaching rather than to use it as a stepping stone to other professions.
- It brings to every group of children the talents of superior teachers, rather than treating them to a succession of beginners.
- It recognizes the facts of the distribution of human abilities and capitalizes on the best that each person can contribute.

It provides for lesser and greater positions of responsibility on the teaching team without detracting from the traditional concept or pay of the professional teacher.

A corollary to a sound plan of teaching service requires a radical departure for the in-service program of vocational teachers. I am of the opinion that in-service education must be institutionalized. Either the State Department of Education or the universities must develop full-time divisions which devote themselves exclusively to a year-round development of the instructional materials for in-service learning. These materials should be gradated to serve the beginning teacher and the experienced teacher. Likewise, they must be redesigned annually to keep abreast of new knowledge of the pedagogical process and new techniques that are developing in the area of employment. The staff should rely heavily on both the academician and the practitioner for its component personnel. Hence, it will be necessary for the professor to take some turns around the track in the operational areas of his field of specialty.

The Micro approach should be a great asset to the design of a complete in-service program in each area, in much the same way as it can function in the pre-service period. The vocational teacher educator should lead the way in using all the available gadgetry, both manual and electronic. He has advanced knowledge and skills in the field of hardware.

There is evidence to indicate that private publishers cannot profitably produce instructional materials in the varied phases of vocational education to keep pace with the rapid changes in practice and technology. Here is where the Research and Development Centers or Regional Laboratories, or some facsimile thereof, could be associated with the Office of Education or with the State Education Agency for development of instructional materials. In addition, the institution that is concerned with in-service education should also assume a role in the development of texts and teacher guides for use in the classroom.

One sees some elements of the potential for the development on instructional materials in the Soviet Union where the Academy of Pedagogical Sciences has some 2,000 scholars and technicians engaged in the exploration of new pedagogy and the development of instructional materials. We, in this country, in order to preserve our cherished varied approach to education, and to avoid the stultifying fossilization that could result from single control, should fund selected R and D centers and laboratories for this purpose.

Where does this relate to teacher education? It relates all the way up and down the line in the preparation of the practitioner but more intimately in the graduate programs.

Presently, in Ohio, we are planning a state-sponsored mammoth transportation research center. Certainly, the professor of teacher education in the vocational field should have a close liaison with similar research facilities that are financed by the private sector, also. A close liaison with the trade associations, whether they be in restaurant, motel-hotel, hospital, machine tool, airline, or what have you, should be sought and encouraged.

Continuing commissions should be adequately financed to function with full-time staff assistance as adjuncts to our R and D centers for both pre-service and in-service preparation of teaching personnel. They should have full autonomy to generate status studies and to project trends.

I urge you to think big and to think positively. The destiny of the most advanced nation in the history of man needs new direction. We can reverse the American malignancy of unemployability and public welfare which is tearing us asunder; it can be done with a suitable form of education.

May we think, as Horace Mann did, when he conceived a grammar school opportunity for every man's child, as the route to the American Dream, or shall we think as the Supreme Court did in the 1870's, in that Kalamazoo Decision, when it said that the public high school was within the framework of our Constitution, or, as the Congress did, when it enacted the G. I. Bill, enabling great numbers to have the opportunity for higher education?

All of these thrust the American economy past the rest of the world and enabled us to develop the highest level of culture that man has known.

The fourth great opportunity is within our grasp; it brings an equally compelling urgency to keep the American Dream a shining symbol of hope for all.

THE PREPARATION OF TEACHERS: SOME CONCERNS AND CHALLENGES

*VIRGIL S. LAGOMARCINO**

An ancient historian once noted that "all is change and all is flux, and an ever-flowing river and no man can bathe twice in the same running water." Without laboring the point or attempting to show its validity either in our historic past or, at this point in time, let me simply acknowledge it. In the process of this rather patent acceptance, a small addition would seem to be pertinent, namely that the rate of this change has accelerated and we are, indeed, proceeding at a geometric ratio rather than an arithmetic rate.

Our problems in a complex-interrelated society become compounded because this rate of change is not constant among the parts and creates imbalance, sometimes of great magnitude, among the segments. Sometimes these imbalances occur within the segments as well. Let me be precise. If we consider education in its totality, we know it is currently out of balance--both with the rest of society as well as within itself. Let me quickly point out that this is more often the case than not, and furthermore, it can be emminently desirable and necessary for continued growth and development.

When the educational establishment or any of its parts lags behind and appears outmoded, archaic, and decaying, we are impelled to do something about it, to change it, to improve it, indeed to revitalize it and make it work more effectively for society. When the growing edges of education are seemingly ahead of the rest of the establishment and ahead of society as well, there is a struggle of varying intensities to catch up.

During the former period when education lags, we are provided with the incentive to close the gap between where we are and where we "need to be." The accompaniment to this melody sometimes takes different forms, it is often loud and even at times obscures the central theme. Nonetheless, we generate action and often even improvement.

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In the cycle when the growing edges of education, theory, and development seem to be a bit ahead of practice, we often tend to be derisive about theory and theorists. Or, if we fear we are approaching being outmoded, or remember the last time we were accused of being archaic, we sometimes rush to adopt it (the new technique, or organization, or structure, or whatever) simply because it's different.

What really makes our problem even more complex is that we don't always know what period we are in. We have found that sometimes it is easier to analyze the past than it is to understand the present.

If we attempt to evaluate, we don't really know if we have control on all the variables; or if we tend to act before we evaluate, we may act hastily; or if all we do is evaluate, we may never really institute change. We may indeed be guilty of what someone has called "a paralysis of analysis."

Nonetheless, when we strip aside philosophical considerations certain issues still confront us because we are cognizant of particular problems and realities. We are motivated as professionals to continue to want improvement and we are acutely aware of certain needs. We know, too, that practitioners along the "cutting edge" are discussing ideas, instituting new practices, etc. that have been successful for them and may very well have promise for us.

In your deliberations, you will be involved in both--that is to say--you have recognized a very real area of concern (the disadvantaged learner) and you have identified a method (micro-teaching) for accomplishing a part of the teaching act more effectively.

Let me say as we begin that the thrust of this presentation is designed to focus on the professional preparation of teachers with an accompanying examination of some of the educational trends that are developing on the national scene. My remarks are also intended to serve as introduction to both of the major seminar topics which in themselves, are a part of an examination of the most effective means for providing professional background and training for individuals who want to teach in vocational or technical education.

So far I have attempted to outline rather hastily certain of the elements pertaining to education in a complex and interrelated society. Obviously, there is much more that needs to be said and could be said to sketch the background properly; however, the nature of my assignment makes a detailed analysis of the background impossible. Nonetheless, I am constrained to be a bit more precise.

Meredith Wilson in the *Music Man* puts it very well when he notes, "You've got to know the territory." Before we talk about the preparation of teachers for the world in which we live, we need to have a bit more perspective in the market place, as it were. Certainly a knowledge of the social, political, and economic landscape is in order.

It is not my intention, however, to enter into a discourse on so wide a range of possibilities as that. The complications and problems of our pluralistic society and its interrelated institutions go far beyond the boundaries of this speech, or for that matter, the competence of the speaker.

I have just read Peter Drucker's (3) provocative new book, *The Age of Discontinuity*. He makes the point that new technologies are upon us. He holds that these new technologies will create new major industries and new major businesses. Much that is current could well become obsolete.

In our new industrial society, at least as envisioned by Drucker, the new opportunities for employment will extend from a number of new industries and from resulting attendant industries, all of which will generate a need for greater well-trained manpower.

The significant aspect of this emerging industrial society will be the increased role of the school in the preparation of the needed workers. Examine if you will, also, what Herman Kahn (5) and others have indicated that may lie ahead in the last third of this century. Among a list of 100 technical innovations are such things as: new or improved materials for equipment and appliances; new sources of power for ground transportation; more sophisticated architectural engineering; new or improved uses of the oceans; automated or more mechanized housekeeping and home maintenance; general use of automation and cybernation in management and production; automated grocery and department stores; extensive use of robots and machines "slaved" to humans; very low-cost buildings for home and business use; home computers to "run" the household and communicate with outside world; maintenance-free, long-life electronic and other equipment.

In a world threatened by huge wars of destruction, by pollution, by depletion of our resources, by over-population, in a society that is increasingly typified by complex social organizations, by large bureaucracies with their accompanying qualities of depersonalization, and in a world that is dependent upon technology, we are called on for great courage and fortitude just to keep going.

It is readily apparent, too, that our environment is becoming increasingly urban. It has been estimated that some 300 million

persons will be living in the United States by the year 2000 and that 90 percent of them will be living on one percent of the land. This has all kinds of implications for living, for education in general, and for vocational-technical education in particular. With the expanding technology, we are proving ourselves capable of producing more and more goods with fewer and fewer people. It is quite logical to conclude that most employment by the turn of the century might very well be in human services.

It is also just as logical to project that we are approaching a time in our history when we will not be dependent upon unskilled labor in order to survive. This has real implications for the disadvantaged and vocational-technical education.

The American Association of Colleges for Teacher Education in the recent publication *Teachers for the Real World* (7) came to grips with our problems in this area in a clear and lucid manner. They say "unless there is scrupulous self-appraisal, unless every aspect of teacher training is carefully reviewed, the changes initiated in teacher preparation as a result of the current crises will be, like so many changes which have gone before, 'merely differences which make no difference.'"

The writers hold that "teacher training must begin with the goals of youth education clearly in mind. Without this basis, there can be no valid assessment of teaching or teacher preparation." Briefly stated, the writers hold that the goal of teacher education "in any society is to impower youth to act in the interest of society." They go on to say that "in a free society, that the goal must be to impower the individual to act in his own interest without intrusion on the rights of other persons. They hold that everything that is learned in the name of education must be judged by whether there is a current or future use of that learning in making choices." Specifically there are four areas to which education must direct its attention. Students must become well able to: (7)

1. Choose, perform, and enjoy a viable vocation.

2. Exercise the complicated task of democratic citizenship.

3. Engage in culture-carrying activities.

4. Engage in satisfactory inter and intra-personal relationships.

It seems to me that this is entirely consistent with this experiment in social interaction that we call democracy. At the crux of our ideal is the concept that the individual is important. We believe in the inherent worth and dignity of each person. Our schools, our colleges, the basic laws of our land, the structure

of our society are all committed to the principle of the individual, his rights and his opportunity for growth and development. At the same time, we know that an individual in a democratic society has the greatest amount of latitude, we also know that he is also limited by the rights, the duties, the privileges as well as the legitimate activities of other individuals. And somehow out of this complex inter-relationship, we must mold a society which places emphasis on the individual and at the same time provides for the well-being of all other individuals. This is no easy task to which we have set ourselves, but whoever said it was?

John Dewey one time noted, "Democracy is reborn every twenty years and education is the midwife." But the birth cry does seem a bit more strident this time around doesn't it?

The role of the teacher in all this, in my judgment, is paramount. And as we go about our tasks of helping to maximize student growth, because that is what our job really is, we have some real responsibilities. Students are going to learn no matter what we do as teachers. Our job is to maximize that growth, or rather, to help students to maximize their own growth and development. In doing this, not only do we have to be creative, but we have to provide the model or establish the climate for our students to be truly creative.

I think we have to emphasize creativity, creative interaction, the discovery method in our schools and colleges because we cannot predict what a person will need to know in the twenty-first century, or for that matter, the last three decades of this century.

CREATIVITY AND THE CLASSROOM

As I look at some of the research that is being done into this business of creativeness and creativity, I am struck by the fact that a number of researchers would indicate that we have placed so much reliance on the intelligence test as a measuring device in our schools, that we have neglected a large segment of our student population who because of the way they think would not tend to do well on intelligence tests. Among the significant and new achievements in the education world in our time has been on tests of creativity. It is interesting to note that they are almost the opposite of I.Q. tests, which are still used almost exclusively in our schools to evaluate students. It has been noted that these tests (I.Q.) measure only a few of the mental abilities of the students and appeal to particular types of individuals--students who accept yes, no, right, wrong answers and those who can memorize large amounts of data tend to do well on these tests of intelligence; but we know that the I.Q. tests do not measure, indeed they are not intended to measure, the student's

flexibility, originality, and his depth of thinking, or for that matter, his intuition.

Intelligence tests as we know them, tend to measure the kinds of thinking that Guilford calls convergent thinking. This kind of thinking demands the ability to recognize or remember or to solve by moving toward a "right answer" or one that is more or less clearly seen.

But there is another kind of thinking which Guilford calls divergent thinking and it emphasizes a different approach. It emphasizes searching activities with freedom to think in different directions. It may emphasize the ability to innovate or perhaps to invent. This is a kind of thinking that we believe is the hallmark of the creative person's intellect. But standard tests of intelligence do not measure this quality, at least to any significant degree.

We have noted from some other research on creativity that the highly creative person, among other things, has the capacity to be puzzled. He is the kind of person who sees facts as invested with possibilities, who does not see everything in strict dichotomies. He is the one who asks the imaginative question, "What would happen if ---?" or says to you, "yes, but ----!"

Certainly at the core of what we need to attempt to do is to help the teachers we prepare, and we can do it by example to establish the climate for developing creativity. The question then becomes, "What can we consciously do to set the stage as it were in our role of maximizers of growth and development to help our students and their students to reach their potential?"

Obviously there are many things that should be said and could be said both about creativity and our role in developing it.

At the risk of being too hasty and sketchy, let me state it this way. In my judgment, before a teacher can really foster creativity in students, he must be capable himself of self-renewal and of creativity. He must be innovative and versatile in his approach to the classroom situation. He must realize that his basic responsibility is to maximize the growth of his students. In a nutshell, he has to be "on fire," as it were, for his job. He must be able to develop his own special abilities and competence--remembering always that teaching is an art, an art based on some scientific principles on how students learn, but an art nonetheless. And just as he needs to ask questions, he must encourage his students to ask questions and develop ideas without fear of punishment or ridicule. Just as he rejects the filling out of useless reports as unadulterated busywork, he must seek in his laboratory or classroom the type of program that would not involve the mere memorization of rote data for its own sake.

Succinctly we have to place emphasis on the creativity and on the experimental in our own classrooms. Knowing that a student is learning to be truly creative and is learning to maximize his own growth when he has the opportunity to discover, it then becomes necessary that the skills of investigation become a vital part of what goes on in every classroom. There need to be continuous opportunities for independent study which is so necessary to the maturing mind. There needs to be a great deal of first-hand experiences. There ought to be the opportunity to read and to read extensively. Not only as someone said to read lines, but to read between the lines and then to learn to read, as it were, beyond the lines where one begins to ask himself the questions, "what does this really mean to me?"; "what other kinds of experiences have I had that relate to this?"; and "what can I do about it?"

Our classrooms and our students' classrooms need to be the kind of environment that challenges, yes, and even perplexes students. The kind of environment that encourages puzzlement, not the kind of environment that carries this too far to the point of frustration; but this is what makes teaching an art--to realize that students must be challenged, puzzled, and perplexed without being frustrated, confused, and defeated. Our classrooms have to spawn the kind of learning environment where facts are not just ends in themselves, but are means to other ends and where we see them, the facts that is, as invested with possibilities and not just inert ideas. In other words, we must know how students learn and what are the conditions for effective learning. We must also know what students think and to what they may aspire.

STUDENTS' ASPIRATIONS

I don't know whether you have had an opportunity to read the *Scope Report* (6) made by the Center for Research and Development in Higher Education, University of California at Berkley, in cooperation with the College Entrance Examination Board. It is concerned with discovering the decision-making pattern among high school students--the ways in which they acquire information about colleges and vocations, the stages where the decision-making occurs and what elements of their environment influence the decision-making process. It was a seven-year study and involved about 90,000 students in four states--California, Illinois, Massachusetts, and North Carolina; but certainly it has much wider implications than that. I was interested in a number of the questions and even more interested in the responses that were reported.

One question that was asked was, "Have you talked with teachers about your future work?" From the responses reported in the four states, roughly less than half of the students studied

indicated that they had talked with teachers about their future work. It is important to note that this question was asked of eleventh graders. Some of them did indicate that they would wait and do this until the twelfth grade, but I think that is an appalling statistic!

The plot thickens as one reads on in the report because in answer to the question, "Have you talked with counselors about your future work?" the average is close to 40 percent of those who have done this, leaving about 60 percent of those who have not.

The study also sought, in analyzing students' education aspirations, to find out what students would like to do after they finish their education. In California, 47.9 percent of those who regarded high school as terminal chose the category electrician, auto mechanic, and welder; and 29.4 percent who intended to terminate at junior college or vocational-technical school indicated their choice to be electrician, auto mechanic, or welder. In Illinois, 52.4 percent of those who intend to graduate from high school chose electrician, auto mechanic, and welder. Thirty-eight percent of those hoping to graduate from a junior college or vocational-technical school chose electrician, auto mechanic, or welder. Approximately the same percentage held true for the other two states.

In response to the question, "What do you think you will actually become after you finish your education?" we find some very enlightening things. About half of the boys in each of the four states who consider high school as terminal, indicated that they thought that they would be in the areas under the category electrician, auto mechanic, welder; and in three of the states, California, Illinois, and North Carolina, approximately 40 percent of the boys who intended a junior college of a vocational-technical education to be terminal, also indicated that they would expect to work in the category mentioned. If you would include sales personnel and businessmen along with clerks and factory workers, you would find about from 65 to 70 percent of the boys who intended junior college or vocational-technical school to be terminal to be in the categories mentioned.

There are a number of conclusions one could draw from just a superficial analysis of these brief data. The first thing that is apparent to me at least is that a tremendous percentage of those persons who intend to graduate from high school as well as those who intend to go on to junior college or an area vocational-technical school intend to seek employment in the areas that could be classified as vocational-technical. One wonders, however, even with this narrow classification whether or not some of these jobs will indeed be in existence, although they will be certainly for the foreseeable future.

The decisions concerning job potential may be entirely realistic, but when you put together the fact that approximately 50 percent of the students have not yet talked to one of their teachers or their guidance counselor about either their possible interest or fitness of job potential in these areas and then see the vast amount of students who intend to go into them, you have cause for serious thought. This indicates that the teachers we prepare have a job to do concerning simply talking and communicating with students.

Incidently, this later point is highlighted by the fact that the researchers also asked the question, "What is your first choice among the types of jobs listed below?" and then they listed by description five categories. In job 0 you could make lots of money; in job 1 you could help other people; in job 2 you could become famous; in job 3 you could create something original; in job 4 you could have lots of free time. In California, 55 percent of those who considered high school to be terminal, and 51 percent of those who considered junior college or vocational-technical school to be terminal, marked in job 0--"you could make lots of money." In Illinois, it was 60 percent of the high school graduates and 54 percent of the junior colleges or vocational schools; in Massachusetts, it was 52 percent of the high school graduates and 50 percent of the junior college graduates; in North Carolina, it was 55 percent of the high school graduates and 52 percent of the junior college or vocational school, which is, of course, quite consistent throughout the states surveyed. The interesting part of this is that those who marked four-year college programs or graduate programs showed decreasingly less interest percentage wise in jobs in which they could make lots of money.

In case you are interested in girls, at least as reflected in this study, there was also a rather consistent pattern, but not quite as marked as in the case of the boys. While there was significant number (percentage wise) of the girls who wanted a job in which you could make lots of money in each of the states for the two levels mentioned, i.e., high school graduates and junior college or vocational school graduates, there were higher percentages in the second category, i.e., jobs in which you could help other people. Now you can draw all kinds of conclusions from that. Either that girls are more altruistic or less honest, or perhaps more realistic.

I report this here simply to help us understand certain elements of current attitudes and to urge you to read the *Scope Report* in terms of gaining a better insight into some of our problems in really "knowing the territory."

THE TRADITIONAL APPROACH TO THE PREPARATION OF TEACHERS

Obviously, we already know more than we are doing in teaching education, but let's take a quick look at what we have traditionally done to prepare teachers. Now I happen to think that in many instances we have done very well. Most of us can be justly proud, or at least are, of our product. But whether or not this is good enough, is another matter. I choose to think it is not. And as I look at the traditional approach that we have used far too often, I am sure that we can do better.

Let me just quickly sketch what might be a typical approach to the preparation of teachers. We give them a smattering of courses in methods. Sometimes we label them general methods and special methods, we run them through an introduction course and then we talk about principles and something about the history of education. All this, or at least part of this, is done early in the program before he really has any time to spend with the kinds of students with whom he will be concerned.

Traditionally there has been very little time for observation, and in some programs, a student will go out to student teach in a high school without ever having been in a high school since he left it himself as a student. We find that we spend a minimum time, if we are preparing to be a high school teacher, with high school level students prior to the student teaching experience.

Then we have vacillated all around in terms of where we place the importance of the knowledge of subject matter. There has been in this country, at least in our historic past, an attitude that the knowledge of a subject is the only necessary element to good teaching. And then, of course, we have gone about the teacher education practice of preparing our teachers by lecturing to them. We tell them that we know better; we tell them we hope they won't do it when they get out to teach, but because of time and number of students and so forth, we feel that perhaps they will excuse us if we lecture to them.

Far too often we put too little emphasis on how learning actually occurs, and far too often we put heavy emphasis on the organization of the school day and how to make lesson plans. Sometimes we talk about evaluation techniques, but always about classroom control. Frankly I think we can do better, and honestly, I know we had better do better!

ATTRIBUTES OF EFFECTIVE TEACHERS

In this age of advanced technology, when we are even now on the threshold of even more advanced technology, we are accused of depersonalizing our students in a machine-made world and in a

machine-run world. The students say that they are constantly in fear of being folded, spindled, or mutilated.

As we look at the attributes of effective teachers, there are some overriding concerns that are in point for teachers as well as for teachers of teachers. Certainly it is fundamental that a teacher himself work at the problems of human relationships. In an era of machines and depersonalization, it is crucial that we as teachers and as teachers of teachers effect a closer walk with our students and encourage our students to do it with their students.

Really the only justification for machine technology and the computer is to make man's task easier and perhaps even more accurate. Certainly the time saved by using the computer and other of man's machines ought to be devoted to students, either directly or indirectly.

I can give you a very pertinent example. Some five years ago, our Teacher Placement Office decided to utilize the services of our Computer Center. Rather than posting lists of vacancies or filling up a card file with all the positions available causing the students to crowd in an already too small office to search diligently through scores and scores of lists, we now have a practice that is more efficient. Each student is asked to fill out a card indicating his teaching major and minors and telling us at what level he wants to teach, in what geographic area of the country he would be most inclined to accept a position, as well as certain other pertinent information. Each week on a Monday morning, he gets a complete printout of the job vacancies that are among the 40,000 that we receive annually, listing the positions that are open in the categories he listed, with the specifications that he wanted. He can save his time by researching in depth those jobs that are listed on the computer printout, and in which he is really interested. Our office staff can now utilize their time in giving him advice and counsel much more efficiently than before. It is not necessary nor does it follow that we have to be depersonalized in our relationships with our students or with our colleagues simply because we use modern technology.

The teacher, too, must know how to communicate on a broad basis to many groups in society. The AACTE study group holds that many students today are "victimized" because the teacher is unable to speak their language and that recruitment of people primarily from middle income population will continue to contribute to the problem of communication. They go so far as to hold that a teacher who is ignorant of linguistics is not a good teacher, no matter what his area of competence may be.

We can issue long lists of pronouncements about needs, we can examine, explore, and even utilize new techniques and technology and emphasize all kinds of ideas and concerns, but the real issue remains--what really happens when our products (the teachers) face their products (their students) in the classroom? Everything else is peripheral!

We know also that in designing a learning model that we must consider the interrelationships of the affective, cognitive, and psychomotor domains. I would place prime importance on the affective domain--that area dealing with values, attitudes, and interests. It is my judgment that we need to emplore further what we might do in this area to help vitalize the learning process. We need to examine, use all kinds of media, techniques, etc.; but in the "ends-means scheme" of things, let us not be deluded, technology like facts is a means not an end!

SOME AREAS OF CONCERN AND DEVELOPMENT

Let me be a little more specific about some of the things that perhaps we need to consider. Some of these are already being done and show great promise. You're talking about fundamental concerns in dealing with the disadvantaged and in microteaching at this conference. I think the conference planners put their collective fingers on two important areas, but let me list what I think are some musts in terms of improving teacher education:

--We need to put the teacher education candidate in touch with students early in his career--to work with them, to observe them, and to learn to speak their language.

--We need to put increased emphasis on theories of teaching and learning. Practice is important, but unless there is an established rationale, it (the practice) may be less than relevant.

--We need to get excited about the use of educational technology in classrooms and how to use media more creatively. Not only micro-teaching and video taping, but simulation, audio-tutorial techniques, single concept films, etc.

--Professors need contact with secondary students themselves. Perhaps they even ought to teach periodically in the secondary schools. At least they ought to observe frequently.

--Certainly we ought to experiment continually with all kinds of teaching approaches and strategies.

--We need to understand the research on creativity--what it is and what we might do about it, and how we can draw students into a sense of mutual discovery.

--We need to provide for individual differences among our student teachers. We talk to our students about individual differences that they will find in their students one day; but we put them through a lock-step program of preparation with too little thought to their needs.

--We need also to expose our student teachers to a number of teachers and different teaching styles so that through this broadened experience they may have a better base for the development of their own teaching style.

--We need to involve practicing teachers to a greater degree in the planning and developing of teacher education programs.

--We need a revitalization of in-service education.

--We need a broadened understanding of the evaluation of instruction.

--We need to become concerned about the development of teacher competencies.

--We need to develop and then critically assess the educational criteria that undergird our programs.

With particular respect to vocational-technical education, some further ideas would seem to be in point:

--Grant Venn suggests that our programs ought to provide beginning work experience early in the program for exploratory purposes, then again in the middle and latter part of a program to test theory against practice.

--A policy statement from Minnesota holds that continuous coordination with industry should be maintained so industrial requirements or shortcomings of the education program can be communicated immediately.

--Serious consideration should be given to the coordination of all vocational-technical programs within the university.

--Perhaps we ought to establish a state vocational-technical teacher education advisory council.

--Why not develop a cooperative-coordinated state vocational-technical teacher education program?

--How might we develop a coordinated in-service education program?

--What about broadening the base for the acceptance of credit for occupational competency?

--How about organizing a "think tank" operation on local and state level to just dream about "what might be?"

--When are we really going to involve persons across the total vocational-technical spectrum in "action research?"

--Why not explore possibilities of periodic work experience opportunities for teachers of teachers in the world of work?

--Can we develop methods and techniques to identify, motivate more of the unemployed who should be afforded training?

As I look around me and talk with my colleagues, and as I read the literature I think I can synthesize for you some of the things that are happening on the national scene. Whether or not they are trends, however, is another matter. The brief listing that follows overlaps, in part, necessarily the preceeding items of concern. Let me just mention some of them quickly:

--There is a movement toward individualized learning. This can be brought about in part by use of the modern technology if understood and used correctly.

--More attention is being paid to some of the inter-indisciplinary approaches to learning and teaching. In the preparation of teachers, we too often leave this to chance.

--Differentiated staffing has gained attention--where experts from certain areas cooperatively work in the learning-teaching process. Your seminar last year highlighted this area and it is gaining real momentum in the elementary and secondary schools.

--Independent study has been an area of growing concern. Its development in the main, however, has been limited to the honors programs.

--We are beginning to define teaching behaviors with a little more clarity.

--Some progress is seen in the development of the teacher as an instructional leader. More thought will be given to preparing teachers to direct the work of assistant teachers--paraprofessionals--and to serve as members of an

instructional team. This is requiring a higher level knowledge of interpersonal relationships.

--There is an increasing demand for media specialists to direct programs, to help teachers use the new technology more wisely and to develop the software necessary.

--Computer assisted instruction is becoming increasingly important as a medium of instruction. (It may be important to note that we, in our programming and use, are in all probability lagging behind the technical capabilities of the computer.)

--There are many other devices now available to teacher educators that are being used in varying degrees and with varying success. Perhaps a mere mention will suffice: single concept films, dial access, the audio tape, the multi-media study carrel, the tele-lecturn, student automated response systems, the "back pack" video tape recorder as well as closed circuit TV. No one really can guess what other developments can lie ahead in this area.

--We have already talked about providing an atmosphere for the development of creativity and there may be just the glimmer of a beginning here.

--You would be interested to note that AACTE proposes *A Training Complex* based on the rationale that while the theoretical component of a teacher education program can more effectively be the responsibility of a university, that the training program calls for a new institutional mechanism because university personnel and present facilities are not adequate.

One of the reasons for this inadequacy is the need of easy access to students from a wide range of backgrounds and socioeconomic and cultural origins. In the view of the writers (AACTE) a university faculty is "too removed from the practicalities of teaching and running a school to operate a training program alone."

The call is for a "new social mechanism" that can bridge the gap between the schools and the university. The writers are inclined to call them "training complexes." It is not my purpose to analyze this proposal, but rather to report to you this proposal as one of the "growing edges."

--Flexible scheduling as a system for reorganizing the secondary school day is also an exciting development. Rather than ascribing rigid and arbitrary one-hour sequences of time to various subject-matter areas, emphasis is placed

on student performance and achievement recognizing that not all students progress at the same rate. It also provides greater efficiency by utilizing the technique of large and small group instruction and allowing time for independent study. Our teachers are finding they need a greater insight into students' capabilities and limitations if flexible scheduling is to function effectively.

I am certain that you could add to this list of developments. It is not intended to be exhaustive, but only partially representative. We are confronted not only by the need to know and understand all that is happening, but the problem of what to choose and how to use.

THE CONCERNS OF THIS SEMINAR

It would be possible to spend a lot of time talking about each of the areas under consideration in this seminar. I would just like to comment about them briefly.

One is concerned with micro-teaching, and the other element for your discussion is concerned with the disadvantaged. Let me begin by making a couple of background comments concerning micro-teaching.

Some of the best material I have read on the developments in teacher education in general, and on video processes in particular, has been published by the Multi-State Teacher Education Project, or M-Step as it is called, under the direction of Howard Bosley (1). The project included the states of Florida, Maryland, Michigan, South Carolina, Utah, Washington, and West Virginia. Its two major goals were to experiment with innovative procedures and laboratory experiences and to carry forward intensive exploration concerning how television and related material might be used in teacher education.

I wish I could claim that these ideas were original with me, but they are not; but I subscribe to them wholeheartedly and want to share them with you because I think they are extremely pertinent.

Certainly all of us are concerned or ought to be concerned with the need for classroom observation. With increasing enrollments, this causes problems particularly if we are not in a large urban center. Observation by video tape may be even more effective than direct observations because the preparation can be controlled for specific viewing of desired teaching objectives, the tape can be stopped or replayed when there are questions or when the need for reinforcement is present, and then, too, the classroom observations which are on video tape can be selectively analyzed and used again and again.

Bosley lists at least five significant uses of video processes which include: (1)

1. A flexible substitute for classroom observation.

2. A useful source of self appraisal for student teachers.

3. A means of providing instruction in the skills and techniques inherent in the teaching processes, especially via single-concept video tapes and related aids.

4. Recording and evaluating progress of student teaching, aimed especially toward inducing individual, professional growth from analyses of long-term patterns of teaching behavior as opposed to sole reliance on the usual fragmentary and short-term review-critique process.

5. Preservation of original data for later analysis and research, e.g., the accumulation of evidences of common strengths and weaknesses of student groups.

When one examines the advantages of micro-teaching, he is made aware that they include the fact that it is possible to effect a concentration on a single, manageable teaching process accompanied by an opportunity for immediate reteaching and strengthening of the process during the evaluation period.

It is clear also that whether we use simulation or the critical incident process, or single-concept films, or micro-teaching, or audio-tutorial techniques, they should all fill two requirements: one--to build concepts and skills effectively, two--to save time.

It goes without saying that the concept of micro-teaching, with or without video taping, represents one of the most exciting developments in teacher education in recent years. I would just like to utter one word of caution. The use of micro-teaching and the accompanying technique of putting it on video tape demands a high order of planning if we are to derive from it its maximum potential. It can serve as a medium for a high degree of creativity if properly utilized.

I would like to make just a brief comment in conclusion concerning your other concern here in this seminar, with the problems and issues of preparing teachers to work with the disadvantaged. Certainly it goes without saying, in fact we all have said it, that the teaching of the disadvantaged requires broad life experiences which few teachers coming from predominantly middle class backgrounds have had.

We have long talked about the need for teachers to understand their students, but we haven't always provided the kinds of experiences that would permit or encourage the teachers we prepare to really understand the disadvantaged or culturally deprived. Perhaps it would be better to say culturally different.

In the main, the group to which I refer as disadvantaged come from families which are extremely poor. They have only the minimum essentials of life and life itself appears hopeless indeed. Without public aid they very well could not exist. When one is conditioned to this kind of environment, one can see little future except the kind of future that their parents have had. Poverty and futility indeed do become a way of life. When one looks at the abject poverty, the poor nutrition, the lack of employment, the dirt, the dire living conditions, and a future without hope, certainly one understands or begins to understand why deprived students fail to respond to traditional patterns of schooling.

The AACTE in the publication cited before in this presentation makes the valid point there is an immediate need for additional training for at least two groups of teachers who teach in deprived areas--first, those who will be teaching for the first time in the area; and second, those who are currently teaching there but in order to work most effectively, need additional preparation. But what is really interesting and I think important is that this is simply a stop-gap measure--the real problem lies in a much better understanding and preparation of teachers for the real world. Do not be deluded, however, because it is also the point of the publication that special teachers are not needed for children of different ethnic and social groups, but we need teachers who are able to work effectively with children regardless of race or social situation.

We are now beginning to realize a problem which was so aptly pointed out to us several years ago by James Conant (2) and highlighted again for us by Miriam L. Goldberg (4) in her manuscript *Teachers for Disadvantaged Children* when she notes that "it is expected by 1970, one out of every two pupils in large city schools will be culturally disadvantaged."

We need to take broad, bold, and new steps first to really understand the nature of the problem and second, to do something about it. Vocational-technical education may well set a nationwide example for planned constructive action, if we but will.

I have a very dear friend who was a graduate student with me several years ago. He is an old-world Indian and comes from a little, rural community in Madras located in the south of India. He is currently the principal of a vocational high school there, but has just come this fall to America to teach sociology for

a year or so in one of our midwestern colleges. He was in my home recently and I was needling him about getting prepared to teach. I asked him what he was going to teach and he told me that in his general field, sociology, he was going to teach some work in rural sociology, but he was also going to teach a course in urban sociology. "But," I said to him, "you're not an urban sociologist." His reply was classic. "No, not yet," he said, "but I have decided that I will teach what I know and what I do not know, I will learn and teach." I don't think that most of us as yet know very much about the dimensions of that area that we call disadvantaged, but I do know that we had better learn a great deal more about it because it is vital to the well being, to the security, and to the development of all of us.

IN CONCLUSION

Let me say in conclusion that education has really become what many educators for a long time have wistfully and wishfully said it was--namely the real key to the onward and upward movement for men and nations. In man's value structure, it has become number one.

Vocational and technical education because of its close ties with the economy of our country and as a result of the great need for its product (trained personnel) in the business and industrial sectors has become even more central in our national scene. The rate of the expansion of our economy, the nature and growth of our population as well as the implications for change itself, have serious implications for the preparation of vocational-technical teachers.

It seems to me that in vocational-technical education our concern, of necessity, is twofold. One, we need to prepare students to become employable participants in the "existing world of work." Two, we need to help them to be inherently flexible and prepared for the new demands that will emerge as a result of the changing society.

This is indeed an over simplification, but in my judgment, the problems of our times call out for four things:

1. A knowledge of the facts of our problems and the ability to identify the chief areas of concern.

2. A creative imagination to seek out some possible solutions.

3. A carefully considered decision as to the proper course of action.

4. A real commitment to carry out a plan to implement the decisions that we make.

I hope that you will be among those who will stand high on tiptoe to look hopefully into the future, motivated by a real desire for improvement and that none of us here will ever join those who have given up and ceased to canvas the options for a new beginning.

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PROFESSIONAL DEVELOPMENT FOR VOCATIONAL EDUCATION
ITS LIMITLESS POTENTIAL

*WILLIAM G. LOOMIS**

The big news this fall in American education was that the national teacher shortage which has plagued us since World War II was finally beginning to ease. I wish I could be as sanguine about the situation in vocational-technical education.

Frankly, we're going to have to double our vocational education teaching force over the next five years--just to stay even with increasing enrollments.

And we aren't producing vocational education teachers in anywhere near that quantity.

Obviously, some revolutionary changes are needed in the preparation of professional personnel for vocational-technical education.

The latest statistics available in the Office of Education indicate that enrollments in public vocational education programs probably will reach 8,555,000 this year and will increase more than 100 percent to 17,250,000 by 1975. With a student-teacher ratio of about 50:1, that means we have a teaching force of some 171,400 today.

Assuming we can maintain the same ratio--which we all agree is too high--we'll need at least 345,000 teachers in 1975. That's 173,600 more than we now have, an average of 34,700 additional vocational education teachers each year over the next five years. As you know, we're actually producing only about 20,000 additional teachers per year. Obviously, our production rate has got to be increased by nearly 75 percent per year. Additional professional and paraprofessional support personnel vitally needed in vocational education programs throughout the country are not included in these estimates.

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And even if we could accomplish this minimum goal of more than doubling our present effort, it would still be, in my judgment, an inadequate accomplishment.

I predict that the career development demands upon our public school system in the years immediately ahead--including post-high school and adult offerings--will have to be met in volume and variety in a manner never dreamed of by most of us.

Those of us primarily concerned with the professional development of vocational education personnel should address ourselves to four immediate needs:

First, of course, the need to double our teaching force by 1975.

Second, the obvious need for more in-service training for those currently staffing our vocational-technical schools, both to upgrade their basic subject-matter skills and to improve their competencies as teachers.

Third, the need for more and better leadership personnel in vocational-technical education.

And finally, the long standing need for an understanding and appreciation of and a commitment to vocational education on the part of public education decision-makers, including the academic faculty.

Before suggesting some approaches to meeting these needs I would like to share with you a point of view with regard to the need for action on our part. (The challenge to make some changes):

The contrasts and contradictions now present in our society exceed any we have known. For instance:

- In a society that is or shortly will be reaching an annual productivity of one trillion dollars, over one-third of its people live in or on the margin of poverty. (Many voc-ed programs of the past may "train for poverty level jobs." See Sylvia Porter's article of two months ago, "Working Poor in Need of Attention." Career ladders can be built into our program.)

- In a society where there are persistent unfilled demands for highly skilled employees, about four million unemployed individuals are unable to match their work skills to meaningful employment.

- In a society where the scientific establishment has actually reached the moon and is probing outer space, less than one-half of the adults over 25 years of age have completed a high school education.

- In a society where education is increasing the basic link between youth and the world of work, some 20 percent of its young people become high school dropouts.

- In a society where over one-half of the student population does not enroll in post-high school education, less than 18 percent of its students are currently being enrolled in secondary programs of vocational education of a gainful employment type.

- In a society where preparation for work is required for virtually all people in all jobs, the prevailing educational structure is primarily designed to serve the 20 percent, or less, who will eventually complete a four-year college degree.

- In a society where education is expected--among other expectations--to help young people to make a living, there is an illogical and perplexing division between academic and vocational education.

- In a society which emphasizes careers and success above all other attainments, education directed to occupational preparation is considered inferior to education directed to other ends and is artificially set apart from them.

This list of contrasts and contradictions I have just outlined is by no means complete. But the implications for education--particularly vocational education are clear. If we have in our educational arsenal a "vehicle" (program?) that is charged more directly than any other with the responsibility for coping with the needed change--surely that one is vocational education.

If the full potential of vocational education is to be brought to bear on the complex of problems our society faces, it is imperative that:

- The role, the responsibilities, and the postion of vocational education be clearly delineated and included in the total education structure, and that

- The mission and goals of vocational education be stated clearly, and that they be appropriately integrated with the other goals of the education system at all levels.

Until these requirements are met, the real potential contribution of vocational education cannot be realized. It is, of course, essential that there be a continuous redefinition of the goals of vocational education (and the total educational structure) in keeping with economic and social changes.

Now, if we are to really attain the week to week and year to year objectives that are established in your various states for vocational education--I say to you that the focal point for such accomplishment must be an appropriately structured, dynamic, and adequately supported professional development program. It's a privilege for me to be standing before the leadership group in this endeavor today--and I know you are going to get the job done.

I would like at this time to share with you some strategies that I believe are essential to the accomplishment of this mission:

1. It seems imperative that each State develop a master plan for professional development as it relates to vocational education programs. The State agency for vocational education should assume primary responsibility for this ongoing task--with a full partnership arrangement with the appropriate four-year institutions such as those you represent, and the LEA's.

2. Massive efforts should be launched to provide in-service training for those currently employed. These efforts should be astutely directed to areas where you will get the "biggest bang for the buck"--in other words the greatest impact on the overall program. May I suggest that this may well be State staff, middle-management personnel such as local directors, supervisors--and dare I say teacher educators! This Miami meeting is, of course, a commendable example.

3. Pre-service training should be carried on in tandem with this in-service effort--this should include provisions for increasing leadership capabilities on a long-range basis.

4. Special attention must be given to building up the capabilities of colleges and universities in this unique area of professional development. Ways and means must be devised that will increase the commitments of the appropriate institutions to this task.

5. New approaches to staff recruitment for vocational education programs must be utilized. Programs that provide realistic career opportunities must be plotted. The source of personnel may be youth seeking their first job, the military, the minority groups or the currently unemployed from business and industry or other educational activities.

6. Barriers instead of incentives to professional development may be identified in some certification and licensure requirements. Some of these requirements may--in fact--block essential recruitment activities and discourage the upgrading process. These roadblocks must be eliminated.

7. Local decision-makers must be given the information necessary that will permit them to develop program objectives, set new priorities--and to develop short and long-range plans to be implemented. (By local decision-makers I mean school superintendents, principals, community college administrators, and local board members.)

8. Part D of the 1968 Amendments to the Federal Vocational Education Act provides for "exemplary programs and projects." The implementation of this legislation--just that part relating to the "familiarizing of elementary and secondary students" with the broad range of career opportunities--has dramatic implications for many of our programs. If I were a teacher educator in any State, I would want to be involved in determining course content and personnel requirements for these new programs.

9. Cooperative exchange programs should be developed to a greater extent between local educational agencies and business and industry. Colleges and universities should become involved in this process. As an in-service or pre-service process this is talked about more than it is practiced throughout the country today.

Now, you may ask, can the Education Professions Development Act (EPDA) funds be used to implement these approaches (strategies!). The answer is "Yes." The challenge to those of us in the Bureau of Educational Personnel Development (BEPD)--as it should be--is how do we get the most mileage out of our limited resources. This is one of the most exciting parts of my job!

Funds requested by those of you in the States from part F, EPDA funds from the current fiscal year, as of August 1 deadline, was in excess of $34 million. These requests were distributed throughout 40 of the States and the District of Columbia and would provide training for some 23,000 participants.

The present allocation in the Bureau for vocational education projects for the 1970 fiscal year is $5,750,000. I would estimate that the Bureau's present resources will permit us to fund about one-sixth of the projects submitted with a proportionate number of participants being trained. (We recognize that other educational manpower shortages and budget constraints due to inflation limit what we can realistically expect from the Federal Government.)

We thought you would be interested in more specific information about the types of undertakings now in progress in the Bureau that relate to vocational education--including priorities that are being applied in approving projects!

Briefly stated, part F of EPDA is a two-point program:

- It is the purpose of section 552 through the means of leadership awards to provide opportunities for experienced vocational educators to spend full-time in advanced study of vocational education for a period not to exceed three years in length.

- It is the purpose of section 553 to make grants through the State agencies for vocational education that will provide opportunities to update teacher competencies through exchange programs with business and industry or other means, and provide other in-service teacher education and short-term institutes.

- Present plan by the Bureau calls for implementing the Leadership Award Section (552) by identifying and beginning the development this first year of a network of (selected universities) "regional West Points for vocational education" that will become the nucleus of an expanding program for this purpose. It is tentatively planned to fund some eight to 10 universities for this purpose from 1970 funds that will enroll perhaps as many as 160 full-time leadership award recipients from the 50 States. (I know that I need not point out to you people the potential impact this program can have upon vocational eduation, including the participating institutions.)

- In making grants on a competitive basis to State agencies (Section 553) emphasis is being placed upon the development of statewide master plans for professional development in vocational education. Priority is given to proposals designed to equalize educational opportunities, to the inner-city problems, to identifying and trying out new approaches to in-service training (especially industry-school exchange programs) and to projects that provide "on-site experiences" for teachers and others. On-site projects would usually be those carried on with local educational agencies--perhaps in cooperation with teacher training institutions.

- The Bureau, through special grants some six months ago established what is known as Leadership Training Institutes for the several major program areas provided for under EPDA. The primary mission of these institutes is

to train project directors concerned with EPDA grants and advise the Bureau on related problems and activities as requested. The Institute for Vocational Education, with its some 25 member advisory panel, in close cooperation with my Branch of the Bureau will be conducting at least six or seven formal training sessions this fiscal year--primarily for State agency and college and university personnel. Two such training sessions were held within the last month. The activities of the Institute are closely associated with the objectives and priorities of the Vocational and Technical Education Branch of the Bureau. I am indebted and deeply appreciative of the efforts of Dr. Bob Worthington, Project Director for this Institute and the advisory panel--some of whom are in this audience.

- One of the purposes of EPDA is the "developing of information on the actual needs for educational personnel, both present and long-range." In fulfilling the requirement for an annual assessment of educational manpower needs as it relates to vocational education, arrangements have been made to contract with Jacob J. Kaufman, Principal Investigator, Institute for Research on Human Resources, Pennsylvania State University, to secure this information. This study is scheduled for completion by the close of the calendar year. I know we all will be interested in making use of these findings as they become available.

- Personnel in BEPD and the Vocational Education Bureau are not unaware of many of the common problems you face as teacher educators--especially the basic problem of providing for the preparation of what I call "all-around vocational educators." With few exceptions we continue to prepare specialists in the various service areas with little attempt to present vocational education as a coherent whole, and with very little attempt to show its relationship to academic education. We are presently planning to sponsor with the cooperative efforts of the Vocational Education Bureau an institute during the first half of this next calendar year that will address itself to this general problem and related program impediments. In-depth position papers will be reviewed and edited by a national committee--and following the institute will be distributed to teacher educators, administrators, and others.

- The last item of Bureau activity that I especially wish to mention is the provision for coordinated effort with the vocational Education Bureau. This commitment to

coordinated effort on the part of the respective Associate Commissioners Davies and Venn has been warmly supported by such other key people as Dr. Leon Minear, Director of the Division of Vocational Education. This goal has been reinforced recently by Commissioner Allen in a policy statement outlining selected key provisions for such coordinated effort among the several bureaus concerned with vocational education. This should assure more effective results at the Federal, State, and local levels.

This report to you has perhaps tended to be somewhat like a Heinz 57 mixture. I hope, however, that as a result of my appearance before you we will be able--

- To work together more effectively at our respective tasks, and
- To mobilize the various resources available to us--including EPDA funds.

As you people play your key roles in this rather limitless professional development potential in vocational education--I would hope the role I would have played--in some small way would emulate the person referred to in the verse by a sage of another time:

A leader is best

When people barely know that he exists,--

Of a leader, who talks little,

When his work is done, his aim fulfilled--

They will say, "We did this ourselves."

PART II

LABORATORY STUDIES AND FIELD TESTING - PRE-SERVICE PROGRAMS

ESTABLISHING THE FOUNDATION FOR FIELD TESTING

*CHARLES R. DOTY**

Vocational and technical teacher education programs are finding difficulty serving an increasing number of teachers. Therefore, these studies investigated selected teacher education techniques involving micro-teaching and video recording as potential solutions to the problem. Each of the laboratory phases one, two and three was used to develop and test in a simulated program a minimum of two new teacher education techniques and one new teaching skill plus supplementary instructional materials consisting of instruments, video recorded instructional models and presentations. Phase four tested some of the previously developed techniques and materials in a regularly scheduled teacher education methods course.

OBJECTIVES

These studies had the following major objectives:

1. To assess the feasibility and effect of selected teacher education techniques (utilizing micro-teaching and video feedback) on the teaching competency of pre-service and in-service vocational and technical teachers.

2. To identify priority teaching skills in vocational and technical education, to develop instructional instruments and, as a side product, video recorded models of these skills.

3. To demonstrate (field test) the application of selected teacher education techniques in a vocational and technical teacher education course.

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METHODOLOGY

The principles of micro-teaching were applied to the program because five-minute teaching sessions with four students were sufficient for simulating a variety of programs as well as serving as the vehicle for the collection of data on teacher performance under various teacher education techniques. Video recording of all teaching sessions provided the capability of video feedback and the means for collecting data on teacher performance. The data was evaluated by independent panels consisting of qualified teacher educators. Measures of teacher satisfaction with each technique were collected at the end of each study.

STATISTICAL ANALYSIS

For the laboratory phases, an analysis of variance statistical design was used for analyzing the data. For the classroom application to test differences among treatment groups on a pre-test--post-test design, a two-way analysis of variance was used. Also included for all phases was an analysis of variance test to determine significant change in performance of teachers on each technique.

SAMPLE

Teachers who participated in the first three studies were pre-service and in-service teachers from all vocational-technical service areas with teaching experience ranging from 0 to 14 years. Teachers in phase four were teachers of distributive education (pre-service and in-service).

Phase 1--An Analysis of Face-to-Face and Remote Feedback Techniques

The principles of micro-teaching were used to simulate a teacher education program to provide the vehicle for collecting data on teacher performance under three teacher education techniques. The feedback techniques tested in this study were: 1) teacher-teacher educator face-to-face conference without video feedback (simulated conventional teacher education); 2) teacher-teacher educator face-to-face conference with video feedback; and 3) remote supervision via video replay of the teacher's lesson and audio playback of the teacher educator's recorded critique.

The instrument on the skill of introducing a lesson was developed and used as an instruction guide and self-evaluation form for the teacher, a critique guide for the teacher educator, and a measuring instrument for the panel.

An analysis of the teacher performance data revealed no significant differences among techniques but did reveal positive change in teacher behavior in all three techniques tested.

The face-to-face conference without or with video feedback was judged by all participants to be of value for pre or in-service teachers. Teachers receiving remote supervision, especially the pre-service teachers, expressed a need to have personal contact with their teacher educators at the beginning and at the end of the study. The remote supervision technique was successful and with certain modifications was considered for testing in future laboratory and field studies.

Phase 2: An Analysis of Face-to-Face, Delay of and Remote Feedback Techniques

The principles of micro-teaching were used to simulate a teacher education program to provide the vehicle for collecting data on teacher performance under four teacher education techniques. These techniques were variations of feedback given teachers: 1) face-to-face conventional conference, which provided personal observation of the teaching session by the teacher educator for the purpose of developing suggestions for improving the teacher's teaching; 2) face-to-face conference including playback of the video recorded teaching session; 3) delay of feedback which was a three day delay between the teaching session and conference with teacher educator plus video feedback; and 4) remote supervision via video replay of the teacher's lesson and playback of the teacher educator's critique via a second sound track on the video tape.

The teaching skill selected was oral questioning from which an evaluation instrument was developed for use by the students, teachers, teacher educators and panel members.

The face-to-face conference was selected because this technique simulated as closely as possible general field conditions. By comparing the other three techniques, which were experimental, with the conventional technique the effects of the experimental techniques could be measured.

The results of this study indicated the four techniques were not significantly different in terms of the teachers' performance.

As in the first study no significant differences existed among treatments but under each treatment a significant change had occurred in teacher behavior from the first teaching session to the last.

All techniques simulated in this study were judged by the participants and investigators to be feasible with few minor

changes in procedures. The teachers who received remote supervision stated that they wanted one personal contact with their teacher educator.

The satisfaction of the participating pre-service and in-service teachers was high in regard to using high school students and having the opportunity to practice teaching in a laboratory situation.

Phase 3: An Analysis of Instructional Model and Remote Feedback Techniques

A simulated teacher education program was again created in the laboratory. The techniques were designed to simulate teacher education programs so the results of this study could be used in ongoing in-service programs. The three techniques tested were: 1) face-to-face plus video feedback, 2) remote feedback via a second sound track on the video recorder, and 3) remote supervision using video recorded instructional models and self-critique.

The teaching skill for this phase was demonstrating a manipulative skill. An instrument was developed for participant use and evaluation of teacher performance.

An analysis of the data indicated that the three techniques were not significantly different. As in the two prior studies, teachers in all treatments made significant positive change in their behavior.

Teacher satisfaction with all treatments was high. As in phase two, the teacher wanted personal contact with their teacher educators prior to involvement in the remote supervisory group. Teachers assigned to treatment three wanted more instructional models to view.

Phase 4: Classroom Application for Micro-Teaching and Video Recording

The first application of information gained from the laboratory studies in an actual field test situation was in a distributive education methods class. This class on The Ohio State University campus was selected because it was readily available and the teacher educator of the class was interested.

In the laboratory studies, high school students were employed for the teachers to teach. Traditionally, all methods courses have class members (peers) act as students. The investigators wanted to know if teaching to peers or high school students produced any difference in the teachers' teaching. The investigators were also wanting to determine the effects due to video feedback. Combining these two variables resulted in four teacher education techniques which follow:

		Video Feedback	
		Yes	No
Students	Peers	1	2
	H. S. Students	3	4

For example, teachers receiving technique one, taught their peers and received video, teacher educator and peer feedback. All teachers taught micro lessons.

All instruments were condensed to form an evaluation instrument titled "Teaching a Complete Lesson" to be used by the participants and panel.

Although there were no statistically significant performance differences among the treatment groups on the last teaching session, the attitudes expressed by the different groups did indicate some differences. The traditional treatment, no video replay and teaching to peers, produced the group with the lowest level of satisfaction. The teachers who received video replay or taught high school students gave a high rating to the method they received.

The teacher educator was highly satisfied with the use of the techniques. He indicated that the video feedback provided the teachers with a personal insight not otherwise available. Other teacher educator observations were that the combination of micro-teaching and video feedback enabled the teachers to analyze their teaching through the use of definite steps and that the instructor using these techniques must state precisely the objectives of the course to prevent teacher apprehension.

FINDINGS

The techniques, traditional and experimental, utilizing micro-teaching and video recording were judged by the participants and investigators as being feasible for both pre and in-service teachers with some minor changes in procedures.

Although there were no statistically significant differences among treatments, teachers in all techniques, traditional and experimental, achieved significant positive change in behavior during the studies indicating teacher behavior can be changed in a short period of time.

The teaching skills selected by department heads of vocational-technical education departments at The Ohio State University and Center specialists were developed into instruments which,

as judged by the users, have provided valuable assistance for teacher self-evaluation, guides for the teacher educators and criteria for panel measurement of teacher performance. The teachers requested more instructional models to view and study.

The field test was a success as judged by the teacher educator. His evaluation was that micro-teaching and video recording provide the teacher a tool for practicing teaching skills and analyzing that practice.

CONCLUSIONS

The following conclusions were drawn from statistical analysis of data, participants' attitudes and investigators' observations.

All of the techniques tested were effective in changing teacher behavior but no technique was more effective than any other.

The instruments developed for selected teaching skills need additional revision even though they were judged by participants, teacher educators and panel members as useful tools.

The teachers' requests for viewing more video recorded instructional models of the behaviors identified in the teaching skill instruments indicated a need to develop more of these models.

The application of teacher education techniques and information developed in a laboratory setting to an ongoing vocational and technical teacher education course was successful. The teacher educator and teacher acceptance was positive as indicated by their expressed attitudes and criticisms.

RECOMMENDATIONS

Based upon the findings and conclusions these recommendations are given:

The teacher education techniques utilizing micro-teaching and video recording selected and tested in these studies should be considered for field trial since they have each produced significant positive change in teacher behavior and seem feasible as judged by the participants and investigators. To achieve teacher satisfaction with the remote techniques some personal contact must be integrated into the program either by providing face-to-face conferences, telephone or written communication or by having the teacher use part of the video tape to ask questions which the teacher educator can answer.

Judging from participant response to the use of the four instruments, other essential skills for vocational and technical teachers should be identified and developed into instruments.

Video recorded models should also be developed for these teaching skills because of the findings in these studies that teachers wanted to view and study more instructional models.

IMPLICATIONS

If similar outcomes can be achieved using delay of feedback and remote supervision techniques rather than face-to-face conferences with or without video replay immediately after the teacher teaches, the delay of feedback and remote supervision can be used to reduce expenses and teacher educator travel time and, yet, achieve the same results, a positive change in teacher behavior. The delay of feedback would be a useful technique for a teacher educator's use if several teachers in a relatively local area have been assigned to him. The teachers can go to his office (bringing a video recorded lesson) for supervisory assistance rather than the teacher educator using the majority of his time traveling to the schools.

The application of the techniques involving micro-teaching and/or video recording in an ongoing program will involve more than assigning five-minute lessons and operating a video system. As observed by the teacher educator in phase four, ". . . the instructor using these techniques must state precisely the objectives of the course to prevent teacher apprehension."

PRE-SERVICE WORKSHOP FOR TEACHERS

*JAMES L. HOERNER**

The question, "How can we make pre-service teacher education experiences more effective?" continues to perplex us. Yet, there has been an obvious dearth of research in the use of innovative techniques to improve pre-service trade and industrial teacher education.

PURPOSE OF THE STUDY

Recognizing the importance of pre-service teacher education, this study was designed to test the feasibility of using micro-teaching and video recording as a means for improving the effectiveness of the teaching practice sessions in a pre-service trade and industrial teacher education workshop.

OBJECTIVES

Specifically this study was designed to investigate the following innovations:

1. The use of the video tape recorder as a feedback tool to help the teachers analyze their teaching sessions in the workshop.

2. The teaching of four, five-minute micro-teaching lessons in the same allotted time that was customarily used to teach two, independent, 10-minute lessons.

3. The teaching of the practice sessions to students of the same age level for which the workshop participants were preparing to teach, instead of to peers (other workshop participants), as has been customarily done.

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RESEARCH QUESTIONS

The following four questions were formulated to be answered by the study:

1. Will the application and usage of the video recorder as a feedback tool significantly affect the instructor's practice teaching performance in the trade and industrial teacher education workshop as measured by a given evaluation instrument?

2. Is teaching four, five-minute lessons significantly more effective in changing teaching performance in the practice-teaching sessions in the pre-service workshop than teaching two, 10-minute lessons as has been customarily done?

3. Will the technique of having the workshop participants teach their practice sessions to students of the age level for which they are preparing to teach, instead of peers, significantly affect the instructor's performance in the workshop as measured by a given evaluation instrument?

4. Will the technique of having the workshop participants teach their practice sessions to students of the age level for which they are preparing to teach, instead of peers, significantly affect the instructor's level of self-confidence in his ability to teach?

METHODS AND PROCEDURES

The experiment was conducted during the two and one-half days of teaching practice sessions in the regular August, 1968, one-week pre-service teacher education workshop which is conducted each summer by the Trade and Industrial Teacher Education Services of The Ohio State University.

The population for the experiment consisted of the 62 pre-service teachers registered for the workshop. From the 62 participants, 48 subjects were randomly selected and assigned to eight different treatments which were comprised of a combination of the three major variables: 1) type of feedback--video or no video feedback; 2) type of students--teaching to high school students or teaching to peers; and 3) length and number of lessons--teaching four, five-minute lessons or teaching two,independent 10-minute lessons. Half of the group received video feedback and half did not. Half of the group taught four, five-minute lessons and half taught two, 10-minute lessons. Half taught their lessons to high school students while the other half taught peers.

The experimental design used for the study was *A Repeated Measurement Design* with a measurement taken of the first teaching session and last teaching session.

Three teacher educators participated in the study. Each teacher educator critiqued two teachers from each treatment group.

High school students employed from the nearby high school districts served as students for the treatment groups who taught students instead of peers.

The experiment began with a two-hour orientation and training session during the day prior to the beginning of the practice teaching sessions. During the orientation, the teachers were shown an instructional tape which explained and demonstrated the skill of teaching a complete lesson. During the next two and one-half days, the 48 teachers taught their practice lessons in accordance with their treatment assignments.

All teachers had equal opportunity to view other teachers micro-teaching and to participate as a student for those who were teaching peers.

Each micro-teaching session followed the same basic pattern deviating only in type of feedback, length of time taught and to whom it was being taught. Immediately following each teaching session, the lesson was rated by the teacher educator, the teacher himself, and the students (either peers or high school students depending upon the treatment) with all raters using the same rating instrument. If the treatment required video feedback, the lesson was viewed by all present. The lesson critique which followed next was consistent for all participants. First, the teacher was given a chance to react to his own lesson. Next, the student group gave their reactions and suggestions with the teacher educator following with his comments and a summarization on how the lesson could be improved. Each lesson analysis was kept to approximately five minutes for all teaching sessions.

All subjects taught one manipulative lesson and one theory lesson. If their treatment called for two, 10-minute independent lessons, the first was a manipulative lesson and the last was a theory lesson. If the treatment was four, five-minute micro-lessons, the first two were manipulative lessons with the second lesson being a reteach of the first and the last two were theory lessons with the fourth lesson being a reteach of the third.

A two-member panel of judges rated each subject's first and last micro-teaching session. A four-hour training period was conducted to assure that the panel of judges knew how to use the rating instrument and that there was a high degree of rater reliability between their independent ratings.

A confidence scale was administered to each teacher prior to his first teaching session and after his last teaching session in order to determine if there was any change in confidence level between those who taught peers and those who taught high school students. In addition, a workshop evaluation form was administered immediately after the workshop. Also, a follow-up survey was conducted after the workshop participants had been teaching for eight months.

FINDINGS

The first three research questions which dealt respectively with: video feedback versus no video feedback; teaching four, five-minute versus two, 10-minute lessons; and teaching students versus peers were answered by comparing the mean percentage of gain scores in teaching skill between the treatment groups.

The analysis of variance tests with 24 subjects in each group revealed no significant differences between the treatments.

Further tests were conducted with treatment cells of N = 12 and N = 6. Again no statistically significant differences were found between the treatment groups.

The fourth research question, which dealt with the effect that teaching students instead of peers has upon one's self-confidence in ability to teach, was answered by comparing the mean percentage of gain scores in confidence between those who taught students and those who taught peers. Again no significant differences were found.

The information collected by the two opinionaire instruments revealed strong support in favor of the application of micro-teaching and video recording in the trade and industrial teacher education workshop. The two surveys revealed that 93 percent preferred to have video feedback; 70 percent preferred to teach to students, and 50 percent preferred to teach four, five-minute lessons.

CONCLUSIONS AND RECOMMENDATIONS

From the statistical tests it was concluded that one technique was as good as another; however, the results from the analsis of the participants' opinions tend to support the following:

1. Participants viewed the experience of seeing playbacks of their practice lessons as beneficial and valuable to them in helping them fill their role as a new teacher.

2. The participants did not find the experience of being videotaped and having video feedback overly traumatic.

3. Participants reported that teaching students was of greater benefit than teaching peers.

4. Teaching four, five-minute lessons in accordance with the micro-teaching cycle was of greater benefit than teaching two, 10-minute, independent lessons.

5. The allotted two and one-half days for teaching practice was not long enough and should be lengthened in order to provide for more teaching experience.

6. Some type of in-service, self-improvement video recording opportunity should be periodically provided for new teachers during their first year of experience.

It was recommended that micro-teaching and video recording be applied in future trade and industrial pre-service teacher education workshops with each teacher teaching a minimum of four micro sessions to students of the age level for which they are preparing to teach and that in-service micro-teaching and video recording experiences be provided during the first year of teaching.

PRACTICAL FINDINGS AND IMPLICATIONS OF A PRE-SERVICE WORKSHOP FOR TEACHERS

*DONALD L. KARR**

The application of micro-teaching and video recording techniques has held the interest of many teacher educators because of its potential in the field of pre-service and in-service teacher education. When first asked to serve as a co-investigator in The Center's Project 44, we at The Ohio State University were very enthusiastic and appreciative of this opportunity to work on a research project of this nature. Our decision to participate in this experiment was based on a real and immediate need to provide for a larger and more effective pre-service and in-service teacher education program. With the increasing number of pre-service teachers and the changes in Ohio's pattern of itinerant teacher education, we viewed this opportunity to work cooperatively with The Center not only as a means to participate in a research activity but also as a means to meet a real and immediate problem of teacher education. At that time we were faced with the problem of providing an adequate program of pre-service teacher education to a group of new teachers that had increased in size to over 50 percent of the number we had served in the past. This, of course, was to be done without any increase in the number of teacher educators.

The implementation of the new methods and techniques derived from this experiment provided us with a means to meet our pre-service and in-service obligations. These methods and techniques were also of significant value in carrying on other teacher education activities during the following year.

In sharing with you what we learned from our participation in this experiment it is advisable to keep in mind the difference

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in meaning of experimental treatment and experimental method. As teacher educators, we were most happy with the methods and techniques employed in carrying out this experiment. The only disadvantages we encountered in our work with this project were very slight and due to the conditions of the experiment treatments. Some of our teacher educators were opposed to adhering to a very strict scheduling of the practice teaching sessions. Others felt that there were too many treatments to be included in the same experiment. But let me remind you that these were only minor disadvantages and concerned with the experimental treatments and not the new methods or application of micro-teaching.

Perhaps the most significant fact of what we learned was that shorter practice teaching (micro-teaching) sessions of five and 10 minutes were as effective as longer sessions. In years past, we often scheduled each participant's practice teaching session to be 10 or 20 minutes in length. On the basis of this experiment we found that both the five and 10-minute sessions were equally effective if not more so than the old methods of 20-minute practice teaching sessions.

We further observed that for the purpose of individual teacher improvement, that there is a greater value in having the teachers plan, teach, critique their practice teaching, plan and reteach again the same lesson than we had recognized heretofore. Previously each of our pre-service participants were fortunate if they were able to teach two practice teaching sessions, one manipulative and one related, one time only.

From our use of micro-teaching techniques and video recording, we observed that the teacher educator's critique sessions often became more satisfying and effective since: 1) the participants could identify many of their own minor mistakes and take certain measures to correct these without being told to do so by the supervising teachers; 2) teacher educators could concentrate on major points of teaching techniques; and 3) the video tape playback treatments were highly effective in helping teachers to improve faulty speech patterns and to correct their own personal mannerisms.

The response of the teachers and local administrators to our use of micro-teaching and video recording was very well received. Some teachers exhibited some anxiety and fear upon first learning that their teaching was to be video recorded but this appeared to lessen after the first day.

The local administrators have been very enthusiastic about our use of these methods. We have received a great deal of praise from many of our local directors and supervisors. They feel that the quality of teachers who had this experience was much greater than those teachers in previous pre-service programs. Both local

administrators and our own teacher educators have often stated that this group of participants were the best prepared teachers with whom they have had the pleasures of working.

We cannot state that we really experienced any disadvantages with the use of micro-teaching and video recording in our pre-service program. A number of our participants were disappointed when they found there were no provisions to continue these methods of self-improvement in their own schools. But if this is considered to be a disadvantage, then it is a most healthy one and should be really considered an advantage.

Some of the specific advantages noted are as follows:

1. The showing of prepared five-minute models of micro-teaching lessons helped us in developing teacher confidence.

2. The models also greatly reduced the length of time necessary to help these new teachers plan their first lessons.

3. The use of selected models helped us bring out the specific points of a lesson that we were attempting to put across at various times.

4. A very limited number of teacher educators were able to help a greater number of new teachers gain some mastery of teaching principles in a much shorter time than before.

5. The orientation and familiarization activities of new teacher educators who have joined our staff have been greatly facilitated by the use of video tape models of practice teaching lessons and teacher educator critiques of these lessons.

6. One other advantage is that through the use of these video tape recordings we have been able to provide a means of carrying on an in-service teacher education improvement program for the teacher educators themselves.

Many of the implications of this experience in micro-teaching and video tape recordings have already been put into use. In the past year we have modified our teacher education programs so that we are now using many of these new methods in our regular program of teacher education.

One of our most notable examples of this was to include the use of micro-teaching in all four of the E.P.D.A. Projects throughout the State of Ohio. The concept of micro-teaching has also been used in other workshops with the use of video tape and still found to be highly effective.

The carry-over of these methods has been observed in a number of our teachers who have been using video recordings in their classrooms for both self-improvement of their teaching and for better demonstration methods for their students.

In my own observation of these teachers, I have been able to identify three specific points which may be attributed to a carry-over of these new methods. They are: 1) these teachers are much more self-confident in their teaching; 2) their demonstration techniques are far superior to other first year teachers; and 3) their lessons are much better planned, prepared and presented in a manner which is quite professional.

Of the various techniques used in this research project, it is our belief that the best combination of treatments is the use of (two) five-minute practice teaching sessions with one video tape playback and critique for both the manipulative and related practice teaching sessions.

In closing, let me say that the use of these techniques and methods has been most beneficial to us and I would encourage you to use these methods with some modification of them to meet your own needs.

REMOTE SUPERVISION OF STUDENT TEACHERS

*PATRICIA M. SMITH**

This study was designed to determine the feasibility of the remote supervision of pre-service home economics education students during their student teaching experience.

FOCUS OF THE STUDY

The focus of the study was on the use of three methods of college supervision 1) face-to-face, 2) audio-phone, and 3) video-phone to ascertain their effect on the student teachers' improvement of specific teaching skills and teaching confidence. There was also a concern for the satisfaction with the alternative methods of college supervision by the college supervisors, supervising teachers and student teachers.

RESEARCH QUESTIONS

In the present study, the following questions were investigated:

1. Are the effects of three supervisory treatments significantly different in terms of improvement of specific teaching skills 1) introducing a lesson, 2) demonstrating a manipulative skill, and 3) questioning?

2. Do the three supervisory treatments have significantly different effects upon student teachers grouped by pre-confidence levels in terms of improvement of specific teaching skills 1) introducing a lesson, 2) demonstrating a manipulative skill, and 3) questioning?

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3. Are the effects of three supervisory treatments signif-cantly different in terms of student teachers improvement in teaching confidence at the end of the student teaching experience?

4. Do the three supervisory treatments have significantly different effects upon student teachers among the same confidence levels in terms of improvement in teaching confidence?

5. Are the effects of three supervisory treatments signif-icantly different in terms of the expressed satisfaction of the teaching triad?

6. Is there agreement on satisfaction expressed by the student teachers and supervising teachers within the same supervisory treatment group?

7. Do the supervisory treatments have significantly differ-ent effects upon student teachers among the same confi-dence levels in terms of expressed satisfaction with the college supervision received?

8. Are time and money resources expended for the alterna-tive methods of supervision similar?

METHODOLOGY

This study was conducted cooperatively with the School of Home Economics at The Ohio State University. The 36 student teachers who were involved in student teaching during Winter quarter, 1969, comprised the sample for this study. They were supervised by three college supervisors and 35 supervising teach-ers. Each student teacher and college supervisor was randomly assigned to a supervisory method. Thus, there were 12 student teachers involved in each method of supervision.

The experimental design used in determining the effectiveness of alternative methods of supervision was *The Pretest-Posttest Control Group Design*. All student teachers took a pretest Con-fidence Scale and based upon these results were assigned to low, medium or high confidence level group. Random assignment to supervisory treatment resulted in 12 students (four low, four medium and four high in teaching confidence level) in each treat-ment. After completion of a pretest five-minute lesson, which was video recorded, all students began their student teaching on January 6.

It was during the nine-week student teaching period that the three college supervisors supervised the student teachers by the

three supervisory methods under investigation. The face-to-face supervisory method consisted of the usual pattern of supervision in which the college supervisor made three observation visits to the school to observe and advise the student teacher. During two of these contacts the student teacher performed the three specific teaching skills being studied and all members of the triad (college supervisor, supervising teacher and student teacher) rated her performance on critique forms. These forms were used as the basis for the supervisory conference which followed. Suggestions were given to the student teacher for improvement.

In the audio-phone supervisory method five audio tapes of the student teacher's lesson were mailed to the college supervisory for critiquing. Two of these tapes contained the three skills being analyzed. They were evaluated by the critique forms, which again provided a directed focus for the supervisory conferences which were conducted by phone.

In the video-phone supervisory methods five video tapes of lessons were prepared by the student teacher (supervising teacher was the camera "man") and mailed to the college supervisor for critiquing. Two of these video tapes contained the three skills being analyzed. Supervisory conferences were held via phone.

An electronic phone amplifier permitted a "hands-free" conference which could be a two or three-way conference. A maximum of 10 phone calls of one-half hour or less was allowed for each student teacher in the remote supervisory methods. This was designed to match the approximated time the college supervisor might spend in conference time during the face-to-face supervisory method.

The experiment was conducted throughout the student teaching period which ended on March 6. On March 7, the student teachers completed the post Confidence Scale, a Satisfaction Scale and their posttests which were video recorded. Satisfaction Scales were also completed by the college supervisors and the supervisory teachers.

A panel composed of three experienced teacher educators rated the teaching skills on the pre and post-video tapes of the 36 student teachers' performance.

FINDINGS

Nine hypotheses were tested to answer the seven major questions asked in this study. One-way analyses of covariance tests were computed for the hypotheses concerned with testing the effectiveness of the supervisory methods in regard to teaching performance. The pretest scores on teaching performance (pre-video

tape recordings) were used as the covariate. For further analysis, a paired t-test was run to determine the improvement of teaching skills from pretest to posttest. Analysis of variance was used to test the hypotheses dealing with teaching confidence. A single classification analysis of variance based on the posttest Satisfaction Scale scores was used to test the hypotheses concerned with differences in the expressed satisfaction for the supervisory methods by the triad. Each participant also answered three questions which allowed for further comment about the three supervisory methods studied. All statistical results were evaluated at the .05 level of significance. The last research question concerned with time and money resources was answered based on records kept by the college supervisors.

The major findings of the study were:

1. The effects of the three supervisory methods were not significantly different in terms of improvement in performance on each of the three teaching skills.

2. On the skill of questioning there was a significant difference in the performance of student teachers in the low and high confidence level groups. For the other two teaching skills, there was no significant difference in teaching performance among the three confidence levels.

3. There was no significant difference among treatment groups or among confidence levels in improvement of teaching confidence.

4. There were significant differences among treatment groups in terms of expressed satisfaction of student teachers and of supervising teachers. Both the student teachers and the supervising teachers expressed greater satisfaction for the face-to-face and the video-phone supervisory methods than for the audio-phone supervisory method.

5. There was no significant difference in expressed satisfaction of the student teachers among confidence levels.

6. Student teachers and supervising teachers within the same supervisory treatment groups expressed similar satisfaction with the college supervision received.

7. There was no significant difference in the expressed satisfaction among the three college supervisors with the three supervisory methods which they used.

8. Although specific costs for the three supervisory methods could not be obtained, the college supervisors' total

hours per student teacher were: 1) 16.2 hours for face-to-face supervision, 2) 9.8 hours for audio-phone supervision, and 3) 9.9 hours for video-phone supervision. With the use of both the audio and video-phone supervisory methods, it was possible to make more contacts in less time than for the face-to-face supervisory method.

CONCLUSIONS AND IMPLICATIONS

From the findings of the study, the following conclusions were drawn:

1. The student teachers under one supervisory method performed as well as those under any one of the other methods.

2. Student teachers in the low confidence level group failed to perform as well as those in the high confidence level group on the skill of questioning. On the other two skills, student teachers in the three confidence levels performed equally well.

3. A student teacher's improvement in teaching confidence was not dependent upon either the supervisory method received or the pre-confidence level in which she was placed.

4. Both the student teachers and the supervising teachers expressed greater satisfaction with the supervisory methods of face-to-face and video-phone than for the audio-phone supervisory method.

5. The expressed satisfaction of the student teachers was not dependent upon their level of teaching confidence.

6. There was high agreement on expressed satisfaction between the student teachers and the supervising teachers who experienced the same supervisory method.

7. The expressed satisfaction of the college supervisors with the three supervisory methods indicated that no one method was more satisfying than another.

8. It was possible to make more student teacher contacts in less time with both the video-phone and the audio-phone method than with the face-to-face supervisory method.

In summary, the three methods of college supervision, face-to-face, audio-phone, and video-phone were feasible and they offered the following implications for use in teacher education programs.

1. College supervision of student teachers can be varied or individualized for each student teacher dependent upon the student teaching situation.

2. Roles of the supervising teacher and the college supervisor might be more clearly defined.

3. The use of media resources can provide the means whereby alternative methods of college supervision are possible.

PRACTICAL FINDINGS AND IMPLICATIONS OF REMOTE SUPERVISION OF STUDENT TEACHERS

*JULIA I. DALRYMPLE**

To what extent can technological developments of instructional media serve to improve the shortcomings or enhance the strengths in the methods employed universally by those involved in the supervision of student teachers? The use of audio and video tape recorders for observation and analysis of the student teaching situation offers potential benefits for the members of the triad--student teacher, supervising teacher, college supervisor. To a degree The Ohio State University experimentation confirms the feasibility of such use of equipment. What are some of the practical considerations of this probable feasibility beyond the confines of a single institution?

BENEFITS FOR THE O.S.U. TEACHER EDUCATION PROGRAM

Certain benefits from this experimentation accrued deliberately in the plans and inadvertently when the program was in progress.

- Full-time supervisors assumed responsibility during the quarter for 15 student teachers rather than the normal schedule of 10 individuals when travel distances were involved for all of them.

- The excitement of participation in an experimental program was exhilarating and challenging to innovative and professionally committed individuals.

- Faculty and students in the teacher education institution, as well as individuals in the local schools, were made aware of

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the commitment and efforts of the faculty to improve the teacher education program.

REACTIONS OF PARTICIPANTS TO REMOTE SUPERVISION

In this study there were both satisfactions and dissatisfactions with each of the experimental supervisory methods used--video-phone and audio-phone.

EXPRESSED ADVANTAGES

- Critique forms were helpful for evaluating student teacher performance objectively due to the fact that attention was focused sharply on the major points to be analyzed.

- The pre-arranged schedules for conferences provided for regular interaction between supervisor and student teacher as well as to permit the "spur of the moment" contact when needed.

- The remote supervision situation permitted the supervisor to have as many contacts with the student teacher and supervising teacher as deemed necessary.

- The student teacher was unlikely to be placed under extreme tension at the time of the supervisory contact.

- Objective self-evaluation was possible for the student teacher due to the fact that she was unemotionally involved while viewing the video tape.

- An adequate number of contacts, although of short duration, provided what was considered a fair means of final evaluation.

- Travel time was eliminated completely in those situations in which remote supervision was used.

- Both video-phone and audio-phone supervision promoted careful planning for each contact session.

- In the video-phone method, it was possible for the supervisor to observe both verbal and non-verbal communication interaction.

- In the video-phone situation there was a feeling of "completeness" in the supervisory contact which was less assured with phone supervision.

• Video-phone supervision provided objective and unemotionally involved feedback for the student teacher.

• In video-phone supervision the student teachers seemed quite able to place problems in perspective.

• In the video-phone supervision it was possible for the student to see herself as others saw her in the situation and be her own best "critic."

• The video-phone method provided concrete examples for making an analysis of the situation and for giving guidance during the conference period.

• The video-phone supervisory method provided an adequate number of contacts, a wide sampling of the student teacher's lessons, objective supervisory feedback, ample opportunity for student teacher self-evaluation, conferences where student teacher emotional involvement was not considered excessive, and definite incentive for careful planning of lessons.

EXPRESSED DISADVANTAGES

• Supervising personnel were less receptive to lack of visual contact in the audio-phone method than in the video-phone method since it was impossible to observe the non-verbal communication of the student teacher and pupils within the classroom situation.

• College supervisors expressed concern in the audio-phone method that they were unable to see the student teacher, the room, the pupil reactions, and the effectiveness of audio or visual aids used.

• It was difficult in remote supervision to establish rapport and a close contact among members of the triad, especially if they had not met previously.

• Inconvenience of not having exclusive use of all equipment for the entire student teaching period appeared to be a handicap.

• A single microphone in a classroom was inadequate in some instances to record pupil responses satisfactorily.

• Individuals were handicapped unless mobile tripod apparatus for moving the camera was available.

• It was inconvenient for teachers to share a video system when they were located in different schools.

• Poor phone reception or communication existed in some situations.

• Due to differing opportunities for high quality equipment, supervisors felt handicapped in phone supervision when reacting to demonstrations that had been recorded in the classroom situation.

• Immediate feedback was impossible due to mailing tapes.

• Inadequate familiarity in use of equipment and hesitancy to experiment with the full potential of the equipment appeared to handicap some participants.

COST OF REMOTE SUPERVISION

One of the most difficult aspects of this program was an accurate assessment of the financial cost. Institutional records of phone costs were difficult to secure due to the system of handling telephone receipts. A crude estimate in this study indicated that approximately $300 per month for 24 students covered the cost of the prorated five hours of phone conference time per student. It was difficult to assign cost estimates to an undertaking of this kind when equipment and materials had a lifetime expectancy in excess of the duration of a project.

PREPARATION FOR SUBSEQUENT EXPERIMENTATION

The vastness of the responsibilities when individuals are involved in supervision of student teaching cannot be underestimated. The use of new media creates an atmosphere of uncertainty, skepticism, and fear unless careful attention is given to making the situation as comfortable and free of inconvenience as humanly possible. Several suggestions are made here in preparation for use of video-phone and audio-phone supervision.

• Insure that all members of each triad work together prior to the supervisory experience.

• Provide adequate orientation and preparation sessions for all persons involved in order to insure acceptance, understanding, confidence, comfort, and security.

• Be sure that all supervisors, all supervising teachers, all student teachers, all teacher education personnel, and all administrative individuals involved hear or read the same instructions as all other persons at their level of operation, and give all instructions and materials at or near the same time.

• All instructions should be written as well as given orally in order to avoid misunderstanding and for reference when doubt occurs.

• Provide adequate, accessible, workable mobile video, phone, and recording equipment for all individuals involved.

• Provide adequate and constant available assistance to all persons involved in order to insure high quality recordings.

• Provide equipment in the classroom situation for exclusive use at any and all times if at all possible.

PROBLEMS THAT MAY BE ENCOUNTERED IN REMOTE SUPERVISION

Certain problems may be inherent in the organization, structure, and implementation of remote supervision of student teachers, but certain precautions may relieve their impact.

• There is a definite need for private telephone lines for those persons involved due to schedule demands for preciseness in available calling periods.

• Dealing with several telephone companies is a handicap since hands-free phone equipment may be less effective in some localities than others.

• Sharing video equipment can be inconvenient between and among persons in local schools as well as in the college situation when schedules are not flexible.

• It is difficult to assess the exact financial cost of such methods due to institutional methods of accounting for telephone calls or lack of bases for prorating the expense incurred for equipment and facilities that are usable over an extended period of time.

• Supervisors and student teachers may find it difficult to adjust to a changing pattern of contact that has been common over a period of time.

IMPLICATIONS FOR TEACHER EDUCATION

The use of remote methods of college supervision--audio-phone and video-phone--is feasible and offers implications for use in teacher education programs.

• Further experimentation with remote supervision in varying types of situations to test the effectiveness seems warranted,

since this study merely confirmed feasibility with 36 student teachers, two full-time supervisors, and one part-time supervisor involved.

• Media resources are available whereby innovative and committed college supervisors can select the means whereby supplementary alternative methods of college supervision are possible for dealing with certain inherent problems in face-to-face contacts.

• For attaining the highest level of effectiveness for improvement in teaching skill, teaching confidence, and human relationships, a combination of supervisory methods may be advisable even though each method could probably be used independently in some situations.

• The opportunity provided for objectivity on the part of the persons involved when assessing teaching skill and confidence of the student teacher may warrant at least minimum contact through the use of media in remote supervision.

• The use of critique forms for specific kinds of evaluation is likely to insure a directed focus within the supervisory conference, regardless of method of supervision.

• Regardless of the supervisory method used, an important element in evaluation is an immediate feedback of reactions to the experience, which may be a function of the supervising teacher.

• The supervising teacher might profitably assume responsibility for the continued evaluation of the visual or physical aspects of the student teaching situation as well as lesson content and teaching competence; whereas, the college supervisor might profitably assume the role of a resource person, coordinator of the student teaching activities, and cooperative appraiser of overall achievement.

• The development of confidence on the part of the student teacher might be enhanced by minimizing the sources of pressure involved in the use of the face-to-face method of supervision exclusively.

• Answers to several perplexing questions may be explored profitably.

-- Does the use of a remote supervision method enhance objective judgment and minimize subjective bases for judgment in the supervisory situation universally?

-- Do remote supervision techniques make their greatest contribution to the objective facets of self-evaluation and is face-to-face supervision most relevant to subjective aspects within the process?

-- Is the common focus by supervisor and student teacher on a video or audio tape a more objective analysis of teaching than mere recall at a remote time after the experience?

-- Do supervisors in general perceive the cognitive aspects of student teaching better in video and phone supervision than in the face-to-face method?

-- Is it feasible and profitable to make a distinction between the kinds of assessment appropriate for the college supervisor and those most appropriately assumed by the supervising teacher?

-- Would a combination of types of supervision actually relieve such problems as travel distances and "supervision trauma" yet preserve the values of face-to-face contact or salvage the best of all methods for each individual?

-- After an initial contact, is it necessary to have further face-to-face contact in a supervisory situation to insure a harmonious relationship and atmosphere?

-- Would familiarity and ease in use of equipment for supervision encourage use for other classroom purposes and thus strengthen the teaching experience?

We do have some support for the feasibility of the remote supervision of pre-service home economics teachers. Further experimentation can test the feasibility in differing situations and under varying combinations of circumstances. The extent of the possibilities is unknown and awaits the attempts of innovative teacher educators to experiment further with an idea.

PART III

FIELD TESTING -

IN-SERVICE PROGRAMS

FEEDBACK TECHNIQUES FOR IN-SERVICE TECHNICAL TEACHER EDUCATION

*FRED W. HARRINGTON**

The purpose of this study was to test the feasibility and compare the potential effectiveness of four feedback techniques involving micro-teaching and video recording in an in-service technical teacher education program at The Columbus Technical Institute in Columbus, Ohio.

RESEARCH QUESTIONS

To accomplish the purpose of this study, the following research questions were stated:

1. Which of the four feedback methods (self critiquing, student critiquing, fellow instructor critiquing or teacher educator critiquing) is the most effective based on post-test teacher performance scores on the skills of introducing a lesson and oral questioning, separately and combined?
2. Is there a significant difference of opinion between feedback groups based upon data collected from the instructors' post session questionnaires?
3. Based upon the evidence from the teacher post session questionnaires and teacher performance pretest and post-test scores, are the four feedback techniques feasible for a post-secondary in-service teacher education program?

PROCEDURE

Basic to this study was the use of micro-teaching and video recording. Micro-teaching is a scaled down version of classroom teaching. The instructor is video recorded while teaching a five minute lesson to four students. Following the lesson, the video recording is reviewed and the lesson is analyzed. The same lesson

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is then replanned, taught to a different group of students, recorded, and again analyzed.

Twenty-eight instructors at The Columbus Technical Institute were randomly assigned to the four feedback groups (self-analysis, fellow instructor analysis, student analysis, and teacher educator analysis). Through orientation meetings the instructors were introduced to the study and the part they would play. In keeping with the study's experimental design, *The Pretest-Posttest Control Group Design*[1], each instructor taught a micro-lesson which was videotaped and set aside as a pretest. Following the pretest, instructions were given to each instructor, via video tape, on how to improve lesson introductions. In teaching sessions two through five each instructor worked on developing this skill (introducing a lesson) using the assigned group feedback method, critique forms and model tapes. In teaching sessions six through nine, the instructor worked on developing the skill of oral questioning. The tenth teaching session was used as a posttest.

DATA ANALYSIS

Two experienced vocational-technical teacher educators served as a panel and rated the instructors' videotaped pretest and posttest performance on the skills of introducing a lesson and oral questioning.

The data for research question one, /Which of the four feedback methods is the most effective based on posttest teacher performance scores on the skills of introducing a lesson and oral questioning, separately and combined?/ were obtained from the pre and posttest teaching performance scores and treated by analysis of covariance, using pretest scores as the covariate, to determine differences in the four feedback groups on each skill (introducing a lesson and questioning) and the combined skills.

Data for research question two, /Is there a significant difference of opinion between feedback groups?/ were obtained from post session questionnaires completed by the instructors who were asked to express their opinion toward the experience. Significant differences in yes and no responses between the four groups were determined through a chi-square analysis.

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[1]Campbell, Donald T. and Stanley, Julian C. *Experimental and Quasi-Experimental Designs for Research*. Chicago: Rand McNally & Co., 1963, pp. 13-24.

Data for research question three, /Based upon the evidence from the teacher post session questionnaires and teacher performance pretest and posttest scores, are the four feedback techniques feasible for a post-secondary in-service teacher education program?/ were obtained from the results of research questions one and two. A paired t-test was used to determine significant change from pre to post-teaching performance.

Winer's one-way analysis of variance was used to check the reliability of the pretest and posttest ratings. The reliability ratings ranged from 0.83 to 0.98.

FINDINGS

Based on teacher performance posttest scores (research question #1), there was no difference between the feedback groups at the 0.05 level of significance.

The instructor's post session questionnaire (research question #2) revealed significant differences in the group responses. The self-analysis group had a significantly positive reaction toward the study. The fellow instructor analysis group had a significantly negative reaction toward the study. The student analysis and the teacher educator analysis groups were neutral.

The teacher performance pretest and posttest scores (research question #3) showed a gain for all four feedback groups. Analysis of this gain with a paired t-test showed a significant change at the 0.10 level of significance for all but the two feedback groups of student analysis and teacher educator analysis on the skill of introducing a lesson.

CONCLUSIONS

The following conclusions were drawn from the findings of this study:

1. Based upon the pretest-posttest teacher performance scores on the skills of introducing a lesson and oral questioning, all of the four feedback methods (self-analysis, fellow instructor analysis, student analysis, teacher educator analysis) were effective and feasible.

2. Based upon the date collected on the instructor's post session questionnaires, the feedback technique of self-analysis was the preferred method. Fellow instructor analysis was the least preferred method.

RECOMMENDATIONS

1. In the Columbus Technical Institute setting, it was recommended that the self-analysis method be used in future in-service programs. However, any of the feedback methods other than the one requiring outside help from a teacher educator may be used according to individual instructor preference.

2. It was further recommended that if the fellow instructor analysis is to be used, a participant in the same type of analysis should serve as fellow instructor in contrast to the use of a nonparticipant as was the case in this study.

PRACTICAL FINDINGS AND IMPLICATIONS OF FEEDBACK TECHNIQUES FOR IN-SERVICE TECHNICAL TEACHER EDUCATION

*HAROLD M. NESTOR**

The Columbus Technical Institute was approached by The Center for Vocational and Technical Education at The Ohio State University for the purpose of applying Project 44 to a post-secondary technical education program.

The president of the Institute foresaw some long-range benefits of the program and agreed to cooperate.

The project was assigned to the Director of Education for coordination and implementation. The timing was such that recruiting volunteers was almost impossible; therefore, certain teachers were assigned to the project. The staff consisted of 44 members from which 28 were randomly chosen and grouped.

Obtaining a large number of student volunteers was difficult, especially since funds were not available to compensate them for their time. Some instructors made participation a special assignment to students.

We feel the objectives of the program were reached; however, we would recommend that considerable time and funds be available for obtaining volunteer help from both students and faculty in future programs of this type.

The approach taken by the administration was negatively received by some participants and resulted in the scheduling of some personnel who might not be available when the scheduled session arrived. The administration anticipated problems in this endeavor but also felt that the personnel assigned to the project would be capable of solving these problems. This proved to be correct.

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We did learn it is necessary to assign someone on a full-time basis to insure proper progress of such a project.

After having been involved in this program, we have found that the following are prerequisites of a successful micro-teaching program.

1. Use volunteers only and allow ample time to obtain them.

2. Explain fully the purpose of the program and techniques to be used.

3. Prior to beginning the program, participants should have ample time to become completely familiar with the equipment.

4. Give the faculty time to become familiar with their appearance on the screen.

5. Be certain that participants realize the project will be beneficial to them and not just an "evaluation tool" for the administration.

6. Determining the number of students to be used in the sessions should be the responsibility of each faculty member.

7. Avoid use of the word "experiment" in referring to the project as it can cause resentment.

After having been involved in the program, we have gained insight into the following:

1. Attempting to teach a four-week micro-teaching course in 10 sessions is not advised.

2. Valid evaluations from student participants are difficult to obtain.

3. Availability of proper equipment and space is necessary.

4. Someone should be assigned on a full-time basis, to solve numerous scheduling problems.

5. Inability to compensate participating students is a disadvantage.

There are numerous advantages to be realized from a project of this type:

1. Improvement in teaching skills and attitude.

2. Inexperienced teaching personnel gain an insight into what quality teaching involves.

3. Instructors can make self-evaluations of their classroom performances and teaching abilities.

4. A review of teaching techniques and procedures can be made by all participants.

5. Instructors are required to thoroughly plan each lesson.

6. Involvement in micro-teaching allows the instructor to overcome fear or a shy feeling experienced while "on camera." Once this feeling is overcome the instructor becomes eager to utilize this medium in special classroom presentations.

7. Encourages cooperation between departments due to combined efforts necessary to tape a session.

8. Encourages continued use of video recording equipment for more effective teaching.

Unfamiliarity with micro-teaching techniques is responsible for the reluctance of many instructors to utilize this medium in classroom teaching. We feel that coordinating this program has been most beneficial to the Columbus Technical Institute in making faculty members aware of the advantages of the use of television in the classroom.

The Institute has realized the importance of a continuing teacher education program and micro-teaching will become an integral part of that program.

We also realize the necessity of additional video recording equipment; therefore, we have doubled the amount of equipment owned prior to the micro-teaching project. A room has been designated as a lab-classroom for television presentations.

In future micro-teaching programs at the Columbus Technical Institute actual skill identification will be secondary. We will implement a four-step teaching method program as follows:

Four-Step Method

1. Prepare the learner

2. Present the lesson

3. Apply all knowledge gained

4. Check, test and follow-up.

In order for the four-step method to be effective, the instructor must be ready to instruct by having: a) a definite plan, b) a breakdown of the lesson, and c) all necessary equipment and materials ready.

Evaluations will be made on the following basis:

1. Self-evaluation

2. Fellow instructor evaluation

3. Intra-departmental evaluation (possibly).

Implementation of this basic program should be evidenced in the classroom in the following areas:

1. Awareness of skills

2. Awareness of attitudes

3. More effective quality teaching

4. Application of skills and attitudes--the knowledge that skills are tangible may give a different approach.

The above summarizes the knowledge and experience gained as a result of the micro-teaching project at the Columbus Technical Institute.

We are definitely committed to the further development and application of effective procedures and techniques necessary to the improvement and continuance of quality instruction.

IN-SERVICE EDUCATION WITH MICRO-TEACHING AND VIDEO FEEDBACK OF ACTUAL CLASSROOM AND LABORATORY TEACHING

*CHARLES R. DOTY**

Various states require a series of courses to provide teacher education necessary for in-service teacher certification. The purpose of this study was to assess the value of micro-teaching and video feedback in courses which incorporate teaching practice sessions.

OBJECTIVES

This study has the following objectives:

1. Assess the effects on teacher[1] behavior of the conventional method, teachers teaching to their peers and receiving teacher educator and peer feedback, as compared to video recordings of teachers' actual classroom or laboratory teaching (field recording) being brought to the teacher education course for teacher feedback from the teacher educator, peers and video replay.

2. Compare the effects on teacher performance of micro-teaching with and without video feedback with both groups receiving teacher educator and peer feedback using high school level students.

3. Compare the effects on teacher performance of micro-teaching with and without video feedback with both groups receiving teacher educator and peer feedback and using peers as students.

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[1]Teachers in this study refer to in-service teachers with an average of two years teaching experience enrolled in a course titled "Demonstration Teaching." These persons are called 'student teachers' in New York State.

4. Assess the teachers' satisfaction on the techniques they participated in while enrolled in a teacher education course.

5. Assess the teacher educators' desire to adopt, reject or alter the teacher education techniques involving micro-teaching and video recording.

6. Estimate the time and cost of those techniques judged most useful for in-service teacher education courses.

7. Assess the effectiveness and reliability of instruments developed for instructional purposes and measurement of teachers' achievement of selected teaching skills.

METHODOLOGY

A survey instrument was sent to eight states to determine video system availability, courses being offered, enrollment and desire to try micro-teaching and video recording. For this study, one state was selected--New York, with courses being offered in Rochester, Elmira and New York City regions. The techniques (treatments) and research plans for each site were designed by the investigators in cooperation with the directors and teacher educators of the cooperating institutions at an orientation meeting on January 24, 1969. The assigned treatment number, sample size (number of teachers), number of teaching sessions, feedback sessions, description and site are shown in Figure 1.

ROCHESTER

The conventional method required each teacher to teach three, 10-15 minute lessons to peers acting as students with peer and teacher educator feedback. The field recording technique required the teacher to teach three, 10-15 minute lessons in his own school which were recorded at scheduled intervals during the duration of the course. The teacher saw the replay of his teaching with his peers and teacher educator.

ELMIRA

Teachers at Elmira experienced micro-teaching using high school students with and without video playback.

NEW YORK CITY

Teachers in group one experienced micro-teaching using peers as students with peer and teacher educator feedback. Teachers in

Figure 1. Treatments Tested at Selected Sites

Technique (Treatment) Number	Sample Size	No. of[2] Teaching Sessions	No. of[3] Feedback Sessions	Description	Site
1	15	5	3	Conventional: Traditional peer teaching (10-15 min.) with feedback from peers and teacher educator	Rochester
2	13	5	3	Field recording: Recording of actual school instruction (10-15 min.) to be viewed in course providing teacher self-evaluation by viewing video replay, peer and teacher educator feedback	Rochester
3	10	10	8	Micro-teaching with high school students and feedback from peers and teacher educator	Elmira
4	9	10	8	Micro-teaching with high school students and feedback from video replay, peers and teacher educator	Elmira

[2]The number of teaching sessions shown includes the pretest and posttests which should not be considered as part of the actual teacher education courses.

[3]The number of feedback sessions shown does not include feedback received on the last teaching session (posttest) or the skill presentation given after the first teaching session.

Technique (Treatment) Number	Sample Size	No. of[2] Teaching Sessions	No. of[3] Feedback Sessions	Description	Site
5	15	7	5	Micro-teaching with peers as students and peer and teacher educator feed-back	N.Y.C.
6	16	7	5	Micro-teaching with peers as students and video replay, peer and teacher educator feed-back (Studio setting for micro-teaching and video re-cording)	N.Y.C.

group two experienced micro-teaching using peers as students with video, peer, and teacher educator feedback. However, in the video feedback group, five persons, the teacher and four peers would leave the class and go to a studio (which was two rooms away). The teacher would teach and return to the class with the four peers. The technician in the studio would be signaled by a walkie-talkie to replay the recorded teaching session via closed circuit T.V. to the classroom. The teacher viewed his session and received peer and teacher educator feedback. While the teacher was receiving peer and teacher educator feedback, another teacher and four peers would leave the class and go to the studio for a teaching session.

For research purposes, all teachers at all sites were asked to teach a five-minute lesson on demonstrating a manipulative skill for the pre and post-tests. Following the pretest all teachers were given a presentation on teaching a complete lesson. Each site had a video tape containing instructional models to illustrate the teaching behaviors. After the skill presentation, the teachers planned either theory or manipulative skill lessons for practicing teaching skills. Supplemental teaching skills for in-depth instruction were also provided. A satisfaction scale to determine teacher attitudes was administered after the posttest.

Data collection on teacher performance for all sites was based upon video recordings made of the pretest and posttest performance of each treatment group. Independent panels viewed

these recordings at The Center using the instrument "Teaching a Complete Lesson" for the Rochester, Elmira, and New York City data.

The comparison of the effectiveness of two techniques at each site was done through the use of a pretest-posttest control group research design with a corresponding statistical test of covariance analysis on posttest scores using the pretest scores as covariate. Teachers' satisfaction scores for each treatment at each site were analyzed using a statistical test of analysis of variance.

FINDINGS

Based upon the statistical analyses of data collected on teacher performance and satisfaction as well as teacher educator satisfaction and participant observations, the findings were:

1. There were no statistically significant differences between any two treatments at any site.

2. There were no statistically significant teacher satisfaction differences with two treatments at any site.

3. Teacher satisfaction scores were not significantly different for the techniques at any site, but they were high for all techniques. There were two main areas of dissatisfaction. First, there was criticism of the field recording which was caused by difficulty in scheduling. This difficulty was often caused by lack of a back-up video system. Second, was their concern for being limited to teaching a complete lesson in five minutes.

4. Teacher educators selected for adoption those techniques (2, 3, and 6) containing video feedback. The teacher educators stated that these techniques produced "tremendous improvement." Micro-teaching with high school students, with or without video feedback, was judged by the teacher educators to be a great improvement over methods used previously. A suggested modification for the techniques was to alter the schedule for teaching and feedback to allow more time for analyzing the teaching behaviors.

5. Teacher educator criticism of video recording resulted from the teacher educators becoming too involved with the video system, i.e., expecting commercial results and thinking they had to be video tape technicians or operators.

6. Expense data collected on the techniques showed no additional cost should occur for treatments 1 and 5.

Treatments with video recording would increase cost for equipment rental or initial purchase. The treatment with high school students did accrue an expense equal to the minimum hourly wage set by the state. The estimated cost for field recording each teacher's teaching session was two hours including travel time and delivering the tape to the teacher educator.

7. The Elmira and Rochester data showed reliability of panel ratings at .90+ for the instrument, "Teaching a Complete Lesson." Reliability coefficients of panel ratings for the N.Y. City data were .76 for pretest data and .65 for post-test data.

CONCLUSIONS

The following conclusions were drawn from statistical analyses of data, teacher attitudes and teacher educator evaluations.

1. Although there were no statistically significant teacher performance differences between treatments at each site, all experimental techniques tested in this study were feasible with some scheduling adjustments.

2. High teacher satisfaction indicated that the techniques and information tested were providing relevant teacher education.

3. Although all the teacher educators selected for adoption those techniques involving video feedback, their conclusion was that video replay was not essential due to the effectiveness of the micro-teaching cycle.

4. The expenditure of extra time and cost for techniques two through six, if any, was justifiable due to the need for improving in-service teacher education which these techniques did as evaluated by the teacher educators.

5. The statistical analyses of teacher performance data did not match the observations of the teacher educators at the three sites. The instrument on teaching a complete lesson, although providing a guide for consistent measurement, did not provide measurement for those behaviors which the teacher educators observed as being significantly improved.

RECOMMENDATIONS

Based upon the findings and conclusions, these recommendations are given:

1. The experimental techniques tested in this study are recommended for use, but with scheduling changes to allow more time to analyze teaching behavior. The field recording to be satisfactory must be carefully scheduled and back-up video systems must be provided to prevent delay in recording.

2. To obtain maximum teacher satisfaction when using micro-teaching and video recording, the teacher educator should assist his teachers in selecting appropriate topics for micro-lessons and in planning the lessons. He should also provide exact guidelines for evaluating the teachers' teaching.

3. Micro-teaching with high school students (or the level of students the teachers are preparing to teach) is recommended. Micro-teaching should increase the number of times a teacher teaches and increase the amount of feedback he receives.

4. Video playback, as evaluated by the teacher educators, provides feedback that cannot be equalled by peer or teacher educator feedback, but it is not absolutely necessary since micro-teaching is a better technique than previous methods employed. If the consumer wishes to provide feedback beyond the quality of oral feedback, video feedback is recommended.

5. To prevent the teacher educator from becoming a technician in his class, teachers in the class could take turns operating the video system.

6. Because the instrument on teaching a complete lesson did not measure behaviors which the teacher educators thought important, teacher educator assistance will have to be used to improve the instrument or create new instruments. The instrument on teaching a complete lesson does, however, identify basic teaching behaviors that should not be ignored.

7. The expense of hiring students might be reduced if the course is taught in a high school. Volunteers could be recruited or the Future Teachers of America might aid in obtaining students.

PRACTICAL FINDINGS AND IMPLICATIONS OF MICRO-TEACHING FOR IN-SERVICE TEACHER EDUCATION

*DONN BILLINGS**

The purpose of this summary is to review results of experimentation in micro-teaching and video recording in a teacher preparatory program. Covered briefly here are comments on the experimental pattern, needed teaching skills, advantages and disadvantages, operational costs, educator reactions, staff approval, and implications for further use.

METROPOLITAN REGIONAL EXPERIMENT

Through the City University of New York, a program of vocational-technical teacher education prepares teachers, largely through in-service instruction, for schools in the five boroughs of New York City and the adjacent counties of Nassau, Suffolk, and Westchester. It is a complex, compact, crowded area in comparison with upstate regions. The most appropriate application of micro-teaching through video tape recording therefore seemed to require a television studio. Peers were used as students for the teacher in training with peer and teacher educator evaluation or feedback. Teachers in training who registered for a course in demonstration teaching were assigned at random to two sections.

One section was taught in traditional style involving peers as students of the class, with peer and teacher educator evaluation. The second session--handled by the same instructor--used the persons in the class as peers, and video tape replay, with peer and teacher educator feedback. Thus a control situation permitted assessment of video recording effectiveness. In the class using video recording the student-teacher and four peers would adjourn to an adjacent television studio; the teacher in training would review his session via video replay and receive the teacher

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*Dr. Billings is Director of Vocational-Technical Teacher Education, the City University of New York, and was co-investigator of Phase 7 of Project 44--Assessment of Micro-Teaching and Video Recording in Vocational and Technical Teacher Education, a cooperative study by the City University of New York and The Center for Vocational and Technical Education, The Ohio State University.

educator and peer feedback. Recordings made of both pretest and posttest performances of all persons in each class allowed evaluation of each treatment group.

NECESSARY TEACHING SKILLS

Successful teaching obviously depends upon the skills of the teacher. For this project an experienced master teacher was selected to handle both groups. For a number of years the master teacher had handled practice teaching instruction in the Vocational-Technical Teacher Education Program.

It appears important that the teacher educator have experience in handling instructional content of the particular course in which video recording is to be introduced, because three new areas of instructional skill development demand attention: 1) operation of the TV equipment; 2) stage setting for video recording, requiring some talent for arranging seating, lighting and acoustics; and 3) handling teacher schedules, classroom organization and instructional orientation.

PROBLEMS OF IMPLEMENTATION

Among the problems inherent in teaching through video recording are the requirements of these special facilities. TV studio laboratories and equipment technicians were available in New York City and were considered extremely important because of large class sizes and the need in a big-city program to concentrate instruction in one central location.

Teachers in training experienced some difficulty in adjusting to the required limitation of lesson time. Part of this difficulty stems from anxiety concerning a departure from traditional procedures; nevertheless, it should be recognized as an added problem.

If the TV equipment is operated by the teacher educator, time and effort focused in this direction detracts from more specific attention which is otherwise available to each individual in class.

ACCRUED BENEFITS

Video tape recording represents an improved system of evaluating demonstration teaching. It eliminates some of the personality tension and much of the subjectivity involved in the traditional system.

Video tape recording in the classroom has a refreshing influence upon curriculum modification in other teacher education courses. Courses in audiovisual devices and techniques automatically have a new unit of instruction in order to acquaint all teachers in training with maintenance procedures and operation of the equipment. Methods courses become geared to the changed methods in the demonstration teaching class, while instruction in classes concerned with organization of teaching content is refined in view of the need for shorter lesson units.

Video recording presents an opportunity for evaluation among individual teachers--and opportunity to teach, reassess, then reteach.

Modification of techniques in teacher observation occur since new items appear and have different significance in the evaluative process. These items can, of course, be checked and double checked on the screen.

There is an obvious increase in objectivity of evaluation by the teacher, together with forced organization of lesson presentations, inasmuch as an entire lesson is presented within a specified time limit.

Another beneficial result is the possibility for application of video recording in in-service teacher education within local schools.

COST OF OPERATION

In mentioning the costs, commendation is owed to those who have been responsible for planning, proposing, funding and managing this research project, with compliments due from those who participated and all who benefited because of the high quality and professional ability of the personnel at Ohio's Center for Research and Leadership Development in Teacher Education.

Two primary costs in the use of video tape recording are: a comparatively higher equipment cost, and additional technician and maintenance expense.

It should be noted, however, that although beginning expenses are incurred in the development of video tape recording as a new project, cost analysis would unquestionably result in increased cost efficiency on a per-student basis. Judgment concerning the resulting values may therefore be more important than analysis of the initial price tag.

REACTION OF LOCAL EDUCATORS

As a result of video recording experimentation, a favorable attitude develops in the local schools concerning the reduction of standard lesson time. Too many teachers talk too long. Video feedback cuts down the time. An interest thus exists in further experimentation with micro-lesson teaching. Short, intensive periods of instruction--well planned and to the point--are applauded by local supervisors.

Recommendations have been made for the development of in-service teacher education through video tape recording in order to update skills of experienced teachers. Additional favorable response by local educators is apparent in their plans for use of video recording for other purposes.

ACCEPTANCE BY THE UNIVERSITY

The staff of the institution indicate complete general approval. Although they indicate some exception to the suggested five-minute period teaching limitation, acceptance is indicated for short instructional units, and particular enthusiasm for the video tape recording process. Appreciable improvement is noticeable in the techniques used by teacher educators from three aspects: 1) refined techniques of teaching analysis, 2) intensified evaluation of teachers in training, and 3) increased contacts and working relations among the teachers in training.

Staff members indicate that advantages include items of student self-improvement such as repetition of teaching technique for reinforcement purposes, personal evaluation of physical characteristics, speech improvement, development of poise and confidence, cutting teaching material to "bite size," instructional objectivity and related aspects.

IMPLICATIONS FOR FUTURE USE

As a direct result of experimentation in the New York City Metropolitan region, video tape recording equipment was subsequently purchased for specific use in the vocational-technical teacher education program. Implications are clear for the continued use of this equipment in demonstration teaching classes and introduction of TV equipment operation in audiovisual courses.

The filing and storing of taped lessons for review, analysis, and demonstration purposes offer obvious implications of value.

A definite influence results in refinement of lesson organization because of the planning for shorter units of instruction

in all phases of the teacher preparatory program, and an evident effect upon curriculum revision in all teacher education courses.

There are many implications for possible operation of video recording in local schools for in-service teacher education and for allied uses. In-service teacher education for community colleges and local technical institutes presents a positive potential for future implementation.

Implications exist for improving the professional atmosphere of the entire teacher education program, and opportunity to actually practice improvement of teacher techniques among teacher educators.

PRACTICAL FINDINGS AND IMPLICATIONS OF IN-SERVICE EDUCATION UTILIZING MICRO-TEACHING AND VIDEO FEEDBACK OF ACTUAL CLASSROOM AND LABORATORY TEACHING

*GORDON G. McMAHON**

One of the most interesting facets of our experience with micro-teaching and video recording will probably never appear in any statistical or descriptive report on the project. But it has interesting implications for teacher education. It was noted that both teachers and teacher educators reacted to the explanation of the plans for recording their micro-lessons with a kind of hopeful, expectant anxiety which helped create an amazingly good atmosphere for learning. Everyone, it seems, is curious about what image he will project on film. The prospect of seeing one's self performing in the teacher's role gives the taping the advantage of an appeal to man's natural curiosity about how he looks to others. We are not naive enough to suppose that this first enthusiasm was maintained throughout the period covered by the project; but it seems worthwhile to note that innovative techniques can be found to stimulate the enthusiasm of even our adult students.

The fact that most of our teachers in trade and industrial education are adult, mature, and experienced poses more than the problem of motivation for the teacher educator. In the trades and industries from which these persons are drawn, age and seniority are commonly equated with superiority. A younger worker is, ipsofacto, not as good as an older one. Since many of our teacher educators are fairly young men who have added advanced education to their work experience, we have a natural breeding ground for

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antagonism when the older worker enters our programs. Anything that can lessen that antagonism or channel it constructively is certainly welcome.

We discovered that the method, which was employed with one group in Rochester and one in Elmira, of providing rapid feedback to the teacher had an interesting effect upon this problem of antagonism. When the teacher had taped a segment of teaching and the tape was replayed for him, he was able to make an immediate self-critique before anyone else had a chance to offer any criticism. He inevitably caught his most glaring errors or omissions and was thus in a position to point them out himself.

We are all well enough aware of the operation of the defense mechanism in our own behavior to recognize that if we are thrown on the defensive we tend to gloss over our own errors in the course of our defense. By offering immediate feedback of the tape, we put the teacher in a position which allowed him to point out his own most obvious weaknesses and then ask for advice or additional criticism from the teacher educator or the members of the class.

We can see tremendous potential for reducing the perfectly natural antagonisms between the beginning teacher and the teacher educator, both through the use of video recording and the application of the principles of initial self-criticism which this experience has suggested.

We have always used demonstration teaching as a part of our teacher preparation program, with demonstrations performed before the peer group and with the teacher educator acting as chief critic. Even though the teacher has always been given the opportunity for self-criticism before anyone else speaks, he has not been able to offer a particularly valid critique of his own work since he has only his memory to rely upon. The teacher educator inevitably is burdened with the task of criticism, since the other persons in the class tend to be reserved in their comments. We see the possibility of a substantially new role for both the teacher educator and class members as consultants rather than judge and jury.

Our experience with video taping of micro-teaching segments has, incidentally, not been limited to this research project. In the summers of 1968 and 1969, Justice Cheney of our Oswego staff made use of the equipment and expertise of our Learning Resources Center to experiment with these techniques in his student-teaching classes. He concluded that immediate feedback led to great improvement in the preparation for the next demonstration and in the demonstration itself.

A further advantage which accrues to both teacher and teacher educator from the nature of the micro-teaching experience is the teacher's acceptance of the need for careful planning. Those of you who have known the pain of trying to convince a beginning teacher of the necessity for planning would be delighted to observe the effect which the five to eight minute time limit has upon the student. He may not have his four steps well outlined and organized the first time; but he learns quickly when he finds himself cut off in the middle of step two. He learns that he has a limited amount of time to establish rapport with his class, present his subject matter concisely, in language his students can understand, allow for a return demonstration or explanation, and move to the evaluative step to learn whether he really has made his point.

In some of our teacher-training classes we have persons who have had teaching experience--some, for instance, with experience teaching in a two-year college. They find it particularly hard to believe that all this talk about planning and precision applies to them. Working with post-high school age groups, they may have developed a habit of rambling, lengthy introductions, possibly in a misguided effort to establish a man-to-man relationship. We have not found anything more effective than the embarrassment they feel on seeing themselves recorded on tape with their time gone before they have even started the lesson.

A comment in passing--at least one teacher educator has become convinced that the evaluation step in teaching is even more important than he had ever believed. The teachers come face-to-face with the recorded results of their teaching within minutes after the completion of the lesson. Not only can they see and hear the reactions of their students, but they can evaluate their own work. Until any individual recognizes his own inadequacy, he can do nothing to remedy it. It is possible to see rather far-reaching implications for application to methods classes not directly concerned with student teaching.

The evaluative instruments used in the project proved to be excellent instruments for their purposes--particularly the one used by the learner to evaluate the instruction. Through constant use of these instruments, the teacher educators became much more acutely aware of the goals they should be trying to reach.

In the hands of the high school age students, who acted as learners in some of our classes, this instrument was the source of uninhibited and honest reaction to the instruction. I am personally convinced that there are real advantages in employing high school age youth as "The Class" compared with the use of a peer group. The peer group tends to be less critical since they know their turn is coming. They tend to behave a little like the jury which exonerates the drunken driver with the thought, "There but for the grace of God . . ."

PROBLEMS

You will scarcely have completed your first course employing video recording before you become acutely aware that you now possess many tapes that are far too valuable to be erased. Among your collection will be many without merit, but there should be some which can form the basis for an invaluable film library.

Properly processed--that is selected and re-taped--they can be catalogued for use by both teacher educators and teachers. They may serve as an example of how to present a lesson on a given topic or skill; an example of excellence in any one or all of the instructional steps; or possibly an example of how not to do something.

Choosing the tapes to be retained and the cataloging will require a great deal of staff time, as we have already discovered. On one tape there may be only one demonstration you wish to keep, but every other segment on the tape will have to be viewed and evaluated before the chosen lesson is re-taped for the library.

Class size poses another important problem in regard to staff time. Proper use of video recording requires a great deal of time for the critiquing which has been described. Whether tapes are used in the teacher's own classroom and mailed or delivered to the teacher educator or are made in the campus classroom, the teacher educator is charged with viewing and critiquing each lesson at least twice, after the initial taping and after the re-taping. A total load of six teachers is probably as much as one teacher educator could conscientiously handle in a single class.

A final note on potential problems involves possession of backup equipment. Two sets of portable cameras and recorders are needed if field work (recording) is to be attempted. A taping session interrupted by equipment failure can result in costly disruption of your schedule. Perhaps more important, the teacher, who has presumably made careful preparation for this taping, will be upset, particularly if several days elapse before the equipment is returned. Granted that he should be learning that he must do careful planning for everything which he teaches, the planning for a micro-lesson is somewhat unique. Equipment failure should certainly be avoided in the interest of good teacher-teacher educator relations.

Our experience with micro-teaching and video recording has convinced us that these have great potential as a teaching and learning device in teacher education. We are not using them in all of our "Demonstration Teaching" classes. Application must, of course, be tailored to fit the need. Each state, and in the larger states each area, should organize its teacher education program differently. Any recommendations coming from this research project should be adapted rather than adopted.

REMOTE FEEDBACK TECHNIQUES FOR IN-SERVICE EDUCATION

*WALTER A. CAMERON**

The purpose of this study was to assess the use of remote techniques of in-service teacher education on selected teaching skills for beginning vocational-technical teachers in the State of Colorado.

RESEARCH QUESTIONS

To accomplish the four objectives identified for the study, answers to the following questions were sought:

1. Which of the three remote techniques (video-phone, video-mail or video self-evaluation) will result in the greatest improvement in teaching performance on the following three teaching skills as a composite and separately?

   a. Introducing a Lesson

   b. Questioning

   c. Demonstrating a Manipulative Skill.

2. Are there significant differences in the levels of expressed teacher satisfaction among the video-phone, video-mail and video self-evaluation treatment groups?

3. Are there significant differences in changes in teaching mannerisms among the three treatment groups?

4. Can the three remote techniques of video-phone, video-mail and video self-evaluation feedback, supplemented with instruction models, be used effectively in an in-service teacher education program?

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*Dr. Cameron is a consultant at The Center and was coordinator of Phase IO of Project 44--Assessment of Micro-Teaching and Video Recording in Vocational and Technical Teacher Education, The Center for Vocational and Technical Education, The Ohio State University.

METHODOLOGY

Fifty-seven beginning teachers from the service areas of health occupations education, trade and industrial education, and technical education in Colorado comprised the population of this study. From this population, a sample of 39 teachers was randomly selected and assigned to one of three treatment groups (video-phone feedback, video-mail feedback and video self-evaluation feedback) of 13 teachers each.

The experimental design selected for the study was *The Pretest-Posttest Control Group Design*. The pretesting of all teachers was completed during the first week of April, 1969. The experiment began the following week when the instructional model on the teaching skill of introducing a lesson and nine illustration models (three for each of the three skills) were mailed to all participants. Upon receiving the instructional model, each teacher was informed by written instructions to view the model, as many times as necessary to learn the skill of introducing a lesson. Then, each teacher was instructed to plan and teach a five-minute lesson to four students. This micro-teaching session was videotaped and the recording was replayed and critiqued by the teacher. Each teacher mailed his videotaped lesson and his critique form to the teacher educator.

Upon receiving the videotaped lesson of a teacher assigned to treatment number one, instructional model with video-phone feedback, the teacher educator critiqued the videotaped teaching performance on the skill of introducing a lesson. He identified an appropriate illustration model to help the teacher improve and returned the teacher's tape by mail. The teacher educator contacted the teacher by telephone and discussed the teaching session. After the telephone conference the teacher viewed the identified illustration model, then planned and retaught the same lesson.

When the teacher educator received the videotaped lesson of a teacher assigned to treatment number two, instructional model with video-mail feedback, he critiqued the lesson and recorded his comments on the tape following the teacher's taped session. In addition, he identified an appropriate illustration model to help the teacher improve his performance and returned the tape to the teacher by mail. After receiving the tape the teacher viewed the teacher educator's comments and the illustration model, then planned and retaught the same lesson.

The teachers in treatment number three, instructional model with video self-evaluation, presented their videotaped lessons to their local supervisors or if there were no local supervisor at the school, it was mailed to the teacher educator. The video tape was returned without being critiqued. This procedure insured that the teachers in this group would also be held to a rigid time

schedule. The teacher, upon receiving his tape, reviewed his own critique and the illustration models, then planned and retaught the same lesson.

One teacher educator served as the instructor for all treatment groups. The teaching-reteaching cycle, as described in the preceding paragraphs, was repeated for the three teaching skills, i.e. introducing a lesson, questioning and demonstrating a manipulative skill. Two weeks of time were required for the study of each teaching skill, but the exact time varied from two weeks to three weeks because of delays in mail deliveries. At the end of the experiment, which lasted eight weeks, posttests were made of the 36 participants who had completed the program. One participant from each treatment group had failed to complete the entire program.

A panel composed of two experienced teacher educators was used for rating the teachers' skills and mannerisms on all pretests and posttests. The panel was given six hours of instruction on how to use the three teaching skill instruments and the instrument on teaching mannerisms. This training was given to obtain high rater reliability.

A satisfaction scale was administered to each teacher to obtain his expressed level of satisfaction with the remote teacher education technique to which he was exposed. In addition, a reaction questionnaire was used to obtain the reactions of the participants in regard to the strengths and weaknesses of the remote techniques.

FINDINGS

Six null hypotheses were tested to answer the four major questions asked in this study. For the first four hypotheses which were concerned with testing the effectiveness of the three remote techniques in regard to teaching performance, one-way analysis of covariance tests were computed. The teaching performance pretest scores were used as the covariate in all four tests. A single-classification anaylsis of variance was used to test the fifth hypothesis which was concerned with differences in the level of expressed teacher satisfaction among the treatment groups. A chi-square test was computed to test the sixth hypothesis which was concerned with the differences among the treatment groups in regard to change in teaching mannerisms. In addition to the testing of the six hypotheses, a paired t-test was computed to assess the significant difference in the pretest and posttest teaching performance scores for each treatment group. The reactions of the participants and of the teacher educator were also collected to assess the feasibility of the use of each remote technique.

The major findings were as follows:

1. No statistically significant differences were found among the three treatment groups in regard to teaching performance on the composite of the three teaching skills or on any single teaching skill.

2. No statistically significant differences were found among the three treatment groups on the participants' expressed level of satisfaction with the technique used.

3. The video-mail feedback and the video self-evaluation feedback treatments were significantly better than the video-phone feedback treatment in regard to teachers making positive changes in teaching mannerisms. There was no significant difference in positive changes between the video-mail and the video self-evaluation treatment in regard to teaching mannerisms.

4. The paired t-tests between the pretest and posttest scores for the teaching performance on the composite of the three teaching skills revealed that all three treatment groups made improvement of posttest scores over pretest scores beyond the .01 level of significance.

5. The reactions of the participants to a questionnaire indicated that the majority believed that the instructional and illustration models were helpful in directing their learning experiences. The teachers who received video-phone feedback indicated that this technique limited them to a rigid time schedule, but it provided for two-way communications with the teacher educator. The teachers who received video-mail feedback indicated that they would like to have had two-way communications with the teacher educator, but they pointed out this technique did provide for flexibility in scheduling their participation. The teachers who received video self-evaluation feedback indicated that the lack of feedback from the teacher educator created some anxiety at times, but confirmed that this technique provided for an effective program of self-improvement.

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions were drawn from the findings of the study:

1. Remote feedback on teaching performance from the teacher educator via mailed videotaped comments or via telephone had no more effect on improving a teacher's performance

on selected teaching skills than the feedback a teacher obtained from viewing models, and viewing and critiquing his own videotaped lesson.

2. Teacher satisfaction with the remote techniques was not dependent upon the type of feedback each group received.

3. The teachers experiencing the video self-evaluation feedback and video-mail feedback techniques made more positive changes in teaching mannerisms than those receiving the video-phone feedback technique.

4. The use of remote techniques in an in-service program on teaching skills was found to be feasible and did help beginning teachers analyze and change their teaching behavior.

It was recommended that the applications of the remote techniques of teacher education be continued in Colorado. Further suggestions were made for conducting additional research on variations of these remote techniques. In addition, recommendations were given for improving the quality of duplicated video tapes and for improving the preparation of written instructional materials used in the study.

PRACTICAL FINDINGS AND IMPLICATIONS OF REMOTE FEEDBACK TECHNIQUES FOR IN-SERVICE EDUCATION

*RONALD E. GLENN**

The phase 10 experiment in micro-teaching was designed to field test three different methods of evaluation for in-service teacher training. Three groups of teachers were served by this program with evaluation via video-phone, video-mail and video self-evaluation. Any adverse effects of the experimental structuring of the field test were not apparent. There was a high degree of interest in the project from teachers and administrators. An added plus factor of this method of in-service teacher training was the development of close relationships through the interaction of teachers and supervisors, teachers and audiovisual personnel, teachers and fellow teachers, and between the teacher educator and all participants.

Responses to the various treatments were generally very positive. While the length of time necessary for one complete cycle caused some concern, those participants in the self-evaluation method indicated the greatest uneasiness since they received no feedback as to their progress. Each participant was thoroughly oriented to the major thrust of the project and demonstrated, throughout the testing period, a personal commitment. By providing an organized opportunity to work with video tape equipment and use video techniques, this field test involved the teachers, the supervisors and the administrators in a meaningful experience.

As this field project became operational some problems worthy of notation became apparent. First, is the isolation of four students in the micro-teaching configuration. While this provided an excellent setting for the teaching sessions, it generated a morale problem with some of the students. Rather than feeling obligated

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*Dr. Glenn is associate professor, Department of Vocational Education, Colorado State University and was co-investigator of Phase 10 of Project 44--Assessment of Micro-Teaching and Video Recording in Vocational and Technical Teacher Education, a cooperative study by The Department of Vocational Education, Colorado State University and The Center for Vocational and Technical Education, The Ohio State University.

to participate, many students indicated a desire to be involved. These students wanted to participate even when it meant remaining after hours. To participate in a teaching session became a status symbol. Second, is equipment availability. While many institutions have video equipment available, there were few with the required backup equipment necessary to cover the inevitable malfunction. The short supply of equipment and the generation of increased interest in video techniques resulted in scheduling problems. Third, is limitation of participants. The initial criteria for the selection of participants excluded many teachers that indicated a desire to become involved with this new media. Fourth, is volume of tapes. The self-imposed time limitations of the project, coupled with the number of participants, created a heavy workload for the teacher educator. This problem would be alleviated through scheduling in an ongoing in-service training program.

Some of the more apparent benefits derived from this program may be readily identified. The teachers became quite proficient in the operation of video tape equipment. In most cases, this was their first exposure to video tape, this was true even when it had been available for many months within their institution. This project stimulated many creative ideas for adapting video tape techniques to other facets of the learning process. Many of these "spin-off" ideas have been incorporated into their programs. All of the participants gave an immediate positive response concerning the value of the micro-teaching program. While many expressed a perceived need for further individual development, they all exhibited a sense of pride in their personal growth in the teaching skills developed in this program.

The teachers were intrigued by the immediate identification of personal teaching weaknesses. These behavioral problems were rapidly corrected. Additional benefits were identified in the overall cost of training i.e. in time, money and effort.

While no follow-up procedure has been initiated to verify the amount of residual effects of this program, the carry-over should be high. Many of the teachers, four months after the completion of the study, continue to express an awareness of the help received and they have maintained a positive attitude toward the technique. The implications are apparent that many good images have been left with the teachers. A considerable amount of data remains to be collected to validate the long-range effectiveness from this program.

A recommendation to consider when initiating this type of program would be incorporating some additional skills. One implication derived from this phase of Project 44 would be the desirability for a combination of teaching skills to produce a complete lesson. In addition, there is a need for work on the

skills of accomplishing closure and giving an assignment. While other skills could be utilized these were obvious areas of need for improvement as expressed by participants in this study.

In an attempt to place a dollar value on this type of in-service teacher preparation, a typical situation was analyzed as representative of the conditions found in Colorado. Under the program followed in the past, a teacher educator would expend approximately five times the time and money needed to serve an equal number of teachers. This figure was computed without considering the initial cost of equipment, maintenance or depreciation. The basis for evaluation assumed the self-evaluation mode and the availability of field equipment.

This was a very rewarding experience for the teacher educator. It provided an excellent vehicle to generate a closer working relationship with teachers in the field. This mutual endeavor returned good dividends in teacher advancement and helped to develop a willingness to experiment coupled with a feeling of standing on the threshold of innovative teaching practices.

Teachers coming directly from industry rapidly assimilated the needed teaching skills. This experience served as a buoy for their confidence and confirmed to themselves their ability to teach and to learn the teaching skills.

As an immediate result of this experiment the use of micro-teaching has been incorporated as a functional unit in our teaching methods classes. Members of our instructional staff are becoming oriented to the many advantages of video recording and we are experiencing the pressures of crowded schedules with the increased usage of equipment.

The supervisors that participated in this program have initiated video in-service training within their institutions. New teachers, without teaching experience, will receive training that will include the micro-teaching techniques. Interest generated by this program has been exhibited at all levels including teachers, supervisors, administrators, local directors, and state department personnel.

Colorado with its great distances between institutions and its rugged terrain provides a setting that makes in-service training very difficult. Video tape and micro-teaching may very well be a solution to part of the problem.

PART IV

MICRO - SUPERVISION

MICRO-SUPERVISION

*SHIRLEY A. CHASE**

The purpose of this study was to design and test a prototype training program to assist teacher educators in the development of supervisory skills through micro-supervision. Micro-supervision employs the principles of micro-teaching at the higher level of preparing teacher educators.

OBJECTIVES

The objectives of the study were:

1. To investigate the feasibility of micro-supervision using micro-teaching and video feedback in a workshop for teacher educators.

2. To compare the use of group and individual feedback techniques for effectiveness in changing behavior of teacher educators.

3. To develop an instrument on supervisory skills that can be used as an instructional aid to the teacher educators and as a critique guide for master teacher educators.

4. To develop video recorded models of supervisory skills.

RESEARCH QUESTIONS

Questions to guide the study to accomplish the research objectives were as follows:

1. Is there a significant difference in the supervisory skill development of teacher educators receiving individual conferences and those involved in group conferences?

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*Mrs. Chase is a technical assistant and coordinator of Phase 9 of Project 44--Assessment of Micro-Teaching and Video Recording in Vocational and Technical Teacher Education, The Center for Vocational and Technical Education, The Ohio State University.

2. Is there a significant difference in the satisfaction of teacher educators receiving individual conferences and those involved in group conferences?

METHODOLOGY

The participants in this study included high school pupils employed as students for the micro-teaching sessions, 12 volunteer pre and in-service teachers from several service areas of vocational and technical education, 12 volunteer teacher educators-in-training also from several service areas of vocational and technical education, and two master teacher educators with extensive experience in vocational teacher education.

The experimental design selected for the study was the *Pretest-Posttest Control Group Design*. Two treatment groups were used to compare the individual and group feedback techniques at the teacher educator level. Six of the teacher educators-in-training were assigned to the individual conference treatment and six to the group conference treatment. The individual conferences consisted of a master teacher educator meeting in conference with a teacher educator-in-training for 20 minutes. The group conferences were conducted by a master teacher educator with three teacher educators-in-training for one hour.

The study was set up to simulate a workshop covering a period of approximately two weeks during which the micro-supervision cycle (Figure 1) was repeated five times.

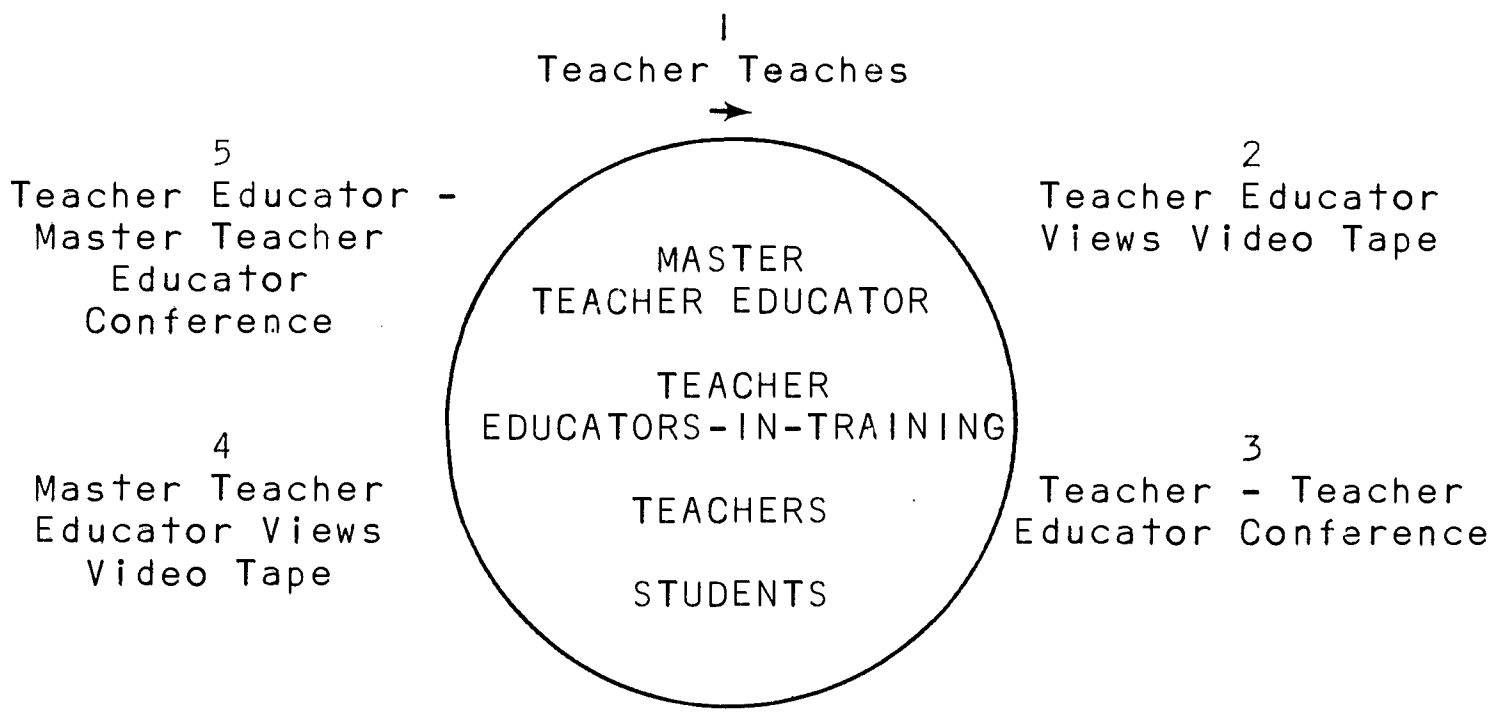

Figure 1. Micro-supervision Cycle

The teachers received instruction and practice on the skills of introduction, oral questioning and closure. The critique forms used for introduction and questioning had been tested in other phases of Project 44 and refined for this particular Phase. The critique form for closure was developed and used for the first time in this project. Supervisory conference critique forms were developed for instructing the teacher educators. The skills of introduction, body and closure of a supervisory conference were emphasized in these forms. The forms were tested on a group of teacher educators-in-training before being refined and used in this study.

The data for this investigation were collected July 7-21, 1969. Previous to this time, several special sessions were devoted to the orientation of the participants to the project. Demonstrations and practice sessions were conducted to train the participants in the use of the video recording equipment so they could operate the equipment and record their own teaching or conference sessions. Video recorded models were used to illustrate the behaviors given in the critique forms for the teaching skills of introduction, questioning and closure and the supervisory skills of introduction, body and closure of a conference.

At the end of the study, the teacher educators-in-training filled out an evaluation instrument in which they expressed their satisfaction with the conference methods and the program they experienced.

An analysis of covariance test was used to answer the research question which was concerned with the differences in the performance of the teacher educators receiving assistance by the individual and group conference methods. The teacher educators' pretest and posttest performance scores on each of the three supervisory conference skills and a composite of the three were used in the test. A "paired t-test" was used to determine the significance of progress between the pretest and the posttest for each treatment group. An analysis of variance test was used to answer the research question concerned with the satisfaction of the teacher educators-in-training involved in the two treatment groups (individual and group conferences).

FINDINGS

1. There were no statistically significant differences between the teacher educators-in-training receiving the group conference and those receiving the individual conference treatments in terms of their performance scores on the supervisory skills of introduction, body and closure of a conference or in the composite scores of the three skills.

2. Although there were no significant differences between the two treatment groups, both groups made statistically significant progress, from pretest to post-test, on their supervisory skill performance.

3. There were no statistically significant differences between the expressed satisfaction of the teacher educators-in-training receiving the group conference and those receiving the individual conference treatments.

CONCLUSIONS

1. Micro-supervision seems to have potential for improving supervisory skills since participating teacher educators improved significantly on their supervisory skills under both group and individual conference methods.

2. Since there were no statistically significant differences between the two conference methods used, there is no justification for preferring one treatment over another. However, from the reactions of the teacher educators-in-training it is suggested that a combination of the two methods may lead to greater effectiveness and satisfaction of the participants.

3. The supervisory skill instruments developed and tested for this study were considered valuable instructional aids in changing supervisory behaviors of teacher educators.

IMPLICATIONS

However impressive the results of the study are, the techniques used should be further developed and tested before having any large scale field application. As a result of the success of this particular prototype program, a new project is being developed at The Center for a national workshop for teacher educators. The workshop will be organized to emphasize the micro-supervision principles employed in the prototype program. During the national workshop, a larger number of teacher educators will participate, other supervisory skills will be tested, more instruments developed, and further improvements will be made in the entire program. It is proposed that the national workshop will be the model for future workshops to be conducted on a regional basis by other institutions.

PRACTICAL FINDINGS AND IMPLICATIONS OF MICRO-SUPERVISION

*ANNA M. GORMAN**

Phase 9 was a feasibility study to explore the possibility of using micro-teaching and video recording in an educational program for beginning teacher educators. It proposed to develop specific supervisory skills needed to conduct conferences with the objective of the conference being to improve the effectiveness of teaching.

The practical findings and implications, as reported here, are for use by vocational educators as they prepare people who are interested in starting a career in teacher education and/or supervision. Some of the suggestions are in the form of slight methodological changes, while others stem from feelings expressed and felt during the progress of this phase of the research.

Figure 1 shows the steps taken in executing the preparation cycle. The participants included the classroom teacher who taught five-minute teaching sessions to four high school students. These teaching sessions were videotaped and evaluated first by use of the critique forms by the teacher and the students taught by this teacher. Another group of participants were the beginning teacher educators. They entered the design at step four. They viewed the five-minute video recorded teaching session, reviewed the completed critique form, and did their own evaluation of the five-minute teaching session. Then, they had a 12 to 15-minute conference with the teacher. This conference was video recorded. The two participants then completed the critique forms related to the effectiveness of the conference. The last set of participants were the master teacher educators. The master teacher educators viewed the conference video recording, completed the conference critique forms, and had a conference with the beginning teacher educator.

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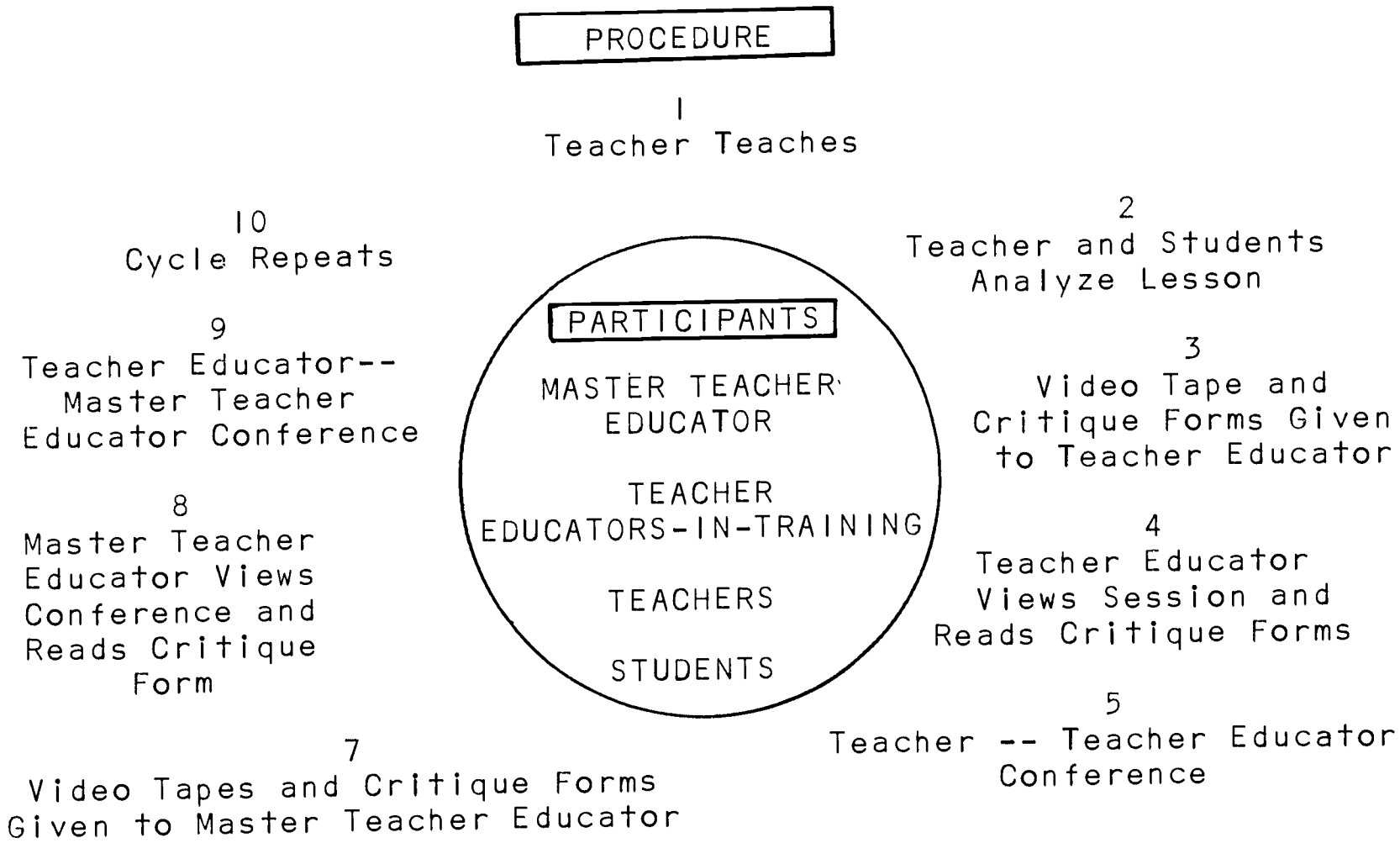
*Dr. Gorman is professor and specialist in home economics education at The Center and was master teacher educator for Phase 9 of Project 44--Assessment of Micro-Teaching and Video Recording in Vocational and Technical Teacher Education, The Center for Vocational and Technical Education, The Ohio State University.



In the practical findings and implications, all phases or steps are discussed, but mostly I will concentrate on the conferences involving the beginning teacher educator and the master teacher educator. There were two of us who played the role of master teacher educator, and, each of us was assigned six beginning teacher educators.

Mrs. Shirley Chase introduced Dr. Richard Wilson and me to the details of the project. Prior to this introduction, the beginning teacher educators have already been videotaped having a conference, which was the pretest phase of the study. Dr. Wilson and I were to each have two, one-hour presentations with three of the teacher educators at each session. We were to: 1) include content essential for conducting a conference, and 2) illustrate our points by use of a conference model on videotape recording. The critique forms were explained to us. We were to view the video recordings of the conferences between the teachers and the beginning teacher educators and then complete the forms. Then, we were to have conferences with our beginning teacher educators. Here entered a very interesting part of the design--we were to have three 20-minute, individual conferences with three of the

beginning teacher educators and we were to have three one-hour group conferences with the other three beginning teacher educators. These remarks are based on the experiences I had with six specific beginning teacher educators--one female and five males.

Dr. Wilson and I planned the one-hour presentation together in an attempt to lessen the differences in the content involved in this part of the study. We planned to teach the supervisory skills around the concept of the "use of the conference period as an aid for improving teaching." We emphasized the three parts of the conference--the introduction, the body, and the closure. We developed generalizations for each point under these three sub-concepts. We previewed the conference model and decided where it might be viewed during the presentation. If you decide to use this study design and more than one master teacher educator is involved, I recommend this planning together for we got acquainted as master teacher educators; we also had a wonderful review of principles involved in having a conference, and we helped each other in learning more about operating video tape recorders.

Neither of us was too happy with the "instructional model" conference video recording. We recommend the use of a "model" during the presentation, but you may have to develop your own or you may wish to use some which were developed as a result of this study.

Dr. Wilson and I found out that neither of us had ever held group conferences for the specific purpose of improving teaching. We both ended the study by being well pleased with this innovative part. We think all of you should try this technique, if you have not already done so. The following findings and implications center on understandings, which grew out of this group conference idea. First, a person must be more perceptive and sensitive in a group situation than in individual conferences. I missed some important behavior clues in the group conference that really made me aware of the need for this recommendation. Work hard to establish group rapport early in the workshop. Next, I would recommend that at least five conferences should be held, if the study or a workshop is replicated, because the quality of group reinforcement took about three conferences to develop. The group conference members also suggested that they would like to have the privilege of having individual conferences with the master teacher educator. I think this is an excellent suggestion and one that you might wish to involve in a workshop.

Here are other general implications. After the study was completed, I was helping to look for a good closure model on the micro-teaching video tapes. We, as master teacher educators, did not see the video recorded teaching sessions during the study. During this exploring of video tapes on teaching sessions, I discovered that some of the beginning teacher educators had missed

some significant teaching behavior patterns. My analysis of the situation was that in their effort to be supportive to the teacher, they overlooked details of teaching as outlined on the critique form. So, if you replicate the study or try such a workshop, I would suggest that the master teacher educator should also view the teacher video tapes.

Also, another change in the study was suggested by the beginning teacher educators. They wanted the time schedule fixed so the teacher could view her own video recorded teaching session prior to the conference (either with the teacher educator or alone) with the beginning teacher educator. The beginning teacher educators also wanted a definite time for viewing their video tape recordings of the conference.

We noticed that the video recordings of the teaching sessions were used by the teacher educators without specific objectives for viewing being established. I would recommend that as one previews a video tape, the specific numbers (located on a counter on the video deck) be recorded where behavior occurs, which you wish to discuss. Then, during the conference, advance the video tape to the specific behavior you want to reconstruct and discuss. This procedure will save time, will make it possible to establish specific objectives, lessening the chance of wandering off the subject by being exposed to the total video tape recording.

As I reflect back upon this experience, I wonder if I could have set important objective priorities as essential behaviors for beginning teacher educators to achieve. I know I emphasized the importance of letting the teachers analyze their own teaching behaviors and to come up with their own teaching alternatives. Right now, I think I would emphasize or place priorities on helping these beginning teacher educators to understand: 1) the importance of setting objectives of a conference, 2) the value of planning for the next conference, and 3) the importance of summarizing decisions reached during the conference.

The interest of these beginning teacher educators was sustained during the whole study. In fact, the teachers and teacher educators regretted that the program ended so soon. They seemed to grasp at ideas. We were all enthusiastic about the study and hated to see it end. I certainly recommend the use of the ideas involved in this workshop. For example as you prepare teacher educators for supervising student teachers, the micro-supervision technique could be utilized. Students from methods or techniques classes might do the five-minute micro-teaching. Then, you could have these beginning supervisors involved in conferences with these inexperienced future teachers. This technique does give the beginning teacher educator actual experience in conducting conferences. The beginning supervisors could be enrolled in a

graduate class or could be brought in from-the-field for an in-service workshop.

APPENDIX A

Seminar Programs

NATIONAL VOCATIONAL-TECHNICAL TEACHER EDUCATION SEMINAR

October 20-23, 1969
Deauville Hotel
Miami Beach, Florida

SEMINAR PROGRAM

MONDAY, OCTOBER 20

1:00 P.M. - 8:00 P.M. REGISTRATION

2:00 P.M. - 4:00 P.M. STAFF AND COMMITTEE LEADER MEETINGS

8:00 P.M. OPENING SESSION

Purposes and Objectives of the Seminar

Dr. Aaron J. Miller
The Center for Vocational and Technical Education
The Ohio State University
Columbus, Ohio

Keynote Address

Dr. Martin Essex
State Superintendent of Public Instruction
Columbus, Ohio

TUESDAY, OCTOBER 21

8:30 A.M. - 9:45 A.M. SECOND GENERAL SESSION

Organization of the Seminar

Dr. James W. Hensel
Professor and Chairman
Department of Vocational, Technical and Adult Education
University of Florida
Gainesville, Florida

Principal Speaker

Dr. Virgil Lagomarcino
Dean of Education
Iowa State University
Ames, Iowa

9:45 A.M. - 10:15 A.M. COFFEE BREAK

SUB-SEMINAR: MICRO-TEACHING AND VIDEO RECORDING

TUESDAY, OCTOBER 21

10:15 A.M. - 11:45 A.M. SYMPOSIUM ONE

Overview and Description of Studies

Chairman

Dr. C. J. Cotrell
The Center for Vocational and Technical Education
The Ohio State University
Columbus, Ohio

Symposium Speakers

Phase 1-4--Charles R. Doty
Phase 5--James L. Hoerner
Phase 6--Fred W. Harrington
Phase 7--Charles R. Doty

11:45 P.M. - 1:15 P.M. LUNCH

1:15 P.M. - 2:45 P.M. SYMPOSIUM ONE (continued)

Symposium Speakers

Phase 8--Patricia M. Smith
Phase 9--Shirley A. Chase
Phase 10--Walter A. Cameron

2:45 P.M. - 3:15 P.M. BREAK

3:15 P.M. - 4:30 P.M. INTEREST GROUP SESSIONS

Discussion Leaders

Phase 5--James L. Hoerner and Donald L. Karr
Phase 6--Fred W. Harrington and Harold M. Nestor
Phase 7--Charles R. Doty, Donn Billings, and Gordon McMahon
Phase 8--Patricia M. Smith and Julia I. Dalrymple
Phase 9--Shirley A. Chase and Anna M. Gorman
Phase 10--Walter A. Cameron and Ronald E. Glenn

7:00 P.M. - 10:00 P.M. SPECIAL PROGRAMS

WEDNESDAY, OCTOBER 22

8:30 A.M. - 9:45 A.M. SYMPOSIUM TWO

Practical Findings and Implications for Teacher Educators

Chairman--C. J. Cotrell

Phase 8--Julia I. Dalrymple
Phase 5--Donald L. Karr
Phase 7--Gordon G. McMahon

9:45 A.M. - 10:15 A.M. BREAK

10:15 A.M. - 11:45 A.M. INTEREST GROUP SESSIONS

11:45 A.M. - 1:00 P.M. LUNCH

1:00 P.M. - 2:30 P.M. SYMPOSIUM TWO (continued)

Phase 9--Anna M. Gorman
Phase 7--Donn Billings
Phase 6--Harold M. Nestor
Phase 10--Ronald E. Glenn

2:30 P.M. - 3:00 P.M. BREAK

3:00 P.M. - 4:30 P.M. INTEREST GROUP SESSIONS

THURSDAY, OCTOBER 23

8:30 A.M. - 9:45 A.M. CONFERENCE HIGHLIGHTS

Chairman--C. J. Cotrell

10:15 A.M. - 12:00 A.M. THIRD GENERAL SESSION

Principal Speaker

Dr. William G. Loomis, Chief
Vocational and Technical Education Branch
Bureau of Educational Personnel Development
U. S. Office of Education
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APPENDIX B

Special Evening Program

NATIONAL VOCATIONAL-TECHNICAL TEACHER EDUCATION SEMINAR

Deauville Hotel
Miami Beach, Florida

Special Evening Program
Tuesday, October 21, 1969

Program #1 — Baccarat Room — 7:00-9:00 p.m.

Leader - Mr. Niyazi Karasar

a. Film - "THE EMPTY LOT"*

b. Video Tapes - "THIS IS YOUR CENTER"
Series of video tapes of several projects currently in progress at The Center for Vocational and Technical Education.

Program #2 — Napoleon Room #1 — 7:00-8:00 p.m.

Leader - Mr. Harold A. Horton

Speaker - Dr. Marvin Hirshfeld, Temple University

"Leadership Development Workshop-Conference for Teacher Coordinators of Distributive Education"

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*"THE EMPTY LOT" film may be ordered from: National Audio-visual Center, National Archives & Records Service, Washington, D. C. 20409.

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