DOCUMENT RESUME

ED 273 806 CE 045 018

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TITLE Achieving Professional Excellence: Proceedings of a National Conference on Performance-Based Approaches to Training (Little Rock, Arkansas, October 8-10, 1985).
INSTITUTION Ohio State Univ., Columbus. National Center for Research in Vocational Education.
PUB DATE 86
NOTE 121p.
PUB TYPE Collected Works - Conference Proceedings (021) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Adult Education; Adult Educators; *Competency Based Education; Distance Education; Faculty Development; *Leadership Training; Needs Assessment; Outreach Programs; *Professional Development; Program Evaluation; Secondary Education; Staff Development; *Teacher Education; *Vocational Education; *Vocational Education Teachers

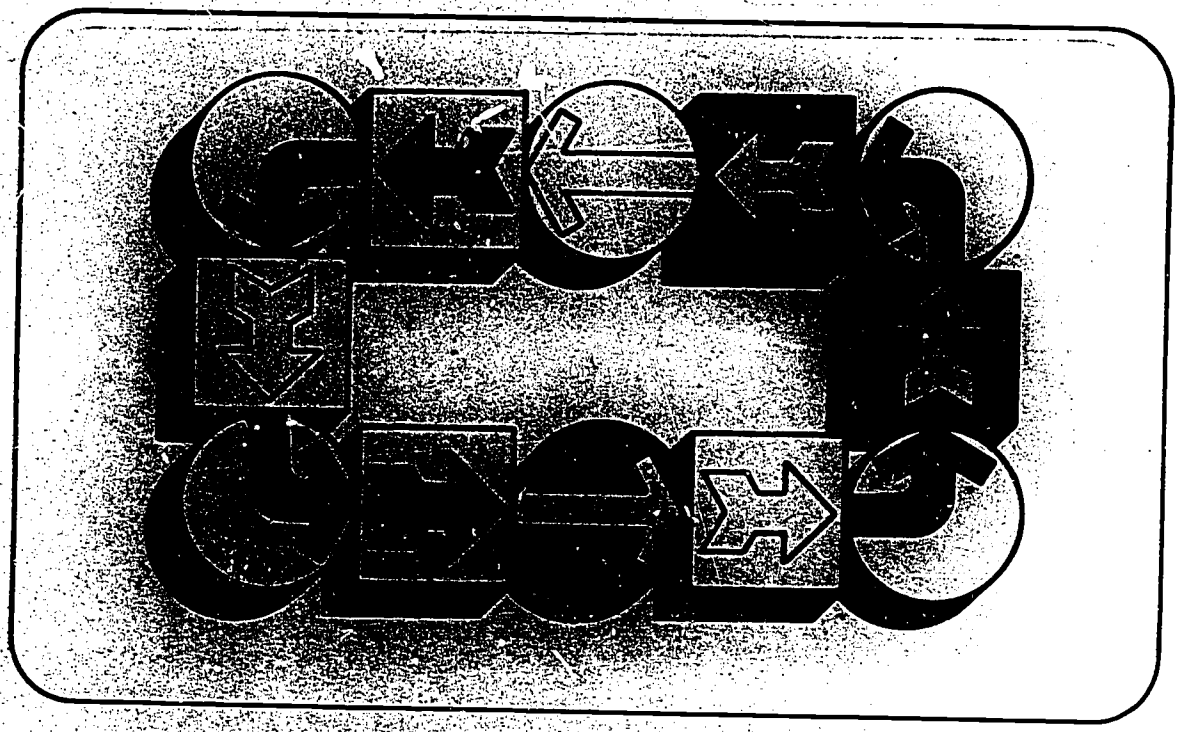
ABSTRACT

This document contains 47 presentations which focus on professional preparation of personnel in vocational-technical education and industry as an essential step in achieving excellence in educational and industrial training programs. The presentations include "Critical Issues Facing Vocational Teacher Education" (Zellner, Parrish); "A Call for Change in Teacher Education: A Dean Comments" (Campbell); "Conducting a Statewide Needs ASsessment" (Milanovich); "Diagnostic Testing in Field-Centered Performance-Based Teacher Education [PBTE]" (Walker, Whisner); "Improving Vocational Teacher Assessment" (Pratzner, et al.); "Teacher Competency Testing: Pros and Cons" (Adams); "Role of the PBTE Teacher Educator: Field-Based" (Eads); "A Beginning Teacher Program and the Induction Year" (Fardig); "Faculty Development in a Competency Based Education [CBE] Delivery System" (Johnson); "The NATTS-Recommended Competency-Based Staff Development [CBSD] Program: A Nationwide Commitment to Staff Development" (Connor); "Preparing the Itinerant Teacher Educator" (Adamsky); "Strategies for Maintaining Quality-Control with Distance Education" (Walker); "Staff Development via Teleconferencing" (Lawry); "Updating Teachers for Tomorrow's Technology" (Hamilton, Wonacott); "Criteria for Judging PBTE Program Quality" (Fardig); "Research Findings on Using PBTE Modules in Vocational Teacher Education" (Haas); "American Vocational Association Looks at Effective Leadership and the Carl D. Perkins Act" (Kolde); "CBAE in Arkansas: An Overview" (Nichols); "Preparing Vocational School Superintendents" (Wolf); "Using CBTE in General Professional Education" (Brower); "Performance-based Training in Industry: Realizing the Potential" (Evans); "Training Effectiveness Evaluation" (Patrick); "Training Standards for Nuclear Power Instructors" (Mullican); "Microteaching in PBTE" (Wiggin); "Performance-Based Teller Training: We Are Banking on It" (Miller-Beach); "Competency-Based Education in the Railroad Industry" (Penrose); "Behind Bars with CBE: Look What's Happening to Inmate Training" (Stitt, et al.); "Competency-Based Learning: Holland

College Model" (Reese); "DACUM and the Apprentice Training Process in New Zealand" (Burleigh); "Applying Competency-Based Training Techniques in Developing Countries" (Salt); "New Developments in PBTE, CBSD, CBAE, and PBT at Your National Center" (Norton); "Achieving Professional Excellence by Enhancing Your Creativity" (Arn); and "DACUM: Using the National Center's Approach" (Norton). Three small group discussions are also summarized. Appendices contain a list of the conference staff and presenters and the conference agenda. (YLB)

ACHIEVING PROFESSIONAL EXCELLENCE:

Proceedings of a National Conference on Performance-Based Approaches to Training



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ACHIEVING PROFESSIONAL EXCELLENCE:

Proceedings of a National Conference on Performance-Based Approaches to Training

Little Rock, Arkansas

October 8-10, 1985

Compiled and Edited by

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David J. Kalamas

Conference Codirected by

Robert E. Norton
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Senior Research Specialists

Hosted by

Vocational-Technical Education Division
Arkansas Department of Education

1986

The conference whose proceedings are presented herein was cosponsored by the National Academy for Vocational Education, National Center for Research in Vocational Education; the American Association for Vocational Instructional Materials; the American Vocational Education Personnel Development Association; and the National Association of Trade and Technical Schools. The opinions expressed herein do not, however, necessarily reflect the position or policy of any of the sponsors, and no official endorsement by them should be inferred.

FOREWORD

The concern for excellence at all levels of education has been a much talked about issue the last few years. This conference focused on the professional preparation of personnel in vocational-technical education and industry as one of the essential steps in achieving excellence in both our educational and industrial training programs. Over 115 persons from the United States, Canada, Switzerland, Australia, and New Zealand met in Little Rock to share ideas and discuss the performance/competency-based approach to the preparation of vocational teachers and administrators in public and proprietary schools and the preparation of instructors within industry.

The term performance/competency-based approach is used here to refer to performance-based teacher education (PBTE), competency-based staff development (CBSD), competenc -based administrator education (CBAE), and performance-based training (PBT) fo industry instructors. A major objective of this third national conference on performance/competency-based professional development was to facilitate an exchange of concepts and progressive practices among those experienced with and committed to PBTE/CBSD/CBAE/PBT concepts. Secondary objectives included sharing information about new product development, changing personnel development standards, recent research findings, and strategies for improving professional development programs.

The highlights of over 40 different presentations, abstracted and edited for consistency, have been included in this report. Persons who want to improve their existing programs or who are considering initiating the implementation of a performance/ competency-based approach to the preparation of instructors, trainers, teachers, or administrators should find these proceedings very helpful.

A major feature of the conference was the keynote address by Dr. J. Barry Ballard, State Director of Vocational Education, who explained the comprehensive professional development program for vocational education administrators and teachers in Arkansas. Dr. Rosemary Kolde, President of the American Vocational Association, described how AVA looks at effective leadership and the Carl Perkins Act. Another highlight was Dr. Linda Parrish's presentation on the critical issues facing vocational teacher education. Other feature presentations included Laura Conner's presentation of the NATTS nationally recommended CBSD program, Robert Mullican's explanation of training standards for instructors in the nuclear power industry, and Allan Salt's presentation on competency-based training in developing countries.

As usual, many persons were responsible for planning, conducting, and hosting the conference. Appreciation goes to Robert E. Norton and James B. Hamilton, Senior Research Specialists at the National Center, who cochaired the conference. Thanks are also due to Laura Conner, James Dasher, Glen Fardig, Mark Newton, and Lois Harrington who, along with Norton and Hamilton, planned the conference. Thanks are also due to James Dasher of the Arkansas Vocational-Technical Education Division who coordinated all the local logistical arrangements; to Barbara Kline who coordinated activities for the National Academy for Vocational Education; and to Lois G. Harrington and David J. Kalamas who compiled and edited these proceedings. Recognition is also extended to the three organizations who cosponsored the conference.

Finally, many thanks are due to the progressive educators at all levels across the country (and around the world) who are working hard to implement innovative and successful programs for the professional preparation of teachers, trainers, instructors, and leadership personnel. Special thanks go to those leaders of PBTE, CBSD, CBAE, and PBT programs who shared their success stories as presenters at this conference.

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

CONTENTS

PART ONE

ACHIEVING PROFESSIONAL EXCELLENCE . . .
The Training and Professional Development of Vocational-Technical Teachers/Instructors

ISSUES

Critical Issues Facing Vocational Teacher Education

Ronald D. Zellner & Linda H. Parrish

In February 1985, the executive director of AVA requested that the teacher education committee conduct a national critical issues survey. The chair of the committee secured a computer printout of all teacher educators who are members of AVA (1,141 persons). A group of 50 teacher educators was chosen from the list to generate critical issues in vocational teacher education.

Concurrently, a panel of teacher educators representing every program area, as well as administration and counseling, convened at the March 1985 mini-AVA convention in Dallas. Panel members and participants were asked to identify significant issues in vocational teacher education.

These two methods yielded 151 issues, which were consolidated into 68 issue statements. This became the basis for a national survey instrument that was sent to 1,141 vocational teacher educators. A total of 424 instruments (37%) were returned by June.

To promote the participation of other AVA members, the survey was printed in the September issue of the Vocational Education Journal. An additional 244 surveys were received, making the total response size 668. This second set of surveys also included demographic data regarding (1) division of AVA, (2) professional role, (3) size of institution, (4) region, and (5) sex of respondent.

The authors recognize some obvious constraints with this research. Specifically, the methods used were selected because of the deadlines imposed upon the committee, and therefore, the survey instrument reflects such restrictions.

Results. It was obvious from the results of the data analysis that all 68 issues cited in the survey are critical. Some, however, appear to be more critical than others. On a five-point scale (with 1 representing the least

critical and 5 representing the most critical), the means of the responses ranged from 4.44 to 3.07. [A listing of the top 45 issues and their means is provided in rank order in sample 1.]

Some interesting information was obtained from the second round of data (n = 244), including the following. First, of those who responded to the demographic inquiries, 56% were male and 34% were female. Both sexes chose "Keeping all vocational teachers technologically current with the fast-changing needs of industry" as the most critical item.

Second, as could be expected, the special needs respondents ranked "Serving special needs learners" high at 4.57, whereas this item earned as low as 2.91 when ranked by business educators and 2.83 when ranked by technical educators.

Third, administrators and T&I respondents rated "Keeping vocational educators current" as the most critical item at 4.54 and 4.4, respectively; whereas agriculture and home economics respondents chose "Support for teacher education--financial and human resources" as the number one issue at 4.59 and 4.46, respectively.

Fourth, it is significant to note that teacher educators (4.5), counselors (4.56), and high school teachers (4.48) all rated "Recruiting highly competent and committed persons" as their first choice; whereas administrators (4.43) chose "Keeping teachers technologically current" as their preference.

Two items were the choice of all respondents, regardless of levels of institutions in which they were employed: "Recruiting competent persons" and "Keeping technologically current."

Conclusion. The AVA teacher education committee will focus on these issues in their future activities, with implications and recommendations being made that will affect vocational teacher education. There is currently an effort to form a national federation for vocational teacher educators. The results of this survey indicate a degree of conceptual closeness within the ranks that could serve as the basis for such an organization.

A Call for Change in Teacher Education: A Dean Comments

Gene V. Campbell

Since 1980, education in the United States has likely received more media and public attention than at any time other than when the Supreme Court ruled that the public schools would be integrated. It is interesting to note that in the late '70s, when the improvement of education was first publicly considered, many professional educators romanticized the concept of improvement by describing it as the Era of Educational Renaissance. Thus, those who accepted the Era felt that, in many ways, a period of beauty for education was beginning. Hardly had educators become comfortable with their renaissance than the sounds of a new reformation could be faintly heard on the horizon. The sounds grew louder and this new reformation quickly became known as the Educational Reform Movement.

SAMPLE 1

AVA TEACHER EDUCATION CRITICAL ISSUES SURVEY

TOP 45 ITEMS

RANK	ITEM	MEAN
1	Recruiting highly competent and committed persons	4.44
2	Support for teacher education—financial and human resources	4.41
3	Keeping all vocational teachers technologically current	4.35
4	Finding ways to make teaching more attractive	4.32
5	Funding for vocational teacher education programs	4.25
6	Updating and upgrading teacher education programs	4.24
7	Providing adequate resources for vocational teacher educators	4.21
8	Image that others have of vocational teachers	4.19
9	Training and upgrading of administrators in vocational education	4.17
10	Keeping vocational teacher educators current with new instructional technology	4.17
11	Developing and augmenting effective public relations programs	4.15
12	The need to ensure that curriculum, equipment, and instruction are state-of-the-art	4.11
13	The public does not see relationship between vocational education and economic climate of our nation	4.11
14	The effects of "back to basics" on enrollments	4.10
15	Professional development of vocational teacher educators	4.09
16	Delivery systems—new and innovative [e.g., telecommunications, interactive video]—must be developed, funded, and implemented	4.08
17	Collaboration with the private sector	4.06
18	How to teach vocational teachers to ensure that vocational students get instruction in the basics	4.05
19	Assessment of the competence and performance of teachers	4.01
20	Developing teachers' affective work skills [values, attitudes, appreciations]	4.00
21	Declining support for vocational teacher education programs from state departments	3.99
22	Extent to which industry should be used effectively to offer more on-the-job training	3.98
23	Development/operation of teacher education programs that prepare teachers knowledgeable in general education as well as vocational education	3.97
24	Determining the correct balance between general and vocational education	3.94
25	Legislation [federal] fails to address vocational teacher education	3.94
26	Understanding the role of vocational education in our present society/economy	3.93
27	Finding ways to support the professional development of teachers	3.92
28	Declining enrollments in teacher training programs	3.92
29	Adult education training programs in the military, business, industry, and government should be able to seek and establish cooperative relationships with occupational teacher education programs	3.91
30	Development and funding of a systematic and sound program of research	3.89
31	Technical update of vocational teachers via structured employment experiences	3.88
32	The roles and purposes of vocational teacher education	3.85
33	Determining realistic standards for vocational education courses	3.82
34	Dealing with the reality of getting lower ability students	3.80
35	Professional apathy	3.79
36	How to keep preservice vocational teacher education programs alive	3.78
37	Declining support of and involvement with vocational teacher education by state departments of vocational education	3.77
38	Effective organization, development, and utilization of student organizations	3.76
39	Evaluation standards for vocational teacher educators	3.76
40	Declining support for strong certification standards	3.73
41	Interdisciplinary planning and programming	3.72
42	Providing vocational teacher education and training for industry and government	3.72
43	The future role of competency-based education in vocational education	3.71
44	Delivery of inservice vocational teacher education to teachers who do not need or want degrees or recertification	3.70
45	Cost-effective evaluation of vocational teacher education programs	3.67

In the opinion of many, the National Commission on Excellence in Education's report, A Nation at Risk: The Imperative for Educational Reform, was the catalyst for the movement. The public and media endorsed the report, and the Educational Reform Movement struck all levels of education as a tidal wave would strike a peaceful shore. The numerous reports that were issued by many entities further supported the commission's report and recommendations. Reform had begun!

The reforms in education were instigated predominantly by state legislatures who wanted to ensure the high quality of education. Other viable forces included state and local school boards, parent groups, organized teacher associations, other educational groups, and interested citizens. Representatives of teacher education institutions, unfortunately, did not generally become active in the dialogue relative to reform activities. Perhaps this was because the immediate focus was the reform of the public schools K-12, rather than the reform of teacher education. Therefore, in the minds of some teacher educators, a feeling of safety prevailed.

It is true that few deans; chairs; or heads of schools, colleges, or departments of education had, prior to the reform movement, experienced or participated in the world of political realities. Nevertheless, they surely should have been aware of what was occurring in other states relative to legislative mandates affecting teacher education programs, students, and faculty. The "writing was on the wall," but it was unread!

The leadership of the American Association of Colleges for Teacher Education (AACTE) recognized the prevailing apathy and, in their political wisdom, initiated the National Commission for Excellence in Teacher Education. With support from the U.S. Department of Education, National Institute of Education, Ford Foundation, Hewlett Foundation, Lilly Endowment, and University of Texas at Austin (College of Education), the commission studied the condition of teacher education in the U.S. and, in February 1985, made public its A Call for Change in Teacher Education, a report recommending changes needed to improve teacher education programs.

The 17-member commission developed a number of recommendations, centered around five issues that affect the quality of teacher education programs: (1) the supply of and demand for high-quality teachers, (2) the content of teacher education programs, (3) accountability for teacher education, (4) resource requirements for teacher education programs, and (5) the conditions necessary to support high-quality teaching. [The commission's specific recommendations are shown in sample 2.]

No one has said, but it may be assumed that AACTE initiated this effort because its leadership felt that, if a reform document was contemplated and developed by acknowledged leaders in education, then teacher education institutions would accept the report and use it as a guide to improving the quality of existing teacher education programs. Surely this was a sage idea, yet it appears that few teacher education institutions have embraced the report in such a way as to bring about reform. Will more accept the report? It is not likely until state legislative mandates precipitate changes.

It is apparent to many that the Era of Educational Renaissance and the Educational Reform Movement have passed, and education--in particular, teacher education--has moved into a third cycle, termed by many the Educational Revolution. The Educational Revolution will produce increasing demands on teacher education institutions to dramatically improve the quality of their programs. These demands will come not just from state legislatures, but from teacher education institutions, the National Council for the Accreditation of Teacher Education (NCATE), state agencies, the public, the media, school districts, university administrators, students, and faculty.

Some knowledgeable individuals predict that the revolution will result in (1) the closing of some teacher education colleges, schools, or departments and (2) a decline in the number of incoming teachers. The predictions relative to the demand for teachers cause one to wonder if the demand issues will erode the mandates for educational change.

Since this document provides a vehicle for one dean's comments on the condition of teacher education, the remainder of my comments will reflect my own personal experiences and beliefs relative to change. Having served as a dean of education since 1974, I have experienced, and am experiencing, all three educational cycles. I was rudely awakened to the power of politics in Louisiana when dramatic changes in teacher education were legislatively mandated in 1978.

When I arrived at the University of Arkansas at Little Rock (UALR), I knew that the tidal wave of change was brushing against the borders of Arkansas and that the College of Education must make changes to strengthen the selection of students, quality of instruction and learning, exit requirements, and greater involvement with and by the public schools. Be assured that it was not a peaceful period for the college, but the faculty and students accepted the challenge, developed new policies and procedures, implemented the changes, and succeeded--thus becoming active participants in the Educational Reform Movement. The results? The College of Education has enjoyed larger enrollments; increased credibility throughout the university; better quality of instruction and learning; increased accountability; an improved image and status with the state agencies, school districts, and public; and a better funding condition. The faculty and students are proud of UALR's programs for they are high-quality programs for high-quality students.

You may now ask, "Well, if you met the challenge of the reform movement, how is the revolution going to affect the college?" The answer is, dramatically! The college had already initiated steps toward meeting the mandates of revolution--steps that were reinforced by the recommendations outlined in the various reports. We were also cognizant of the commitment of our governor, the Honorable Bill Clinton, to improve the quality of education for <u>all</u> citizens of Arkansas. In August 1985, the College of Education created its own revolution by changing its focus to primarily graduate education. With the exception of elementary education and deaf education, all teacher education degree and certification programs will be at the graduate level. In other words, a person who wishes to become a high school teacher will not enter a teacher education program until he/she has a baccalaureate degree in a discipline other than

education. In addition, the requirements for admission to the graduate programs will increase, but they will include an equity factor.

The College of Education is challenged and motivated by the new thrust. Indeed, the entire university community shares in its enthusiasm. We believe the future of teacher education at UALR is promising. We did not wait for the revolution to come to us; rather, we forecast our future, moved ahead, and began our own revolution!

PRE- AND POSTASSESSMENT

Conducting a Statewide Needs Assessment

Norma Milanovich

Background. The problems surrounding vocational-technical teacher certification in New Mexico are not new, nor are they particularly unique to this state. That they have existed for a considerable period of time is acknowledged by many, including state department of education (SDE) personnel, university teacher educators, and teachers themselves. Evidence of these problems is manifested by the fact that many of the current postsecondary vocational-technical instructors have not completed one or more of the components required for certification, and that for this or other reasons, many postsecondary vocational-technical instructors now teaching are not certified to do so.

Typical of the problems encountered by many of the current and aspiring vocational-technical instructors, especially at the postsecondary level, is that they (1) have come recently from business or industry, where they have developed their technical expertise but have not had sufficient time to acquire the necessary teacher training skills and meet the certification requirements; (2) teach in rural areas, where long distances from teacher education facilities preclude regular certification course attendance; or (3) maintain rigid and demanding teaching schedules that do not afford them the opportunity to attend traditional university courses offered by various institutions of higher learning around the state.

Until recently, no documentation existed that accurately summarized the degree to which the component course requirements and certification needs were or were not being met. Once the problem had been identified, it was determined that a detailed needs assessment of vocational-technical educators in the state was in order. Thus, this study was undertaken.

Purpose. The purpose of the survey was to assess the certification and professional development course needs of postsecondary vocational-technical instructors in the state of New Mexico. The initial intent of the study was to gather and analyze data from a large sample of these instructors to determine which educational components they were lacking for either vocational-technical education certification or professional development.

Questionnaires were distributed throughout the state and then collected. Data on course needs and wants were compiled and arranged by region, institution, subject area, high-to-low priority, and other related categories.

SAMPLE 2

RECOMMENDATIONS OF THE NATIONAL COMMISSION FOR EXCELLENCE IN TEACHER EDUCATION

1. Admission to and graduation from teacher education programs should be based upon rigorous academic and performance standards.

2. The states, in concert with the federal government, should launch a nationwide campaign to recruit qualified candidates into the teaching profession.

3. Special programs should be developed to attract capable minority teacher candidates.

4. Each teacher education program should be an exacting, intellectually challenging integration of liberal studies, subject specialization from which school curricula are drawn, and content and skills of professional education.

5. Following their completion of a teacher education program and awarding of a provisional certificate, new teachers should complete an induction period or internship of at least one year's duration for which compensation is provided.

6. States should encourage and assist the development and evaluation of experimental teacher education programs.

7. Certification and program approval standards and decisions should continue to be state responsibilities, in consultation with the profession.

8. States should maintain and strictly enforce rigorous standards for program review. Voluntary national accreditation should be strengthened and made to serve as a means for improving teacher education.

9. Teacher education programs should continue to be located in colleges and universities.

10. Sufficient resources must be assigned to teacher education to provide thorough and rigorous programs.

11. Federal and state governments should provide support and encouragement for further development, dissemination, and use of research information in education and teacher education.

12. A national academy for teacher education should be established, to which promising teacher educators could be nominated for postgraduate traineeships.

13. Teachers' salaries should be increased at the beginning of and throughout their careers to levels commensurate with those of other professionals requiring comparable training and expertise.

14. Teachers' responsibilities and working conditions should be commensurate with the requirements of the job.

15. Teachers should be provided with professional development opportunities and incentives so they can consistently improve their practice.

16. Administrator preparation should be extended, focusing on instructional leadership and on the creation of conditions for professional practice for teachers.

SOURCE: A Call for Change in Teacher Education (Washington, DC: AACTE, 1985).

Thorough analyses of the data collected will eventually allow for new course scheduling, delivery methods, and attendant management procedures to be revised and/or initiated by SDE vocational-technical education personnel, as well as by vocational-technical teacher educators at the five major universities in the state.

Outreach Candidates: Assessment of Prior Learning--Technical

Neal W. Prichard

An assessment procedure has been developed as an integral part of the Wisconsin vocational certification requirements. Technical credits are awarded by departments through the University of Wisconsin-Stout (UW-Stout) upon recommendation of the department to the program director or by means of the National Occupational Competency Testing Institute (NOCTI). Candidates with no technical credits can earn the required 42 technical credits through a two-part assessment process that involves submission of two portfolios to the UW-Stout program director.

First assessment and portfolio. The first assessment permits the awarding of up to 20 credits. Candidates are required to complete at least one 2-year provisional vocational certification period successfully and to be recertified for at least the second 2-year provisional certificate. The process also allows for assessment of certificates from other states.

Candidates are also required to have successfully completed at least three of the required education certification courses and to assemble and submit a portfolio documenting their work and educational experience to the program director. A letter from the candidate's supervisor, verifying the candidate's credentials, must also be delivered to the program director, who--after consulting with the appropriate department chair and technical faculty in the UW-Stout School of Industry and Technology and examining the portfolio--forwards a recommendation to the dean of the school for final approval.

Some of the items included in the first portfolio are a copy of the completed application for the candidate's present teaching position and documentation of the following:

- Education and/or training
- Military experience
- Paid work experiences
- Volunteer work experiences
- Hobbies and/or special interests
- Publications/reports/papers
- Professional goals

After the first assessment is completed, the candidate prepares a list of competencies to be developed for the second assessment.

Second assessment and portfolio. To apply for the second assessment, which permits the awarding of up to 22 credits, the candidate must possess a five-year vocational certificate, have successfully completed all required

certification education courses, and be ready for or have completed student teaching. The general requirements should also have been substantially completed.

This assessment is conducted by an evaluation committee that meets at UW-Stout or at a district Vocational, Technical and Adult Education (VTAE) school where a similar program exists. Committee members generally include the following:

- A trade and industrial supervisor from another school district
- A five-year VTAE instructor from another district school
- A vocational advisory committee member for the subject area from another school
- UW-Stout School of Industry and Technology faculty members
- The UW-Stout undergraduate program director

This committee recommends the number of credits that should be awarded. Again, after consultation with the appropriate department chair and technical faculty, the program director submits the recommendation to the dean for final approval.

The portfolio for the second assessment provides documentation of the candidate's related technical experiences since their initial assessment. It is similar in structure to the first portfolio, except that it also contains evidence of incorporation of the new technology developments within the curriculum and evidence of completion of the competencies specified at the end of the first assessment.

Diagnostic Testing in Field-Centered Performance-Based Teacher Education

Thomas J. Walker & Jane A. Whisner

Since January 1979, prospective vocational education teachers throughout a 14-county region of Western Pennsylvania have received their teacher training without traveling to a university. These students have been enrolled in a field-centered, performance-based teacher education (F/PBTE) program offered by Indiana University of Pennsylvania (IUP). The program enables a vocational teacher certification candidate to earn academic credit by developing and applying teaching skills in an actual classroom situation at a local education agency that offers vocational programming.

Study materials for students include directed, self-instructional modules and supplemental resource texts. Itinerant teacher educators, referred to as field resource persons (FRPs), assist students in the use of these materials and also conduct regional monthly seminars. FRPs spend four days each week in the field working with students and one day at the university participating in business meetings and staff development sessions.

Students who participate in the F/PBTE program are predominantly inservice secondary teachers of trade and industrial education; however, some teachers

from the areas of home economics education, marketing and distributive education, and agriculture education have also been served. The majority of these individuals have been hired to teach their occupational specialty after being recruited directly from business or industry. Most have had no previous exposure to professional education courses; thus, in reality, they are trained as teachers on the job.

Cognitive assessment as part of the learning sequence. As was stated earlier, students in the IUP program use modules to develop the theory and principles (i.e., cognitions) that underlie a teaching skill to be mastered. The modules are designed so that the acquisition of subject matter takes place in stages. The stages can be visualized as a continuum, where learners progress from awareness and understanding of the skill, through performance simulation of the skill, and on to performance application of the skill in an actual role situation.

The unique design of modules allows instruction to be personalized to the needs of each learner. For example, a learner with no previous professional education background would probably progress through each of the stages previously described. An individual with previous experience, however, might exercise a test-out option by proceeding directly to the final stage: application of the skill in an actual classroom situation.

Our notion of diagnostic cognitive assessment as part of the learning sequence requires that all students--those progressing through each stage of a module and those exercising the test-out option--demonstrate mastery of the cognitive subject matter in a module prior to performance application. This requirement is in addition to the student "self-checks" associated with most directed self-instructional modules. The assessment process exposes students to a completely new set of items than were found in the self-checks. In this way, the ability of a learner to discriminate and generalize information in new or novel situations can be diagnosed prior to a skill being applied in an actual classroom situation. Successful completion of the cognitive check is felt to reveal evidence of true understanding.

Item specifications. Over 1700 four-option multiple-choice items are included in the item pool used for assessment. Developed through project funding by a team of trained item writers, the items correspond to performance elements/modules developed (1) by the National Center for Research in Vocational Education and (2) through state and local efforts in Pennsylvania. The items were developed in accordance with specifications for criterion-referenced test development, and they assess various levels of cognitive thinking. All items are continually analyzed so they can be improved.

The diagnostic process. Diagnostic cognitive assessment at IUP is accomplished electronically by linking microcomputers at field sites to a university mainframe. For the learner, it means the addition of one learning experience to each module.

Improving Vocational Teacher Assessment

Frank C. Pratzner, Elizabeth Dubravcic, & Christian Chinien

The call for excellence in education has placed great emphasis on improving teacher effectiveness and teacher preparation. For example, teachers and teaching have been "portrayed as constituting a near-disaster area in education" and--

> the recruitment, performance, work habits, incentives, preparation, and quality of teachers have ignited attention and action throughout the nation. Scarcely a week passes without legislative or executive measure aimed at achieving excellence in the teaching profession . . . 700 pieces of state legislation in 1983 and 1984.1

The public has come to believe that one key to educational improvement lies in upgrading the quality of teachers. In response to these perceptions, state and local school districts have initiated a wide range of policy changes affecting both prospective and currently employed teachers. The new concern for the quality of education and teachers is being translated into merit pay, career ladders, and master teacher policies, all of which presuppose the existence of effective teacher evaluation systems.

However, few school districts have highly developed teacher evaluation systems, and even fewer use the evaluation to improve the quality of teachers and teaching. While diverse areas of research on teaching and schools bear on the questions of designing and implementing successful teacher evaluation systems, wide differences exist in teacher evaluation practices, frequency of evaluation, and the role of teachers in the process. These differences indicate that teacher evaluation presently is an "underconceptualized and underdeveloped activity."2

"Principals still do most of the observing, staff are seldom involved in planning, and there is little real effort to use evaluation outcomes in designing constructive staff development."3 Furthermore, criteria for evaluating any attempts to use the "research base on effective teaching" are limited by the fact that this base has been derived primarily from research on the instruction of elementary school children in classroom settings. Whether or not, and to what extent, these findings are applicable to older students and adults, in various subject areas and levels of difficulty, and in different types of learning situations and settings is not immediately clear.

Research in vocational teacher evaluation is almost nonexistent. Consequently, we do not have an empirical knowledge base to guide our effort in designing, developing, and implementing a system for assessing vocational teachers. Vocational educators and administrators at the local level need to be actively involved in assuring that the criteria and approaches employed for any potential evaluation system are both relevant and adequate for assessing vocational staff.

The literature suggests the following possible approaches to teacher evaluation: teacher interviews, competency tests, indirect measures, classroom observations and supervisor ratings, peer review, student achievement, and

faculty self-evaluation. While none of these approaches can stand alone in an overall evaluation system, local school system administrators need to consider which combination of these approaches best meets the need, purposes for evaluation, and the values implicit in school policies and the local community. In general, however, the following conditions are deemed necessary for successful teacher evaluation:

- To succeed, a teacher evaluation system must suit the educational goals, management style, condition of teaching, snd community values of the school district.
- Top-level commitment to and resources for evaluation outweigh checklists and procedures.
- The school district should decide the main purpose of its teacher evaluation system and then match the process to the purpose.
- To sustain resource commitments and political support, teacher evaluation must be seen to have utility. Utility depends on the efficient use of resources to achieve reliability, validity, and cost-effectiveness.
- Teacher involvement and responsibility improve the quality of teacher evaluation.[4]

Our research at the National Center suggests that the following elements should also be included for successful design and implementation of evaluation systems. The planning/development of the evaluation system should include/involve teachers and teacher unions, as well as input from various curriculum specialists and top administrators, in determining appropriate criteria for assessment. Commitment is related to involvement, and if an evaluation system is to be effective, it must have the commitment of all participants. Planning/development should also be clearly linked with staff development if teachers and students are to derive any benefit, and it should include efforts to ensure that the evaluation information collected is accurate and that instruments used are valid and reliable.

The implementation of the system should adhere to the following guidelines. First, evaluation procedures/criteria should be consistently applied throughout the system. This is particularly relevant when evaluation is utilized for summative purposes. Second, selection of observers/evaluators should be based upon their experience with teaching practice. Knowledge of the content area of the instructor being evaluated is helpful, but not absolutely essential, if the objective is to assess methods of instruction. (Content knowledge may be evaluated independently by content experts.)

Third, steps should be taken to ensure that observers are trained and periodically updated in the particular evaluation system adopted by the school and familiarized with the vocational and/or lab setting. And fourth, steps should be taken to ensure that once the plan has been adopted, two-way communication becomes a key to effective evaluation (i.e., formal evaluation should not be the point at which an individual first learns of expected behaviors and standards).

Teacher Competency Testing: Pros and Cons

Dewey Allen Adams

The idea of testing teachers is not new. In Europe, it has been done for years. In the United States, more than 30 states now require prospective teachers to pass a test, and another dozen or more states are considering moving into the competency testing arena. To give some idea of the competency testing trend, 3 states required such tests in 1977, 12 in 1980, 22 in 1981, 28 in 1982, 30 in 1983, and 32-33 in 1984, depending on how one defines competency testing for teachers.

The trend is definitely in a positive direction at the moment. The great majority of states requiring some kind of competency test for teachers are in the South and Southwest, but a number of states in the Northeast, North Central, and Far West appear to be nearing decisions to begin this activity. It is of special interest to note that 11 states have chosen to mandate testing via legislation, whereas 22 have issued some type of state department of education (SDE) procedure or regulation. In three states, both SDE and legislative mandates have been issued.

Most tests are state-designed and most often deal with basic knowledge and skill. There is a trend, however, to extend competency testing for teachers to other areas, including technical subject matter, academic knowledge and achievement, pedagogy, and even preteaching knowledge and skill.

Another trend that seems worthy of note is the requiring of a year of internship prior to teacher certification. This trend represents another aspect of competency testing—observation of teaching competence. Some feel that the internship approach has more promise of improving teaching effectiveness than other competency testing approaches.

Finally, there is some movement toward using nationally standardized tests, for reasons of both economy and comparative value. This trend is creating considerable concern among teachers and administrators, especially in the more practical and applied subject fields.

Some pros and cons. A dozen or more pros and an equal number of cons have surfaced among educational professionals concerning the merits of teacher competency testing. [These are shown in sample 3.]

Personal thoughts and perceptions. Competency testing of teachers has obviously gained considerable momentum in the U.S. over the last five years, and it seems safe to predict that this momentum will continue for the next several years. It is prudent to suggest, however, that there are some concerns that the profession must address before it can conclude that competency testing for teachers should receive its unequivocal endorsement. Among these concerns are the following.

First, current research and experience are inconclusive with respect to whether competency testing, as it is being applied, leads to more effective teaching and learning. Second, the cost of a comprehensive testing program

could be overwhelming unless other sources of funding can be found. One kind of test in one southern state has been estimated to cost in excess of $16,000,000 per year to carry out. Third, a truly effective testing program for teachers must be fully accepted and carried out by the profession itself. Evidence to date reveals that this has not occurred. Fourth, growing shortages of teachers could sabotage a testing program before it can be implemented if educational leaders are pressured to lower standards to assure there is a teacher in every classroom.

Fifth, competency testing of teachers may be an oversimplified solution to a much more complex problem than current studies of excellence have intimated. Sixth, many programs and curricula may become simply preparatory devices for the passing of basic knowledge and skill tests. Seventh, trends may move away from an emphasis on performance and teaching and learning results to an emphasis upon basic competence. And finally, university teacher education programs may be radically changed from concern for experience and practice to concern for academic knowledge and skill--to the exclusion of many teachers who come from the business and industrial world.

These concerns readily become questions and issues that require resolution if the competency testing of teachers is to be a positive force for the improvement of public education in America. It should be a foremost challenge for educators to contribute to their resolution during the remainder of this decade. Positive achievement in these next four years will assure that the remaining fifth of this century will be remembered as the era of greatest achievement in education.

PBTE IN ARKANSAS

Role of the PBTE Teacher Educator: Field-Based

Freeman Eads

Teacher educators (TEs) are important members of the Professional Development Committee, which implements the PBTE program in the postsecondary vo-tech schools in Arkansas. They serve as field resource persons for a specified region of the vo-tech system and perform related activities on a statewide basis. The TEs are itinerant, by nature of the position, and travel from a university base to a selected number of vo-tech schools (7-9) on a regular schedule.

TEs are charged with major responsibility for operating the PBTF program and have been the common catalyst that has made the program a success. The five TEs, currently representing two institutions, operate as a cooperative unit and play an important role in the development, implementation, and modification of the program.

SAMPLE 3

TEACHER COMPETENCY TESTING: PROS AND CONS

Pros

According to some educational professionals, the use of competency testing—

- improves the credibility and attractiveness of the teaching profession;
- provides an objective basis for eliminating incompetent teachers;
- makes teachers and administrators more aware of basic knowledge and skills;
- provides a concrete basis for inservice education programs;
- enhances the professionalization of teachers in the nation;
- signals to the public that teachers really care about quality of education;
- silences the negative critics of public education today;
- raises teaching salaries and other fringe benefits in the profession;
- provides a more objective basis for teacher certification; and/or
- stimulates the improvement of teacher education and educational research in the nation.

Cons

According to other educational professionals, the use of competency testing—

- complicates the already short supply of teachers in many fields of education;
- is expensive at a time when schools are hard pressed to generate adequate dollars for current school operation;
- turns many aspiring young teachers away from the profession to "safer" career endeavors;
- does not measure teaching competence unless observation and experiences are included in tests;
- lowers teacher morale at a time when it is already very low;
- creates difficulties with respect to equity, minority development, and regional differences;
- leads to an unbalanced emphasis by teacher education programs with respect to the development of basic skills, liberal arts, pedagogy, and technical knowledge and experience;
- leads to a decline of professional teacher preparation programs and to an undue increase of emphasis upon subject matter and general knowledge; and/or
- leads to excess influence from national or federal levels of government and loss of local influence and control.

The roles of the PBTE teacher educators are unique and require a variety of skills to be successful. Their roles can be subdivided into eight major areas of responsibility, as follows.

1. Educational Specialist: The TE is responsible for assisting local resource persons and faculty members in interpreting the modules and specifying the type and amount of performance necessary to meet the requirements of the modules. TEs must be well versed in teaching methodology, evaluation, and educational philosophy; and in working within a wide variety of educational levels.

2. Communication Linker: The TE has major responsibility for communicating with local resource persons, faculties, administrations, state staff, higher education institutions, and other related agencies. Communication among these groups is essential to developing effective PBTE programs and to stimulating individual motivation toward professional improvement.

3. Developmental Manager: The TE is constantly involved in monitoring programs and recommending changes and modifications on the local level, as well as the state level, to ensure that learning is occurring and that instruction is improving.

4. Performance Assessor: The TE works in close cooperation with local resource persons in the module check-off process and takes a major position in the modification of assessment criteria based on local situations. He or she is also responsible for informing individual faculty members about their performance and for helping them identify both strengths and weaknesses.

5. Record Manager: The TE assists in the record-keeping system by keeping a personal set of records and monitoring the local resource person's records. The TEs also are the state personnel office's major source of information for certification verification.

6. Faculty Advisor: The TE has major responsibility for advising interested faculty about degree programs and activities associated with higher education, certification, and other professional development opportunities.

7. Quality Control Agent: The TE performs the major quality-control activities related to the PBTE programs by monitoring all phases of the program and providing feedback to appropriate individuals.

8. Change Agent: The TE has major responsibility for the implementation of educational change in the local vo-tech schools. The change agent assists faculty members in the transition from skilled craftsperson or general education teacher to vo-tech instructor by means of the Professional Development Institute, the PBTE program, and other related educational activities.

The guidelines established in Arkansas for implementing a field-based PBTE program [see sample 4] are the result of three years of experience in developing, implementing, and operating a statewide professional development program at the postsecondary level, using PBTE as the major instructional tool.

SAMPLE 4

GUIDELINES FOR IMPLEMENTING A FIELD-BASED PBTE PROGRAM

- Involve related populations during the planning and developmental phase.
- Establish procedures and performance criteria for both the field resource person (TE) and local resource person prior to beginning the program.
- Field test the total program with a limited population prior to state-wide implementation (to prevent unforeseen difficulties).
- Provide inservice education to related groups, administrators, teacher educators, state staff, etc., prior to beginning a program.
- Establish an incentive and reward program for faculty prior to implementing the program (salary, publicity, career ladder, certification, etc.).
- Design the PBTE program to be flexible so that it will meet the needs of a variety of faculty, but keep it structured enough to specify competencies that are common to all faculty.
- Formulate a degree program at the baccalaureate level that will utilize and build upon the field-based PBTE program as the major professional requirement.
- Develop a true competency-based philosophy, which requires inexperienced faculty to develop and then demonstrate competencies, and experienced faculty only to demonstrate the competencies.
- Develop and monitor, on a regular basis, a true philosophy of instructional improvement.
- Require that faculty demonstrate required competencies on a daily basis in the classrooms and labs. Faculty performance evaluations should also include assessment of the identified competencies and should be included in all faculty job descriptions.
- Require that centralized records be kept, with copies available to all groups (faculty, local resource persons, teacher educators, and personnel office employees).
- Develop an evaluation system that is implemented with the PBTE program and that can provide continual feedback about program effectiveness in terms of instructors' performance, as well as the performance of individuals involved in the process.
- Create a state handbook that specifies all policies, procedures, time lines, and criteria related to the PBTE program, and distribute it both to existing faculty and to new faculty at the time of their employment.
- Develop an individual faculty development plan that includes both required and selected PBTE modules and related activities.
- Initiate some type of group activity for all new faculty. Developmental opportunities are helpful in establishing a positive faculty attitude toward the PBTE program.
- Designate one individual, such as a state coordinator, to be responsible for the total program to ensure a common focus and philosophy.
- Develop and monitor a module check-off procedure that focuses on improvement of instruction and provides individual counseling for every module. This procedure should be a cooperative activity, involving the local resource person, the teacher educator and the faculty member.
- Provide the faculty with a supply of actual modules, not copies of the final evaluations.
- Use group interaction, both small and large, in conducting the program.
- Use a video system—it is one of the most effective tools in recording and presenting faculty performance demonstrations.

Role of the Resource Person

June Walters

According to the developers of the PBTE materials, the resource person is the most important single factor in an effective performance-based teacher education program. The curriculum materials and physical resources are important--but without knowledgeable and competent educators to assist, guide, evaluate, and interact with the individuals in the program, the activities can be cold and impersonal. The resource person must add the human dimension that helps individualize and personalize the program.

The resource person functions in essentially three roles. The first role is advisor. In this role, the resource person must interpret the program to the teachers involved. This function is accomplished by using the Student Guide (published by the developers of the PBTE materials) and the Instructor Certification Handbook (published by the Arkansas Division of Vocational and Technical Education) as source materials. The Student Guide answers specific questions about the modules and their use. The Instructor Certification Handbook explains how the PBTE program should function in a vocational school. The three instructional levels (instructor, senior instructor, and master instructor) are presented, along with the processes involved in moving from one level to another. The resource person must be very familiar with these books in order to orient school staff members.

The second role of the resource person is that of helper or facilitator. This role includes answering questions, providing resources, or suggesting learning activities for individual teachers. Materials, equipment, and access to teaching settings must be provided when they are needed.

The third role played by the resource person is that of evaluator. The role is ongoing and begins prior to the teacher's work on a module. Before the modules are begun, the needs of each teacher must be determined. This process is particularly true for inservice teachers. The sequence of modules to be completed by new teachers is set forth in the Instructor Certification Handbook. This program is more structured than the inservice program; more flexibility is available for the inservice teacher. Together, the resource person and the instructor must determine which competencies will be addressed.

In dealing with teachers who are already teaching, care must be taken to build upon their interests and what the resource person knows about their strengths and weaknesses. It is best to start with a module that will yield quick returns in terms of improved teaching and teacher satisfaction. Seeing quick results motivates the teacher to seek improvement of other teaching skills. In selecting modules, the resource person must consider any prerequisite competencies that must be mastered. He or she also should remember that more than one module can be completed at a time. For example, it is very common for teachers to complete Introduce a Lesson and Summarize a Lesson at the same time, since both skills can be easily incorporated into one lesson.

After the modules have been selected, the resource person must work closely with each instructor as he/she progresses through each module. The resource person must check with the teacher on responses to the self-checks

and other feedback mechanisms. The resource person may need to clarify or reinforce concepts that have been presented in the text. He/she may also suggest that the competency being studied be practiced with peers. Since teaching is an interactive process, opportunities for interaction will greatly aid those trying to master teaching skills.

Participation in small-group activities allows teachers to learn not only through their own experiences, but also through the successes and errors of others. The resource person, who is present at such practice sessions, can guide the critiques so that they are constructive and result in positive learning experiences. He/she must create a nonthreatening situation, in which suggestions for improvement can be made in time to prevent an instructor from having to repeat a module. This process also gives the resource person some insight concerning how "ready" an instructor is for the final assessment.

Last of all, when a teacher has completed the module and feels that he or she has mastered the specific competency, he or she asks the resource person for evaluation on the Teacher Performance Assessment Form. The instructor has access to this form so that he or she knows exactly what is going to be assessed. The instructor knows that a rating of "Good" or "Excellent" must be achieved for each item.

Participant Response

Bobby DuVall

The ultimate purpose of the PBTE program is to aid the instructor in the transfer of skill knowledge to the student.

Students in vocational education have varied backgrounds, requiring the instructor to have many capabilities. The instructor, when hired, is knowledgeable in his or her skill area but may lack the expertise necessary to transfer those skills. For example, I have been searching for a guitar teacher for ten years. I have found lots of pickers, but no teachers.

The expertise for the transfer of skill knowledge can be found in PBTE. Many skilled people lack formal education. This leaves a teaching void in vocational education. The PBTE modules fill this void. From the identification of the needs and interests of students, to classroom organization, bulletin boards, advisory committees, and field trips, the modules teach the instructor the expertise needed for the transfer of skill knowledge.

PBTE modules also cover the use of modern video and audio equipment as teaching aids. One of the avenues into a student's mind may be opened by the proper use of video and audio equipment. Learning to use video and audio equipment brings confidence and outside help to the instructor. I became so thrilled with the school's VCR equipment that I bought my own for home use.

The student and the instructor benefit from PBTE. The student arrives to a prepared classroom and instructor. The material is presented with stated objectives and in sequence. The preparation gives the student a feeling of order and confidence.

The first year that I taught, I had had no formal training as an instructor and PBTE did not exist. At the end of the first year, I had a lot of questions. The Professional Development Institute I attended at the end of my first year was a lifesaver; the PBTE modules, which came later, were the answer to many prayers. The daily lesson plans help an instructor know where he or she is going. The ability to transfer skill knowledge gives the instructor more classroom control. The end of a day brings a feeling of accomplishment instead of "Where did I go wrong?" Therefore, the instructor benefits from PBTE by developing confidence in his or her teaching ability.

The PBTE program has been developed into a four-year program at the University of Arkansas. This program can only benefit the student, the instructor, and the state of Arkansas. The instructor's feeling of accomplishment in the degree program can only increase his or her personal motivation and desire to do a better job at transfer of skill knowledge.

One of the best aspects of the PBTE program is financial. Money was, is, and always will be one of the best motivational tools known to man. The salary raise provided by PBTE should prompt instructors to rise and shine for the benefit of themselves, the students, and the state of Arkansas.

The results of PBTE in vocational education are all positive. The student is better satisfied because of his or her successes in the learning process. PBTE results in fewer dropouts and better trained graduates. The employer sees the results of PBTE in a better employee, with more skills to offer. The instructor is happier, with better results from students, fewer dropouts, and the successful transfer of skill knowledge. The state of Arkansas even sees results in terms of less instructor burn-out. A reduction in instructor burn-out means less employee turnover for the state.

The final assessment of PBTE from this instructor: in the words of Johnny Bench, "No runs, no drips, no errors."

PBTE/CBSD STRATEGIES

A Beginning Teacher Program and the Induction Year

Glen E. Fardig

The first year of teaching is a time of great stress for vocational teachers. They are in the process of learning about teaching, management of laboratories, and their role in the profession, while at the same time striving to plan and deliver instruction to students. Every beginning teacher has difficulties during the initial year; for the vocational teacher entering the profession directly from business and industry, many with no professional preparation, the problems are compounded. The emphasis becomes one of survival.

There is now greatly increased recognition that the beginning teacher needs a systematic program of support and professional development that will provide an effective induction into the profession. This recognition is based on several current ideas and beliefs about teaching: (1) the demands placed on

teachers are greater than ever before, (2) there is an expanded knowledge base about teaching that teachers are expected to employ, (3) the public holds high expectations for teachers, (4) present teacher education practices are inadequate to meet the demands of professional practice, (5) a major reason for attrition is the lack of a formal support system in the induction period, and (6) the final responsibility for quality-control of teachers rests with the profession.

The Florida Beginning Teacher Program. A model for a comprehensive beginning teacher program has been designed and successfully put in operation in the state of Florida. It exemplifies the great potential for the improvement of instruction and the inherent difficulties in such an effort. The purpose of the Florida Beginning Teacher Program is to provide a set of support services for all teachers in their first year of teaching in Florida, assist them in their continued professional development, and verify satisfactory performance of specified teaching competencies. Only through successful completion of the program is a beginning teacher eligible for a regular teaching certificate.

A number of actors are involved in the program: (1) the beginning teacher, teaching in Florida for the first time, whether holding a degree in education or coming directly from business and industry; (2) an experienced and certificated peer teacher, who works closely with the assigned beginning teacher throughout the year; and (3) a support staff, including a building-level administrator and at least one other professional educator, available to assist and evaluate the performance of the beginning teacher.

The teacher's involvement in the Florida Beginning Teacher Program starts within days of his/her active employment and continues with a series of activities, including conferences, observations, development of a professional development plan, and remedial training activities. To provide instruction in areas in which the beginning teacher is found to have deficiencies, a series of specially developed individualized learning packages is being prepared. [The total program process is delineated in the diagram shown in sample 5.]

The Florida Performance Measurement System. In order to objectively and accurately observe and measure the teaching performance of the beginning teacher, the Florida Performance Measurement System (FPMS) has been created. The result of several years of intensive effort, the FPMS represents the assembly, organization, and codification of the recent research on effective teaching. Formative and summative observation instruments have been developed, submitted to rigorous tests for reliability and validity, and integrated into the Florida Beginning Teacher Program. Currently, 134 indicators of effective teaching have been identified and organized into six domains of classroom teaching: (1) planning; (2) management of student conduct; (3) lesson organization and management; (4) presentation of subject matter; (5) communication, verbal and nonverbal; and (6) evaluation of student achievement.

From the research-identified indicators, a classroom observation and assessment instrument has been developed. The instrument consists of 39 statements of teacher behavior, organized for use by a trained observer in the classroom. Typically, the observer remains for a class period and makes a

frequency count of the incidence of each behavior. Later, the tally sheets are scored and normed, thus identifying areas of teaching where further remediation and practice are needed. The results are made available to the beginning teacher.

The proper use of the instrument requires thorough training and use of the supporting explanatory documents. It is interesting to note that though the term PBTE is not used in documents describing the program, the Florida Beginning Teacher Program is, in all essentials, a performance-based teacher education program.

Faculty Development in a CBE Delivery System

Clay G. Johnson

Texas State Technical Institute is a postsecondary single-purpose higher education unit with four campuses and two extensions, widely separated geographically. There are 592 faculty members with 12-month appointments. Approximately 8,400 students are enrolled in 112 regular on-campus programs ranging from laser electro-optics and robotics to saddle and tack. More than 83 percent of those students are in the technical and trades areas. Almost all faculty are hired from industry and have little or no teacher preparation or experience.

It was recognized several years ago that the traditional ranking system of professors, associates, assistants, etc.--with its emphasis upon publication, research, public service, and teaching--did not clearly describe or represent a technical/vocational faculty's responsibility for imparting performance-measured skills and knowledge for industry application. It was also realized that an era of instructional accountability was upon us, demanding both effective and efficient teaching. In response, the integration of faculty organization (faculty rank) with faculty evaluation and faculty development into a planned delivery system seemed to be the most viable long-term approach.

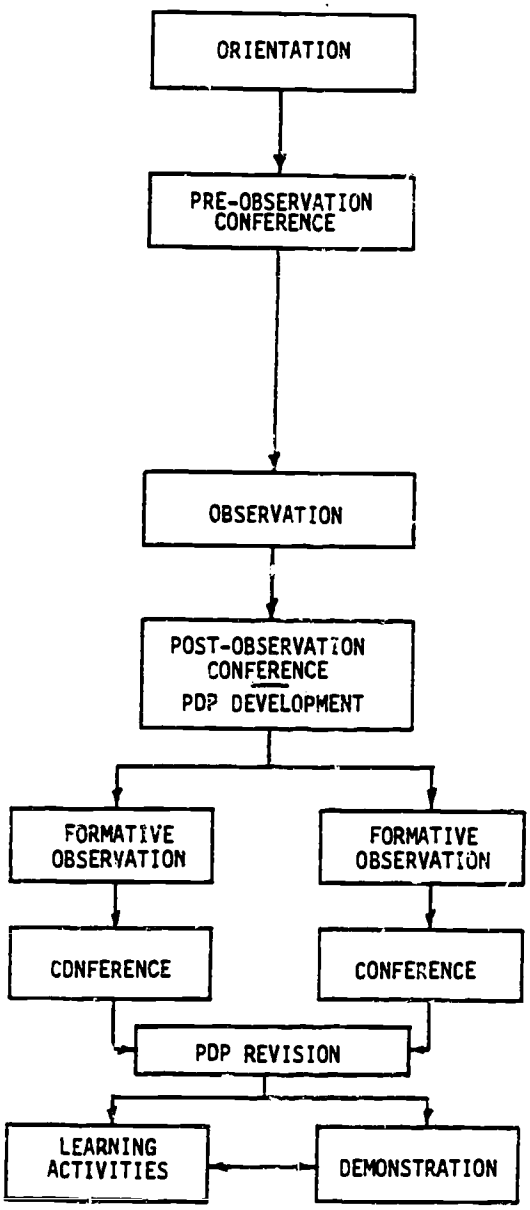
An inventory of the tasks faculty performed was developed. Each item was then analyzed in terms of its difficulty and frequency of performance. The result was a clustering into five groups: three dominant and two minor. These eventually became the professional ranks of Master Instructor, Senior Instructor, and Instructor; and the paraprofessional ranks of Lab Assistant I and II. For each rank, a position description was developed and built into the pay plan. The ranking structure is far more than a structure; it is a planned framework for a team approach to the delivery of competency-based education.

Having developed clear performance statements for each faculty rank, it was a rather straightforward activity to develop the evaluation system. In effect, each evaluation item is directly associated with a duty/responsibility statement listed in the position description.

Last, but not least, was the inherent obligation to provide faculty development activities that would allow each faculty member to develop competencies

SAMPLE 5

FLORIDA BEGINNING TEACHER PROGRAM: THE TOTAL PROCESS



1. Support team meets to discuss and clarify roles and become familiar with evaluation procedures (pre-school period).

2. Principal (or building administrator) meets with beginning teacher to prepare for a summative or screening observation. Determines:
   - What the teacher will be doing.
   - What the students will be doing.
   - The content for the lesson.
   - The objectives for the lesson.
   - The evaluation criteria.

3. Principal does initial observation. The summative instrument, other district instrument, verbatim narrative, etc. may be used, depending on District plan.

4. Support team meets for post-observation conference. Team identifies areas that need to be strengthened. Team members are selected to do formative observations to pinpoint areas of difficulty. Professional Development Plan is written.

5. Formative observations done by support team members.

6. Support team members conduct follow-up observations. Revise PDP if necessary.

7. Teacher engages in learning activities as specified in his/her Professional Development Plan.

to support his/her rank and promotion. To this end, each campus is staffed with professionals having this responsibility.

Although there has been some evolution of the program, the basic structure has remained intact. Each new faculty member hired, regardless of qualifications, must demonstrate the competencies of his or her rank (e.g., Instructor) during a one-year probation period. The primary training support vehicle is a selection of 26 PBTE modules. Ten of these modules must be completed within the first 90 days, as they are considered to be of a "survival" nature. Training center staff are responsible for performance certification of each competency.

Having completed the Instructor rank competencies, the faculty member may then begin working on competencies for the Senior (second) rank. Selected PBTE modules and many other resources are available for the faculty to use, but resources are optional. Certification of each Senior-rank competency is done by a Certification Committee, which receives the application, reviews all documentation, makes classroom and office reviews, and conducts formal meetings with the applicant. A faculty member's application may be terminated at any time throughout the process. An applicant may be asked to submit additional documentation, revise submitted information, or seek additional help in developing competencies. This same pattern is followed for those seeking the Master-rank certification and promotion.

To date, three persons did not complete first-year probation and were terminated. No Senior- or Master-rank applicant has completed certification without completing additional documentation or preparation at the direction of the committee. PBTE modules are excellent for the Instructor-rank and very useful for the Senior-rank.

The competency-based vocational education program of Texas State Technical Institute is an institutional goal. It is defined as an individualized instructional delivery system, characterized by industry-established job-entry specifications, open-entry/open-exit, mastery testing, etc. To this end, the integrated ranking structure, faculty evaluation, and faculty development are key elements.

The NATTS-Recommended CBSD Program: A Nationwide Commitment to Staff Development

Laura Connor

The National Association of Trade and Technical Schools (NATTS), founded in 1965, is an educational trade association representing private postsecondary occupational schools. NATTS represents over 892 member schools in 45 states, the District of Columbia, and Puerto Rico. NATTS schools offer over 100 different career training programs, most of which can be completed in less than two years. The training is intense, and students only take courses related to their occupational objectives. Classes are usually small, and hands-on training is a significant part of each student's education.

To ensure excellence in educational standards and business ethics in the postsecondary trade and technical school industry, NATTS established an Accrediting Commission in 1966. The NATTS Accrediting Commission is an autonomous body of nine appointed commissioners--five from the private school sector and four public members. This commission is approved by the U.S. Department of Education.

NATTS accrediting standards. Only those schools that have been in operation for two years, with educational goals that are primarily occupational, are eligible for membership. A school wishing to become accredited is visited by a team of experts. These experts evaluate educational objectives, admission and enrollment policies, course offerings, placement and completion rates, advertising policies, facilities, equipment, and faculty.

Accrediting standards for faculty require each instructor to have at least two years of practical experience. Teachers must also be trained to teach and able to demonstrate up-to-date knowledge. Each school must document these standards for each person in the school who is employed in an instructional or administrative capacity. Furthermore, each school must describe efforts to encourage self-improvement in the areas of instructional and technical knowledge, evaluations, and faculty development. By enforcing these standards, NATTS is able to promote excellence in education through excellence in teaching.

Evolution of the NATTS-Recommended CBSD Program. NATTS has been in the forefront of promoting the competency-based staff development (CBSD) program among trade and technical schools. This commitment started in 1979 when our Education Advancement Committee, whose primary charge is to plan and coordinate programs of continued occupational improvement for instructional personnel, began to explore the availability of teacher training programs that could satisfy administrators and instructors in the private postsecondary trade and technical school industry.

In 1980, a meeting was arranged with staff from the National Center for Research in Vocational Education and several committee members to determine if the National Center's CBSD program could satisfy the training needs of instructors in NATTS schools throughout the nation. After an extensive review, it was decided that the CBSD program, with some slight modifications, would indeed provide instructional training and development for teachers in NATTS schools. As a result of that meeting, two workshops were developed, in conjunction with the National Center, to familiarize NATTS members with the CBSD program and methods of implementation. Since these initial workshops, nine additional workshops have been sponsored by NATTS for over 450 educators nationwide.

The NATTS-Recommended CBSD Program. Trade and technical school instructors are normally recruited and selected based on their technical training and experience. While these instructors are highly competent in their technical specialties, often they have not received instructor training. NATTS has recognized, through the accreditation standards, the need for instructor training. NATTS has further recognized that there is a common core of instructional competencies needed by technical instructors, regardless of the technical area of instruction. NATTS has therefore recommended an instructor training program

for their members that consists of 21 modules in the National Center's Professional Teacher Education Module Series. The 21 modules were selected to provide the core of teaching skills needed in the areas of program planning, instructional planning, instructional execution, instructional evaluation, and instructional management.

NATTS has also made provisions for official recognition of instructors who have completed the NATTS-Recommended CBSD Program. Each instructor receives a Certificate of Achievement upon completion of the program. The certificate is awarded after the school has certified, via the NATTS official CBSD transcript, that the instructor has successfully completed 16 CBSD modules, including 11 modules from the 21 recommended by NATTS. Depending on the policies of each member school, the certificate is recognized in a number of ways. Individual schools may use the certificate in making promotions or awarding growth points that lead to salary increases. Most important, however, program completion ensures that these technical instructors have demonstrated creative teaching skills.

CBSD program plans among NATTS schools. Ideally, new instructors are hired and oriented well in advance of the first class session. However in some cases, instructors have never been in front of a class, and typically, they are not sophisticated in their teaching skills. Their strength lies in their technical sophistication. Furthermore, when NATTS schools are operating at full capacity, instructors teach, on the average, six hours per day in a very intensive, hands-on classroom environment. Combining this factor with instructor turnover and the use of part-time instructors, a formal inservice instructor training program becomes difficult to implement. The flexibility and adaptability of the CBSD program permit NATTS schools to overcome the difficulties of implementing formal and structured inservice or preservice instructor training programs.

Many different approaches to the CBSD program have been developed to meet the unique needs of various NATTS schools. Typically, a school that is using the program will present an overview of the CBSD program during the instructor's orientation. Key points might include (1) review of the CBSD program goals, (2) review of the Student Guide, (3) module walk-through, (4) group activity that centers around the module, (5) review of the NATTS transcript, and (6) review of the assessment criteria. After the instructor completes orientation, many schools require the completion of several modules (e.g., Develop a Lesson Plan, Introduce a Lesson, and Summarize a Lesson) during the first two weeks of employment. Then, during the first year of employment, the instructor is required to complete the entire NATTS-Recommended CBSD Program.

Success of the CBSD program at NATTS schools. Since 1980, 439 instructors have completed the NATTS-Recommended CBSD Program. During the past year, over 90 NATTS schools have purchased CBSD materials at a cost of nearly $39,000. Approximately 64 percent of all the NATTS schools that have used the CBSD program claim that it has been successful. Some of the improvements that occurred within the schools included higher teacher ratings, fewer student complaints about teachers, a greater awareness of teaching techniques, and improved teacher morale. In fact, one NATTS school cited the following results after implementing the CBSD program.

	BEFORE	AFTER
Staff Turnover	56%	10%
Monthly Student Drops	14%-15%	5%-6%
Size of Graduating Class	51%	82%
Teacher Absenteeism	4 Staff/Week	1 Staff/Week
Attitude and Performance	Negative	Positive

DISTANCE/OUTREACH STRATEGIES

Preparing the Itinerant Teacher Educator

Richard A. Adamsky

The typical vocational teacher educator, by disposition and preparation, is poorly suited to function as a resource person in a performance-based vocational teacher education (PBVTE) program, and most teacher educators can be expected to reaist the concept or pervert its implementation. This can be attributed to the following factors. Teacher educators are products of time-based programs, and they tend to model the behavior of their teachers rather than to use the behavior attendant to the role of resource person. In other words, they tend to be authoritarian, and their education probably did not require them to develop "helping skills."

Furthermore, seldom do standards for promotion, tenure, or merit take into account the duties and tasks associated with functioning as an effective resource person. There is, in addition, considerable risk involved in discarding practices in which one has had success (time-based instruction) and adopting new practicea required to function as an effective resource person.

Yet, the success of a PBVTE program is directly related to the degree to which each component (characteristic) is incorporated and how effectively each is operationalized. Far too often PBVTE is equated with modules, an important but nonessential program characteristic. Programs that are not individualized, do not promote self-pacing, and do not have a field-based component, are not PBVTE programs.

Differentiated staffing. It is ultimately more cost-effective and humane to implement differentiated staffing than to force vocational teacher educators to function in the role of resource person. For one thing, teacher educators must have the opportunity to perform duties that will increase their chances to receive tenure and promotion (and, at times, a merit increase). Many of the responsibilities of a resource person in a properly developed PBVTE program would decrease their chances. However, there are aspects of a PBVTE program that they could become involved in that would assist them in these areas.

Furthermore, graduate students, who are unaffected by tenure, etc., can be prepared as very effective resource persons. It is possible to attract such persons to this role when they aspire to vocational leadership roles and are willing to forego immediate rewards in the belief that such will result in greater rewards in the future.

In addition, classroom teachers who aspire to local leadership roles can be prepared as very effective resident (in-school) resource persons. Such "master teachers" are also unaffected by such things as university tenure and actually improve their professional image by functioning in the role of "helper" to the new teachers in their schools.

In short, when appropriate incentives are made available to each staffing level, differentiated staffing is possible.

Resource person training. PBVTE cannot succeed if resource persons do not understand and accept the concept on an operational level. The first step in installing PBVTE is to define the concept operationally by describing how each program component (characteristic) will operate and interact with each other component. Next, it is necessary to clearly define the functions of all persons who will have program responsibilities. Each position should be described in terms of functions and tasks performed, with appropriate performance criteria and standards.

Given the above, instructional programs should be developed to serve the needs of those who have program responsibilities. The programs should make use of materials appropriate to meeting individual and group needs. Instructional activity for all staffing levels must be ongoing and available to all who need help to function in their roles. It is assumed that resource persons will need help on a weekly basis due to the complexity of the position; thus, the field staff must participate in a weekly seminar and pass on what is learned to the resident staff. Those who engage in preparing for their role in the program must have the opportunity to receive college credit and to demonstrate mastery of related leadership competencies (leadership certification).

Role of the teacher educator. Given ample time, most vocational teacher educators will come to understand and accept PBVTE. How long it takes a particular teacher educator will be influenced by the degree to which he/she can attend to such concerns as tenure and the degree to which risks must be taken that relate to professional prestige.

Teacher educators should be involved in the decision to move into PBVTE and should also be involved in the design of the program. However, those in authority must be prepared to implement the program even if consensus decisions are not reached. Resistance to change is natural and such could result in the concept never being adopted. Teacher educators should also be involved in determining which competencies to include in the PBVTE program, the performance standards to apply, and the grading system to be used. Here again, consensus should not be expected.

Teacher educators must retain their authority over such things as graduation and certification. And finally, teacher educators should be encouraged to evaluate the success of the PBVTE program and to conduct research on different aspects of the program. Such will provide needed program information and contribute toward their receiving tenure, promotion, and merit pay.

Strategies for Maintaining Quality-Control with Distance Education

Thomas J. Walker

Field-centered, performance-based teacher education (F/PBTE) is the exclusive delivery system for preparing vocational industrial education teachers at Indiana University of Pennsylvania (IUP). The program has overcome the problem of delivering education at a distance (it operates throughout a 14-county region of Western Pennsylvania), while simultaneously meeting individual needs of learners. Since its inception in 1978, the program has come to be recognized, at both the state and national levels, as a viable alternative to conventional university-based vocational teacher preparation. The strategies that are felt to have contributed to the overall success of the IUP program and the factors that have helped to maintain quality-assurance in the F/PBTE delivery system are as follows.

The F/PBTE program rests on an articulated philosophy. The IUP program is predicated on certain beliefs about teachers and their role, about learners and the learning process, and about the role schools play in society. The beliefs constitute a program philosophy, and the philosophy is articulated to all staff as they begin to function as teacher educators in the field-centered program. Without a philo-sophical base, a faculty member's approach to helping learners is hit or miss. He or she has no yardstick to measure effectiveness--to determine why helping learners was highly productive and positive one day and bogged down on another day. Worse still, the faculty member has no safeguard against professional atrophy, no vehicle for growth and development as a teacher educator. The fact that faculty embrace the philosophical underpinnings of the F/PBTE program has been crucial to its success.

The organizational framework of the program has been operationalized. The component parts and key concepts of the F/PBTE program have been defined and written down. Consequently, those involved with the program have developed a common terminology. The terms directed-individualized instruction and self-pacing mean the same things at field sites in Johnstown as they do at field sites in Erie, over 200 miles away. This has contributed to consistency in program operations across field sites.

The curriculum is designed as a program and supported by systematically designed instructional materials. The F/PBTE program is not a patchwork of unrelated courses. Requirements are derived from an analysis of the role of teacher, supported by research, and tailored to the needs of learners. The appropriateness of the requirements is continually monitored, and planned change results from systematic evaluation. Presently, 60 discrete teacher competencies must be developed to earn certification as a vocational teacher. These competencies are contained in 60 directed-individualized instructional modules (the National Center's and others). A module is a self-contained learning package that focuses on a single skill/competency to be mastered. Modules enable teacher interns to develop a teaching skill systematically, by progressing from awareness and understanding of the skill, through guided practice of the skill, to independent application of the skill with students in an actual teaching situation.

Instruction is individualized. To move learners beyond an equality of opportunity and toward an equality of outcomes, the aim of the F/PBTE program is to fit the program to the learners, rather than to fit learners to a uniform program. Instruction is individualized and self-paced, employing such specialized techniques as the use of modules, television/VTRs, microcomputers linked to the university mainframe, and teleconferences. More important, educational technology fits within a framework of assistance provided to each learner by a team of teacher education professionals. The needs of learners, not educational technology, drive the program.

The local master teacher assists the teacher intern on a daily basis. One university teacher educator serves as a field resource person, assisting learners on a weekly basis in micro training sessions. The second serves as a senior teacher educator, assisting learners with skill integration activities and performing summative student evaluations. All team members are trained for their respective roles, and staff development is integral to the program.

Evaluation is systematic. Two types of evaluation are an integral part of the F/PBTE program: student evaluation and program evaluation. Regarding student evaluation, competency assessment is based primarily upon the ability of students to perform teaching skills, while taking into account evidence of their knowledge of the theory and principles that underlie appropriate performance. Mastery of cognitive content, as well as the student's ability to perform effectively in a classroom/laboratory situation, are used to determine progress in the program. Students do not exit from the program until their ability to perform is deemed adequate by a Council of Educators, consisting of a local school district master teacher, a local school administrator, and a university vocational teacher educator. In the F/PBTE program, quality-assurance is the responsibility of the total profession.

Regarding program evaluation, students, program faculty, and local school officials exert a considerable influence on the F/PBTE program. Each year the program is systematically evaluated. Information is collected from all people involved. Additionally, program managers perform scanning and strategic planning activities by examining factors affecting teacher preparation and assessing the extent to which the program is responding to various trends and initiatives. The fidelity and relevance of the program are protected by these systematic evaluations.

The program is designed so that a field-based teacher educator can execute fully the role of helping professional. Professional development for vocational industrial teachers is a priority in Pennsylvania. Outreach services are supported and funded by the Pennsylvania Department of Education, and consequently, reasonable ratios between teacher educators and students can be maintained. Furthermore, many routine functions (e.g., orientation, record keeping, and advisement) have been centralized, thereby enabling field resource personnel to devote full time to assisting learners in the acquisition of teaching skills.

Staff development is integral to the program. Field staff are prepared for their itinerant roles by participating in a performance-based training program. Additionally, weekly staff development sessions are provided. The

weekly sessions augment the basic training program and provide faculty with enrichment experiences relative to their functional roles. The staff development emphasis has been the factor that has contributed most to quality-assurance and the overall success of the F/PBTE program.

Statewide Delivery of Teacher Education in New York State

John W. Glenn, Jr.

The Department of Vocational-Technical Education at State University of New York College at Oswego (SUNY at Oswego) prepares occupational teachers in a comprehensive vocational teacher education (VTE) delivery mode, leading to vocational teacher certification and a B.S. or M.S. degree. The program serves 60 full-time juniors and seniors on campus, 600 part-time students in VTE courses throughout 49 counties in upstate New York, and 80 part-time master's-level graduate students who reside within commuting distance to the main campus. The remainder of this paper presents more specific information about the VTE program and requirements, how the program is organized for regional delivery, perceived programs strengths, and needed improvements.

Teacher certification requirements. Certification requirements vary, depending on whether the individual possesses a degree, the type of degree possessed, and the occupational area to be taught. However, all routes to provisional and permanent teacher certification involve (1) a minimum number of semester hours of professional education course work, (2) a supervised student teaching experience from a registered program, (3) a minimum number of years of appropriate work experience, (4) a passing score on the National Teacher Examination (NTE) Core Battery Tests, and (5) a minimum number of years of teaching experience.

To earn a provisional certificate, teachers of general agriculture and business/distributive education must have passed the NTE; must possess a B.S., which includes 12 hours of professional education course work; and must have one year of work experience. Teachers of other specialties (e.g., electronic data processing, practical nursing) must possess an associate's degree, which includes 18 hours of professional course work; and must have two years of work experience. Nondegreed teachers must have four years of work experience and must earn 30 hours of undergraduate credit within the first five years of teaching, including 18 hours of professional education course work. Teachers without a bachelor's degree are required to pass the NTE either prior to provisional certification or prior to permanent certification.

To earn a permanent certificate, the teacher must have taught for two years. The teacher with a B.S. must also have earned a master's; the teacher with an associate's degree and the nondegreed teacher must have earned an additional 30 hours of upper-level undergraduate study.

The VTE program. SUNY at Oswego offers a B.S. degree program requiring 60 semester hours in the arts and sciences, 36 semester hours in the occupational specialization, and 30 semester hours of VTE professional education course work (VTE core: 18 hours; VTE electives: 6 hours; and supervised student teaching: 6 hours). All students entering the program (1) must matriculate; (2) must

show evidence of continuous progress toward completion of the degree requirements by taking course work each fall and spring semester--either at SUNY at Oswego or another institution--and have the courses posted on their transcripts; (3) must complete the occupational competency assessment program to maintain continuous enrollment eligibility and matriculation in the program; and (4) may exit from the program upon completion of provisional teacher certification, permanent teacher certification, or baccalaureate degree requirements. The third requirement--occupational competency assessment--consists of completing a work experience resume form and a work information release form, and successfully completing the occupational competency examination (worth 30 hours of credit) or 36 hours of college-level course work in their occupational specialty.

How the program is organized for regional delivery. The VTE department has a main campus office and two regional offices in Albany and Syracuse, serving ten program-delivery locations: Oswego, Syracuse, Gouverneur, Albany, Plattsburgh, New Paltz, Binghamton, Rochester, Coopers Plains, and Utica. The main campus office is the hub of the operation; here all student records, as well as scheduling, book order, staff, recruitment, budgeting, and operational policies, are coordinated for the program. The two regional offices handle recruitment, admissions, occupational competency assessment recommendations, registration, and advisement; and they administer part-time program delivery in assigned regions. Each regional office advises 300 students, of which approximately 280 are taking VTE courses toward certification; the remainder are working toward degree completion.

Both full-time and part-time faculty are used. The department hires as part-time faculty individuals who are either employed full-time in or retired from such positions as the following: master teachers in occupational centers; occupational education curriculum supervisors; directors/principals of occupational centers; occupational administrators at two-year colleges; college/occupational center audiovisual directors; vocational supervisors in the Department of Corrections; school superintendents; and state education department associates and supervisors.

The ten delivery sites conduct an average of four courses each fall and spring semester. A combination of performance-based modules, texts, and manuals are used for each course. Course texts and materials are standardized for each course throughout the system, based on faculty input. However, the department allows each course instructor flexibility in determining the specific teaching methodology and strategies that best serve their needs and styles. The department regularly consults with and assists the instructors when requested.

Both inservice and preservice teachers are served by the program, and in general, the part-time students enrolled in the program have the following characteristics. Their average age is 35; they have several years of occupational experience, with 64 different occupations represented; and they have been out of school for a period of time. Two-thirds of the students in the program are male; one-third, female. They take an average of 1.6 courses per term, take 2 1/2 to 3 years to complete the VTE courses required for provisional certification, and take approximately 6 to 8 years to complete a B.S.

if they have had no prior college course work. Approximately 48% have completed 2 years of college prior to enrolling; 9% have a B.S. in an unrelated area; and 2% have an M.S. in an unrelated area. And initially, they lack self-confidence—until they receive feedback on how they are doing in the courses.

Program strengths. The program is administered effectively in the field by department staff who have had input into the curricula and into management policy. Second, part-time students can earn a B.S. degree at off-campus sites without ever having to take a course on campus. Third, each part-time faculty member is provided with a course syllabi example, course objectives, and required materials (e.g., modules, texts, and course guides). Fourth, excellent relationships have been developed with the communities served and with colleges across the state. Fifth, the regional coordinators, faculty, and department staff are involved in statewide activities, which keeps them in constant communication with the constituencies served. And finally, the department has recently developed a newsletter to provide students with greater department contact. This supplements their contacts with the regional offices and provides a better sense of identity.

Areas in which improvement can be made. There is a need to meet more regularly with part-time faculty, as a group, to delve into curricular issues and concerns, to brainstorm, and to recommend improvements or changes where needed. Second, there is a need for increased supplemental materials for all off-campus sites to enhance instruction. Third, additional resources are needed to allow faculty to work on-to-one with teachers requiring more individualized attention. Fourth, the home campus needs to develop greater understanding of and support for the program, clientele served, resources needed to provide a high-quality program, and work load involved. Fifth, time and financial resources are needed in order to hold an annual meeting of teachers, teacher educators, and students to address state-of-the-art pedagogical skills. Sixth, there is a need to increase networking and public relations efforts in order to better understand demographic shifts occurring as a result of changes in services, changes in industry, and population shifts. And finally, utilization of and communication with advisory councils and professional organizations should be increased.

Staff Development via Teleconferencing

Constance M. Lawry

The College of Education of Oklahoma State University (OSU) has made pioneering efforts in the delivery, via satellite, of staff development teleconferences for teachers and administrators. Using the staff and facilities of OSU's state-of-the-art Telecommunications Center, the college has been able to "uplink" its broadcasts directly to one of the communication satellites orbiting the earth. Receiving sites have then brought down (or "downlinked") the signal, using the kinds of satellite dishes that are becoming commonplace across the landscape.

During the 1984-85 academic year, the College of Education broadcast three teleconferences. Two of the programs were marketed exclusively within the state of Oklahoma. The first program, a "Curriculum and Instruction Update for

Schools," featured Dr. Kenneth Sirotnik (UCLA) and a panel of OSU faculty, in a discussion of the milestone research that Dr. Sirotnik had produced in collaboration with Dr. John Goodlad. Their in-depth look at America's schools had just recently been published in the widely acclaimed report, "A Place Called School," and the 75-minute teleconference provided a statewide forum for the discussion of these research findings. During the question-and-answer period, teachers and administrators at 22 receiving sites throughout the state were able to call in their questions to Dr. Sirotnik and ask them live on the air.

The second statewide teleconference--a 90-minute teleconference broadcast to 23 Oklahoma sites--featured Dr. Jack Frymier, a member of the National Commission on Secondary Vocational Education, which had recently released its report, "The Unfinished Agenda: The Role of Vocational Education in the High School." Dr. Frymier was joined by a panel of Oklahomans in an examination of the report's major recommendations and their implications for Oklahoma's educational system. Questions from the panelists were complemented by those phoned in to the studio by teachers and administrators "attending" the teleconference at sites across the state.

The college also broadcast a national video teleconference on "Educational Microcomputer Software: Identification, Evaluation, and Integration," which was received by 86 public broadcasting stations, universities, colleges, vocational-technical schools, and public schools in 31 states and Canada. The four-hour teleconference was offered in cooperation with the National University Teleconference Network (NUTN), a 100+ member consortium of postsecondary institutions, located at the OSU campus in Stillwater. The broadcast combined presentations and discussion by a panel of national experts, with pretaped video segments highlighting exemplary microcomputer projects from school districts and state education agencies across the country. Participants were shown some of the innovative ways in which microcomputers are being used in both the school and home environment.

The microcomputer software teleconference afforded OSU a unique opportunity to spotlight and bring national visibility to a number of Oklahoma elementary and secondary school teachers who have pioneered the use of microcomputers in the schools. This teleconference was the largest fee-based program ever offered over NUTN; it drew national attention to OSU and was widely reported in national journals and newspapers in the education field.

Whereas the two statewide broadcasts were offered free-of-charge to participating sites, the national broadcast was priced at a basic fee of $825 per receiving site, with discounts available to institutions that planned to receive the broadcast at several locations. Satellite time and production costs totaled just under $10,000. Total out-of-pocket expenses for the teleconference were approximately $24,000, on revenues of $37,850.

For 1985-86, the College of Education has prepared a series of five continuing education teleconferences, aimed at elementary, secondary, and postsecondary educators. The first teleconference, broadcast in October 1985, featured former Secretary of Education Terrel H. Bell in a discussion of "State-Mandated Student Assessment Programs." Eleven receiving sites within Oklahoma and five outside the state participated in the broadcast. The titles

and dates of the remaining programs in the series are as follows: "Concerns, Issues, and New Directions in Early Education" (November 1985); "School Law Update" (February 1986); "Younger and Older Learners Together: Solving the Instructor's Dilemma" (March 1986); and "New Directions in Reading Instruction: Theory and Practice" (April 1986).

The pricing scheme for the 1985-86 series of staff development teleconferences has been based on the number of professionals employed within the subscribing institution. Institutions subscribing to more than one program receive a progressive discount on all programs after the first:

Size of Professional Staff	Total Price for Indicated # of Programs				
	1	2	3	4	5
Up to 150 professional staff	$ 150	$ 280	$ 400	$ 510	$ 610
150-300 professional staff	250	465	665	850	1015
More than 300 professional staff	400	745	1065	1360	1625

To date, the College of Education has permitted institutions to videotape the programs to which they have subscribed. This feature has been an attractive one to school districts and other educational institutions, allowing them to make use of the tapes for the professional development of staff unable to attend the live broadcasts. Although the time, effort, and psychic energy expended by the faculty and staff involved in preparing a teleconference can be enormous, the College of Education intends to continue to explore the ways in which teleconferencing can be used efficiently and effectively to deliver staff development programming.

Delivering PBTE by Teleconference in Florida

Steven E. Sorg & Larry Hudson

The Vocational Teacher Education Program at the University of Florida (UCF) is designed to provide professional training to teachers and prospective teachers in several occupational areas. The present program comprises the trade and industrial and health occupations areas. Approximately 85 percent of the individuals in the program are teachers already on the job, recruited directly from business, industry, and service occupations for the teaching profession. They enroll in the UCF program for initial certification and for undergraduate and graduate degrees. Because of the considerable geographic area to be covered, instruction is delivered at four locations: the main campus and three outlying campuses in South Orlando, Daytona, and Cocoa.

Program model. The UCF model for vocational teacher training is designed around groups of research-identified teaching skills or competencies, selected and organized on the basis of their contribution to teacher success and sequenced to foster the teacher's professional growth. University professional education courses each include a number of related competencies to be achieved. The course, "Essential Teaching Skills"--designed to help beginning teachers survive in the profession--is the required first experience, but other courses may be completed in any order, depending on the the individual teacher's needs.

The program is organized into two stages: (1) the trainee achieves proficiency in all program competencies through the knowledge and practice levels within a seminar setting, and (2) the trainee then demonstrates final competence in selected competencies in an actual teaching situation. Designated required competencies are achieved by every trainee on the basis of individual needs, interests, and job requirements. Criterion-based grades of A, B, or C are awarded to designate levels of teacher achievement; lower levels of performance are not recorded, nor is credit given. Trainees may progress through a course at their own best rate, and they may "test out" at any time by demonstrating proficiency and meeting final assessment criteria. The system is highly time-efficient.

Instruction. There are three basic elements in the instructional program: (1) PBTE instructional modules--both those produced by the National Center and some produced by UCF project staff to address Florida-specific needs; (2) seminar sessions devoted to discussion and practice of the skills involved in each module; and (3) individualized instruction and counseling. The modules are used just as designed, with some additional materials used to support and enhance instruction. The UCF program involves none of the typical university instructional devices of quizzes, term papers, oral reports, or final examinations. Each weekly instructional seminar focuses on one specific module. During the seminar, the resource person (teacher educator) may provide enrichment or situation-specific materials, clarify ideas, answer questions, bring in additional resources, or observe and assess practice performances. Individual conferences are also held, as needed, to help teachers overcome specific obstacles to competency achievement.

Trainee assessment. Teacher assessment takes place in two phases: in the seminar and in an actual teaching situation. Within the seminar setting, teachers present a carefully specified performance or produce a specified product appropriate to each competency. The results are assessed by the resource person, using checklist criteria known to the trainee. The product or performance must reach the Good or Excellent level; otherwise the trainee is recycled until that level is achieved. Later, during Directed Field Experience, the trainee demonstrates the competencies in an actual teaching situation, and his/her performance is assessed by school personnel serving as field resource persons, with training and supervision provided by a university teacher educator.

Early one-on-one distance instruction. There have been some instances in which a teacher is working in an isolated or distant school and finds that the courses needed to meet certification requirements are not offered within reasonable traveling distance. The modularized approach used in UCF's PBTE program lends itself to the provision of instruction in this situation.

The following procedures are used to meet the course-work needs of these teachers. First, an initial conference is set up at a learning center. The UCF resource person and teacher agree on the modules to be completed, the learning activities to take place, and the evaluation procedures to be used. At the same time, the mechanics of the instructional system are worked out. Second, a scheduled weekly telephone conference takes place between the UCF resource person and the teacher. The conference is structured and task-oriented, and deals with questions the teacher has about the material. It

also allows the resource person to ask probing questions, suggest learning activities, and recommend readings. Third, if students wish regular class sessions to be taped, they must provide tapes and stamped envelopes for mailing. And finally, if a field resource person is available at the site, that person completes the final assessment form. More usually, the teacher mails in evidence of performance in the form of documentation, products, or videotapes. The UCF person evaluates these and provides feedback to the teacher.

Althcugh this procedure has worked satisfactorily and students have indicated through program evaluations that mastery of required competencies was achieved, evaluation feedback has indicated that students missed the regular seminar discussions and interaction.

Audio teleconferencing. In the fall of 1983, discussions were held by the vocational education faculty to determine interest in and feasibility of offering selected courses using audio teleconferencing. Concurrent discussions with staff from Instructional Resources, Academic Affairs, and Extended Studies; and with College of Education administrators were also held.

Using a university-owned ROLM telephone system, we were able to connect the centers at the three outlying campuses, with no long-distance costs incurred. Either via an office telephone on the main campus or via the switchboard, these three sites could be connected for a conference. However, use of an office telephone did not allow off-campus faculty to connect sites. The telecommunications staff were visited, and an agreement was reached whereby the operator would connect sites using the switchboard. This system worked, and we were in business, using a Radio Shack Duophone ($49.95) at each center. Three courses were offered in spring 1984; one during the summer; and three more in the fall--all using the same equipment and arrangement.

By fall 1984 we knew that the basic configuration would work, and the courses were accepted; however, we also knew that the arrangement and equipment both could be improved. Small grants for use of audio teleconferencing were secured, along with modest internal funding to purchase commercial speakerphones and push-to-talk microphones (Westall, Contech C-10). A loan of a local "bridge" permitted participants to call in upon arrival, thereby increasing student responsibility and broadening our geographic area. Sites still included the UCF off-campus centers as local calls, but other sites could now be added due to the use of the "bridge." Persons at long distances were required to pay for the direct-dial call to Orlando. In spring 1985, three courses were offered using the local "bridge" and Contech C-10 units. No teleconference courses were offered in the summer, but three are now being taught in the fall semester.

Freeze-frame. At a national conference in 1984, initial discussions were held with a representative of The Racal-Milgo Corporation regarding uses of freeze-frame equipment in future courses. Follow-up conversations resulted in a contractual arrangement between UCF and Racal-Milgo allowing UCF to be a test site for a new product: freeze-frame technology. Six units have been made available to UCF for one year. This technology enables sites, in essence, to send a picture across the telephone wire using a common black-and-white camera

and monitor. Use of a rented bridge permits transfer of pictures among multiple sites, wherever a transceiver and modem are available. Units are stationed at the three outlying campuses and in Instructional Resources on the main campus; two units are "floaters" for demonstration use. Three courses are offered this fall using audio and freeze-frame technology.

Summary. Student reactions have been generally favorable. Although the number is not yet large, it appears that those students further away give higher ratings than students in Orlando. The use of audio technology for instructional conferencing in vocational teacher education appears to be successful. With the addition of freeze-frame technology, participants and materials can also be seen. Costs for both technologies are low when compared to the uplink of a satellite; these technologies also offer more versatility and portability than use of a satellite system. Applications of these technologies for laboratory and practical experience in vocational education are numerous.

TECHNICAL UPDATE STRATEGIES

Updating Teachers for Tomorrow's Technology

James B. Hamilton & Michael E. Wonacott

Because of the persistent lack of success of the many efforts employed to keep vocational teachers technologically up-to-date, in spite of a well-known repertoire of appropriate techniques available, staff at the National Center sought to devise an effective strategy for updating secondary and postsecondary vocational teachers in the technologies of their teaching areas. The strategy consists of nine generic characteristics identified as essential to the success of programs designed to update teachers. As such, the strategy maximizes known update program facilitators and minimizes known program barriers.

The strategy development work drew heavily on the knowledge and experience of a panel of experts consisting of teacher educators, professional development leaders, community college personnel, statewide program coordinators, and representatives of business and industry. Panel members were chosen collectively to represent a mix of backgrounds and experience in the area of teacher technological updating; individual members were chosen on the basis of participation in a successful program for secondary or postsecondary vocational teacher updating.

The panel members conferred with project staff in an intensive two-day meeting, comparing their individual experiences and knowledge in the area of teacher updating in order to identify constants affecting the process--barriers to the success of update programs or facilitators of such success. Through inductive analysis of these collective and individual experiences, nine essential characteristics of a strategy for technological update were identified [see sample 6].

Each of the nine characteristics is discussed fully in the National Center document, Updating Teachers for Tomorrow's Technology: A Strategy for Action, with concrete illustrations presented, as appropriate, on how to implement them. The document also presents a statewide implementation model, which suggests the standardization of administrative arrangements regarding college and university credit, eligible update activities, funding and reimbursement activities, and minimum standards for teacher participation. The model also recognizes the need for arrangements within specific occupational areas regarding needs identification, identification of sources of activities, and scheduling details. Comprehensive planning committees and occupational-area-specific committees at both the state and local levels are recommended structures for implementation of a statewide program of technological update. Finally, the document presents recommendations for further appropriate actions needed to support technological updating.

Technological Updating: The Michigan Way

George W. Ferns

The Michigan Vocational Education Personnel Development (VEPD) Project, which began in 1978, is a unique and effective means for providing technological updating for vocational-technical educators. A mechanism for providing inservice professional development opportunities, the VEPD Project is designed to serve secondary and postsecondary vocational-technical educators statewide. Those served include vocational-technical instructors, co-op coordinators, administrators, and industrial arts teachers, located in local school districts, area vocational centers, intermediate districts, community colleges, correctional institutions, manpower programs, and private vocational schools. Both professional and technological updating needs are addressed; and a variety of training sources are used, with business and industry sources featured.

The VEPD Project is conducted by Michigan State University, College of Education; and Northern Michigan University, Bureau of School Services. Each site has a director, a coordinator, and secretarial support staff; Michigan State University has an associate coordinator and several graduate assistants involved as well. The project is funded by the State Board of Education, Michigan Department of Education/Vocational-Technical Education Service. The funding level in 1985-86 is $258,000.

The project functions through use of a process model, which includes the following steps: (1) specify clientele group, (2) identify needs, (3) locate training sources, (4) match needs with training sources, (5) develop delivery plan, (6) arrange and execute event, and (7) evaluate and follow up. The completion of Step 2--identification of needs, particularly client-perceived needs--is considered to be the key to successful inservice events. The VEPD Project needs-assessment process uses a statewide clientele survey and business and industry input, as well as evaluation forms completed at previous inservice events, as sources for the identification of needs. All identified needs are consolidated and prioritized by teacher committees.

SAMPLE 6

TECHNOLOGICAL UPDATING OF TEACHERS

Essential Characteristics of an Update Strategy

- The strategy should provide an organization or structure for action (i.e., a logical sequence of steps to follow in designing and carrying out technological update programs or activities).
- The strategy should define the roles and responsibilities of all the individuals involved.
- The strategy should present policy statements to support the roles and responsibilities of those involved and the activities in which they participate.
- The strategy should define and provide the resources necessary for teachers participating in technological update activities.
- The strategy should provide incentives and rewards to motivate teachers to participate in technological update activities and incorporate the results into their program curricula.
- The strategy should identify and provide a variety of techniques through which teachers can be technologically updated.
- The strategy should allow for and provide alternative and creative configurations of techniques to best meet the individual needs of teachers seeking updating.
- The strategy should provide for the incorporation of the knowledge and skills gained in update activities into the instructional program or course materials.
- The strategy should provide for continuing and self-renewing activities to ensure that all involved remain technologically up-to-date.

Future Actions Required for Updating to Be Successful

- Assessment of the need for teacher technological updating and plans to address this need should be a required part of local operational plans.
- Local operational plans should directly address curriculum updating as a necessary part of technological updating.
- State operational plans should address the state's role in the planning and support of technological updating.
- State and federal departments of education should develop rules and regulations regarding the administration of educational legislation to impact specifically on technological updating.
- Vocational teacher certification and recertification requirements should be modified to place greater emphasis upon the teachers' currency of demonstrated teaching competence and occupational competence.
- In order to attract and retain highly qualified vocational teachers, salary schedules should recognize years of occupational experience, including time spent in business/industry internships, as well as teaching experience and formal educational preparation.
- A federal program of update grants or fellowships to local districts or individual teachers allowing a variety of high-potential update techniques should be established.
- Tax incentives should be made available to businesses and industries to encourage their collaboration in providing high-quality occupational internships for teachers and the equipment necessary for teachers to incorporate current occupational technology into their vocational curricula.
- Occupational currentness should be a major criterion for selection of vocational teachers for merit pay or designation as master teachers.
- Vocational teachers should be paid to establish and coordinate collaborative arrangements with business/industry that provide work experience and instruction for vocational students in occupational areas in which the local school cannot provide up-to-date instruction because of teacher or equipment limitations.
- Staffing policies and practices in vocational education that will result in teachers who are more likely to remain current in their occupation should be adopted, such as hiring qualified part-time instructors and/or requiring regular, paid business/industry internships for teachers.

The VEPD Project is unique in its use of the process model, its genesis from field-based needs, its thorough needs-assessment process, and its provision of service statewide. A Training Source Directory of B/I/L training sources has been developed, and beneficial partnerships have resulted--between and among universities, state department, local education agencies, professional organizations, and B/I/L.

PBTE/CBSD PROGRAM EVALUATION

Criteria for Judging PBTE Program Quality

Glen E. Fardig

In recent years, vocational teacher education programs of many stripes have been labeled "performance-based." These programs range from those that are still basically conventional with behavioral objectives appended, to those that embody all the essential elements and desirable characteristics of what is generally agreed to be performance-based teacher education (PBTE). Vocational teacher educators who have wished to move their programs toward more fully functioning PBTE have had few detailed and definitive guidelines to help them. Program evaluators at the state and national levels have not always used valid criteria in evaluating PBTE programs.

A recently completed study produced two documents of considerable value to those interested in furthering the development of PBTE. The year-long study was conducted by a representative group of experienced vocational teacher educators, familiar with the principles and practices of PBTE. The purpose was to identify the criteria and specific indicators for an ideal PBTE program--criteria that not only could be used to define such programs but that also could serve as a self-study instrument for curriculum developers. The work was based on a study of the professional literature of PBTE, as well as on the experience and expertise of the participants.

The criteria for programs that resulted are organized into five areas of concern: (1) competency specifications, (2) instruction, (3) assessment, (4) governance and management, and (5) total program. Each of the 26 major criteria is described more specifically by a series of observable and quantifiable indicators, which further enhances the usefulness of the results. The PBTE program criteria and indicators have been produced in the form of a self-study instrument that should be most helpful to vocational teacher educators who are developing plans for program improvement. Although it may not be possible to obtain complete agreement on criteria for PBTE programs, the results of this study should go a long way toward establishing more uniform standards for PBTE.

Research Findings on Using PBTE Modules in Vocational Teacher Education

Mary Helen Haas

A recent study sought to determine whether there are significant differences in the success (demonstrated competence) of students in a program using

selected competency/performance-based teacher education (C/PBTE) modules and students in a regular or traditional teacher education program. The hypotheses posed were as follows. One: There are no significant differences in performance between experimental- and control-group students when module pretests are compared to posttests for six teaching competency areas. Two: There are no significant differences in performance between experimental- and control-group students in the various vocational service areas when module pretests are compared to posttests for six teaching competency areas. Three: There are no significant differences in demonstrated teaching ability between the experimental and control groups.

Procedures. The C/PBTE modules used in this research project were those developed by the National Center for Research in Vocational Education. The six modules used in data analysis for this research project were Module B-4, Develop a Lesson Plan; Module C-7, Direct Student Laboratory Experience; Module C-12, Employ Oral Questioning Techniques; Module C-16, Demonstrate a Manipulative Skill; Module D-2, Assess Student Performance: Knowledge; and Module D-3, Assess Student Performance: Attitudes. Sixty-seven students in the vocational teacher education programs at Colorado State University and the University of Northern Colorado made up the research group.

Module mini-tests for use as pretests and posttests were developed for eight module competency areas. Six measures of demonstrated teaching ability were used to establish the composite score on demonstrated teaching ability. This combination of subjective and objective rating and grading included six measures: overall performance on module posttests, overall rating on six module competency areas during pre-student-teaching, simulated teaching, methods course grade, overall rating on six module competency areas during student teaching, and student teaching grade.

Findings. Statistical analyses with a two-tailed t test showed significant differences between the experimental and control groups when pretest scores were compared to posttest scores for three of the six module competency areas. Thus, Hypothesis 1 was rejected for Modules B-4, C-12, and D-3. The experimental-group scores were significantly higher than those of the control group for the three modules. The data failed to reject Hypothesis 1 for Modules C-7, C-16, and D-3. Hypothesis 2 was rejected for Modules C-12, D-2, D-3, and B-4. The t value for the test of the significance of the difference between means on measures of demonstrated teaching ability indicated that the control group had a significantly higher composite score for measures of teaching ability than the control group. Therefore, Hypothesis 3 was rejected.

Conclusions. First, students learned as well from the C/PBTE modules as from the traditional method of teacher education. Second, differences in pretesting for the various vocational teacher education service area groups suggest that pretesting of essential competencies might be used as a diagnostic tool for individual-instruction planning in each service area. And finally, the measures of demonstrated teaching ability (including the wider range of scoring, rating, and grading on both objective and subjective pre-student-teaching performance), as well as the overall rating on module competencies (prior to and during student teaching), revealed that the experimental group

had significantly higher mean scores than the control group. Therefore, it may be concluded that modules--in the total context of the teacher education programs involved--were more effective than or equally effective as the traditional or regular teacher education program in preparing future teachers.

Vocational Teacher Competence: Research Findings at Temple University

Robert Eugene Lees

This study focused on vocational teacher education. Since teachers' behavior may be influenced by many antecedent variables, the relationships between professional preparation, personality, educational level, teaching and occupational experience, and teacher competence were studied. Also studied was the extent to which these variables explained the overall variance in teacher competence. The theoretical frame was eclectic, drawing heavily on both humanistic and behavioristic paradigms. The construct of intentionality served as the theoretical definition of teacher competence. From this construct, two key dimensions were identified: (1) flexibility, and (2) facilitation of self-direction.

Design and method. The study was exploratory and ex post facto in design, relying primarily on simple correlation, multiple correlation, and regression techniques. Data were collected using four instruments--three administered during group sessions, and one requiring the rating of subjects in actual teaching situations. The subjects consisted of 86 vocational trade and industrial teachers from Pennsylvania's Eastern Service Region.

Findings. No significant relationships were found between the following variables: (1) personality and teacher competence, (2) overall professional preparation and teacher competence, and (3) competency-based teacher education (CBTE) and personality. A significant relationship was found between amount of CBTE and teacher competence (HO_3). In a similar finding (HO_5), teachers experiencing more CBTE than traditional teacher education were more competent than those experiencing more traditional than competency-based teacher education. Finally, the interrelationships between and among the antecedent variables explained 20.6 percent of the variance in teacher competence.

Conclusions. First, a post hoc analysis revealed that the Teacher Facilitation of Self-Direction Inventory lacked construct validity. Therefore, this instrument should not be used in subsequent studies without revalidation. Second, the correlational nature of this study prevented firm conclusions about cause and effect. However, the rejection of both HO_3 and HO_5--combined with the significant inverse relationship between traditional teacher education and teacher competence--served as a basis for "suggesting" that CBTE may be more effective in preparing competent teachers than the traditional approach. And finally, with only 20 percent of the variance in teacher competence being explained by the variables of this study, it was concluded that competent teacher behavior is a complex, multivariate phenomenon.

PART TWO

ACHIEVING PROFESSIONAL EXCELLENCE . . .
Preparing Vocational-Technical Leadership Personnel

ISSUES

AVA Looks at Effective Leadership and the Carl D. Perkins Act

Rosemary Kolde

It is most appropriate that we look at effective leadership through the Carl D. Perkins Vocational Education Act of 1984 at this conference. This federal law bears the name of a proven, effective leader who, through his 36 years in the U.S. House of Representatives, never lost his commitment to vocational education. He sponsored and guided the Vocational Education Act of 1963 to passage. He closely monitored this federal act; saw state and local leadership emerge to form the strong vocational education program in which he believed; and continued to lead the fight to expand, strengthen, improve, and secure adequate funding for vocational education. Congress paid a fitting tribute to a tireless leader when they named the federal act of 1984 the Perkins Act.

The Perkins Act provides many challenges to today's vocational education leaders. High-quality programs can no longer be a dream for the future; they must be today's goal. The challenge being issued by the policy makers, as well as by the 45+ national studies and reports, is one of providing easily accessible, high-quality educational programming--programming that includes a strong academic foundation, as well as the occupational skills needed. Program improvement moves to the forefront, including the addition of new technologies. Increased productivity through the training, retraining, and upgrading of the nation's work force has been included in the challenge to vocational education. Although concern for productivity has always been an important aspect of vocational education, it now takes on new dimensions. The nation's diminishing productivity, a global economy, and a rapidly changing technological workplace demand effective leadership throughout the vocational education community.

Addressing these challenges is a monumental task in itself. Shrinking federal dollars casts a shadow on the total picture. Vocational education cannot survive in isolation; it must provide the leadership required to promote strong, supportive, and beneficial liaisons with the private sector as well as with JTPA, employment services, and economic development agencies. This collaboration is one of the primary purposes of the Perkins Act: ". . . to

promote greater cooperation between public agencies and the private sector in preparing individuals for employment, in promoting the quality of vocational education in the States, and in making the vocational system more responsive to the labor market in the States."

The National Commission on Secondary Vocational Education's report, The Unfinished Agenda, states that "quality is a major issue in vocational education." Due to the "complexity and diversity of vocational education, many groups--public and private, in and out of education--must cooperate to achieve the quality and direction needed to put vocational education where it belongs." Now more than ever, vocational education needs advocates in the private sector--advocates who will help us keep our programs and equipment up-to-date; advocates who will assist in generating increased state, local, and federal funding; advocates who will serve as spokespersons on behalf of vocational education and its product: the student.

The AVA Board of Directors is committed to the concept of private sector involvement. They have set as a priority for this year the establishment of a private sector council, to be comprised of top CEOs of major national corporations that employ large numbers of vocational graduates. The primary purposes of this council are (1) to serve in an advisory capacity to AVA and vocational education, (2) to speak out for vocational education as an advocacy group, and (3) to assist in the formation of cooperative ventures between vocational education and the private sector. It is conceivable that such a council could provide a forum through which business and industry could advise on state and federal policies affecting vocational education. It could provide a communications channel (1) for keeping corporate leaders informed regarding issues currently facing vocational education and the status of the enterprise nationally; and (2) for keeping the vocational education field informed concerning industry activities, donations of instructional equipment, or other efforts.

The Perkins Act also emphasizes adult training, retraining, and upgrading of skills. The productivity of our nation is dependent upon such training to rejuvenate and revitalize the large number of existing unemployed and dislocated workers. Technological changes in the workplace create a need for the additional training and retraining of America's workers. Futurists predict that young people graduating from high school today will need to retrain five to seven times during their working years. Our vocational education programs must be responsive to the needs of these individuals, as well as the demands of the labor market.

Financial assistance is available through the Perkins Act to help meet these needs. Productive employment must be the goal of such programs. They must be relevant to labor market demands; and they must be accessible to all segments of the population, including women, minorities, handicapped, limited English-speaking, economically disadvantaged, and older workers. Flexibility is the key to leadership in providing these adult programs. The financial assistance provided through the act can serve as the impetus for imaginative and productive programs. One of the most exciting facets of vocational education today is adult education. Customized, industry-specific training for new and expanding industries, short-term programs (in-school or on-site) to upgrade workers, management and supervision programs to increase productivity, and entrepreneurship programs are but a few examples of the types of programs that can be provided through vocational education.

Human resource development is a new arena to many vocational educators. Once again, imagination and flexibility are the keys to becoming indispensable to the community and to the private sector. Testing, assessment, career counseling, recruitment, employability skills or job search assistance, and outplacement are services we can offer. The private sector can use such services as a total development system. Through such services, individuals with advancement potential can be identified, their strengths and weaknesses can be assessed, and assistance can be provided for individual growth. Through these services, companies can economize on time, effort, and financial resources. Vocational education benefits through increased communication with the private sector.

High technology is a concern of policy makers, and this concern is reflected in the Perkins Act. Funds were made available (1) for programs designed to train skilled workers and technicians in high technology occupations and (2) for projects designed to train the skilled workers needed to produce, install, and maintain such equipment, systems, or processes. A closer liaison with the private sector is also the key to the use of these funds. At least 50 percent of the costs of such programs and projects must come from nonfederal sources, and at least 50 percent of the nonfederal share must be paid by participating businesses and industries. Through such joint ventures in high technology, we can also provide increased expertise and new equipment for our other vocational programs. Although maintenance of existing programs has not been included in the act, the funds that are available for program change and improvement can be used, through effective leadership, to achieve the same goal. The incentives to improve adult vocational programming have been provided--it is our responsibility to be innovative in their use.

The Perkins Act also recognizes the need to strengthen the academic foundations of vocational education; it does not call for additional academics but stresses "practical application." The provision of applied academics, perhaps more than any other segment of the act, calls for effective and strong leadership. Leadership is primary as we begin to rewrite and improve curriculum, increase time on task, and coordinate the teaching of the applied academics. This legislative provision is, to my way of thinking, one of the more exciting ones. Coupled with the national reports, this provision is bringing about more change in vocational education than has ever been previously experienced. By strengthening academic foundations, we can provide the excellence in vocational education that we have all been striving to achieve.

AVA has been identifying exemplary programs during the past year in order to provide its members with some actual working models of excellence in vocational education. A preconvention conference will be held in Atlanta (December 1985), which will feature six of the outstanding models and the strategies that have that have been used to make them successful. Vocational education leaders must provide programs of excellence to motivate students to work toward their highest ability level and to broaden both their academic and vocational horizons. Vocational educators are masters in the science of applied learning; the integration of applied academics will provide us with an opportunity to be educational leaders.

The Perkins Act provides vocational education with the challenge and opportunity for new direction and new thrust. Now is the time for each of us to renew our commitment to vocational education and to provide the necessary

leadership to fulfill Carl Perkins' expectations of this viable educational component. The challenge has been issued--do we have any takers?

CBAE STRATEGIES

CBAE in Arkansas: An Overview

Jack Nichols

Before the call for excellence in education was first heard, Arkansas was busy developing plans to assure high-quality performance by persons involved in vocational education at all levels--students, instructors, and administrators--through a series of important steps along the path to excellence. The first step came in the early 1970s with the beginning of the Arkansas Extern Program, a broad-based leadership development program established to train candidates for top leadership roles in the rapidly expanding statewide vocational education system. Most of the individuals who completed the training did indeed move into administrative positions at the secondary or postsecondary level.

Also during the 1970s, Arkansas took another giant step down the path to excellence by adopting the philosophy that vocational education programs should be competency-based and that students should be held accountable for the mastery of specific and clearly stated competencies. Competency-based curricula were developed, along with student competency profiles. The philosophy of competency-based education (CBE) was next applied to professional development for instructors, with the establishment of performance-based teacher education (PBTE)--another step toward excellence.

And when the PBTE program proved very effective in achieving instructor development, a competency-based administrator education (CBAE) program was designed by the University of Central Arkansas. Postsecondary vo-tech directors participated in the development of the CBAE program for postsecondary administrators, while secondary directors were involved in the phase relating to secondary administration. As in PBTE, the heart of the program was the system of modules, each providing for the development of one or more specific skills essential to vocational administration. The competencies were those identified and verified by the National Center.

The CBAE program boosted Arkansas still further along the path toward excellence by providing standards for the certification of administrators at both the secondary and the postsecondary levels. (Up to that point, Arkansas had had no system of certification.) All secondary and postsecondary vocational administrators employed prior to the approval of certification standards were granted lifetime certificates for the position currently held and for lateral transfers to other schools in the state. The certification requirements for <u>new</u> secondary and postsecondary vocational administrators are basically the same: (1) a master's degree in vocational education and (2) at least three years of professional experience.

At the <u>postsecondary</u> level, individuals possessing minimum requirements are granted a five-year nonrenewable certificate. By the end of the five-year period, the individual must have completed (1) 30 graduate-level semester hours

beyond the master's degree in administration-related credits, (2) the CBAE requirements (six 3-hour courses, which use CBAE modules as an integral part of each course), and (3) a minimum of four years of successful professional experience. A ten-year renewable certificate is issued when these requirements have been met and full certification has been achieved. At the secondary level, the initial certificate is issued for six years. The certificate is renewable for a second six-year term upon satisfactory achievement of 18 designated competency areas (modules). The second-term certificate is renewable for a ten-year term upon satisfactory completion of ten additional modules in designated areas.

The next step was to establish a delivery system for vocational administrator preparation. It was essential that the delivery system be accessible to both existing administrators and potential administrators. After considering several alternatives, the most feasible approach appeared to be a university-based program that incorporated realistic experiences for participants. Letters were sent to the three participating teacher education institutions advising them to proceed with programs to provide vocational administrator preparation that would enable interested individuals to achieve certification. Two institutions have established such programs, providing a common-core preparation that enables individuals to receive verification that they have achieved the competencies in the designated CBAE modules. The Vocational and Technical Education Division initiates the certification process after a candidate has completed the common-core preparation and verification of competencies has been submitted by the teacher educator.

CBAE in Arkansas: The Role of the Teacher Educator in the Implementation of CBAE

Eugene Aist

Implementation of the competency-based administrator education (CBAE) program in Arkansas is a function of vocational teacher educators at the participating universities: University of Arkansas at Fayetteville and Arkansas State University at Jonesboro. Graduate programs were developed or expanded at both institutions to include the National Center's CBAE materials as the primary instructional content of 18 semester hours of graduate-level course work. Thus, the practicing administrator holding a master's degree can fulfill part of the full-certification requirements by completing the 18 hours in which CBAE is included as hours above the master's degree. For the administratively aspiring teacher, completion of the CBAE package constitutes 18 hours toward the master's degree.

At present, our main concern is with persons aspiring toward administrative positions. In Arkansas, as in most states, vocational-technical education suffers because of lack of available qualified administrators--a problem that surfaces in full force each time an administrative vacancy occurs. We have no pool of available, qualified vocational administrators from which such vacancies might be filled. Thus, one of the primary reasons for implementing CBAE is to develop such a pool.

The universities have attempted to take a comprehensive approach to the training of vocational-technical administrators whenever possible. We have two

separate, but essentially similar, sets of certification standards--one for secondary administrators, another for postsecondary. We have a multitude of vocational-technical settings--postsecondary schools, secondary area schools, comprehensive high school programs, local high school programs, and vocational centers--each of which as its own unique set of administrative challenges. Through one implementation plan, we are attempting not only to satisfy the requirements of both sets of certification standards, but to provide an exposure to the unique administrative requirements of the various vocational-technical settings as well, in order to prepare the participants for both vertical and lateral mobility.

The CBAE package is covered in six 3-hour graduate-level courses, each of which has as its basic content five or six CBAE modules. The courses tend to be practical in nature; competency development and eventual performance are emphasized. Our experience indicates that it is beneficial to use the CBAE modules in classes that meet on a regular basis. The resulting interaction between practicing and aspiring administrators provides valuable learning experiences for both groups--experiences that would not be possible using the modules alone in an isolated or even a semi-isolated setting.

A standard requirement of each course is performance demonstration of the various competencies addressed by the modules. Only in this regard is the program field-based in nature. Performance demonstration poses little problem for practicing administrators since they are in actual school settings. But aspiring administrators often must be evaluated in a "realistically simulated situation." Providing a realistic situation for performance demonstration is our most pressing concern. Usually, the teacher (aspiring administrator) is paired with an administrator of a school, who in turn arranges administratively oriented situations within the school for the teacher's benefit--from arranging a type of shadowing activity, to assigning actual administratively oriented responsibilities to the teacher. Competency performance is then verified by a vocational teacher educator during a visit to the school. This area of the program is under close scrutiny, however, and we suspect that the most effective and reliable means for managing this component has yet to be discovered.

Each course is, in a sense, a microcosm of the objectives of the entire administrator training program. In each course, certain CBAE modules are covered through class activities and group interaction; competencies are developed and demonstrated as a course requirement. In addition, each participant gains some insight regarding the administrative peculiarities of vocational-technical settings other than the one in which he or she is currently employed. Each participant is assigned to visit another school and to determine, through observation, the means by which the competencies covered by the CBAE modules are handled in that specific setting. By the time a person has completed the six courses, he/she will have observed all the types of vocational-technical settings in the state.

Participation in the program has been high and seems to be increasing. The primary reason for this is the need to meet the vocational administrator certification standards. But there are other reasons as well, not the least of which is that the teacher in the vocational-technical program finally has available a means of career advancement--a means of preparing for advancement into administration. But even beyond that, the quality of the courses of which CBAE is an integral part has been recognized on campus, and many students

are enrolling to apply the credit toward degree programs they are pursuing in other departments.

We believe that we are implementing CBAE in Arkansas in an effective manner, which seems to be achieving the overall objectives of the vocational administrator certification package of which CBAE is a part. Implementation of the program is, however, in its infancy. We have learned much, yet much remains to be learned. We have done many things right, yet many things remain to be improved. In many areas we are experimenting and, as with any new program, this experimentation will, through time, produce an ever-developing program--a program uniquely suited to meeting the administrator training needs of vocational-technical education in Arkansas.

Field-Based Leadership Development in Pennsylvania: An IUP Perspective

Edward K. Allen

In the span of slightly more than one decade, vocational personnel development in Pennsylvania has shifted from the traditional, class-based method of instruction to the now widely accepted and recognized competency-based education (CBE). Each of Pennsylvania's four vocational personnel development centers employ many, if not all, of the CBE elements and characteristics accepted by the American Association of Colleges for Teacher Education (AACTE). Leadership development (vocational administrator preparation) at Indiana University of Pennsylvania (IUP) began as a pilot program with a few selected students in the 1980-81 spring term and was installed as an ongoing program the following fall term. From the beginning, IUP's Center for Vocational Personnel Preparation was committed to the philosophy of field-centered, competency-based education; its leadership development program was designed to incorporate each of the essential elements and the desirable characteristics of CBE, as follows.

Competencies to be achieved are carefully identified, verified, and made public in advance. A total of 136 competencies--in categories ranging from the management of instruction, to the management of personnel, to the management of business and finance--make up the leadership program. The initial group of competencies was identified and verified statewide for Pennsylvania vocational administration, and each competency has since been subjected to a further statewide review. Every applicant to the program is provided with a listing of the competencies to be attained for his/her administrative specialty: curriculum specialist, supervisor, administrative director.

Criteria used in assessing achievement and the conditions under which achievement will be assessed are explicitly stated and made public in advance. Each competency in the program is accompanied by a Leadership Performance Assessment Form (LPAF), which restates the competency and lists the criteria for which the student (leadership intern) will be held accountable. Each intern is required to carefully review each criterion for a specific competency prior to commencing any developmental activities. Using a Competency Guide Sheet, the intern reviews each criterion and, together with his/her local helper (usually the director or supervisor), determines in advance whether each criterion will be attained. The guide sheet then presents suggested readings for the theory needed for that specific competency. Finally, the

intern completes an implementation plan, stating briefly how he/she will develop the competency.

The instructional program provides for the individual development and evaluation of each of the competencies specified. Interns are free to develop any of the required 39 curriculum specialist competencies, 45 supervisor competencies, or 90 director competencies, as the opportunity presents itself. Additionally, the interns may select several elective competencies (depending on the program) to personalize and round out their programs. However, to avoid an arbitrary selection, the interns and local helpers conduct an intensive planning process at the beginning of each semester to determine which skills will be developed for that semester. In this way, the university, local schools, and interns can focus their energies and resources on specific competencies.

Assessment of each competency takes the students' knowledge and attitudes into account but requires actual performance as the primary source of evidence. Several factors indicate the depth of an intern's theory base. Initially, the degree of theory internalization achieved is determined, in large measure, by the quality of the implementation plan developed by the intern subsequent to studying the theory in the suggested readings. Second, a university field person discusses theory with the intern (i.e., a theory debriefing), during which time theory gaps ultimately surface, indicating that recycling may be needed. Finally, the documentation submitted with each competency indicates whether established theory has been followed.

However, program completion cannot be reached until each competency is developed in an actual school situation and evaluated by a three-part process. First, the intern conducts a rigorous self-evaluation. If, in his/her opinion, the criteria are adequately addressed, with sufficient and relevant documentation, the intern submits the documentation to the local helper. That individual reviews the LPAF and accompanying documentation to determine whether it is the intern's work and whether the implementation plan was followed. Finally, the university representative reviews the documentation from the university perspective. If no serious weaknesses are uncovered at any step, the competency is entered into the university's management information system (MIS) as being completed.

Students progress through the instructional program at their own best rate by demonstrating the attainment of specified competencies. The only condition imposed on the intern's rate of development concerns the number of competencies he/she must complete to receive a grade. Since the competency-based program is operating within a traditional university structure, the problems of grading had to be resolved. Consequently, for every credit registered, an intern has to develop three competencies; with traditional courses carrying three credits, each intern is thus required to develop nine competencies in order to receive a grade. A test-out feature can speed up the intern's program. That is, if through some tangible evidence an intern can demonstrate that he/she already possesses a skill, she/he is not required to engage in any developmental work and the skill is signed off.

Instruction is individualized to the maximum extent possible. The titles of the competencies and the listing of criteria on each LPAF are the same for each intern. Beyond that, little else is standard. Two interns may choose to

develop the same competency--but via entirely different processes. As long as the outcomes are consistent, the means to achieve those outcomes are determined by individual preference. Further, two interns may choose to develop different competencies because the competencies to be developed for a semester are tailored to the unique and individual needs of the intern and the particular school.

The competencies are arranged, additionally, as a career ladder. Interns may develop the 39 required curriculum specialist skills and exit from the program at that point. Or they can continue in the program, developing an additional 24 competencies and exiting with a supervisor's credential (a total of 63 competencies). Likewise, by developing 45 more competencies, the intern may earn the administrative director's certificate (a total of 108 competencies).

Learning experiences are guided by frequent feedback. IUP's leadership development program employs a diversified staffing, training team approach. The individual providing day-to-day assistance and support is the local helper. The second team member, a university faculty member, visits the interns at their schools on a bi-weekly basis to review documentation, check on progress, and confer regularly with the local helper. The next team member, the university senior teacher educator, acts as an overall program coordinator and advisor. The most important members of the team, however, are the interns themselves, each assuming a major responsibility for his/her own learning.

Emphasis is on program exit requirements. There are few formal program entrance requirements and, with the exception of the state-mandated teaching experience requirement, all are formalities easily addressed by the candidates: three letters of reference (employment, character, and academic), a recent transcript, and an interview with the program coordinator. A priority, however, is access to a training site (usually the local school) in which to develop and practice skills.

Candidates are judged according to how well they perform upon completion of the program rather than what they bring with them when they enter. When every competency in an intern's program has been entered in the MIS (i.e., adequately documented and signed off) a Council of Educators (COE) review panel is convened. The COE is composed of the local helper, an "outside" administrator, and the senior teacher educator. The COE review panel inspects the documentation, reviews the intern's reaction to a case study, and views a videotaped administrative performance. Thus, the responsibility for recommendation for certification is jointly shared by the administrative profession and the university.

Instruction is individually paced. While program requirements dictate a 3:1 competency/credit ratio, interns may develop more competencies than the number required for registration. They may self-pace and develop as many competencies as their energy and the situation in the particular school will permit during the semester. They may develop as few as 9 or as many as 12, 15, or even 20 per semester if all goes well and motivation and opportunities remain high. Often, for a variety of reasons, interns are not able to complete the nine-competency minimum. In those cases, the interns are issued a deferred grade. The uncompleted competencies are then carried over into the following semester. As soon as they are developed, the deferred grade is immediately converted into a permanent grade.

Instruction is field-centered. As must be obvious from the above, there are no traditional classes. Every skill is developed and practiced in an actual school situation, thereby integrating state-of-the-art theory and practice directly into the mainstream of the school. Only in the rarest of cases are any of the competencies simulated and then only with express consent from each member of the training team.

Instruction is modularized. A total of 136 Competency Guide Sheets have been developed. Of these, 112 are three-page guides, 22 are multi-paged modified mini-modules, and 2 are fully developed modules. For consistency, all are referred to as Competency Guide Sheets. The most important resource, however, is the set of 32 CBAE modules developed by the National Center for Research in Vocational Education and distributed by AAVIM at the University of Georgia. All 32 are utilized in some form via the Competency Guide Sheets. Other modules used include those produced by the American Institute for Research (VECS modules), Virginia Polytechnic Institute, and Pennsylvania's Research Coordinating Unit (X-mods; curriculum development).

Preparing Vocational School Superintendents

Brent P. Wolf

An Ohio study recently completed in order to determine (1) the competencies that joint vocational school (JVS) superintendents in Ohio perceived to be important to successful fulfilling their roles as superintendents and (2) the degree to which JVS superintendents in Ohio perceived they were professionally prepared to effectively fulfill their roles as superintendents. The data from the study not only produced a listing of important competencies, but also provided interesting insights into the professional preparation of superintendents responsible for the administration of vocational programs.

Why an Ohio study? Passage of the 1963 Vocational Education Act and subsequent federal legislation provided for the expansion of vocational education to an extent never before possible, including in the act provision of substantial monies for the construction of JVSs to meet the growing demands for vocational education. In 1963, the number of students served by vocational education in Ohio was 20,267 (7 percent of the students enrolled in grades 11 and 12). By 1965 when Ohio opened its first JVS, 25,525 eleventh- and twelfth-grade students (8 percent) were being served by vocational education. In the fall of 1982, with 49 JVSs in operation, 120,730 eleventh- and twelfth-grade students (41 percent) were enrolled in secondary job training. In order to provide high-quality vocational education programs for the ever-increasing numbers of vocational students, Ohio revised code provided for the creation of JVS districts, if the boards of education in each school district so consented.

With respect to those who administer JVSs, Ohio laws and regulations governing administrator certification mandate that the vocational director's or supervisor's certificate be issued to the candidate upon the completion of 10 semester hours of vocational course work and 27 months of successful teaching experience in a vocational education program. The regulations for certification of the JVS superintendent, however, do not include vocational course work or experience. The provisional superintendent's certificate is issued to the

holder of a master's degree with 60 semester hours of graduate work and 27 months of experience in an administrative position.

Although there is a clear intent that those administrators closest to the operation of vocational education programs have vocational experience, there does not seem to be a perceived need for the JVS superintendent to have any vocational education course work or vocational education experience. Yet vocational administration is unique because of the educational settings, program offerings, and student populations. This uniqueness necessitates that those who administer vocational education, especially the top administrators, receive training in vocational education. Thus, there was a need to identify the knowledge and skills needed and the tasks performed by Ohio's JVS superintendents, as well as the adequacy of their preparation.

The literature. A literature search was completed, and numerous examples of needs assessment surveys used to identify the competencies needed by vocational administrators were located. In all the relevant studies located, needs assessment surveys were sent to administrator practitioners, and the competencies identified as important by the respondents were later used as a guide for planning certification and preparation programs for general education superintendents, vocational education superintendents, vocational supervisors, and vocational directors.

In the studies of competencies important to general education superintendents, the importance of competence in vocational education administration was mentioned in only one study--a study of Ohio school superintendents and assistant superintendents completed by the Ohio Department of Education Administrator Preparation Advisory Committee. And although 54.4 percent of the 225 respondents in that study indicated that vocational education administration was an important or very important area for the superintendency, 44 percent indicated that vocational education administration was not included in their preparation program. With the exception of that one study, comparisons of the findings revealed few differences in general education superintendents' perceptions concerning important competencies. Competencies pertaining to human relations, planning, organizing, and evaluating the school system were identified as the most important (i.e., as the competencies that should be incorporated into preparation and certification programs for the public school superintendent).

In comparing the competency studies for general education superintendent and vocational education superintendent, there were more similarities than differences in the areas of curriculum, instruction, program planning, student services, personnel management, staff development, professional relations, community relations, facilities management, and business management. However, in the vocational education superintendent studies, competencies pertaining to the preparation of students for a job and the development of a close working relationship with the state and federal agencies that administer vocational monies and programs were emphasized as important.

A 1984 national study of vocational education administrator certification (conducted by this writer) revealed that 36 of the 49 state certification agencies responding to the survey (73 percent) required some form of vocational administrator certification. There was a recognized need for certification of vocational administrators, as well as a need to identify important vocational

administrator competencies at all levels of administration for inclusion in certification and preparation programs.

Findings. A survey instrument containing 191 task statements, clustered into nine categories, was sent to all 49 Ohio JVS superintendents. A total of 46 superintendents (94 percent) returned the survey instrument. A 70 percent criterion was used to determine which of the 191 listed tasks were important to Ohio JVS superintendents and which tasks they perceived they had been adequately prepared to perform. Of the 191 tasks, 121 (63 percent) were determined to be important to superintendents; they felt adequately prepared to perform only 18 (9 percent) of the 191 identified tasks. It was also found that (1) a vocational education background was not a factor in either the perceived importance of tasks or the perceived adequacy or preparation to perform the tasks; (2) superintendents were able to identify competency categories that were significantly more important than other categories; and (3) superintendents who earned an educational specialist degree or doctorate did not perceive themselves to be any more adequately prepared than superintendents who had master's degrees.

PART THREE

ACHIEVING PROFESSIONAL EXCELLENCE . . .
Beyond Vocational-Technical Education in the U.S.

APPLICATIONS IN GENERAL EDUCATION

Using CBTE in General Professional Education

Edward B. Brower

A university-based course, Crucial Teaching Strategies (CTS), is required of all sophomore-level elementary education, secondary education, and vocational education majors in the College of Education at Temple University. The purpose of the course is to help prospective teachers develop critical teaching skills through a series of integrated micro-, mini-, and macroteaching experiences. The course is competency-based and uses a configuration of the National Center's PBTE modules as the content base.

Ten modules (B-2 to B-5, C-10 to C-13, C-23, C-29) comprise the teaching skills in which students must show competence. Use is made of a microteaching approach, focusing initially on single-skill development. At some point in the course, the skills in two to three modules are combined into minilessons. The culminating experience is a macrolesson, which requires a lesson plan, an introduction, oral questioning, reinforcement, a summary, and the use of either the chalkboard or flip chart, as well as the overhead projector. Each skill must be performed according to established criteria.

The experiences take place in a Teaching Skills Laboratory, in which the micro-, mini-, and macrolessons can be videotaped. Students review the videotapes first and self-evaluate, using module criteria. If students feel they meet the criteria, a helping conference is scheduled with the instructor. The helping conference is designed to assist in the identification of both strengths and areas that need attention.

As mentioned, all students in the College of Education enroll in CTS, and all students are asked to complete the PBTE modules. Although the skills covered by the modules relate to any teacher, the illustrations and case situations relate to vocational education, which does cause some problems. However, the PBTE modules are still the best source of pedagogical content available.

Impacting on the Preparation of General Education Administrators: A Vocational Education Initiative

Cynthia A. Cronk, Robert Millward, & Thomas J. Walker

In the summer of 1984, nine Pennsylvania school administrators came to Indiana University of Pennsylvania (IUP) to take part in a two-day DACUM (Developing a Curriculum) process. DACUM is a process of occupational (job) analysis that uses expert practitioners to determine the duties and skill requirements for a particular job--in this case, the job of secondary principal. These skills can then become the basis for an instructional program.

The experts for this DACUM were Pennsylvania school administrators from junior and senior high schools, middle schools, and vocational-technical schools. A district superintendent was also a member of the DACUM panel. These nine administrators were asked to identify the major duties and related performance tasks necessary to the role of secondary principal. The DACUM panel identified nine major administrative duties: (1) manage staff; (2) provide for student needs and services; (3) coordinate curriculum; (4) supervise instruction; (5) participate in financial management; (6) supervise maintenance of buildings and grounds; (7) promote community relations; (8) pursue personal development; and (9) administer local, state, and federal policies and legal requirements. Within those duties, the panel identified 140 performance tasks that principals were required to know and apply in the day-to-day administration of the school.

The DACUM results were organized into a questionnaire, which was sent to other randomly selected secondary principals in three states: New York, West Virginia, and Pennsylvania. Principals in those states were asked to rate, according to dimensions of importance, the performance tasks for selected major duties. When the questionnaires were returned and analyzed, it was found that the respondents agreed, with some few exceptions, that the DACUM panel had identified the important performance tasks of a secondary principal's role. However, although the DACUM tasks were validated as an entire product, it appears from the survey results that secondary principals place special emphasis on certain tasks related to managing staff; coordinating curriculum; pursuing personal development; and administering local, state, and federal policies and legal requirements. Respondents considered 70 percent or more of the performance tasks in these major duty areas to be important or very important in the performance of the principal's role.

The findings from this study provide useful information for principal practitioners and persons who wish to plan relevant program curricula for the certification of school administrators. Of particular interest to IUP are the performance tasks relevant to both general education administrators and vocational education administrators. IUP has two performance/competency-based certification programs--one for vocational directors and one for general education principals. This DACUM project was an initial effort to integrate the two curricula. The results of the DACUM validation study offer a pragmatic basis for curriculum revision and improvement in both competency-based programs.

In summary, the results of this study provide (1) a basis for developing a relevant curriculum for a secondary principal certification program and (2) a correlate between vocational and general education administrator certification

programs. This DACUM provides a realistic and detailed description for persons in either role: secondary principal or vocational administrator. Through this DACUM process, the performance requirements necessary to effectively carry out the role of principal have been more accurately and systematically identified. As a result, IUP's competency-based programs in vocational and general education, as well as role performance expectations for vocational and secondary administrators, can be delineated more clearly.

APPLICATIONS IN BUSINESS & INDUSTRY

Performance-Based Training in Industry: Realizing the Potential

Robert C. Evans

Training is one of the most critical enterprises in our modern society, and its worth today is underscored by our general concern in America over the plight of the unskilled worker, the semiskilled worker, and the skilled worker who has been passed by in our rapidly changing technological environment. In addition, our society has become increasingly preoccupied with "productivity," the bottom-line measure of an individual's or organization's ability to turn out high-quality goods or services both effectively and efficiently.

The electric utility business, of which I am a member, has not been insulated from these same concerns. In addition to the problems of ever-increasing operating costs and rapidly changing technology, the electric utilities are no longer experiencing the rapid growth they enjoyed in the 1970s. This leveling poses a problem to management--how to maintain the desired level of technical expertise and morale in a somewhat stagnant setting, where chances for both advancement and monies are at a premium.

Rapid technological changes, coupled with the need to achieve better productivity, constitute a major challenge to us in the training business. All the tools we have at our disposal and all the innovations we may derive through their application must be made usable for the persons in the work force--those persons whose job it is to actually produce goods and render services. The nuclear plant operator must learn how to conceptualize a complex process to understand it as a subcomponent of a larger system; and a manager must be able to ask for the salient information on which to predicate decisions.

As you may have already guessed, the major link here is training--not just any training, but training that has come under the same scrutiny as has "productivity" in the business arena; training that has passed muster in this hour of bottom-line accountability. The type of training or approach to training required is packaged under the name of performance-based training, competency-based training, or criterion-referenced training, to name the major brands. Each of these approaches to training is based on the same concept--that there must be a specific purpose for the training: to perform some specific behavior, to learn a competency, or to meet a criterion. Regardless of what name is used, the goal is the same: accountability. There is a purpose for the training, training is conducted to achieve the purpose, and training achievement can be documented.

The key to competency/performance-based training is teaching to the competency--no more, no less. No topic or concept should be included unless it can be shown that the information is essential to the performance of the competency. If competencies have been carefully and systematically selected and verified, there should be substantial confidence that the training will be complete without the addition of nice-to-know trappings, which can add time and dollar costs without adding comparable benefits.

More than half of the states in the nation, as well as numerous school districts, schools, and individual teachers, have made some attempt in the last nine years toward the implementation of what they call competency-based education (CBE) programs. We have seen politicians ride the CBE bandwagon, seen institutions change, seen students graduate and perform better in college or on the job than did their pre-competency-based predecessors, and yet the movement in the public sector seems to have waned. Perhaps the movement has become so much a part of the curriculum development and delivery system in our schools that it no longer carries a name that sets it apart from a non-criterion-based format, a format that may no longer exist.

In the industrial arena, where state politics have had diminished effect, the competency/performance-based movement seems to have maintained the impetus that began almost a decade ago. This impetus has been fostered by liberal doses of support from the Nuclear Regulatory Commission, particularly after the infamous day in March 1979, when a pilot-operated relief valve malfunctioned in Unit Two at Three Mile Island.

As late as 1981, the Nuclear Regulatory Commission's licensing group was, by and large, not totally cognizant of the training techniques available to enhance nuclear operations training and, thus, to reduce the chances that the Three Mile Island incident would be repeated. The licensing branch has, however, become aware of the Instructional Systems Development (ISD) approach to curriculum development and delivery, an approach that borrows heavily from the basic tenets of criteria/performance-based education. In addition, the nuclear industry has its own oversight and support agency, the Institute of Nuclear Power Operations (INPO), which included a training accreditation section. The section members have written comprehensive guidelines for systematic curriculum development and delivery. The guidelines are similar to an ISD approach and, as such, foster a criteria/performance-based approach. The INPO accreditation section has contact teams whose members visit utilities with nuclear training sites and provide support as they prepare their curriculum for accreditation by INPO. This accreditation process assures consistency in nuclear training. In part because of the success of the nuclear programs and in part because of strong leadership, the ISD approach has, over the last four to five years, become the flagship in curriculum development and delivery on the fossil side, as well as the nuclear side, of the electric industry.

Each of the identified steps in the competency-based curriculum development process [see top of sample 7] is considered a milestone in the development process and can be fully documented with tangible outcomes for accountability purposes. Feedback from everyone who is affected by the training is a key factor in each step, and this involvement of both plant personnel and training staff provides a rational and defensible basis for the training curriculum. Content review by appropriate personnel is absolutely necessary as well, in order to establish the most up-to-date training curriculum, with the latest

technology and information available. The steps in the competency-based curriculum development process are as follows.

Step 1: Establish competencies. Knowledge and learning can be virtually endless; therefore, it is necessary to set parameters for curriculum content. This is done by identifying the tasks performed on the job--the competencies--and the knowledge, skills, attitudes, and behaviors required of individuals to perform those tasks. Competencies are established using two basic methods: (1) job- and task-analysis review of plant-specific operations and (2) panels of experts. Each method has advantages; a combination of the two methods results in a very powerful defense for the curriculum. Many utilities have mechanisms in place for generating job- and task-analysis data for various power plant positions. In addition, INPO has formalized a Job and Task Analysis (JTA) procedure and maintains a data bank of jobs and tasks for most of the major plant operations in nuclear power plants, based on such things as plant equipment, type of reactor, and NRC requirements.

Step 2: Conduct competency verification. In the verification process, the list of competencies is converted into a questionnaire, which is sent to (1) incumbents, whose positions require the competencies, (2) plant management, (3) engineering staff, and (4) any other appropriate support personnel identified. Documentation of this activity includes completing a cross-reference form to ensure that INPO's JTA procedure, NRC requirements, and plant-specific or training-procedure requirements have all been addressed.

Step 3: Develop competency tests. A major benefit of the competency-based training program is the competency test, which identifies, up front, the evaluative methods necessary to determine competency attainment. Competency tests document training effectiveness. The performance/competency-based approach assumes a joint responsibility between the trainer and the learner. The trainer has the responsibility to teach each competency using appropriate methods, materials, and techniques. The learner has the responsibility to actively engage in the learning process.

Competency tests can be developed as soon as competencies are identified, rather than after the curriculum has been developed. In fact, development of the competency tests prior to the development of the curriculum materials is one way to validate the training. And having the competency tests developed by someone other than the trainer who develops the curriculum training guide can eliminate a frequent criticism of the competency-based approach--that of teaching to a test. Alternate forms of competency tests can be used as pretests to secure baseline information on individual or group training needs. Competency tests can also be used in lieu of training to document an individual's demonstrated proficiency regarding competencies.

It is important that each competency be tested to the level of learning indicated by the competency statement. For example, Bloom's taxonomy delineates six levels: (1) knowledge, (2) comprehension, (3) application, (4) analysis, (5) synthesis, and (6) evaluation. If, then, a competency specifies that an individual be able to perform some task at the application level, it is NOT acceptable to test the individual by asking them to **list** the performance procedures (knowledge level) or to **explain** why they should perform the task (comprehension level). Nor should the individual be asked to perform at levels above application in that case. The assumption underlying the use of a taxonomy is

that each level of learning requires mastery of the previous level of learning; in other words, learning builds on the previous level of learning. Nuclear operators are required to reach the evaluation level (Level 6) in much of their training in order to satisfy the NRC. If training program activities never exceed the knowledge level (Level 1), training departments have failed to provide the type of training required to enable the operators to make judgment calls--the highest level of learning.

Step 4: Develop curriculum. The graphic [see bottom of sample 7] illustrates the relationship between competency-based curriculum development and the instruction and training process. Notice that curriculum development begins when the competency has been identified and that training ends when the competency has been achieved. In the development process, the competency (task or skill) is reviewed to determine the required instructional and training objectives. Instructional objectives are stated behaviorally, in measurable terms, to establish the instructional intent (terminal objective). Training objectives (enabling objectives) direct the classroom and laboratory learning activities, which, in turn, direct the type of instructional resources and equipment required for the desired learning to take place. Instructor evaluation of each learning activity (i.e., can the learner demonstrate mastery?) brings closure to the training objective.

When designing the curriculum, it is important to remember that individuals learn differently. Therefore, a variety of learning experiences must be planned in order to promote learning and reduce monotony and boredom, the banes of any training program. Foremost in developing the curriculum is to remember the following: Telling is not teaching, listening is not learning, and watching is not doing.

Step 5: Develop instructional media. This step in the curriculum development process involves preparing audiovisual (AV) materials to aid and promote classroom learning. The purpose of using a variety of instructional media is to facilitate learning--not to replace the trainer (e.g., "Go watch the videotape and come back and take the test"). Instructor-prepared AV materials are especially effective in training--not so much because they are better than other materials, but because the instructor took the time to develop them and, therefore, they are more apt to be used. Also, instructor-prepared AV materials are usually less costly.

Step 6: Validate curriculum and conduct field testing. The validity of the curriculum is established for the first time when the competency identification and verification process is completed. Next, the cross-reference to INPO's JTA procedure establishes validity for the curriculum content, since the JTA process already has an established validity. Thus, content validity is normally ensured for competencies prior to any development activities on the part of the training departments.

Further, the validity of the curriculum can be determined through statistical analyses of the instructional evaluations and competency testing activities. Field testing validates whether the trainer can direct the learning activities in accordance with suggested methods and resources such that learners achieve the competencies. It also monitors the response of the learners to the suggested training methods and techniques. More in-depth validation of the training curriculum can be conducted through supervisory/management evaluations

and formalized results-oriented evaluations such as those conducted in a training effectiveness evaluation program.

Step 7: Perform training effectiveness evaluation. Training effectiveness evaluation should be an integral part of any training program. It documents for management, INPO, and NRC the impact that training has on the learner (training knowledge gains and behavior changes) and plant productivity gains--both direct and indirect. It is recommended that training effectiveness evaluation be conducted independently of curriculum development.

Step 8: Revise the curriculum as needed. Curriculum development is an ongoing process, with revisions made at each development step as the need arises. Continual revision ensures that the curriculum remains responsive to individuals and changing industry training requirements. Changes may be needed during the development phase; more likely, they will occur during a planned periodic review of the curriculum. Changes should also be made in all of the accompanying instructional materials, including competency tests, trainer guides, resource materials, and trainer evaluation materials. This will serve to keep curricular materials and information consistent and reliable, given new equipment installations, revised procedures and tech specs, and training effectiveness evaluation findings.

Training Effectiveness Evaluation

Peggy W. Patrick

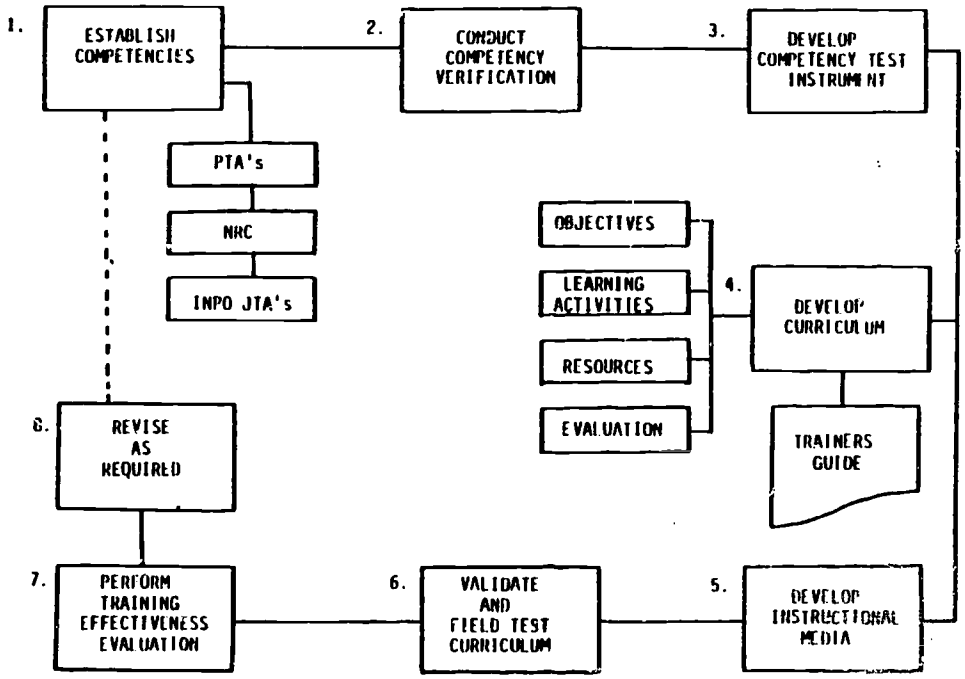
Training effectiveness evaluation is defined as an assessment of the relevancy between training processes, job performance, and plant productivity. The concept is relatively new in industry, but it has existed to some extent in education as third-party evaluation. Training effectiveness evaluation is a comprehensive evaluation program, which includes training evaluation per se but also goes beyond traditional training evaluation to determine the impact that training has on the total organization. At the Arkansas Power and Light Company, the training effectiveness evaluation program is designed primarily to evaluate nuclear training programs in four basic areas: (1) trainee perception of training, (2) skills and knowledges, (3) job performance, and (4) plant performance or productivity.

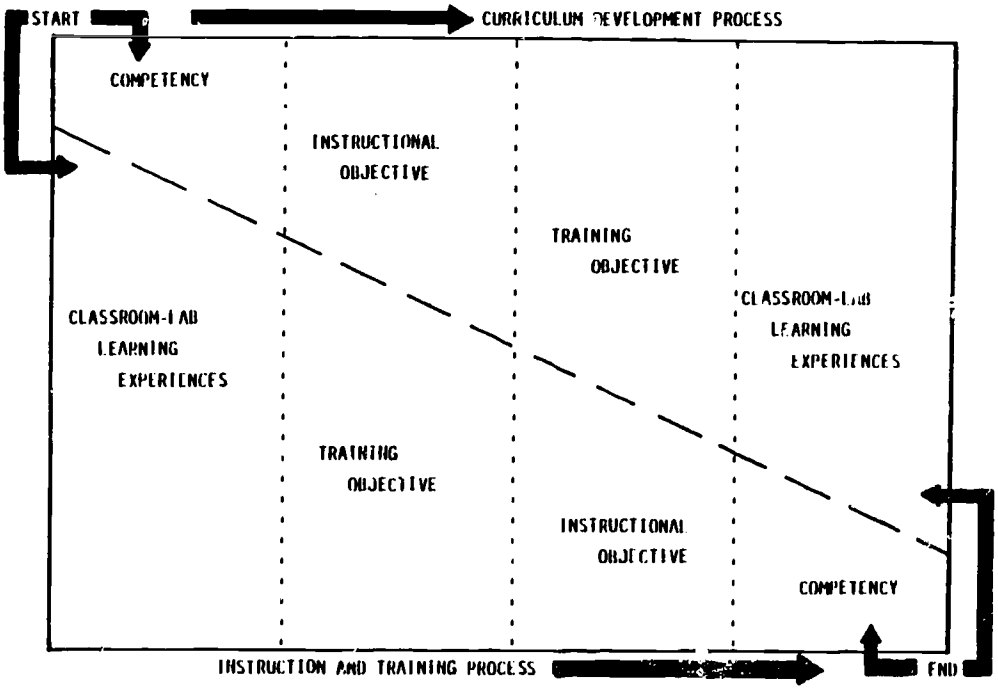
Trainee perception of training. Data is obtained concerning trainees' reactions to the training by using a course critique form. The two-part form first asks each trainee to use a five-point scale (with 1 being poor and 5 being excellent) to rate their training, including course content, course organization, visual aids, handout materials, instructor's presentation, classroom environment, relationship to job, and overall effectiveness. Second, trainees are asked to list the course's strong points and weak points, and to make constructive suggestions for its improvement.

The data are computer analyzed and course means, ranges, and standard deviations are computed. Courses with means below average (3) are flagged for further review. Courses with standards deviations above 1 are also reviewed for instructional biases. The comments are categorized into six basic teaching areas (knowledge of subject, planning and organization, classroom management,

SAMPLE 7

CURRICULUM DEVELOPMENT PROCESS AND ITS RELATIONSHIP TO THE INSTRUCTION AND TRAINING PROCESS





use of media, human relations, and instructional skills) and subsequently reviewed in order to make recommendations concerning needed inservice training and staff development activities.

Skills and knowledges. One method used to evaluate new skill and knowledge gains is traditional training evaluation (e.g., test scores, performance testing, pre- and posttesting, and extended posttesting for training retention). In addition, course and worker group correlations are made; multivariant analyses are computed to determine training validity; statistical analyses are made between plant-trained and military-trained plant operators; and course materials are reviewed for congruency between and among objectives, learning activities, and testing activities.

Job performance. The training department can document that an individual has been trained and can perform certain tasks; however, the plant supervisor must determine whether the individual is actually using the training on the job. Thus, the Supervisory Rating System was designed to assess the extent to which individuals fulfill and complete their identified Position Task Analysis (PTA) functions and tasks. The Supervisory Rating System was designed (1) to assess how well the worker can perform the task and (2) to determine training needs based on deficiencies indicated by the worker's supervisor.

Plant performance/productivity. The results-oriented evaluation of training requires causal analysis to determine what training activities support plant performance--few training departments have resources allocated to do this. Extensive research evaluation is needed to address this area of evaluation. Presently, training effectiveness evaluation reviews cost-benefit in such areas as accident and safety incidents, reliability of plant machines, plant equipment repair histories, lower worker absenteeism, plant availability, and training cost per trainee.

In summary, the role of training effectiveness evaluation is to support training as an external source through review of the relevancy of the training processes and the impact training makes on the total organization.

Training Standards for Nuclear Power Instructors

Robert W. Mullican

After the accident at Three Mile Island in 1979, the nuclear power industry formed the Institute of Nuclear Power Operations (INPO). INPO's mission is to promote the highest levels of safety and reliability in the operation of nuclear electric generating plants. To assist the industry in achieving those standards of excellence, INPO has been assigned five general areas of responsibility: (1) evaluating all operating nuclear plants, their corporate headquarters' support, and plants under construction; (2) reviewing all nuclear plant operating experience and sharing the lessons learned from this experience industrywide; (3) supporting the industry in maintaining emergency preparedness; (4) providing technical assistance to members in a variety of areas; and (5) establishing training guidelines and accrediting nuclear utility training programs.

Training guidelines and accreditation. As part of its responsibility to promote training excellence, in 1982 INPO launched an accreditation program on behalf of the industry. Accreditation certifies that a utility is meeting industry training criteria for operations, maintenance, and support positions at nuclear plants. The decision to accredit a utility training program is made by an independent board composed of distinguished individuals with training and educational expertise in and outside the nuclear industry.

The objectives and criteria used for accreditation of training programs attest to the importance of the technical instructor in the overall training effort. Instructors must possess both technical knowledge and instructional skills in order to perform their jobs. The nuclear power industry now has 2,100 full-time training personnel, almost 1,700 of whom are instructors. This represents an average of 22 instructors for each plant now operating or under construction. The instructor's technical and instructional qualifications can thus significantly influence training effectiveness.

INPO has developed training guidelines designed to help nuclear power plant personnel to establish instructor training programs that will ensure that instructors obtain the qualifications necessary for certification and accreditation. The guidelines are based on an analysis of the instructor's role and responsibilities and include accreditation objectives, as well as the criteria for evaluation. Two phases of instructor training have been established: (1) initial training in the skills and knowledge a new instructor needs in order to be qualified to teach and (2) continued professional development in the areas of both technical expertise and instructional skills.

Initial instructor qualifications. Based on past experience in the industry, guidelines for initial instructor qualification were developed on the assumption that newly hired instructors (1) have a well-developed technical background that includes theory, practice, and occupational experience in the area in which they will teach and (2) will acquire the necessary instructional skills for training others.

The new instructor's preparedness to teach is determined by a comparison of the job requirements and the individual's education, training, and experience. Discrepancies identified through the comparison indicate an instructor's training needs--areas of skill and knowledge he or she needs to acquire in order to develop, conduct, and evaluate classroom, laboratory, individualized, and on-the-job training. For example, the new instructor may need to gain knowledge and/or skill in one or more of the following areas:

- Analyzing the instructor's role and how trainees learn (e.g., factors that affect learning and motivation)
- Identifying and selecting basic classroom methods and delivery techniques
- Evaluating trainee performance and maintaining training records
- Conducting needs, job, and task analyses and using the results to develop training materials
- Preparing and sequencing terminal and enabling learning objectives
- Developing trainee and program evaluation instruments

- Planning and developing instructional units and individual lesson plans
- Selecting and developing instructional materials and media
- Presenting classroom, laboratory, individualized, and on-the-job training
- Assessing stress and counseling trainees

A new instructor is eligible for certification upon successful completion of the instructional training program and confirmation of his or her technical qualifications. The nuclear power plant training staff is responsible for formally documenting the instructor's certification.

Continued professional development. The second phase of training involves the continued professional training necessary for maintaining and improving the instructor's technical competence and instructional skills. In the area of technical development, instructors are required to (1) correct any technical performance deficiencies and (2) update their knowledge of current power plant job requirements, system and equipment changes, and plant technical specifications. In the area of instructional skill development, instructors are required to (1) correct instructional deficiencies; (2) develop and refine their skills and knowledge in advanced instructional strategies; (3) gain skill in demonstrating new methods and equipment; and (4) gain knowledge about changes in training-related regulations, standards, or procedures.

Microteaching in PBTE

Neal Wiggin

At Seabrook Station, a Public Service Company of New Hampshire (PSNH) nuclear unit, we use microteaching sessions in initial and continuing instructor training. Microteaching is a scaled-down teaching encounter in which an instructor practices a single skill with a class of four or five trainees. The session, which we videotape, lasts between five and ten minutes. Following the session, we replay the videotape and critique the practice.

There are some important principles involved in this process: First, instructors practice and are critiqued on only one skill at a time. We don't care what else the instructor is doing, right or wrong; we are looking at the elements of a particular task to be sure the practicing instructor has the knowledge and skills to implement that task. Thus, we have performance-based objectives before the session begins, and we use these to evaluate the performance as it occurs.

Second, since instructors are working on one skill only, they do not need to teach a complete lesson. All they need is a few minutes' practice on the skill. It is not necessary, then, to create complete five-minute lessons.

Third, there are no exams for the trainees (students) and no grades. We don't care whether the trainees learn anything or not in these sessions. The instructor is the learner; the trainees are only part of the medium.

Fourth, when the critique is complete, the instructor can practice again, right away, taking advantage of the learning from the first session. With this

practice-critique-practice-critique process, the instructor benefits from the same kind of feedback arrangement that he or she would provide to students in a vocational lab--an arrangement that allows students to practice their skill development, under supervision, in a safe environment where mistakes are neither costly nor dangerous. The micro-teaching session is just such a practice session. The instructor should expect to make mistakes; the reason for selecting a particular skill to practice is that the instructor wants to learn a technique that he or she doesn't use very much, if at all. But practicing in this format allows the instructor to err, without embarrassment to him/herself or harm to the students.

Performance-Based Teller Training: We Are Banking on It

Audni Miller-Beach

Like other banks throughout the country, Maine National Bank (MNB) in Portland, Maine, is experiencing the pressure of increasing competition from myriad sources ranging in type from Sears to Shearson American Express. At the same time, like many other banks, Maine National is preparing for a merger--by the end of 1985, MNB will be part of the Bank of New England. As a result of the changes occurring with the Bank and throughout the financial services industry, MNB executives designated training and development as their Number One priority in the Bank's Marketing Plan for 1984. In February 1984, MNB hired its first director of training and development, who began to identify the training needs of some 800 employees who work in 38 branch offices throughout the state. The training of tellers emerged as a critical concern. The development of a teller training program was determined a high priority.

Why performance-based teller training? Maine National Bank employs approximately 130 tellers in 38 branches. Tellers in the Greater Portland area receive one week of classroom training in the Main Office and two weeks of on-the-job training in their respective branches. Tellers in other regions of the state receive only on-the-job training. With the exception of the classroom training, which is conducted by staff from the Training and Development office, teller training is not standardized with regard to content or instructional approach. The need exists for an instructional system that meets at least three criteria: (1) the system must be based on specific performance outcomes, (2) the system should have the capacity for individualization, and (3) the system must be suited to implementation by tellers in the various branches. The performance-based approach to instruction is the approach that meets the stated criteria.

Progress to date. The development of a performance-based teller training program continues to present many challenges. Progress is slow. The program evolves. Taking stock in 1985, the following benchmarks are evident. First, a DACUM chart containing some 70 task statements has been developed by a panel of experts. This chart provides the framework for program development. Second, a former teller (and teacher) has been hired as a training assistant. While the assistant's primary responsibility is to conduct teller-training classes for Greater Portland tellers, she is developing the performance-based learning guides and supervising the use of these guides in the Greater Portland branches.

Third, tellers in training, and their managers, are receptive to the performance-based approach. Fourth, development of the remaining learning guides is expected to be completed by July 1, 1986. And finally, tellers will be trained to serve as "Resource Persons" in the branches. The first phase of this training is expected to be completed by August 1, 1986.

Competency-Based Education in the Railroad Industry

Joan B. Penrose

Metro North Commuter Railroad's new Training and Development Department was the setting for applying well-known techniques of competency-based education to the development and delivery of training programs for operating, technical, mechanical, and management personnel. These techniques included (1) identifying training needs through job and task analysis; (2) establishing and grouping behavioral/performance objectives; (3) developing instructional modules containing a variety of learner-centered, practice-oriented teaching/learning activities designed to result in behavior change; (4) individualizing training programs and self-pacing where possible; and (5) providing a system of performance evaluation that is criterion-referenced based on industry standards for the job.

These techniques made possible accomplishment of a number of specific programs, including the following:

- Development and delivery of a "train the trainers" course for Long Island Railroad (1982-83), combining college courses on occupational analysis and curriculum development and methods, and using the National Center's PBTE modules as learning materials
- Development and delivery of a customer service program for conductors and train crew
- Development of a problem-solving safety training program based on an analysis of the most frequently occurring accidents
- Development of a first-line supervisory training program spanning general supervisory skills, labor relations, safety, and administrative skills
- Ongoing development of technical skills training programs, such as locomotive engineer, crew dispatcher, and ticket seller
- Ongoing development of management development objectives and programs dealing with organizational skills, problem-solving skills, leadership skills, and needed technical skills
- Development of a performance appraisal training program

Some key conclusions may be drawn from this experience--conclusions that have significant implications for industry training programs, for competency-based occupational teacher education programs, and for public school vocational programs. Specifically, vocational teacher educators <u>can</u> make valuable contributions to training effectiveness in industry by helping trainers use competency-based techniques. Industry trainers and vocational educators can

work together productively so that vocationa educators can teach their students what industry needs and so that they both can do a better job in training students and workers for world-of-work skills. Industry trainers need help in "negotiating" the politics of developing and implementing training programs so there can be congruence between (1) the front-end analysis, the development and delivery of training programs, and the important evaluation process within the classroom/lab, and (2) the application of new skills and knowledge back at the work site.

In short, vocational educators and industry trainers have much to offer each other. By working together, they can help meet the challenge of developing industry training programs that make a measurable difference to job satisfaction and job productivity.

APPLICATIONS IN CORRECTIONS

Behind Bars with CBE: Look What's Happening to Inmate Training

Beverly A. Stitt, Rita Noel, & Hartzel L. Black

Early in prison history, it was not uncommon to make a teacher out of an inmate who knew a trade. However, due to increasing prison populations, recognition of the "lack of street adjustment" by inmates, and the public demand for educational accountability, today's vocational training within correctional institutions uses professional instructors and high-technology equipment, demands skilled performance, and is getting results. There is a renewed commitment to providing employability skills, survival skills for life in "outside" communities, and documented placement of graduates to verify the effectiveness of classroom training. This, in turn, has resulted in the adoption of programs that clearly identify the skills needed and the steps for achieving those skills. Industry needed to identify the tasks employees were required to perform; education needed to provide the training for the performance of those tasks.

Combining tasks and the guides for performance of the tasks resulted in a competency-based instructional approach. Competency/performance-based education is a system for determining and structuring expected outcomes so that the delivery and evaluation of instruction may be greatly enhanced. Prison populations have unique characteristics and the institutional setting defines physical boundaries and sets teaching restraints, but CBE provides both teacher and student with a better alternative for meeting student needs.

Range of vocational education programs offered. More than 17,000 individuals are incarcerated in Illinois, classified in three basic security divisions: maximum (inmates serving more than a ten-year sentence), medium (those still serving ten years or less), and minimum (those with three years or less remaining of their sentence). Shifts in prison populations and special circumstances may alter the definition of those terms, but in general, the facility in which an inmate is placed is determined by his or her length of expected imprisonment.

Vocational education programs are operating at all of the facilities. Maximum-security institutions, however, offer limited depth in training (e.g.,

two to three programs in a very controlled environment) because of the anticipated gap between when training occurs and possible employment on the outside. Medium-security institutions currently in operation within the state (eight for men and one for women) offer a much larger selection of programs. The courses to be offered are currently proposed by several agencies working together, who take a strong look at (1) projected employment within industry, (2) types of survival skills taught for community induction, and (3) the needs of the specific institution.

The four minimum-security institutions in Illinois offer the most varied vocational education programs, with a combination of full-time day courses and (in some institutions) part-time evening instruction. And one of these, the Vienna Correctional Institution, is perhaps one of the most progressive institutions of its kind in the nation, currently providing more than 20 vocational education programs. Students can elect to complete a certificate in a specialty area or continue within the program to qualify for an Associate of Applied Science degree. Daytime, full-time vocational education includes a fascinating breadth of topics, including game-bird management, alcohol gasification, journalism, barbering, computer-aided drafting, auto and diesel mechanics, ornamental horticulture, and many others. By taking advantage of the night programs, students can also pursue an academic degree or increase their self-marketability.

Initial student placement. Students at the Vienna Correctional Institution are placed into a vocational program in a rather unique manner. Provided with an initial two-week orientation program that includes institutional procedures, they are also tested for reading level, math skills, manipulative skills, and interest areas. A counselor and the student then match the student's tested ability levels and interest areas with available vocational programs, and the student selects four possible occupational areas. Then the student actually goes into each of the four occupational training areas, completes a pretest, works through one or two competencies in the program, and spends a half day in the working environment. After each experience, the instructor of the area evaluates the student's performance and observable aptitude. The student, too, evaluates the program, his likes and dislikes, and his reaction to the work environment. Both evaluations are returned to the vocational counselor, where the final synthesis and analysis takes place relative to the final program selection.

The next step in placement involves developing a training plan (Individual Career Plan or Program Agreement), which is a contractual agreement between the institution and the student. The student must agree to get out of bed and arrive at school on time, to go through the competencies, and to achieve certification in that area. He also agrees to placement in that area of training once he is released from the institution. Any renegotiation of the contract requires a consensus of the instructor, the student, the correction's counselor, and the vocational counselor. If the student's behavior in his living unit is a contributing factor, his correction's officer may also be included in the negotiations.

The change to CBE. According to Hartzel L. Black, Vienna's dean of correctional education, "we were not satisfied with the outcome performances of our students. Students here at the institution, as in any learning environment, ought to be able to do what the job requires of them. We felt that

validating our program competencies with current practices of industry would not only assure us that students could do what we said we taught, but would increase the possibilities of employment of those students when released. Competency-based education was a natural step forward from our existing teaching methods; and it has not only increased our student/learning accountability, but it has also allowed us to institute long-range planning needs for equipment, space, and curriculum design."

Several features of a CBE program are particularly valuable to corrections. Competency-based programs with learning guides actually help keep students motivated and reduce discipline problems, and CBE programs are designed to result in success, with learning the constant and time the variable. In addition, in most institutions, trainees must wait until the beginning of a new term or semester to begin learning tasks, whereas in a CBE environment, they may enter a program immediately on a space-available basis. With prison populations, this feature is particularly positive since students are transferred, restricted, or released within hours of notification.

Another valuable feature is the possibility of specializing in a specific job title rather than completing an entire program. Students have varying abilities and experiences and, therefore, widely different levels of readiness to master certain tasks. With CBE, students can receive certificates verifying that they are competent for a specific job title. They can achieve as many certificates as time, interest, and ability permit. It is important to note that these incarcerated students are completing state-designated competencies that comply with state regulations, and they must pass state examinations in many occupational areas. It makes no difference how much education each student seeks, as long as each completer is employable in a job or job category that meets his interests, abilities, and needs.

Role of instructor and student. The major role of the instructor in the CBE system is one of coordinating learning activities or facilitating learning rather than the traditional dispensing of information. Instructors spend the major portion of their teaching time giving demonstrations, assigning tasks, providing individual and small-group assistance, evaluating student progress, and providing individual consultation. Teachers generally find this role to be quite fulfilling and satisfying once they see that learning is taking place for all students, rather than for just the few making up the central-ability-level of the class.

The student's role is to pursue the instructional program prescribed for his personal goals and objectives. The major portion of the student's time is spent in directed self-study and practice, supervised at all times by instructors ready to provide immediate assistance when needed. Students can learn at their own rate of speed within program guidelines. Through pretesting, students may receive credit or advanced placement based on what they already know. Students are responsible for what they learn, thereby shifting the burden of responsibility from the teacher to the learner.

Most important, students compete against present job standards, not other students. They are graded on achievement of the standards, or criteria, for each task, primarily through task performance measures. One summary of research studies reported by Urban Oen indicates that in a traditional system of instruction, 70 percent of the students usually can perform 70 percent of

the tasks they learned 70 percent of the time on the job. In a CBE system, 95 percent of the students actually can perform 95 percent of the tasks they learned 95 percent of the time on the job. The result is a 25 percent net gain in performance on the job for those students who learned via a CBE system of instruction.5

Developing instructional materials. With the increased possibilities of successful task performance, CBE was attractive for corrections education, and thus Hartzel Black decided to provide inservice for his staff to prepare them to develop and implement CBE teaching materials and methods. During the spring of 1985, Beverly Stitt was asked to spend six days over a three-month period providing the technical assistance necessary. Staff in both the vocational and general education programs were given instruction in writing tasks and getting them verified and sequenced for timely introduction. They were then shown how to develop these tasks into measurable performance objectives, with specific conditions for performance and criteria for mastery.

At that point, the instructors developed criterion-referenced written tests and product/performance checklists for evaluating mastery of each objective. They were also instructed in the development of both complete student learning guide packets and single-sheet learning guides containing the objective, learning steps, resources, procedures, and evaluation description. The resulting materials are currently being used successfully by the instructors who developed them and are being modified and revised as deemed desirable after evaluation of the outcomes [see sample 8].

These instructors received graduate credit through Southern Illinois University (SIU) for completing the inservice program, which was conducted using competency-based materials and methodology. In that way, they were able to experience a course that was competency-based while learning to develop their own competency-based programs. On the whole, the response was very positive, both to the inservice credit course and the resulting curricula now in use.

APPLICATIONS ABROAD

Competency-Based Learning: Holland College Model

William Reese

Established in 1969, Holland College was given a clear mandate by the province of Prince Edward Island (PEI) to provide Islanders with alternative programs at the postsecondary level. Its establishment was an integral part of the reorganization of educational services in the provinces. The college opened its doors in September 1969 with 102 students; it now serves 8,000 students annually through full-time, part-time, and short courses, and night class activity. Its programs serve the adult population of PEI, whether or not they have completed a high school program.

Approach to instruction. The performance-oriented approach to instruction used at Holland College is called STEP (Self-Training and Evaluation Process), and its objective is to help learners assume responsibility for their own development while acquiring the skills needed to enter wage-earning employment. STEP was initiated only after many hours of planning and discussion. Because

SAMPLE 8

COMPETENCY-BASED CHECKLIST

DIRECTIONS: Evaluate your Learning Delivery System using the following checklist. Rate each item yes or no on each characteristic.

	Characteristics	Criteria	
		Yes	No
1.	The tasks to be achieved by the students:		
	*A. have been validated by incubent workers or advisory committee?	____	____
	*B. begin with an action verb?	____	____
	*C. are made public in advance of instruction?	____	____
	*D. are updated annually?	____	____
* 2.	Have performance objectives been written for each task?	____	____
3.	Does each performance objective contain:		
	*A. a restatement of the task?	____	____
	*B. the conditions upon which the task is to be performed?	____	____
	*C. the criteria or proficiency standards for performance?	____	____
* 4.	Does instruction provide for the individual assessment of each task?	____	____
* 5.	Is student evaluation based upon actual performance of the task as the major source of evidence of mastery?	____	____
* 6.	Can students progress at their own rate?	____	____
* 7.	Before a student can progress must he/she demonstrate task mastery?	____	____
8.	Can students help decide which skills they will master?	____	____
* 9.	Are different learning tasks assigned to different students at any given time?	____	____
*10.	Do different students working on a given task use different learning materials, media, and equipment?	____	____
*11.	Does your instruction provide immediate feedback results to the learner?	____	____
*12.	Is help given to students individually rather than in a group?	____	____
*13.	Are objective performance tests (checklists) available and used to measure mastery of each task?	____	____
*14.	Do you develop a personalized plan of instruction or learning prescription for each of your students based upon each one's needs, interests, and abilities?	____	____
15.	Do you provide for small group, large group, 1:1, and other types of instruction when needed?	____	____
16.	Do you change the sequence of learning activities for a student when it is needed?	____	____

Critical Items

Total Possible Points	21
Points Earned	____
Points Needed for Mastery	16

Holland College was a new institution, the faculty was able to develop its own philosophy of instruction. This was done through numerous staff meetings during which the role of Holland College and an approach to instruction were fully discussed. In addition, other institutions were visited and resource people from education and industry participated in discussions. Meanwhile, members of the Board of Governors encouraged the faculty to be innovative.

Curriculum development and program development. Perhaps the most significant step in organizing an instructional system is to have a clear description of the terminal behavior expected of students. This means, therefore, that an analysis of each career field is required. At Holland College, such an analysis is prepared during a three-day brainstorming session. The program input is obtained from a committee varying in numbers from 8 to 15 people who either work in or are responsible for supervising persons who work in that occupation. Committee members must be well versed in the field and their specialty, be willing to share ideas and participate in discussions, and be open to innovation. They are led in their task analysis by a coordinator who is an expert in the method of task analysis.

The completed task analysis is given to the program instructor, who must now begin the major task of program development. The instructor's first responsibility is to define each skill more precisely by identifying its components for the student. Up to this point, skill elaborations do not specify criteria in terms of time; working conditions; or available tools, equipment, and materials.

The next step for the program instructor involves the gathering and preparation of learning materials, the identification of human resources, and specification of the equipment required for learning activities. The need to select and prepare a wide variety of audiovisual materials is emphasized. Thus, instructors are constantly improving resources by obtaining commercially prepared audio- and videotapes, slides, filmstrips, etc. In addition, college-prepared audiovisual materials are developed by faculty. Materials are designed for students and not for staff use; students should be able to learn from the material without an instructor's assistance.

The learning process. Students coming to Holland College are interviewed by the staff and, at that time, are made aware of the STEP program. During the interview, academic deficiencies may be identified and a remedial program established. Furthermore, when students arrive at the college for their application interview, and later after registration, an orientation program is conducted.

Next, each student is given a copy of his program's occupational analysis, in chart form, and in consultation with his/her instructor-advisor, begins to plan a career program. Learning to set an objective; to select appropriate skills to reach that objective; to determine what, if any, sequence is required; and to put this together into a plan of action are important parts of the learning process, if learning situations are to be as realistic as possible. Students may need encouragement in making their initial selection of learning tasks; however, a choice must be made even if the decision is changed at a later date. Much valuable time can be lost in deciding where to start. Therefore, a wide range of "real" projects should be available so that students can get started. Each project will likely require the learner to develop

facility in a number of skills on the chart and thus will result in ratings for several skills.

Students may go to someone outside the college for help; in fact, the college takes advantage of such activities when opportunities arise. After a student feels confident that he/she can perform the task, the student rates him/herself. Then the student and the instructor together review the task performed and the student's evaluation. The interaction and discussion that occur are an extremely important part of the student's learning activity. When the student and instructor agree on a rating, it is entered on the student's working chart and on the official chart kept by the instructor.

Instructors have a responsibility for ensuring maximum opportunity for a student to meet each objective he/she has set. If it is doubtful that the student will meet an objective, he or she is advised at the earliest possible date so that appropriate steps can be taken. In some cases, a new objective may have to be set; in other cases, the appropriate decision may be to recommend temporary or permanent termination from the program.

Normally, a thorough review of each student's progress is undertaken two or three times during the year. During this review, a student meets jointly with all his instructors. Out of this interview come recommendations for continuation in the program, referral to special remedial help, additional financial assistance, or referral to employment. On completion of his or her training program, the student receives an official copy of the chart, showing confirmed ratings. Students are encouraged to discuss their career profiles with prospective employers and, furthermore, to continue to use the document as a career training tool during their working life.

DACUM and the Apprentice Training Process in New Zealand

Marienne P. Burleigh

A little background. The Vocational Training Council (VTC) was established by Act of Parliament in 1958 to make recommendations on training to the government and industry, to undertake research, and to promote systematic training throughout New Zealand. VTC is an independent body, which reports to the government and works in both the public (state) and private sectors. The Council Secretariat receives all its funding from government and works to the priorities established by VTC. VTC membership includes employers, unions, government departments, the educational sector, and special interest groups.

Apprenticeship in New Zealand. The New Zealand school system allows students to leave school at age 15 if they wish to. At this age, they may seek and gain permanent employment. However, most students stay in school until they have completed three to five years of secondary education and have presented for one or more of the national examinations during each of those final years at school. Many of those who wish to become qualified tradesperson will seek a formal indentured apprenticeship--available from age 15, but generally not contracted for until about age 16 1/2. The apprenticeship provides a cooperative learning-and-earning situation during a contracted number of hours (generally 7,000-10,000, according to the trade) and incorporates a predetermined set of skills. Both on- and off-job training is part of the contract,

and final qualification can be through completion of hours or passing of a national examination plus completion of hours. This latter ensures a higher rate of pay as a journeyperson. [Sample 9 graphically illustrates the apprenticeship training process.]

The Minister of Employment required a systematic review of all apprentice training programs in accordance with the Apprenticeship Act of 1983, and the VTC was given the responsibility for monitoring these reviews. However, because of insufficient staff, expertise, and time, many of the New Zealand Apprenticeship Committees charged with completing the reviews sought assistance from VTC to meet the imposed deadlines. Various review methodologies were assessed, the DACUM process was chosen, and analysis and development teams were established by VTC.

The DACUM process as used in New Zealand varies slightly in application from that used in the United States; however, in all cases the basic tenets of DACUM are adhered to. Because there is involvement from the grass roots upwards, there is a commitment to the final result at a range of levels and a strongly developed awareness of training needs and how these may be met in each trade or occupation.

The DACUM chart of duties and tasks developed during a conference must address the training needs on a national basis. Therefore, all charts are validated nationally with a wide range of interest groups. A validation instrument has been developed that can be as readily understood by a tradesperson as a tutor, by a union nominee as by an employer, and by persons at both national and local levels. The validation instrument for each chart is distributed by mail to a nominated group of experts in each trade or occupation. These experts are grouped as follows to allow individual and group responses to be examined and trends to be noted: (1) the panel members who originally formulated the chart; (2) the employers of the panel members; (3) nominees from the unions; (4) nominees from the employer organizations; (5) the steering committee for the exercise; and (6) all tutors involved at technical institute level.

The collated responses, answers to any other questions that may have been asked, and a complete set of all comments received are supplied to the steering committee. Trends are determined, training patterns identified, and both mandatory and optional skills categorized. The next step is to decide, through consultation between employers of the trained personnel and the suppliers of training, at which point during the training program those being trained should have attained measurable levels of competence. To accomplish this the ReCAP process is used: Re = Recall; C = Comprehend; A = Apply; and P = Problem solve.

By determining through consensus, for each of the identified tasks, the level needed by either the employers or the tutors, a staged curriculum is quickly evolved. The tutors are then able to formulate off-job training programs to meet the specific, validated needs of industry; and assistance to the industry, through either the Industry Training Board or the VTC Training Development Advisory Section, is given in the preparation of on-job training objectives and training log books.

As the number of validated charts increases, training strands across industry become apparent, and the opportunity is available to meet the training needs for a whole raft of trades better and more economically, in terms of both time and money. Individual review timetables are also set, and it is proposed to systematically review each trade accordingly. As at October 1985, more than 60 trades have been or are in the process of being examined, and it is planned to have completed the examination of the more than 140 apprenticable trades before January 1, 1988.

Applying Competency-Based Training Techniques in Developing Countries

Allan F. Salt

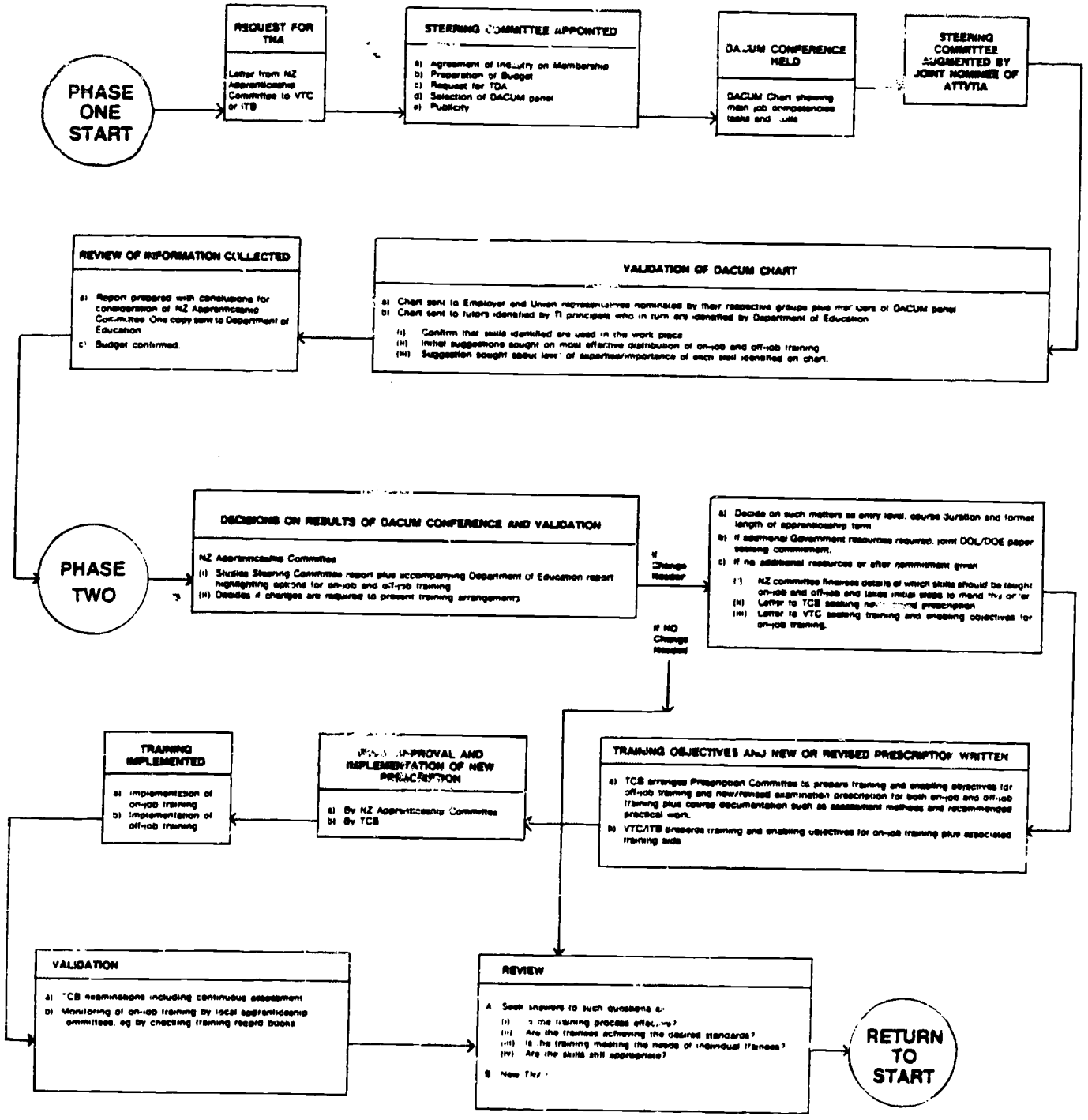
The International Labour Organization (ILO) is a specialized agency of the United Nations concerned with improving working conditions, including civil rights and freedom of association, as a means of bettering the lives of workers and contributing to social peace and justice. Its principal means of doing this over the years has been the establishment of international standards intended to be ratified by national governments. It also conducts an extensive research and information program. The ILO has long felt that technical cooperation among countries is another important means of achieving its objectives.

The ILO was established by the Peace Treaty of Versailles in 1919. From the beginning, its membership has been tripartite--that is, made up of representatives of governments, workers, and employers. Samual Gompers, the American labor leader, was chairman of the commission responsible for studying the labor aspects of the Peace Treaty and recommending the structure and functions of the future ILO. However, the United States did not join the organization until 1934, when Frances Perkins was Secretary of Labor and the U.S. was deep in the Great Depression. Then, in 1977, the U.S. withdrew from the ILO because of dissatisfaction with what it felt to be the organization's deteriorating record on politicization of technical matters, lack of due process, and a dual standard concerning human rights violations. However, the U.S. returned to the ILO in 1980 believing that satisfactory progress had been made in solving these problems. Today, many observers feel that the objectives of the ILO, especially its advocacy of civil rights, make it one of the U.N. agencies closest to the ideals of the United States.

Currently, the ILO employs approximately 2,800 employees and has an annual budget of about US$ 125 million. In addition, the organization executes a program of technical cooperation of approximately the same amount, financed largely by the UNDP, the World Bank, and several individual countries (such as Sweden, Italy, and Denmark) that channel aid funds through the ILO. Training programs have always been a major part of this technical cooperation. Excluding management training and special programs for occupationally rehabilitating the handicapped, vocational training projects account for somewhat less than a quarter of the organization's total technical cooperation. At the present time, there are approximately 80 vocational training projects being implemented in 56 countries. Most of these projects cover skills below what might loosely be called the technician level. Most are under the responsibility of ministries other than education (usually the Ministry of Labour).

SAMPLE 9

THE APPRENTICESHIP TRAINING PROCESS



ILO vocational training approach. The ILO advocates a broad systems approach to instructional design and implementation. Experience, which has often been a hard teacher, has demonstrated clearly that concentrating on selected elements of an instructional system, such as instructor training or materials development, while ignoring other elements, frequently leads to project failure or, at least, to inadequate success--even when the selected elements are implemented efficiently. This, of course, is consistent with the generally accepted principles of instructional systems development. In developing countries, however, the relevant systems that need to be addressed are usually much larger and less efficient than in industrialized countries with stronger infrastructure, administrative, social, and political bases. Moreover, to be effective, vocational training must be integrated appropriately with the national development strategy. This makes it difficult to influence training systems in developing countries. But we have learned that the systems approach to the design and implementation of training programs, in spite of its difficulty, enhances relevancy and increases effectiveness.

From a procedural point of view, the ILO approach does not differ greatly from the generally accepted methods of instructional systems development (ISD). It begins with problem analysis--to verify that training is the appropriate solution to a problem and to establish the general magnitude and nature of skills development required. At the national level, such an analysis might cover the labor market, training policies, and training resources. At the enterprise level, a performance analysis might be required. Not surprisingly for a tripartite organization, in determining training needs we emphasize consultation with employers and workers knowledgeable about the skill areas concerned. If the market for which the skills are being provided is subject to legal or traditional standards, these must also be taken into account.

Then, whether at the national, regional, or enterprise level, the next step is the identification of feasible ways of meeting these needs, with the objective of selecting the most cost-effective training alternative. Next is the identification of the required competencies, based on job and task analysis. Performance standards and criterion-referenced measures against which performance is judged are also established. On the basis of the required competencies, training objectives are established, characteristics of the trainee target group are evaluated, and training programs are prepared. As would be expected, the test of the success of the training activity is how well completers can meet the preestablished skill standards and, more fundamentally, succeed in applying them in real work situations.

It seems to me that many advocates of competency-based vocational training (CBVT) define CBVT as including such techniques as self-pacing, open-entry/open-exit, and individualized training materials. We, too, are very interested in these techniques but prefer to exclude them from our basic definition. Because of the difficulty for organizations in many developing (as well as in industrialized) countries of altering traditional training approaches, we frequently have to deliver relevant competencies with minimum modification of the existing systems; most important to us is moving training away from standard curricula to the design of courses based on actual employment requirements. Thus, our definition of CBVT is, I believe, consistent with the UNESCO definition: "Education deriving from the specification, training, and demonstration of the knowledge, skills behavior, and attitudes required for a given role, profession, or career."

For the sake of completeness, let me round out the description of the ILO approach to vocational training. For a number of years, the ILO has been advocating a modular training approach, in which a modular unit is defined as one comprising an identified task which makes up a logical division of work with a clear start and finish and which would not normally be divided any further. A performance standard is established for each modular unit, and each unit is analyzed to determine the precise skills and knowledge required to carry it out. A learning element--a small instructional booklet--is then prepared for each skill and segment of knowledge. Each learning element contains a learning objective; a list of required equipment, materials, and aids; and highly illustrated learning materials, including exercises and a progress check that precisely matches the learning objective. Learning elements (supplemented, when required, by additional kinds of training materials), are grouped into learning packages to help individuals master a modular unit, or task. When several modular units are grouped together to match up with a job specification, they are referred to a Module of Employable Skills (MES). The ILO/MES catalog currently includes 780 learning elements, covering several skill areas. We are now completing 44 staff learning elements for the training of trainers in the development and implementation of the MES approach.

We hope that once a job specification has been established in terms of modular units, existing learning elements can be assembled, modified, and/or supplemented with additional instructional materials to provide a preliminary training response for a specific training need. Of course, each training program needs to be tested for learning effectiveness; sometimes modified; translated, if necessary; and verified in each locality. We also believe that beyond entry-level skills, the modular approach can continue to help workers to acquire new skills throughout their careers and is an important means of linking initial and continuing training.

Finally, regardless of the delivery system, we emphasize continuing evaluation of the results of the training provided, largely on the basis of follow-up studies. But evaluation also consists of the establishment and review of an audit trail to ensure that the desired learning has actually taken place and that learning failures can be diagnosed. I think evaluation is presently the weak link in our system. We need to strengthen both our formative and substantive evaluation techniques to realize more fully the potential advantages of systems iteration. We know too little about comparative cost implications and learning efficiency of alternative training solutions.

The ILO experience. Let me now review quickly recent ILO experience with competency-based training programs in several countries.

In Kenya, the ILO has been collaborating for several years with the Ministry of Labour in the development of the Kenyan Integrated Training System (KITS). Following the general ILO approach, this system begins with occupational analysis at the national and industry levels. Priority occupations are selected and job specifications prepared, including skill profiles and standards. Each job is broken down into modular units, performance standards are established, and learning elements are selected and/or prepared. Examples of jobs covered include masonry assistant, carpentry assistant, cutter (guillotine operator), offset machine operator, tyre mold operator, and tractor driver. Acceptance of this approach has come much more rapidly from Kenyan employers

than from trainers. In training institutions, there is some reluctance to shift from the more traditional curricula.

For several years, the ILO has been collaborating with seven East and Southern African countries (Kenya, Lesotho, Somalia, Swaziland, Tanzania, Uganda, and Zambia) in the development of skills training programs aimed at facilitating self-reliant approaches to rural community development, covering both income-earning activities and skills related to home production. Special emphasis is placed on disadvantaged groups, such as unemployed youth and women. The program approach is competency-based and modular. The process of identifying skill needs (and income-gathering opportunities) begins with community surveys, including consultation with potential clientele and identification of skill needs. Then, the normal instructional system development approach is applied. Required competencies are based on locally available tools and materials. Jobs in the rural areas frequently require an extended range of competencies, not highly developed skill in one particular competency. In addition to skill clusters covering construction and production, some of the areas for which competencies have been identified and training materials prepared include the following: smoke-drying fish, rendering fat, sun-drying vegetables, making groundnut flour, sterilizing preserving jars, preparing dried meat, cooking smoked meat, making a woodworking bench, and making a school desk.

Egypt has suffered from an acute shortage of construction skills for several years because of (1) a building boom and (2) the migration of skilled workers to the oil-producing Gulf states. As a result, the ILO was asked to collaborate with the Ministry of Housing and Reconstruction to train approximately 300,000 new construction workers. The Egyptian Government established a number of centers and set the training period at six months. Job specifications and training objectives were established, based both on the work to be done and the limited and fixed period of time allowed for training. Obviously, compromises were required. In some instances, time was inadequate to provide all the desired competencies, and in others more than adequate. In any event, approximately 400 learning elements were prepared (in Arabic), staff were trained, and equipment was installed. Although imperfectly begun, the appreciation of competency-based training has spread and become accepted in many sectors of industry, as well as in construction, although pre-fixed (sometimes arbitrary) periods of training continue as a standard that is difficult to move away from.

In the early 1970s, the countries of the Eastern Caribbean were becoming increasingly dependent upon mechanical equipment for construction, road maintenance, and agriculture. However, this expensive equipment was being used inefficiently because of a shortage of skilled labor to maintain it. The ILO collaborated with these countries to develop the required maintenance skills using a competency-based MES approach. In this case, training was to be self-paced because of the scheduling difficulties associated with inservice training. Modular training materials for instructors were prepared, instructors trained, small amounts of equipment procured, and instruction initiated. Approximately 275 learning elements were prepared and supplemented with 90 elements received from Geneva. This project has ended, but the approach continues to be applied and expanded in the same and other skill areas throughout the Eastern Caribbean.

In 1979, the ILO agreed to collaborate wi[illegible]a in raising the efficiency of a network of industry training cente[illegible] approach agreed upon was competency-based, although the words were never us[illegible]On the basis of discussions with employers and in-plant investigations, jo[illegible] were analyze[illegible] quired skills identified, and performance criteria established. Learning objectives were then established, and modular learning materials prepared. Collaboration also covered preparation of instructional media and training of staff. Approximately 950 learning elements were prepared in machine building, light industry, chemicals, construction, and agriculture. Supporting methodological materials, covering job analysis, course design, and other components of the system, were also prepared. The project has now ended, but Bulgaria is continuing a competency-based approach intended to support 820 in-plant training centers.

Since 1983, the ILO and Indonesia have been collaborating in developing a competency-based automotive training program in 11 skill centers, with a lead center in Surabaya on the island of Java. Employers have participated in designing and evaluating courses and, usually, have agreed to hire graduates. To date, instructors have been trained, MES materials developed or modified and translated into Bahassa Indonesian, equipment purchased, and several short courses conducted. Up to now, courses have been fixed-term but partially self-paced, with an objective of moving towards variable time courses in a few technical areas.

We are now developing two training projects in China, incorporating a competency-based training approach. China is making a substantial effort to create employment opportunities for young school leavers and others "waiting for employment" through the establishment of labor service companies in such areas as hotels and restaurants, tailoring, cabinet making, gardening, and aircraft cleaning. These companies must quickly become self-supporting, and therefore, training their relatively inexperienced members in skills directly related to their activities becomes one of the principal means of increasing their efficiency and profitability.

In addition to these examples, CBVT has been more or less systematically introduced, usually in combination with modular training, in a score of other ILO projects. However, in all our projects, especially the newer ones, we try to introduce CBVT concepts, even when it is not feasible to pursue them to the extent we would like.

Some conclusions. The environment within which training policy choices must be made is changing rapidly for both industrialized and developing countries. The widespread optimism of the 1960s and early 1970s concerning the economy has declined as economic growth has slowed. Industrialized countries are now experiencing rapid and, in some instances, profound modifications in their industrial structures, because of rapid technological change, dramatic shifts in international economic competitiveness, and slower world economic growth. The results frequently include slower productivity growth and rising unemployment, especially for women, youth, and minority workers. Substantial changes are occurring in the way work is organized and in the skills required of workers. Obviously these changes have had a substantial impact on the training needs of both new labor force entrants and experienced workers. At the same time, new instructional technologies and approaches, such as CBVT, are being developed that promise major improvements in training efficiency

and flexibility. These improvements, of course, also threaten established ways of doing things, sometimes causing considerable anxiety among trainers and contributing to growing uncertainty about the proper roles of education and training.

Although challenges facing the industrialized countries are formidable, they have the resources to solve them: substantial training infrastructures in place, large numbers of experienced trainers, employers who recognize the value of training, relatively high levels of general education, low rates of population growth, adequate if not abundant financial resources, and numerous universities and other centers of training expertise and research. In contrast, developing countries face many of the same problems as industrialized countries, as well as several additional major problems, but without the resources available to the industrialized countries. They have rapidly growing populations, requiring the training of enormous numbers of new workers each year and resulting in very young and relatively inexperienced labor forces. Average literacy rates are still low in many countries, especially for women and rural populations. Insufficient jobs, compatible with the expectations of the young and their parents, exist. Some countries have the additional problem of accommodating large numbers of displaced workers from other countries. So trainers and policy makers in nearly all developing countries are faced simultaneously with building basic training infrastructures and keeping up with massive flows of inadequately educated new workers.

It is in this context that advocates of CBVT stress the advantages of such an approach. However, despite the progress already made and the potential contribution of CBVT, there are a number of difficulties hindering its greater implementation in many developing countries. Among the most formidable is a strong emphasis on general education and academic credentials. Both during colonialism and following independence, the key to success in many countries was the acquisition of a wage job, especially in the government bureaucracy, entry into which required formal education. The accumulation of academic credits became a vital means of getting a job, even when only minimally relevant to its performance. After independence, overcoming the severe shortage of "educated manpower" rapidly became a major objective of most developing countries. By and large, substantial progress in providing general education has been made. In the process, however, inappropriate foreign educational systems were often copied, and vested interests established. What came to be known as the "Diploma Disease" arose, and education and training became an important means of rationing jobs. Not surprisingly, the establishment of formal (institutional) vocational programs, with large theoretical components, became the norm. Now, when it is time to give more attention to productive jobs outside the public sector and to job-related training in a rapidly changing economic and technical world environment, many governments find it difficult to change or to convince young people and parents, even in rural areas, that relevant training is not second-rate training.

Second, CBVT cannot really prosper without a competency-based employment system that recognizes acquired skills, with or without credentials. The absence of adequate national standards and certification capability, therefore, has slowed acceptance of CBVT. Poor preemployment testing capability has encouraged employers either (1) to take the easy way out--setting entry (or promotion) requirements in terms of general educational attainment or (2) to implement their own training programs to satisfy specific needs.

A third difficulty is the great unsatisfied demand for jobs, especially wage jobs, in many of the developing countries. CBVT--and, for example, the linked concept of mastery training--is not consistent with ranking students and rationing jobs. This is probably why CBVT has been more readily accepted in enterprise training and in rural areas, such as in the East African project referred to earlier.

Fourth, there is a strong desire on the part of many developing countries to use training as a means of acquiring new technology. Therefore, it is felt that task analysis based only on existing jobs and technologies would freeze skills at an unsatisfactory level; it is considered to be preferable to include skills (competencies) from more technically advanced economies. A certain amount of technical upgrading can occur through training for projected skills, but this requires a relatively precise knowledge of future technologies and economic trends, which is seldom possible. Our experience is that, at least in preentry training, it is preferable to stick largely to competencies required for actual (or soon to be required) skills. (This does not exclude efforts to improve execution of existing tasks by including more efficient techniques and procedures in training programs.) As technology and required skills change, new skills can be acquired through inservice training. A competency-based modular approach, extended throughout individual careers, should facilitate enterprise's and the nation's progress in upgrading skills and moving towards mastery of technological change.

Fifth, it is difficult to build acceptance of CBVT in countries with a variety of training systems, who are receiving help from numerous national and international organizations, many of which have not themselves moved away from more traditional vocational training approaches. Given alternative means of acquiring skills, trainees frequently shun competency-based (usually shorter) routes and opt for more formal (usually longer) means, which award more valued credentials. This is especially true if time-based student stipends are granted (as contrasted with, say, a bonus for acquiring a skill). This is another reason for building recognized certification procedures.

And, finally, as if the above were not enough, there is the normal reluctance to change: many workers (and some trainers) feel that CBVT narrows skills and reduces mobility, promotions, and wages; many employers prefer to leave training to others; and, of course, many trainers feel threatened by change.

If one is convinced of the potential value of CBVT in developing countries, but at the same time recognizes the difficulties involved in its introduction, it becomes clear that a gradual but comprehensive strategy is called for. It also seems clear that because of the limited financial and other resources available in developing countries, international cooperation in analyzing skill needs and developing instructional materials should constitute an important component of that strategy. Based on what we have learned, we believe that a broad systems approach, adapted to local constraints, is vital. Standards and certification facilities must proceed with training, instructors must be convinced of the value of CBVT, appropriate materials must be prepared, and staff must be trained to implement the system. Most of all, overly optimistic promises must be avoided. The basic CBVT principles of employment relevancy and demonstrated skill acquisition should be stressed. Then, as principles of CBVT become accepted, one can consider more exciting aspects of instructional technologies leading from it, including individualized training.

PART FOUR

ACHIEVING PROFESSIONAL EXCELLENCE . . . PBTE/CBSD/CBAE AND DACUM

Arkansas' PBTE and CBAE Professional Development Programs

J. Barry Ballard

Background. The Arkansas Vocational and Technical Education Division is responsible for (1) administrator vocational education programs and services; (2) adult education--ABE and GAE (GED type); (3) Vocational Standards Agency (private proprietary vocational, trade, & technical schools; and (4) Veterans Approving Agency. Vocational education programs and services in Arkansas are offered in five environments: (1) high schools (20 vocational centers and 350 comprehensive high schools); (2) postsecondary vo-tech schools (24, all state owned/ operated); (3) colleges and universities (all 20 units have vo-tech programs); (4) Arkansas Industry Training Programs; and (5) state institutions (e.g., Department of Correction, Youth Center, Deaf and Blind Schools).

Introduction. At a time when the quality of American public education and the competence of teachers and administrators are being questioned in an unprecedented fashion, the vo-tech leadership in Arkansas has taken an aggressive, proactive position and has initiated three formal competency-based professional development programs: (1) Secondary Vocational Administrator Certification Program; (2) Postsecondary Vocational Administrator Certification Program; and (3) Postsecondary Vocational Technical Teacher Program.

In this paper, I will focus on the instructor program because it is much closer to being a complete program, containing the classic characteristics of an employer-based human resource development model. This 2 1/2-year-old program, which has recently undergone an improvement modification, is one of several quality-control mechanisms now used in Arkansas.

Postsecondary Vo-Tech Teacher Certification Program

This statewide competency-based vo-tech faculty development, rank, promotion, salary, evaluation, and certification program has three goals: (1) to improve the quality of instruction; (2) to provide a systematic process of inservice teacher training; and (3) to provide an impetus for performance-based vocational education (what's good for goose is good for the gander). In the past, vocational administrators have employed teachers with varying experience and preparation, assigned the teachers to an instructional load, developed high

expectations based on a set of largely false assumptions, provided organizational and instructional information and assistance on a hit-and-miss basis, and spent a lot of time wondering why so few individuals ever became excellent teachers and why it took so long for most of them to just become decent teachers and to stay out of trouble.

I have been as guilty of these things as any other administrator. I assumed that a new teacher could plan a lesson, write an instructional objective, demonstrate a manipulative skill, assess student performance, and perform a host of other basic pedagogical tasks. When I began to work closely with teachers after problems began to arise, I discovered that almost all my assumptions were false--and not just with nondegreed teachers. I have made the same false assumptions about teachers with bachelor's, master's, and doctoral degrees--frequently in the education field.

In the competency-based faculty development program, no assumptions are made, or rather, one assumption is made: that the newly hired instructor, with degree or not, has no teaching knowledge and skills. We have found that that is the only safe assumption.

Unique assets of the program. It is a field-based program, brought to postsecondary vo-tech schools by university vocational teacher educators. It allows for demonstration of instructional competencies--teaching skills and knowledge--in a real setting. Progress through the system is self-paced--instructors can go as fast as they want. Degreed instructors with the requisite knowledge and skills can quickly demonstrate such competencies. It is reinforced by a competency-based evaluation system.

It is supported by the state, which is the employer. Teacher educators at several universities cooperate to make it successful. Participation is a condition of employment. All new teachers participate in a week-long professional development institute to jump-start them in the program and to lay the groundwork for early success in the classroom.

It provides a career ladder within the teaching profession. Certification and promotions with rank and salary increases are based on competency achievement and quality performance. Nondegreed teachers may use their PBTE competencies to earn degree credit. The outcome is improvement of the instructional program.

Background. A task force involving an extensive cross section of staff (state supervisors, teacher educators, postsecondary school directors, and teachers) developed the program, thereby setting the stage for a cooperative effort. Members of the legislature became involved through support for linking salary increases to competency achievement and quality performance, thereby lending support to the cooperative effort already underway. The basis of the program is the set of PBTE modules developed by staff of the National Center.

Key to program effectiveness. The key to the effectiveness of the program is the cooperative working relationship of the participants (i.e., the assistant directors of each postsecondary vo-tech school, the university teacher educators, and the instructors). These individuals work together as a single unified force. Their cooperation provides a check-and-balance system, which has made the program successful.

Certification system. The system has four certificate levels, the first being provisional, and three pay levels: (1) Instructor (delivery of instruction); (2) Senior Instructor (instructional development); and (3) Master Instructor (instructional leadership). Responsibility for keeping records (e.g., modules and other requirements completed) is placed on the instructor. Currently, 445 teachers are enrolled and over 6,000 modules have been completed.

Summary. The program gives attention to and documents quality performance of both technical skills and instructional skills, and it has achieved the goals of (1) improving the quality of instruction, (2) increasing the impetus for performance-based vocational education, and (3) developing a continuous and systematic professional development program. In addition, there were several unexpected results. University teacher educators united and worked together on a cooperative basis rather than being competitors and, in some cases, adversaries. And we secured the confidence of the governor and legislature.

New Developments in PBTE, CBSD, CBAE, and PBT at Your National Center

Robert E. Norton

In addition to this national conference on "Achieving Professional Excellence," a number of other exciting events have been occurring at the National Center--events that we hope will have a long-term positive effect on professional personnel development in vocational and technical education.

PBTE Work

We continue to be strong believers in the underlying concepts and benefits of the performance-based approach to teacher education. Our continued strong belief in the PBTE approach derives from several factors. First, there is extensive practitioner support from both the trainers and the trainees using the concepts and materials. Second, the continued high volume of materials purchased from our publisher suggests that the materials are meeting the needs of many teachers, instructors, and trainers. Third, some of us at the National Center have had personally satisfying experiences in using the concepts and materials. Fourth, several research studies show that the PBTE approach to professional education is at least as effective, if not more effective, than the conventional approaches. And fifth, it's very hard to dispute the rationality of the philosophy and concepts that undergird the performance-based approach.

Recent work. Thirteen excellent modules designed to prepare teachers to serve students with special/exceptional needs (Category L) have been available for about one year. More recently, six modules designed to help teachers assist students in improving their basic skills (Category M) have been released. Early indications are that these modules will quickly become "best sellers" as the push for excellence continues across the country. In addition, 33 of the original 100 modules released in 1978 have been revised and improved to include better graphics, updated content, and newer supplemental references.

Current work. Publication of the six modules in Category K dealing with implementing competency-based education (CBE) is receiving top-priority attention from everyone involved. These long-awaited modules will be off the press at the start of 1986.

We are also currently working on an entirely new category of PBTE modules. Under the National Center's contract with the Department of Education, we began in January 1985 to develop PBTE modules for teachers of adults. The need for such materials derives from the fact that (1) programs of adult vocational training and retraining are rapidly expanding, (2) special andragogical teaching skills are required to teach adults, and (3) specific training materials to address these skills are needed.

The objectives of this project are as follows: (1) to conduct a thorough review and synthesis of the literature on adult learning and teaching; (2) to identify and verify the professional competencies required of good adult teachers/instructors; and (3) to develop high-quality PBTE modules that address the professional skills required by teachers of adults.

In February, we convened a national panel of nine expert adult educators and, over a two-day period of time using the DACUM process of job analysis, identified 50 task statements clustered into six duty areas. These task statements were later verified by another national committee of experts through use of a mailed task inventory. Work then began on the development of six modules: N-1, Prepare to Work with Adult Learners; N-2, Market an Adult Education Program; N-3, Determine Individual Training Needs; N-4, Plan Instruction for Adults; N-5, Manage the Adult Instructional Process; and N-6, Evaluate the Performance of Adults.

Three of these modules were drafted and submitted to over 40 persons for an extensive field review and critique in August 1985. Drafts of the second three modules are nearly completed and will be undergoing field review later this month (October 1985). Reactions to the first three modules have been exceedingly positive, with minor exceptions. Comments about the need for this type of material have ranged from "Great timing, we really need these," to "It's about time the National Center did more for adult educators and adult learners." The six modules will be revised and turned over to AAVIM (American Association for Vocational Instructional Materials) for publication and should be available for sale by summer of 1986.

Future scopes of work. We will soon begin work to revise several of the PBTE supporting guides and media. And we shall continue to revise the remainder of the first-edition modules as quickly as possible.

CBSD Work

When we talk about the inservice education of instructors, teachers, or trainers within an institutional setting, we label that effort CBSD (competency-based staff development). While the same PBTE modules may be used, the environment and procedures for delivery of the training are vastly different. In recent years, we have witnessed the implementation of many staff development programs at the secondary and postsecondary levels and within both

public and private schools and colleges. As a result, the volume of materials used and the number of persons served by CBSD programs have steadily increased.

Recent work. Perhaps most notable in the CBSD arena is the continued strong support that the NATTS association has given to their CBSD program. The NATTS professional development committee, which now represents nearly 900 member institutions, identified 21 of the original 100 PBTE modules to form the core of their strongly recommended professional inservice education program. To support the training efforts of their member institutions, NATTS periodically schedules resource person training workshops to give their member participants program planning information and assistance. NATTS has also conducted some advanced resource person training conferences for experienced personnel. A new NATTS catalog of PBTE materials was recently developed and printed by AAVIM specifically for NATTS' member institutions to use.

In another CBSD effort, we conducted a two-day resource person training workshop in May 1985 for about 30 persons from the Ohio Association of Private Schools and Colleges. We have also met twice with officials from the Association of Independent Colleges and Schools in efforts to develop mutually beneficial working relationships with them.

CBAE Work

While the training of instructors and teachers, because of their larger numbers, receives the most attention, we are also very concerned about improving the administrative skills of our vocational-technical school and college leadership personnel. One administrator often supervises and influences 20-30 teachers and other staff, in turn influencing the learning of hundreds of students. Thus, competency-based administrator education (CBAE) continues to receive considerable attention from the National Center and a multistate Consortium for the Development of Professional Materials for Vocational Education.

The Consortium, organized in September 1978, has been supported by a total of 14 different states. Some states, such as Pennsylvania and Florida, have supported the Consortium continuously for eight years. This year, we are proud to announce that Arkansas has joined with four other states to support and cooperatively participate in new materials development for 1985-86.

Recent work. Six modules have been revised, as follows: LT-A-1, Develop Local Plans for Vocational Education: Part I; LT-A-2, Develop Local Plans for Vocational Education: Part II; LT-C-4, Establish a Student Placement Service and Coordinate Follow-up Studies; LT-D-3, Evaluate Staff Performance; LT-E-1, Appraise Staff Development Needs; and LT-F-1, Organize and Work with a Local Vocational Education Advisory Council.

A new CBAE catalog listing the 34 modules and 7 instructional guides already developed by the Consortium was released and two new products became available, as follows: LT-B-4, Prepare to Install Competency-Based Education; and Guide to the Administration of Adult Vocational Education. Early in 1986, two other newly developed guides will be released by AAVIM: Improving the Basic Skills of Vocational-Technical Students: An Administrators' Guide; and Updating the Technical Skills of Occupational Instructors: An Administrators' Guide

Current work. A number of new CBAE products are currently under development. One product, a second module dealing with the establishment and refinement of CBE programs, will soon go out for field testing. Two new products to be developed this year (1985-86) include the following tentatively titled guides: "Strategies for Improving the Integration of Vocational and Academic Education"; and "Options for the Recruitment and Inservice Training of Non-degreed Vocational Teachers from Industry."

Future scopes of work. We are planning to convene a DACUM panel early in 1986 to identify the competencies that are important to occupational program area supervisors in state departments of education. It's likely that some type of training or reference materials will be developed in future years to address at least some of the competencies that are identified in this effort.

The Consortium Board and the National Center encourage other states to consider the benefits of membership in this cooperative effort. States that have become members for a period of time have, without exception, developed strong leadership training programs within their states. Contact the Consortium Program Director at the National Center or the state representative from any current member state for details regarding costs and benefits of membership.

PBT Work

This brings us to PBT (performance-based training), which may be described as the "new kid on the block." Why PBT? PBT is at this time being used to describe what we hope may become a major multiple-year National Center effort to develop performance-based training materials specifically designed for business and industrial settings. Even though over 400 different industries have purchased PBTE modules, some of them repeatedly, we have been told frequently that although the format and generic content are appropriate for business and industry training programs, the educational setting and terminology are not.

Future scopes of work. Given adequate sponsorship, we plan in 1986 to initiate the development of a set of performance-based modules specifically designed for business and industrial trainers and instructors. Ultimately, the set should include 30-40 modules. To date, we have developed a prototype module for the purpose of review and discussion only. The National Center is also interested in expanding its linkages, training, and development efforts with business and industry in other areas, such as needs assessment, job analysis, and supervisory and management training. Should you be interested in working with this proposed effort in any way, please contact the author of this paper at the National Center.

Achieving Professional Excellence by Enhancing Your Creativity

Joseph V. Arn

Although performance/competency-based materials for excellence in professional development are available from the National Center, roadblocks do occur

for various reasons upon implementation or during the learning phases. One must be a creative leader to overcome local constraints or solve unique problems. Vocational personnel must realize that their efforts to provide outstanding training in their selected area are limited only by their lack of creative power.

One of the most persistent and widespread notions about creativity is that it is the exclusive province of only a few talented individuals. This damaging and inhibiting misinformation about creativity must be discarded. An impressive body of solid research has proven that most people were born with rich and vigorous imaginations and that creative ability is almost universally distributed. There is also ample proof that creativity can be rekindled in those who seem to have lost it, or whose potential creativity is buried under layers of personal and environmental barriers.

Much education and training is geared toward teaching people the one right answer. By the time the average person finishes college, he or she will have taken over 2,600 tests, quizzes, and exams; thus, the right-answer approach becomes deeply ingrained in our thinking. This may be fine for some mathematical problems, where there is in fact only one right answer. The difficulty is that most vocational education doesn't present itself in this way. Vocational education is more ambiguous; there are many right answers--all depending on what you are looking for. Yet, if you think there is only one right answer, you will stop looking as soon as you find one.

By developing opportunity for creativity, a delivery system for PBTE, CBAE, and CBSD can be instituted through which the facilitator, as well as the learner, can achieve the maximum potential for self-improvement, as well as the improvement of vocational education. To enhance your creativity, you must (1) stretch your horizons--one mainspring of creative power is a broad background of accumulated knowledge; (2) cultivate vocational education; (3) hunt for ideas; and (4) boost your lagging enthusiasm.

Achieving excellence in professional development is not an easy task. One's professional development can be an enjoyable task, however, if creativity is developed to enhance your ability to reach your objectives.

DACUM: Using the National Center's Approach

Robert E. Norton

DACUM (Development A Curriculum) is a relatively new and innovative approach to occupational analysis. It has proven to be a very effective method of quickly determining, at relatively low cost, the tasks (or competencies or skills) that must be performed by persons employed in a given job or occupational area.

The profile chart that results from the DACUM analysis is a detailed and graphic portrayal of the tasks involved in the occupation being studied. The DACUM analysis can be used as a basis for (1) curriculum development, (2) student learning, (3) training needs assessments, (4) worker performance evaluations, and (5) performance test development.

DACUM has been successfully used to analyze occupations at the professional, technical, skilled, and semiskilled levels. DACUM operates on the following three premises: (1) expert workers are better able to describe/define their job than anyone else, (2) any job can be effectively and sufficiently described in terms of the tasks that successful workers in that occupation perform, and (3) all tasks have direct implications for the knowledge and attitudes that workers must have in order to perform the tasks correctly.

A carefully chosen group of about 10-12 experts from the occupational area form the DACUM committee. Committee members are recruited directly from business, industry, or the professions. The committee works under the guidance of a facilitator for two days to develop the DACUM chart. Modified small-group brainstorming techniques are used to obtain the collective expertise and consensus of the committee.

The DACUM committee is carefully guided through each of the following steps by the facilitator: (1) orientation; (2) review of job or occupational area; (3) identification of general areas of job responsibility (duties); (4) identification of specific tasks performed in each of the general areas of responsibility; (5) review and refinement of task statements; (6) sequencing of task statements; (7) identification of entry-level tasks; and (8) other options, as desired.

Because of their current occupational expertise, committee participants do not need to make any advance preparations. Participants on past DACUM committees have, without exception, found the activity to be a professionally stimulating and rewarding experience.

DACUM is being used increasingly in the United States and is also being used in several other countries, such as New Zealand. One of our concerns at the National Center has been maintaining the quality and integrity of this process, which really works when it's properly done. We are painfully aware that the process appears to be deceptively simple to the uninformed and inexperienced. Our experience in conducting over 125 DACUM workshops since January 1976 and 5 DACUM training institutes since January 1984 has led us to establish some DACUM standards that, when followed, help assure high-quality outcomes from the DACUM analysis process.

These DACUM standards or conventions include the following: The coordinator/facilitator is qualified through training and practical experience. Committee members are expert workers and immediate supervisors of such workers in about a 5:1 ratio. Committee members participate throughout the entire workshop. Task statements abide by all of the criteria for acceptable task statements. The same task statement appears only once. There are 8-12 duty areas for most occupations. And finally, there are six or more tasks statements in each duty area.

To further define the criterion, "task statements abide by all the criteria for acceptable task statements," we have established several criteria to clarify what constitutes a job task and, given that you actually have a job task, other criteria to clarify what is required to have a good task statement.

Criteria for job tasks include the following. Job tasks (1) are the smallest units of job activity that result in a meaningful outcome (product,

service, or decision); (2) represent typical job assignments for which an employer or customer would pay; (3) have a definite beginning and ending point; (4) can be performed over a short period of time; (5) can be performed independent of other work; (6) consist of two or more steps; and (7) can usually be observed/measured.

Criteria for task statements include the following. Task statements (1) concisely describe a job task in performance terms; (2) contain an action verb and an object that receives the action; (3) may contain one or more relevant qualifiers (but omit qualifiers such as "effectively" and "efficiently"); (4) are explicit and precise; (5) avoid references to knowledge and attitudes needed; (6) avoid references to tools or equipment that merely support task performance; and (7) stand alone, avoiding dependence on the duty or previous task statements for clarity or meaning.

Another procedure that we have made a standard part of our use of the DACUM process at the National Center is that of task verification (or validation, as some prefer to call it). Verification is the process of having experts review and confirm or refute the importance of the task (competency) statements identified through occupational analysis. Reviewers are usually selected from the ranks of practicing workers and immediate supervisors of such workers. Commonly, a task-inventory-type questionnaire is prepared and used to collect the desired information. We feel there are several strong arguments for verification: (1) it provides further evidence that you have the right tasks; (2) it permits greater involvement of business and industry representatives; (3) it permits the rating of tasks on two or more factors by qualified persons; and (4) it elicits greater public-supported confidence in the relevancy of the programs involved.

To provide a comprehensive and up-to-date reference on the DACUM process, we have taken two additional steps. In October 1982, we assembled an international committee of experienced DACUM facilitators and conducted a "DACUM on DACUM." The results of that analysis were verified and then used as a basis for the development of the DACUM Handbook, which underwent field review and revision before publication. It is now used as the instructional reference for conducting our DACUM training institutes, through which we are endeavoring to develop a cadre of well-prepared DACUM facilitators in most states and many community colleges.

PART FIVE

WHAT'S NEXT? NEEDS AND SOLUTIONS

Teacher Educators' Group

Glen Fardig, Small-group Leader

Needs identified:

- Need research on the effectiveness of PBTE (1) to influence others to examine and implement PBTE; (2) to examine various aspects of performance-based instructional delivery; (3) to contribute to the profession at large.
- Need a coordinated national program of research on PBTE, with research activities assigned to institutions and agencies.
- Need additional instructional materials related to teacher certification and school expectations (e.g., school law, human growth and development).
- Need greater communication among PBTE implementers (e.g., sharing of module lists, information about program models, directory of expertise). PBTE implementers should use Open Entries to a greater extent.

It is recommended that another conference be held in a year or so, but that it be a work session on critical issues (task and product oriented) rather than an information-update conference.

State Staff's Group

Don Harlan, Small-group Leader

Needs identified:

- Need to increase articulation efforts, especially between the secondary/postsecondary levels.
- Need to establish a closer working relationship--a competency-based relationship--between colleges/universities and secondary/postsecondary institutions.

- Need to implement CBSD at the state-staff level. Many times this takes a back seat because state staff become so involved in helping others that they ignore their own development.
- Need to involve general education and educational administration more in our workshops and conferences.
- Must involve business/industry more in our programs.

Solutions identified:

- State-level teacher evaluation procedures shape the teacher education programs. Teacher educators should be more involved in the development of evaluation procedures.
- It's good to know that CBSD is not just for educators but that business/industry uses CBSD for staff development also.
- DACUM is good and should be used more.

Administrator Educators' Group

Ed Allen, Small-group Leader

Needs and solutions identified:

- Need--There apparently is a need for increased emphasis on instructional leadership. Although most administrators feel it is important, too many other duties interfere.

  Solution--Use a clinical supervision approach, such as Madeline Hunter's.

  Solution--Provide a mechanism to permit a master teacher to shoulder responsibility for instructional leadership.

- Need--Need to find a means for creating a sense of importance about administrative issues/problems--for establishing them as a priority.

  Solution--Create a valuing of the effectiveness of teaching.

  Solution--Start at the state level; create the time and resources needed.

  Solution--Create an affect.

- Need--Need to implement a workshop institute to upgrade administrator skills and to induce the powers-that-be to provide the time, resource, and motivation to attend.
- Need--Need to create an administrative creativity instinct: (1) to make things change in the classroom; (2) to accept change; (3) to use goal-setting techniques and then to find the time to follow up to ensure goals are met; and (4) to develop a sense of proaction rather than reaction.
- Need--Need to help incumbent administrators to recognize personal/professional weaknesses. If barriers are real/perceived, how can they be overcome? To admit to a weakness may be, in itself, a psychological barrier.

- Need--Need to plan a national/regional forum to discuss the issues.
- Need--Need to develop a valuing scheme for vocational education; i.e., if services are withdrawn, who/what will be affected?

NOTES

1. G. R. Kaplan, Items for an Agenda: Educational Research and the Reports on Excellence (Washington, DC: American Educational Research Association, 1985), p. 2.

2. L. Darling-Hammond; A. F. Wise; and S. R. Pease, "Teacher Evaluation in the Organizational Context: A Review of the Literature," Review of Educational Research, 53 (Fall 1983): 285-328.

3. R. Stiggins and N. Bridgeford, "Performance Assessment for Teacher Development," Educational Evaluation and Policy Analysis, 7 (Winter 1985): 88.

4. A. Wise et al., Teacher Evaluation: A Study of Effective Practices (Washington, DC: Rand Corporation, 1984).

5. Urban Oen, Identify the Characteristics of a Competency-Based Vocational Education (CBVE) Program (Springfield, IL: Department of Adult Vocational Technical Education; Illinois State Business Education, 1985).

PART SIX

APPENDIX

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AGENDA

Monday, October 7

7:00 - 9:30 p.m. *Silver City I Foyer*	REGISTRATION
7:30 - 9:30 *Silver City I*	INTRODUCTION TO THE FUNDAMENTALS OF THE PERFORMANCE/ COMPETENCY-BASED APPROACH: ESSENTIAL ELEMENTS AND FACILITATING CHARACTERISTICS Robert Norton, James Hamilton, Glen Fardig, Thomas Walker, and Edward Allen *A miniworkshop for new and less experienced persons who need a working knowledge of PBTE/CBSD/CBAE concepts and materials.*

Tuesday, October 8

7:30 - 8:30 a.m. *Silver City I & II Foyer*	REGISTRATION
8:30 - 8:45 *Silver City I & II*	WELCOME TO THE CONFERENCE Robert E. Norton MODERATOR OF SESSIONS Lonnie McNatt
8:45 - 9:00 *Silver City I & II*	WELCOME TO ARKANSAS Phyllis Johnston
9:00 - 10:00 *Silver City I & II*	KEYNOTE ADDRESS: PROFESSIONAL DEVELOPMENT IN VOCATIONAL EDUCATION IN ARKANSAS J. Barry Ballard
10:00 - 10:15 *Silver City I & II Foyer*	BREAK
10:15 - 11:15 *Silver City I & II*	PBTE IN ARKANSAS • OVERVIEW Don Harlan • ROLE OF THE TEACHER EDUCATOR Freeman Eads • ROLE OF THE RESOURCE PERSON June Walters • PARTICIPANT RESPONSE Bobby DuVall

11:15 - 12:00 *Silver City I & II*	CBAE IN ARKANSAS • OVERVIEW Jack Nichols • TEACHER EDUCATOR RESPONSE Eugene Aist • PARTICIPANT RESPONSE Lee Griffith
12:00 - 1:00 p.m. *Silver City III & IV*	LUNCHEON BUFFET
1:00 - 1:45 *Silver City I & II*	NEW DEVELOPMENTS IN PBTE, CBSD, AND CBAE AT THE NATIONAL CENTER Robert Norton
1:45 - 2:45	Concurrent Sessions (pick two, 30 minutes each)
Argenta East	• CRITERIA FOR JUDGING PBTE PROGRAM QUALITY Glen Fardig *Participants will learn how criteria for PBTE programs were developed and how they may be used for program improvement. Copies of the criteria will be distributed*
Argenta West	• USING CBTE IN GENERAL PROFESSIONAL EDUCATION Edward Brower *This presentation describes a competency-based, university-based approach to teaching the first-level methods class required of all education majors at Temple University. Included is a discussion of how media and the PBTE modules are used to develop crucial teaching skills.*
Baring Cross	• PREPARING VOCATIONAL SCHOOL SUPERINTENDENTS Brent Wolf *The findings will be described from an investigation to determine (1) what competencies Ohio joint vocational school superintendents perceived as being important, and (2) the degree to which they perceived they were professionally prepared to effectively fulfill their roles as superintendents.*
DeCantillon	• CBE: THE HOLLAND COLLEGE WAY William Reese *A successful individualized, competency-based, post-secondary education program, which uses DACUM as its job analysis procedure and learning activity packets as a major part of its delivery system, will be presented.*

Arkansas Traveler

- MICROCOMPUTER DEMONSTRATION OF DIAGNOSTIC TESTING
  Jane Whisner and Thomas Walker
  A microcomputer application for conducting on-line diagnostic cognitive assessment will be demonstrated. The program was developed at Indiana University of Pennsylvania for use in a PBTE program.

Silver City I

- INSTRUCTOR TRAINING IN THE NUCLEAR INDUSTRY
  Neal Wiggin
  This session will describe and demonstrate micro-teaching as a technique for improving instructor skills.

2:45 - 3:00
Silver City I & II Foyer

BREAK

3:00 - 3:30
Silver City I & II

STRATEGIES FOR TECHNICAL UPDATING OF INSTRUCTIONAL STAFF
James Hamilton

3:30 - 4:30

Concurrent Sessions (pick two, 30 minutes each)

Argenta East

- PREPARING THE ITINERANT TEACHER EDUCATOR
  Richard Adamsky
  Don't expect the typical vocational teacher educator to be thrilled by the prospect of functioning as a resource person. After all, by disposition, preparation, and circumstances, they are unsuited to the role. Come to this session and learn how Temple University overcame this problem twelve years ago and how they prepare their resource persons (itinerant teacher educators).

Argenta West

- PERFORMANCE-BASED TRAINING: THE BOTTOM LINE
  Dale Cowgill
  This presentation will deal with the hard facts of making training pay off in the utility industry.

Baring Cross

- ASSESSING STAFF DEVELOPMENT NEEDS
  Robert Martin
  Good staff development requires accurate needs assessment. Learn how one postsecondary institution in Wisconsin meets the challenge.

DeCantillon

- FIELD-BASED LEADERSHIP DEVELOPMENT IN PENNSYLVANIA: THE IUP APPROACH
  Edward Allen
  A completely field-experienced, competency-based vocational leadership development program will be described. Included will be a discussion of materials and instruments used to train vocational administrators.

Arkansas Traveler	• MICROCOMPUTER DEMONSTRATION OF DIAGNOSTIC TESTING (Repeated) Jane Whisner and Thomas Walker *A microcomputer application for conducting on-line diagnostic cognitive assessment will be demonstrated. The program was developed at Indiana University of Pennsylvania for use in a PBTE program.*
Silver City I	• PERFORMANCE-BASED TELLER TRAINING: WE ARE BANKING ON IT Audni Miller-Beach *Why is a bank "banking" on CBSD? Find out why a major state bank in Maine is investing in DACUM and performance-based training for its employees.*
4:30 - 6:00	ADJOURN FOR HOSPITALITY HOUR Hospitality Hour - Courtesy of SIVAD Host: Don Jones
6:00 - 7:00 *Silver City III & IV*	DINNER
7:00 *Silver City III & IV*	AVA LOOKS AT EFFECTIVE LEADERSHIP AND THE CARL PERKINS ACT Rosemary Kolde

<u>Wednesday, October 9</u>

8:30 - 9:15 a.m. *Silver City I & II*	RESEARCH FINDINGS ON USING PBTE MODULES IN VOCATIONAL TEACHER EDUCATION Mary Helen Haas
9:15 - 10:00 *Silver City I & II*	PERFORMANCE-BASED TRAINING IN INDUSTRY: REALIZING THE POTENTIAL Robert Evans
10:00 - 10:15 *Silver City I & II Foyer*	BREAK
10:15 - 11:15 *Silver City I & II*	USING PBTE AND DISTANCE EDUCATION STRATEGIES (Panel) • STATEWIDE DELIVERY OF TEACHER EDUCATION IN NEW YORK John Glenn • DELIVERING PBTE BY TELECONFERENCE IN FLORIDA Steven Sorg • FIELD-BASED DELIVERY OF TEACHER EDUCATION IN PENNSYLVANIA: THE IUP APPROACH Thomas Walker

11:15 -12:00 *Silver City I & II*	FINDINGS AND RECOMMENDATIONS OF THE NATIONAL COMMISSION ON TEACHER EDUCATION Gene Campbell
12:00 - 1:00 p.m. *Silver City III & IV*	LUNCHEON
1:00 - 1:45 *Silver City I & II*	A BEGINNING TEACHER PROGRAM AND THE INDUCTION YEAR Glen Fardig
1:45 - 2:30 *Silver City I & II*	CRITICAL ISSUES FACING VOCATIONAL TEACHER EDUCATION Linda Parrish
2:30 - 2:45 *Silver City I & II Foyer*	BREAK
2:45 - 3:00 *Silver City I & II*	TEACHER COMPETENCY TESTING: PROS & CONS Dewey Adams
3:30 - 4:30	Concurrent Sessions (pick 2, 30 minutes each)
Argenta East	• IMPROVING TEACHER ASSESSMENT Frank Pratzner *This session will review current teacher evaluation strategies and examine their strengths and weaknesses. Promising approaches having potential in vocational teacher assessment will be discussed.*
Argenta West	• FACULTY DEVELOPMENT IN A CBE DELIVERY SYSTEM Clay Johnson *An integrated system of faculty rank, faculty evaluation, and performance-based faculty development, which facilitates achievement of the institutional goal of implementing CBVE, will be described.*
Baring Cross	• DACUM AND THE APPRENTICESHIP TRAINING PROCESS IN NEW ZEALAND Adrienne Burleigh *DACUM, a method of determining training needs and developing curriculum to meet these needs, is now in use internationally. New Zealand has undertaken the massive task of systematically reviewing more than 140 apprenticeable trades within four years using this methodology with some exciting developments.*
DeCantillon	• CONDUCTING A STATEWIDE NEEDS ASSESSMENT Norma Milanovich *A three-phase statewide needs assessment that was used to determine the professional development needs of vocational-technical personnel in New Mexico will be explained.*

Arkansas Traveler	• STAFF DEVELOPMENT VIA TELECONFERENCING **Juanita Bice** *This session will introduce a sampler of teleconference activities, demonstrating the effectiveness and potential of this medium for staff development. A question-and-answer session will provide an opportunity to raise individual concerns and needs.*
Silver City I	• **EVALUATING TRAINING EFFECTIVENESS TO ENSURE QUALITY** **Peggy Patrick** *Discover how nuclear power training programs are carefully evaluated and monitored to ensure that high-quality results are achieved.*
4:30	ADJOURN
	Evening open to individual plans and activities

Thursday, October 10

8:30 - 9:15 a.m. *Silver City III*	THE NATTS RECOMMENDED CBSD PROGRAM: A NATIONWIDE COMMITMENT TO STAFF DEVELOPMENT Laura Conner
9:15 - 10:00 *Silver City III*	TRAINING STANDARDS FOR INSTRUCTORS IN THE NUCLEAR POWER INDUSTRY Robert Mullican
10:00 - 10:15 *Silver City III Foyer*	BREAK
10:15 - 11:00 *Silver City III*	APPLYING COMPETENCY-BASED TRAINING TECHNIQUES TO DEVELOPING COUNTRIES Allan Salt
11:00 - 12:00	Concurrent Sessions (pick two, 30 minutes each)
Argenta East	• VOCATIONAL TEACHER COMPETENCE: RESEARCH FINDINGS AT TEMPLE UNIVERSITY **Robert Lees** *The belief that PBTE is a viable approach to preparing competent teachers has been grounded in the logic of its underlying concepts, rather than based on empirical evidence. Recent research findings at Temple University "suggest" that PBTE may not only have a positive influence on competent teacher behavior but may also be a more effective approach to preparing teachers than a conventional approach.*

Argenta West

- IMPACTING ON THE PREPARATION OF GENERAL EDUCATION ADMINISTRATORS: A VOCATIONAL EDUCATION INITIATIVE
  Cynthia Cronk and Thomas Walker
  This presentation will describe how vocational and academic university personnel have collaborated in Pennsylvania to conduct a DACUM analysis and competency-based approach to the preparation of principals and other school administrators.

Baring Cross

- CERTIFICATION OF VOCATIONAL-TECHNICAL PERSONNEL IN NEW MEXICO
  Norma Milanovich
  Certification can be a hassle or a safeguard. This session will describe an innovative process for initial and continuing certification for full-time and part-time instructors that has been developed in New Mexico.

DeCantillon

- DEVELOPING PROFESSIONAL COMPETENCY VIA OUTREACH IN MAINE
  Arthur Berry and James Wright
  Serving vocational teachers from all areas of a large rural state like Maine is not easy. As described in this presentation, however, with good curriculum materials and the right delivery strategies, the job can be successfully accomplished in a high-quality manner.

Arkansas Traveler

- TECHNOLOGICAL UPDATING: HOW MICHIGAN DOES IT
  George Ferns
  Michigan's statewide coordinated effort to provide for technological updating of vocational staff really works. Learn how you can do the same for instructors in your state/institution/agency.

Silver City I

- COMPETENCY-BASED TRAINING IN THE RAILROAD INDUSTRY
  Joan Penrose
  Discover firsthand, from a person who served as a "curriculum specialist/program developer" for the Metro North Railroad, how PBTE modules were used in a "train the trainer" program and how the technical skills of locomotive engineers, etc., were taught.

12:00 - 1:00 LUNCH (on your own)

1:00 - 2:00 p.m. Concurrent Sessions (pick two, 30 minutes each)

Argenta East

- ACHIEVING PROFESSIONAL EXCELLENCE BY ENHANCING YOUR CREATIVITY
  Joseph Arn
  In this session, participants will learn how to unlock their creative power so as to enrich their PBTE/CBSD/CBAE training programs. Creativity can be rekindled in those who feel they may have lost it or had it buried by their environment.

Argenta West

- ASSESSING VOCATIONAL TEACHERS' PRIOR TECHNICAL LEARNING
  Neal Prichard
  The University of Wisconsin-Stout has devised an "assessment of prior technical learning" procedure that has been working very well. The university- and state-department approved forms and procedures will be presented and explained in detail.

Baring Cross

- TEACHING LAB MANAGEMENT IN THE PERFORMANCE-BASED MODE
  George Storm
  This presentation will deal with a performance-based approach to teaching lab management, including a description of techniques, modularized materials, evaluation instruments, and media used in pre- and inservice instructor training.

DeCantillon

- BEHIND BARS WITH CBE: LOOK WHAT'S HAPPENING TO INMATE TRAINING
  Beverly Stitt and Rita Noel
  Find out how an intensive inservice training program for 50 corrections educators was used to institute CBE for the delivery of vocational and general education to the incarcerated in Illinois.

Arkansas Traveler

- PROFESSIONAL DEVELOPMENT OF TECHNICAL EDUCATORS: A CASE STUDY
  Jon Davey and Linda Grace
  An overview of problems inherent in the professional development of technical faculty will be presented along with innovative solutions to those problems.

Silver City I

- DACUM: USING THE NATIONAL CENTER'S APPROACH
  Robert Norton
  DACUM has been adopted by some states, many community colleges, and numerous companies as the "best" approach to job analysis available. This presentation will explain some of the refinements in the process devised by the National Center to improve the quality and validity of the process.

2:00 - 2:45 — WHAT'S NEXT? NEEDS AND SOLUTIONS

Small Groups by Category:

Argenta East
Argenta West
Baring Cross
DeCantillon
Arkansas Traveler

1. *State Staff*
2. *Industry Trainers*
3. *Teacher Educators*
4. *Administrator Educators*
5. *Staff Developers*

2:45
Silver City III

SUMMARY SESSION: REPORTS OF SMALL GROUPS, CONFERENCE EVALUATION, AND ADJOURNMENT