ABSTRACT
               Presented at the American Vocational Association
Annual Convention, this paper summarizes developmental efforts being
conducted at the Center for Vocational and Technical Education to
establish quality modules which can be used successfully by educators
in their teacher education classes as well as by in-service
vocational education instructors. A project endeavor involving
broad-scoped research efforts, these performance-based curriculum
modules are being designed in cooperation with selected educational
agencies in Missouri and Oregon. Project constraints under which the
modules are being prepared include money and personnel resources,
time limits in production, and the environment in which the modules
are developed and tested. Validity considerations include: (1)
establishing content validity by identification and development of
performance and general objectives; (2) assessing face validity by
identifying problems of use as the modules are developed and
field-tested; and (3) assessing construct validity by testing the
generalizability of the modules. (SN)

VALIDATION OF

TEACHER EDUCATION

CURRICULA

Shirley A. Chase
Project Associate

Curtis R. Finch
Research and Development Specialist

Jeffrey M. Speiss
Research and Development Specialist

The Center for Vocational and Technical Education

The Ohio State University

Columbus, Ohio 43210

Paper presented at the

American Vocational Association Annual Convention

Chicago, Illinois

December, 1972

1

VALIDATION OF TEACHER EDUCATION CURRICULA

The idea of validating teacher education programs has been discussed for many years; however, it is seldom that a systematic validation process is actually used. When one thinks about why so many teacher educators avoid validating their programs, several ideas come to mind. Could it be that program objectives have not been specified in measurable terms? Or perhaps there is very little basis in fact for program content? Then again, the teacher educator just might not have the time or expertise needed to conduct a thorough validation of his particular program. Whatever the reason, it does not lessen the need to know whether or not a program "delivers" on what it purports to deliver. It is imperative that procedures are instituted which provide valid checks of vocational teacher education programs (Sjogren, 1971). This is the best means by which teacher education can be defended in our increasingly accountable society.

Where then does validation fit into the teacher education development efforts being discussed today? In fact, the establishment of module and curricula validity is an integral part of our work. This idea will be clarified in later sections of the paper; suffice it to say for now that we are making many provisions for validating the modules being developed and hope to be establishing check points at later stages in the development process to assure that quality products are generated.

In general, this paper focuses on the ways in which the performance-based teacher education curricula now being developed by the Center for Vocational and Technical Education in cooperation with other agencies in Missouri and Oregon are being validated and will receive further validation. Initially, project constraints and validity considerations will be discussed. Then, several

of the procedures we are using to assess and establish validity will be presented. Finally, the general acceptance of the modules by teacher educators and pre- and inservice teachers will be discussed.

Validity Constraints and Considerations

Constraints

As with any project of this type, there are several constraints which affect the extent to which validation procedures may be used. One constraint can be classified as available resources. Obviously, this project does not have unlimited funds, and this limits the number of dollars and personnel which can be used to conduct validation of the modules. A second constraint consists of the time which it takes to produce modules. We obviously want to make all modules available as soon as possible but not at the expense of quality control. A third constraint involves the environment in which modules are being developed and tested. Although faculty members involved in the development and testing process at the two cooperating institutions (University of Missouri and Oregon State University) are working toward the individualization of teacher education and the establishment of a performance base for their programs, they are now testing modules in regular courses. Since modules are intended to be used eventually on an individualized mastery basis, testing in a traditional setting may have limited generalizability to performance-based teacher education programs as they eventually evolve.

Validity Considerations

At this point, it is best to provide more detailed information about validity as it relates to curricula and module development. As related to our work, validity refers to the extent to which a module or set of modules delivers as

2

it was designed to deliver. In terms of delivery, we are concerned with the following points: Does the module have a performance base? (Is the module's terminal objective equivalent to performance expected of a teacher "on the job?") Is it suitable for individualized instruction? Can it be modified for use in group instruction? Are the modules readily accepted by pre- and inservice teachers? Are they well received by vocational teacher educators representing all vocational service areas? Does taking a module result in a change in behavior of the type which was desired by the module developers? (Does it teach?) Are there positive cumulative effects when the modules are used in concert with each other?

In order to obtain answers to the above questions, the project staff is examining four aspects of module validity. These consist of content validity, face validity, construct validity, and criterion related validity. Each of these basic categories of validity will be examined as it relates to module development.

Establishing Content Validity

Basically, content validity asks the question: "Do the objectives of the modules actually represent the competencies needed by a vocational teacher?" A partial answer to this question may be derived from the research work which went into the identification of the performance elements and development of general objectives. It must be realized that the determination of content validity is based largely on a judgmental procedure rather than on the establishment of a quantitative relationship between or among variables.

Initial research focused on identifying the competencies required of vocational teachers. During Phase I of the research effort, performance elements

3

for teachers of conventional vocational programs were initially identified by Center staff through introspection and also through input provided by interviewing vocational teacher educators. The performance elements then were rated by a 21-member task force as to their importance and, additionally, a rational critical incident study verified the importance of the elements and expanded the list. During Phase II, a national advisory committee of 300 members rated an expanded list of elements as to their importance for teachers of cooperative programs. A special 29-member committee which represented the 300 members examined and further explained the ratings. The findings of the two phases were merged into one comprehensive list of performance elements for all teachers of vocational education. Finally, general objectives were developed in order to clarify the meaning of each element. Each general objective contains a statement of performance, criteria to determine attainment of the competency and the conditions under which the activity is to be performed. Each of these general objectives was reviewed by teacher educators from the different service ereas to assure that each element was accurately interpreted and described. The general objectives then form the basis for the student performance objectives which can be found in each of the modules. Instructional objectives are, therefore, defined in terms of the competencies that an individual might be expected to possess in the teacher role rather than merely in terms of content covered. In summary, the research work has provided a content validity base for module development.

Another aspect of content validity deals with the module development process. Since modules are being developed cooperatively with two teacher education institutions and two state departments of vocational education, a continued check on content validity is assured. While each module is being written and reviewed by teacher educators representing the vocational service

4

areas, it is checked to assure that the terminal objective is representative of the competencies needed by a vocational teacher.

Assessing Face Validity

Face validity relates directly to the module user, in this case the teacher-educator and, of course, the pre- and inservice teacher. It focuses on the extent to which a module looks to the user like it will do what it is intended to do. Hence, when a user examines a module, it should appear to him that it will develop the necessary competencies which it says it will develop. Face validity is determined by an examination of the module and its contents, and considers only obvious relevance to the user. This type of validity is an important consideration to the extent that the apparent relevance of the modules may have a direct bearing on the "module taker's" motivation. To the extent that learner motivation is related to achievement, face validity may have a positive or negative effect on student performance depending upon how the user perceives the module.

There are several means by which face validity for the modules is being established.. Since the process leading to the establishment of performance oriented general objectives involved teachers, they naturally had a great deal of concern about the relevancy of these competencies. Likewise, since each module was developed by a writing team which included vocational teacher educators, each faculty member was keenly aware of how a module might fit into his teacher education program. Major problems in face validity are, therefore, being identified as the modules are developed or as they are reviewed by representatives of the various vocational service areas.

The field testing of modules plays an equally important part in the establishment of face validity. As each module undergoes preliminary testing,

the students (pre- and inservice teachers) are asked to indicate what their reactions are to the module content and format. Similar questions are asked of the teacher educators who are administering the modules. On the basis of feedback from these groups, revisions can be made to the modules which will make them more acceptable to the target audience. Instruments have been developed which allow for ratings of the module as well as any reactions which the user would like to make. That is, the forms provide us with two types of feedback, objective as well as more subjective information.

Assessment of Construct and Criterion Related Validity

While content and face validity focus on the validation of modules by means of a judgment process, construct validity focuses on establishing validity by more empirical means. It is important when one wishes to know what trait, quality or skill (construct) a student has which is reflected in his performance (Cronbach and Meehl, 1955). There is, of course, no single index of construct validity; rather it is established by the accumulation of evidence from a variety of sources.

Of particular importance is the notion of curricular validity which appears to fall in the general category of construct validity (Dubois and others. 1954). Nunnally (1967) refers to it as an empirical technique to provide circumstantial evidence as to the content validity of a measure. As related to module development, the process of establishing curricular validity would consist of administering a module to a group that had not received instruction in this particular area and comparing this group's achievement with that of a comparable group which had not received instruction. If only chance differences are found between the performance of the two groups, the validity of the module is questionable. Several examples of how this

technique may be used are provided by Finch and Impellitteri (1971). We are currently working with Oregon State University and the University of Missouri to establish an intensive testing program for the modules. Although this program may not include a test of each individual module, it is hoped that sufficient testing can be done to assure that the key characteristics of the modules can be generalized to the total number of modules to be developed. The primary focus of this testing will be on establishing construct validity.

A final concern is with criterion related validity, which asks the question: "How will the pre- and inservice teacher's performance on the modules predict how well they will perform as teachers?" This type of validity bears directly on our concern about the cumulative effects of the modules. Therefore, we intend to test not only individual modules but groups of modules to assure that they collectively contribute in the right way to performance which is more global than that specified in each particular module. In order to examine their cumulative effects, the modules will be provided to a teacher education institution which will use them instead of the existing traditional courses. Then, over a period of time the effects of these modules can be examined. Currently, thought is being given to a longitudinal validation using a multivariate analysis approach to handle all the relevant variables. This might involve the establishment of an evaluation system which is integrally related to a performance-based vocational teacher education program (Finch, 1972).

General Acceptance of the Modules

At the present time we have obtained some feedback as to how teacher educators and pre- and inservice teachers feel about the modules that have been developed. Teacher educators generally have seemed to agree that the basic format of the module is functional. Likewise, generally they are in

7

agreement that the competencies specified in the module objectives are relevant ones for vocational teachers to acquire. Some concern has been voiced about the modules' length and the lack of mediation to accompany each module. Both of these areas are being examined at the present time to determine what possible changes might be made to the modules. Fortunately, provision has been made in the development process to facilitate changes of this type if they are deemed necessary. Feedback from pre- and inservice teachers has been gathered during the preliminary testing activities. In general, students taking the modules have indicated a satisfaction with the performance objectives, learning experiences, evaluations and format. Specific changes suggested by students are being taken into account when each module undergoes an additional revision cycle after it has been tested at both sites.

In summary, we have indicated that several strategies are being or will be employed to assure that the modules have a sufficient validity base. We have also attempted to show that validity is an integral part of the module development process. Finally, we are trying to communicate the fact that modules, just like Rome, cannot be built in a day, a week, or a month for that matter. We certainly are aware of the need for performance-based teacher education; however, we also want to assure that modules actually will do the job that is intended of them.

REFERENCES

Cronbach and Meehl, "Construct Validity in Psychological Tests." _Psychological Bulletin_, 1955, 52, pp. 281-302.

Dubois, Philip, Teel, Kenneth S., and Peterson, Robert L. "On the Validity of Performance Tests." _Educational and Psychological Measurement_, 14, 4, 1954, pp. 605-616.

Finch, Curtis R. "Building a Functional System for the Evaluation of Vocational Teacher Education Programs." Unpublished paper, October, 1972, 20 pp.

Finch, Curtis R., and Impellitteri, Joseph T. "The Development of Valid Work Performance Measures." Journal of Industrial Teacher Education. 9, 1, 1971, pp. 36-49.

Nunnally, Jum C. Psychometric Theory. New York: McGraw-Hill, 1967.

Sjogren, Douglas. "Evaluation of Vocational Teacher Education." Chapter X in Changing the Role of Vocational Teacher Education. (Rupert W. Evans and David R. Terry, editors), Bloomington, Illinois: McKnight and McKnight, 1971, pp. 177-190.

10