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ABSTRACT

This booklet represents a summary of a regional conference and is designed to serve as an introductory discussion of the use of the competency based education concept in general undergraduate programs. Emphasis is placed on essential conditions of competency, current factors affecting higher education, the scope and variety in competency-based programs, clarification of purposes and goals; designing the elements of a CBC including developing competency statements, assessing procedures, and designing learning experiences for competency achievement; implications of a CBC for institutional organization and support structures; a description of some existing programs; and historical efforts to develop learning on a competency base. (MJM)

A CBC PRIMER

Competency-Based Curricula in General Undergraduate Programs
Report of a Conference

Southern Regional Education Board

Report of a Conference
Competency-Based Curricula in
General Undergraduate Programs

A CBC PRIMER

by
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Foreword

The Southern Regional Education Board has maintained an interest in improving undergraduate education throughout its history. It has published monographs on faculty recruitment and retention, curriculum reform, and improvement of teaching. In recent years the Board called attention in the region to new directions in higher education and to recommendations of major national commissions through conferences for legislators, for institutional and state system personnel, and through various publications.

The Board accelerated its efforts to stimulate the consideration of change in undergraduate education through a three-year project supported in part by a grant from the Carnegie Corporation of New York. Organized in 1973, this project is designed to provide information and assistance for developing non-traditional approaches in undergraduate education in Southern colleges and universities to better serve traditional and non-traditional students.

Early in the work of the project it became clear that the concept of education on a competency base had emerged as an important development in general undergraduate education in the South as well as across the nation. Because of the high level of interest in competency-based learning the project devoted a large portion of its effort to this subject through a planning committee and a major regional conference held in June, 1974.

This booklet presents a report of the regional conference, but it also is designed to serve as an introductory discussion of the use of the competency concept in general undergraduate programs. Hopefully this presentation will provide the region with helpful information and stimulate constructive dialogue on one possible new direction for some undergraduate programs.

Winfred L. Godwin
President

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Introduction

The term "competency-based" has come to represent an educational movement, or a learning strategy, which places primary emphasis on the outcomes of learning rather than the experiences; on attainments rather than time. Attempting to develop a program on a competency base requires a totally new way of looking at the overall educational enterprise. The very basis for the institution's existence is called into question when an institution or department decides to translate its program into one based on competencies, and begins to design educational experiences, to explore new ways of assessing student learning and to define the various roles and responsibilities of the faculty under such an approach. None of these specific areas can be dealt with successfully until basic questions can be answered regarding mission and goals and the characteristics of graduates to be produced. Confronting these issues may well be the most important outcome of a decision to develop curricula on a competency base. In fact, if the process goes no further, if an institution eventually decides a competency approach is not appropriate, a successful attempt to examine and clarify goals and purposes will be as important as establishment of an entirely new curriculum.

It is not the first time concern about purposes and outcomes exemplified by the current competency movement has emerged in higher education. As long ago as 1862, the Morrill Act established the Land Grant Colleges to provide institutions to teach students "what was relevant to their lives and future plans." In many of these institutions course examinations were called "practicals," or actual demonstrations in which the students *used* the principles, concepts and techniques they had been taught. Similar efforts have continued in various kinds of institutions over the past century.

The increasing attractiveness of the competency concept in general undergraduate education today can be traced to a number of societal as well as educational trends. The current "egalitarian" era in higher education makes the competency concept attractive as a viable means of dealing with new needs, circumstances, and demands of today's changing learners—traditional and nontraditional—as well as the changing needs, circumstances, and demands of society.

Although there is little experience with a fully developed model, a competency-based curriculum (CBC) consists, basically, of three components: (1) explicit statements of competencies learners are to acquire; (2) procedures for assessing achievement of competencies; and (3) learning experiences specifically designed for the attainment of the competencies.

Before developing and implementing these three components, however, the most basic step for an institution or program is to state clearly, explicitly,

and publicly its educational goals and objectives. To do this an institution must articulate the image of "a competent person" that it expects to produce. Moreover, an institution planning to implement a CBC must be willing to remold administrative and support structures and activities now designed to support the traditional time- or experience-based curriculum so they will lend support to the new approach.

Following the development of explicit goals and expected outcomes and a commitment to make necessary support structure adjustments, the steps toward developing the components are clear. The first step is to develop explicit statements of competencies to be attained by students. These statements must be developed at all levels of the program and be interrelated. Institution-wide competency statements should "connect" with statements of competency throughout the institution's academic program—from the level of the institution to division, to department, to major, to course, to module. By this means, the statements of competency beginning at the vest levels will "add up" to total the institution-wide statements of competency.

The second implementation step, designing assessment procedures for determing competency achievement, requires the institution's willingness, probably more than any other implementation step, to fundamentally rethink the whole educational process. It has been said that the success or failure of a CBC in the end will hinge on assessment. In a CBC, assessment is much more than "paper and pencil" tests and grading. Theoretically, in CBC assessment is separated from teaching and learning—those who teach do not also assess. As the competencies are publicly stated, achievement is, in a sense, publicly verified. In a CBC students are assessed on a "criterion" scale, according to preset standards, rather than through the traditional comparative grading system. It is in assessment that institutions are challenged to be the most creative.

The third implementation step is designing learning experiences to facilitate competency attainment. "Teaching" and "teacher" become outmoded terms in a CBC; "learning" and "learner" replace them as key concepts. In a CBC it is what the learner learns that is important, not what the teacher teaches. The role of the faculty is to guide the student into the learning situations most likely to achieve the desired results. This requires a variety of alternatives for student learning. Some will learn best by the traditional teaching-learning methods, and those methods will need to be maintained for those students. Other students need other methods: experiential learning, independent study, self-paced instruction, and contract learning to name a few.

A key element in being able to guide students into the most suitable learning experiences is one stage of assessment—diagnosis. The process of discovering where students are in a particular competency is the first step in deciding how best they can get to where they want to go. Students start at their separate levels to achieve common compe-

tencies through a learning process designed to match each student's learning style and particular interests.

While developing these three components for a CBC the whole range of related components becomes clearer. Admissions criteria, faculty roles, counseling and advising, graduation requirements, grading, transcript formats, faculty evaluation and reward structure, administrative relationships, and academic decision-making processes are examples of institutional policies and activities which have to be restructured in order to support a CBC.

Because the many aspects of a competency approach to educating are so new, the SREB work conference on CBC in general undergraduate programs was planned and executed on the premise that there exist more questions than answers about competency, that there are few experts on the subject. It was felt that those who are in the process of analyzing the concept and considering organizing competency programs will contribute to the developing knowledge about this emerging trend. The conference provided only a few "experts" to share their experiences and expertise and had as a major goal helping participants realize that competency is a developing and a developmental concept with which each could deal personally and by so doing, also contribute new information on the "state of the art."

In sponsoring this work conference, as well as presenting this conference report, the Undergraduate Education Reform Project staff does not imply that a CBC is a panacea for all of higher education, or that all institutions in the region should begin to move in this direction. Some of the implications, however, can stimulate significant developments in higher education as we now know it.

Several important points for the reader to keep in mind emerged in planning the conference and became clearer during the conference. First, and perhaps most important, is that there exists very little experience with competency-based programs or curricula outside of teacher education, and even that is still limited to few comprehensive examples. Hardly any program is very far along in competency and there are no graduates of a general competency-based curriculum as yet. A second point is that even in programs already underway, either institution-wide or in particular fields, none have begun with a totally developed program. Instead, institutions moving into a CBC usually begin with an entering class only and then continue to work on next steps or levels as they go, illustrating the developmental nature of the whole concept. This determination to begin moving in a new direction without the security of a finished plan implies a high degree of self-confidence in the individual leaders of the movement and in the collective bodies of institutions which have made this commitment. There is a great amount of risk involved in setting off in the direction of a program based on new concepts.

Another point that speaks to a concern of some is that there are very few institutions with institution-wide commitment to the concept but a growing number with commitments to develop competency-

based or, as some call it, attainment curricula in specific areas of programs in an institution. Though the conference did not, nor does this report, deal with teacher education, the developments in that specific field illustrate this point. Increasingly, large institutions are considering implementing the competency concept in specific fields such as nursing, some of the sciences, and the arts.

The current interest in CBC has been greatly influenced by two developments—the mandate in many states that teachers be certified on a competency base and the promotion by the Fund for the Improvement of Postsecondary Education of the idea that institutions examine the ways in which they provide education and promote learning. This approach to certification has required teacher educators to re-examine their programs and develop new approaches. Those efforts and their results have begun to exert influences in other parts of institutions where schools of education have moved into highly innovative activities.

In 1973, the Fund chose competency-based learning as a special focus category, a development that has become a major influence on higher education. Far from trying to institute a new fad at the collegiate level, which some feel it has done, the Fund was interested in stimulating a revitalization of institutional missions as a result of reviewing traditional practices and unquestioned assumptions about the learning enterprise. The Fund also believed that when institutions began to clarify goals they would be able to relate the use of resources more directly to goals for learning and thereby be more effective in terms of costs. Even though relatively few projects were funded in this area, the Fund's impact has been very broad because of interest generated in hundreds of institutions through the process of developing proposals. In addition, those programs which have been funded have received visibility because of innovative aspects.

This work presents edited and adapted versions of the major conference presentations; reflects questions, answers and discussions; and points out some of the issues left unresolved. The report has two purposes: first, to serve as a record of the proceedings of the work conference for the benefit of the participants; and second, perhaps more importantly, to serve as an introduction to the subject of competency-based curricula for the benefit of those who want to know what it is and the kinds of issues with which the present practitioners are dealing.

To meet the needs of both groups, the publication is organized somewhat differently than the work conference itself. The authors have arranged the materials under the headings of certain themes rather than as chronological conference proceedings. Consequently, various parts of different presentations appear in separate parts of the report in order to provide all that was said on each theme in one location.

Because competency-based programs have received great attention and represent somewhat of a trend, the Project staff hopes the work conference and this report will provide useful information and assistance for understanding or developing such programs.

In Search of Definitions

"'Competency-based' has become a special designation for an educational approach—a movement—which places the competencies required for success in various areas of endeavor at the front and center of the learning process." Thus began the 1973-74 guidelines for the special-focus program of the Fund for the Improvement of Postsecondary Education. The Fund designated this area as "competency-based learning," however, there is almost as much discussion about the terminology as there is about the meaning of the movement, particularly as it applies to general educational programs. To many, the concepts implied by the various terms used are distinctive and important which makes the confusion of special concern. As one participant remarked in the closing hours of the conference,

> just this morning alone I noted people calling it "competency-based learning," "competency-based curriculum," or "competency-based education." We've got the "C-B" but we haven't arranged the third letter so that we all know we're talking about the same thing.

For the work conference and for this report we chose "curriculum" as the third term, in an effort to convey the concept of wholeness to the education or learning acquired on the competency-base. The term "curriculum" refers to a set of courses comprising a particular program, and it is this concern for wholeness which seems to be the essence of the competency issue in general academic fields.

Frequently the clearest understanding of a new concept comes through the attempt to define the situation one proposes changing. This approach to definition by implication, or description of what competency is not, was used frequently by conference speakers.

Russell B. Edgerton, Deputy Director of the Fund for the Improvement of Postsecondary Education, defined the present traditional approach in higher education as a "knowledge" curriculum. L. Richard Meeth, Associate Professor of Higher Education at the State University of New York at Buffalo, called it an "experience" curriculum. Whatever it is called, the traditional curriculum, by emphasizing process rather than outcomes, simply provides students with the experience or exposure to knowledge over a definite period of time, producing graduates who are, in the traditional terminology, "knowledgeable." The problem with this, Edgerton said,

> is that man cannot live by knowledge alone. Academic success is not correlated with life and career success. To be an effective, functioning adult, one needs the ability to perform a number of tasks and roles. These abilities, or competencies, involve

not only *knowledge* but *skills* and *attitudes*. Indeed, since knowledge is vast, rapidly dated, and easily forgotten, liberal education itself must shift from the teaching of liberal content to the teaching of liberal skills, e.g., skills of critical reasoning and problem-solving, which can be applied over time.

The outcome of a competency-based curriculum, on the other hand, Edgerton said, will be graduates who have "competence"; that is, a combination of knowledge, skills, and attitudes in a number of areas useful to the performance of important occupational, professional, and social roles. Meeth pointed out that in a competency-based curriculum,

> the emphasis is on the meaning of the experience, rather than the exposure; on the specificity of learning, rather than on the objectives of teaching. In a competency curriculum, what the teacher does is not nearly so critical as what the student does.

Several work conference speakers pointed out the importance of being clear about just what the competency-based concept is and what it involves. The competency concept should not be confused with simply setting performance objectives for courses, or individualizing instruction, or establishing new management information or accountability systems. Edgerton, in his work with the Fund, has contributed to the clarification of the competency concept by his articulation of common elements that are developing as competency programs are designed and implemented. He has made the important point that the competency movement requires "fundamentally rethinking the whole educational enterprise."

In speaking to the conference Edgerton devoted a major portion of his talk to the need to be clear about what competency really is. He said,

> We must ask ourselves, "Is this another academic relabeling exercise, the purpose of which is to throw old practices into new robes?" Or, worse, "Will it further increase the mechanization of teaching and learning and the bureaucratization occasioned by attempts to establish performance reporting requirements for contracts, and this kind of thing, which we've seen in some places?" Or, "Is it really an educational idea which raises truly fundamental issues and which contains a logic that could, if accepted, really serve as a catalytic agent for rethinking all of the agendas, processes and practices in a particular educational institution?" Or, to state the question another way, "Under what conditions can what is now called, in a variety of meanings and connotations, competency-based education, become a strategy for really making learning more effective?"

By way of further clarification and definition of competency, Edgerton described three conditions he believes essential if institutions are to successfully implement a CBC. The remainder of this section contains that portion of Edgerton's presentation at the conference.

Essential Conditions of Competency

The first condition it seems to me is that learning

outcomes embraced by the notion of competence have to include more than pure knowledge. As we formulate our objectives with competence in mind and in the name of competency-based approaches, we have to face the fact that what we are really trying to do is take responsibility for producing students who can be successful, functioning adults in a variety of roles in a new and complex world. The ingredients of competence that we need to think about are knowledge, plus skills, plus attitudes — not just knowledge! Although we haven't yet recognized it, it seems to me that most of American higher education is essentially based on a knowledge model. We produce people who have a good data base and that's about all you can say about them. Even at the Ph.D. level, you can't say much more about graduates than that they know a lot, they understand a lot, and have a good data base. However, that doesn't say anything about how successfully they might perform in teaching, in academic research or in anything else. Let me give you some examples of what I think we ought to be shooting for when we talk about competence. These examples are taken from proposals received by the Fund for the Improvement of Postsecondary Education and seem to go beyond the notion that simply *knowledge* or *understanding* is to be the outcome of learning. In each example I will quote directly from the proposal. The first comes from an astronomy professor who says,

> In a science course designed for liberal arts students, the objectives are significantly different from those in a course for science majors; the criteria for testing the achievement of those objectives also are different . . . . We believe that for a survey course the objective of basic recall, knowledge of facts, terminology, etc., is of low priority. This latter objective, however, is the one that tends to be stressed . . . .
>
> The most important thing which a student should carry away from a course is confidence so that he will retain an interest in and openness to the subject long after the "facts" have been substantially modified . . . . We seek to build the student's confidence that he can handle science, and even science employing elementary mathematics; many students bring with themselves a self-fulfilling prophecy that they are not good at math or science.

The second example comes from a history professor who was discussing the need to think seriously about the *real meaning* of a B.A. degree. After outlining the competencies his institution perceived in history at the B.A. level, he pointed out that from these competencies emerge "two parallel but obviously complementary sets of goals." One of these goals describes the knowledge competency — what information about the past a student should know — but, the professor said,

> Equally significant, however, are the competencies we see developing parallel to a grasp of world history in the past century and a half. These competencies originate in an understanding of one's self and one's values, attitudes, and feelings. Beyond the

individual is the necessity of understanding the importance of one's culture, how it functions, its various kinds of influence, and the tension within it between its universality and particularity. Putting self and culture together then constitutes the next level of competence for the student to achieve: the goal in this case is described as an understanding of the impact of culture on self and involves an understanding of the cultural origins of values and their function within society. Finally, we envision cultural empathy emerging from this process of understanding one's self within a culture which has been historically determined.

In the third example, a biology professor questioned the employers of his department's graduates in recent years to find out what competencies they expected in the graduates. His statement makes it clear that the program he wants to design will include more than just knowledge.

The organizations contacted included private research consulting, food processing, and forest products companies, animal clinics, nurseries, and government agencies dealing with environmental management, health, plant and animal quarantine, biological research, and food and drugs. The discussions with organizational personnel indicated an overlapping group of needs:

1. Need scientific personnel with strong technical capabilities.
2. Need scientific personnel capable of rapidly adjusting to new situations and new technologies.
3. Need scientific personnel oriented more towards the application of knowledge than just towards acquiring new knowledge.
4. Need scientific personnel with greater ability to communicate.
5. Need scientific personnel with experience in successfully working as a member of a team as well as in individualized effort.

This self-study program has brought into sharp focus not only the problems of our constituents, but also the fact that a solution to our constituents' problems will solve many of the problems faced by institutions such as ours.

The easiest way to talk about competence is to focus more on the skill component than the knowledge component and then define skill development areas which seem to make sense in light of the purposes of the institution as well as the social needs of the time. A number of institutions now have begun to talk about analytical skills, problem solving skills, communication skills, social interaction skills, and others, in the context of a variety of subject matter interest. One can develop communcation skills, problem solving skills, analytical skills, in the context of becoming a biologist or social scientist, or in the context of any knowledge or subject matter interest a student might have. However, the most interesting part comes when you begin to disaggregate those general skill definitions into component parts. For instance, what do we mean by analytical skill? Do we mean data analysis, synthesis, or some other types of sub-compartments? If so, then you find

that almost every course in the school is involved in developing analytical skills; in fact, they all think that's what they're about. So as one looks across the introductory courses in a disciplinary area in a particular institution, one finds that the skill components sought in each of those courses look very similar, although they are embedded in very different knowledge models or subject matter agendas. In view of that, especially if one has an interest in cost effectiveness as well as competence, one has to wonder whether more attention could be given to focusing on some of those similar skill areas and perhaps collapsing some of the exposure to knowledge parts of the instructional process, having the student come out better or certainly no worse by spending less time on the transmission of knowledge.

Certainly I'm not suggesting that all liberal arts education is necessarily best stuffed into a concept of competence. But it does seem to me, from the proposals I've read and the people I've talked with, there is utility in the concept of skill development and competence in areas other than occupational and professional in which we are now accustomed to seeing it used. Just thinking about liberal skills, as we have in the past thought about relevant content of liberal education, is a very productive exercise. Determining the ways to help people learn how to learn and to do other things that we all say in the rhetoric of our catalogs (but haven't figured out how to put into practice in the curriculum) is an agenda for competency-based education which I think is exciting.

If what I have been discussing really is one of the necessary conditions for having a true competency model in mind, as against a pure and simple knowledge model, this means by implication that what passes in the name of performance-based education is really not as exciting. At least performance-based education ought not be confused with competence, because any professor can formulate objectives in a course. In competence, it's the nature of those objectives that matters and whether those objectives are connected to the things that one needs in order to be a functioning and successful adult in society. Also, an important characteristic is that reasonable people, including students and persons outside the institution, can understand the objectives; that seems to me to be more important than simply having a list of objectives. In addition, having a list of objectives for each course and adding up all the course objectives in the departments and adding up all those departmental objectives into an institution may or may not have anything to do with a preconceived vision of the competencies people ought to have as they graduate from a given institution.

The second condition I would propose is that there has to be a commitment to follow out the logic of the objectives adopted in the name of competency throughout the institution. If the purpose of the college is the transmission of knowledge by a faculty and the acquisition of knowledge by students, then it makes sense to have an admissions procedure based upon previous academic records, based upon know-

ledge and the aptitude to acquire knowledge; it makes sense to have faculty members as dispensers of knowledge; and, it makes sense to have graduation requirements and graduation transcripts state what knowledge has been gained in those Aristotelian rooms. That is the way we now organize the curriculum in our colleges and universities. But if competence is to become the dynamic for the outcome-driven process, then we must ask ourselves what has to change. Maybe nothing, maybe everything, or maybe parts of everything must change. At least it's worthwhile looking. For example, look at the nature of the admissions process. Do we need procedures for assessing competencies in students who already have them? Do we need ways of identifying motivation and predicting success and nonacademic talents which are really embraced in some notions of competence rather than predicting simply academic success and performance? These characteristics generally are not embraced in the academic selectivity admissions process now current in higher education.

As another example, let's look at the instructional process. Do we need more faculty spending more time with assessing, diagnosing, and counseling and maybe less time transmitting knowledge? Do we need new techniques of assessment, different graduation requirements and transcripts? Do we really need to say that a student either has a degree or not; that it's an all or nothing situation? If someone leaves the institution at the end of the junior year, can we put out a transcript which states the level of competence attained in the three years at the institution? For some students in a particular area that might be a quite satisfactory statement. In that case a student would have a credential to say this is what I can do, these are the things that I understand and if I stay in the institution another year I'll have another level of competence in some of these areas.

These questions are not about mythical things; I'm talking about real things. The proposal from the biology chairman I referred to earlier included just such a procedure. Whenever a student leaves that institution, that biology department will be happy to send a transcript of competence anywhere in the world which states the level the student has achieved in their care.

Finally, as the third necessary condition, the institution has to be brave enough to experiment with new modes and forms of assessment. This also includes faculty giving up some of the control which they have been loath in the past to give up. Once one starts down the track of competency-based education, it seems that the faculty are drawn into more and more concern about assessment and become more and more involved as diagnosticians and assessors. However, at the same time it seems that some competency areas, especially those in which students might be certified by challenge exams, are conducive to assessment techniques quite apart from the traditional or typical faculty assessment process.

One approach that is being tried is the use of faculty peer judgment. One example might be in the

communications skills area, and perhaps others, in which judgment by just faculty content specialists is not necessarily the best. Perhaps a set of peers ought to be involved in making evaluative judgments about the students. If so, then there may have to be a new definition of faculty peerage which embraces various kinds of persons within educational institutions and persons beyond educational institutions in professions, occupations, and so forth, who are more qualified than traditional faculty, in making judgments about certain competencies. This might be especially true in parts of the agendas of liberal education programs where judgments can be made about an individual through replicating real life situations as a very legitimate validating or certifying technique.

In this context, I think of Alverno College in Milwaukee which has set up forty evaluation panels in the area of communication skills and public affairs. On each panel is one student, one faculty member, one businessman and one alumnus. Those panels, which are not paid (in fact people in the community are eager to serve on them), are provided criteria for evaluation; and a student who has studied some public affairs issue and is interested in passing communication skill competency areas as well as some subject matter competency appears before the panel, takes a position and argues persuasively, and successfully one hopes, for two hours. The panel members judge the student as one would be judged in all subsequent real life situations when one is trying to articulate and defend a position about an item of public affairs. Is that an invalid assessment device simply because it involves a businessman and an alumnus? Or is it true that in fact, that's precisely the kind of assesment situation which would produce the kind of judgments of most benefit to that student as she tests the skills she's trying to develop?

It seems that we need more research (we always do), but more than that, we need a new attitude toward flexibility, and exploration of new techniques, and an openness toward who should make the judgments and the conditions under which assessment might take place. New procedures and forms, carefully and prudently employed with old procedures and forms, should be built in so that, as so rarely happens in educational reform movements, the assessment permits the measurement of the kinds of outcomes which should be part of the process in the first place. As we look back on the history of attempts to do new things in higher education, we find that the nature of the evaluative funnels through which we finally judge the processes themselves do not often permit the kind of judgments needed to really decide whether they are successful or not.

Exploring the Context

Current Factors Affecting Higher Education

Harold L. Hodgkinson, of the Center for Research and Development in Higher Education of the University of California at Berkeley, opened the conference by describing five current factors that he believes are causing institutions of higher education to look in the direction of programs based on competencies. These five factors are: (1) recent census data that indicate a rather sharp decline in the cohort of people in the 18-21 age group through 1980; (2) recent research indicating that Americans are rapidly losing faith in their major institutions, educational and otherwise; (3) evidence that the relationship between level of education and income is declining; (4) the great increase in the numbers of people over 21 years of age entering various forms of higher education; and (5) evidence that higher education is entering its third stage of development since 1860, an "egalitarian era."

Census Data

Available data show that the birth rate in the United States is now averaging 1.8 children per woman in the childbearing years, a figure that is slightly below what is commonly called "zero population growth." What this means, Hodgkinson pointed out, is that in terms of the standard cohort for higher education, there are going to be far fewer 18-21 year olds as we go into the 1980's. In addition to that, figures are beginning to show that the percentage of the 18-21 year old age group going directly to college from high schools also is declining. This percentage recently dropped from a high of 46 percent to a present 35 percent. So the 1980's not only will have a declining real number of people in this age group, but may have the problem of a declining percentage enrolling as well.

Hodgkinson pointed out also that the greatest decline in births is in the Caucasian race and among persons in the middle socio-economic class. Thus when we get into the 1980's we are going to have a higher percentage of the cohort of traditional college age of minority background, and regardless of their race, a larger percentage will be in the lower socio-economic class. Since colleges have traditionally drawn more students from middle and upper classes, Hodgkinson said, then we should begin thinking seriously about

some changes in the patterns of how we are going to educate this very different cohort. The notion that all institutions can be Oberlins and Swarthmores may not square with the kinds of populations and the sorts of aspirations with which we will have to deal, Hodgkinson concluded.

Loss of Faith in Social Institutions

The second factor that Hodgkinson addressed is research that shows Americans are losing faith in their major social institutions. In California, for example, only 25 percent of the people have a high degree of faith in universities and colleges, but, Hodgkinson points out, colleges' and universities' most severe critics are members of the state legislature who, themselves, receive only a 12 percent rating! The evidence shows that higher education is not alone. In a wide variety of areas, public faith in these organizations to do major reformation jobs, either for people, goods, services, or whatever, has declined markedly. The result seems to be a public mood that can be summarized best as a lack of faith in higher education's ability (as well as other major social institutions') to deliver on its promises. Another result of this is that institutions—higher educational and others—are being asked to document more clearly what it is they do (what value they add) and how they know they do it. For this reason, Hodgkinson says, more and more accountability is being forced on institutions of higher education, and many have responded to it with greater concerns about their "outputs."

Decline in Relationship Between Higher Education and Income

The decline in public faith in higher education may be related to the third factor, the decline in the relationship between higher education and potential income. In 1900, Hodgkinson said, the relationship was quite pointed, but a study in 1969 showed that in 60 percent of the cases reported, one could not distinguish from the number of years of schooling what a person's income was and vice-versa. Hodgkinson reported that he has seen one study, not yet published, which indicates that a better predictor of future income than years of education is whether or not a person is in a unionized occupation.

Increase of Nontraditional Students

The number of people over the age of 21, the traditional college age, entering some kind of post-secondary education is increasing rapidly. Hodgkinson reported that *Social Indicators*, a 1973 publication of the U.S. Office of Management and Budget, shows that there were 10,356,000 persons over the age of 21 participating in some form of adult education in

1969. What these figures mean, Hodgkinson said, is that there are 10 million potential students for American colleges and universities who are going elsewhere to get types of education that traditional higher educational institutions are not providing. Hodgkinson said:

> They seem to be going places where they can get very specific kinds of training to accomplish very specific kinds of educational objectives that are important to them as persons.

A New Era in Higher Education

The final national trend which Hodgkinson believes is leading some institutions in the direction of competence is that since approximately 1970 higher education has been in what can be characterized as an "Egalitarian Era." This is the third such period Hodgkinson described and follows the Aristocratic Era, between 1860 and approximately 1930 or 1940, and the Meritocratic Era, which could be identified between approximately 1940 and 1970.

The Aristocratic Era was characterized by admission to college and later to the professional world based primarily on family background or social status. There were tests neither for admission nor graduation. The Meritocratic Era, on the other hand, was characterized by the creation of massive testing programs as a means to reject some of the massive numbers of young people flooding the gates of colleges and universities. During this period, Hodgkinson pointed out, institutions developed the thinking pattern that the more people they could reject, the better institutions they were. There was heavy use of tests for admission to college in this period, but practically none for graduation. In this period in American society, there was little questioning about higher education's "output."

The Egalitarian Era has brought dramatic changes. There is a greater belief in the Nation that everyone should have a chance to be educated to his limits; and society is in the process of trying to demystify most of its social institutions. There seems to be a growing lack of interest in admissions testing, and greater interest in job-related proficiency testing for graduation. The change is from an interest in aptitude tests which reject people for admission to an interest in proficiency testing at graduation so that institutions can be more specific about what their graduates are able to do. "What counts then in the Egalitarian Era is not family background, nor aptitude as measured by a standardized test, but competence, and competence in areas that are directly related to real life," Hodgkinson said.

There has been much interest recently in the fact that Scholastic Aptitude Test (SAT) scores have been declining for the past ten years, which the Educational Testing Service says is a result of a larger pool of applicants and more people from lower socio-

economic backgrounds now taking the SAT's. Hodgkinson stated his belief, however, that the decline is simply the result of the dramatic lessening of pressure on young people to get into college as we have moved into the Egalitarian Era. Almost anyone who wants to can now be admitted to college and, as pointed out earlier, fewer are interested anyway.

One of the most recent events that has dramatic implications for the demystification of the traditional "outputs" of higher education, Hodgkinson pointed out, was the Supreme Court decision in the case of *Griggs v. Duke Power Co.** Hodgkinson made the following comments about this case and its implications:

> The court said, in terms of dealing with tests used for job selection, "What Congress has forbidden is giving these devices and mechanisms controlling force unless they are demonstrable or reasonable measures of job performance." Now you can't measure job performance directly for those who are applying unless you actually hire them and get them on the job. So you can do two things; you can develop some kind of predictive tests or a proxy measure, or you can take samplings of the actual job tasks and give those to people. The Court has suggested that either of those are acceptable as long as job-related skills are being measured.

*401 U.S. 424 (1971)

Hodgkinson pointed out that the implications of this case pose a number of interesting questions for higher education. For example, can the Ph.D. be used as the criterion for predicting success in college teaching? Since we have practically no evidence that a person is a better teacher after receiving the doctorate, one interpretation of this case is that we cannot use the degree to screen candidates unless we can show that it demonstrably predicts success as a college teacher.

Another question that follows from *Griggs v. Duke Power* is whether we legally can use tests like the SAT for admissions purposes. Aptitude tests can be used to predict grades, but the question is, what do grades predict? David McClellan of Harvard conducted an extensive review of the research in this area and made the following statement which Hodgkinson quoted:*

> Researchers have in fact had great difficulty demonstrating that grades in school are related to any other behavior of importance . . . It seems so self-evident to educators that those who do well in their classes must go on to do better in life, that they have systematically disregarded evidence to the contrary that has been accumulating for some time.

* David McClellan, "Testing for competence rather than for intelligence," *American Psychologist*, January, 1973.

Hodgkinson then concluded that this kind of evidence suggests that American meritocracy may need to foster some criteria other than just verbal and quantitative skills measured by the SAT. Other dimensions of human functioning that seem to be important for our lives might be promoted through careful programs.

As a result of these five national trends, many institutions have begun to examine themselves in light of these changing circumstances. For this reason, Hodgkinson said, many institutions are looking closely at various concepts that might offer potential for dealing with the issues of the future as well as of the present. That is why the development of competency-based programs is being considered by so many at this time.

Scope and Variety in Competency-Based Programs

It is clear that the movement toward competency-based programs is broad in scope and is taking a variety of shapes and forms throughout American postsecondary education. Edgerton talked about this scope and variety when he described the number of ways in which the competency concept seems to be serving contemporary higher education as indicated by the proposals received at the Fund. The following excerpt from Edgerton's address to the conference deals with this topic:

Judging from the 472 proposals we received at the Fund in the competency-based area, I can say that the competency-based label is useful in identifying what seems to be a unifying force for something new and interesting that is happening in a variety of settings in American higher education. A number of small private colleges seem to be searching for new and distinctive missions in a much more rugged, competitive world. For some of them, the concept of competency seems to be serving a useful purpose. There also are many efforts to develop a competency approach in public settings, in large community colleges and even in large state universities. In large institutions the effort typically is focused in a department or a cluster of programs rather than across the entire institution. For many institutions it seems that the attraction to the label of competence has something to do with outside forces, economic pressures, and in some cases incentives to get involved in time-shortened degrees. Several institutions, Florida State University for one, and Bowling Green State University for another, seem to have gotten involved initially in looking at their programs as an effort to come up

with a time-shortened degree. Then after a while, somebody figured out that three years was just as arbitrary as four, and four is just as arbitrary as any other and that the real need is to decide what the educational outcomes are to be and then design an instructional process to achieve those outcomes. In other words, these institutions backed into an interest in competency-based education as a result of looking at other possibilities.

We also have found some interesting field-based initiatives using the competency concept. For example, in hospital settings, hospital workers want to have new opportunities for affiliating with some kind of credentialing authority: Union employees, like electrical workers and others, are searching in their settings for a way back into the rewards of education and legitimacy. For them, competence seems to be an attractive concept because it represents a potential productive compromise between what they think they know already and requirements for an educational credential. They do not want to start all the way at the bottom of the academic ladder and work their way back up. The competency concept provides the possibility for achieving some compromise in admission to an institution which might mean one automatically would not have to spend four years and go over some things he already knows.

The movement also encompasses a variety of fields. Teacher education, of course, is quite prominent in the proposals we have received at the Fund, but so are the human service professions and even some of those that are more traditional. For example, law schools are moving toward apprenticeship models with clinical-type experiences and for them, the language of competence seems to be appealing. Across the whole spectrum of education, including the liberal arts, we find that competence is an attractive concept.

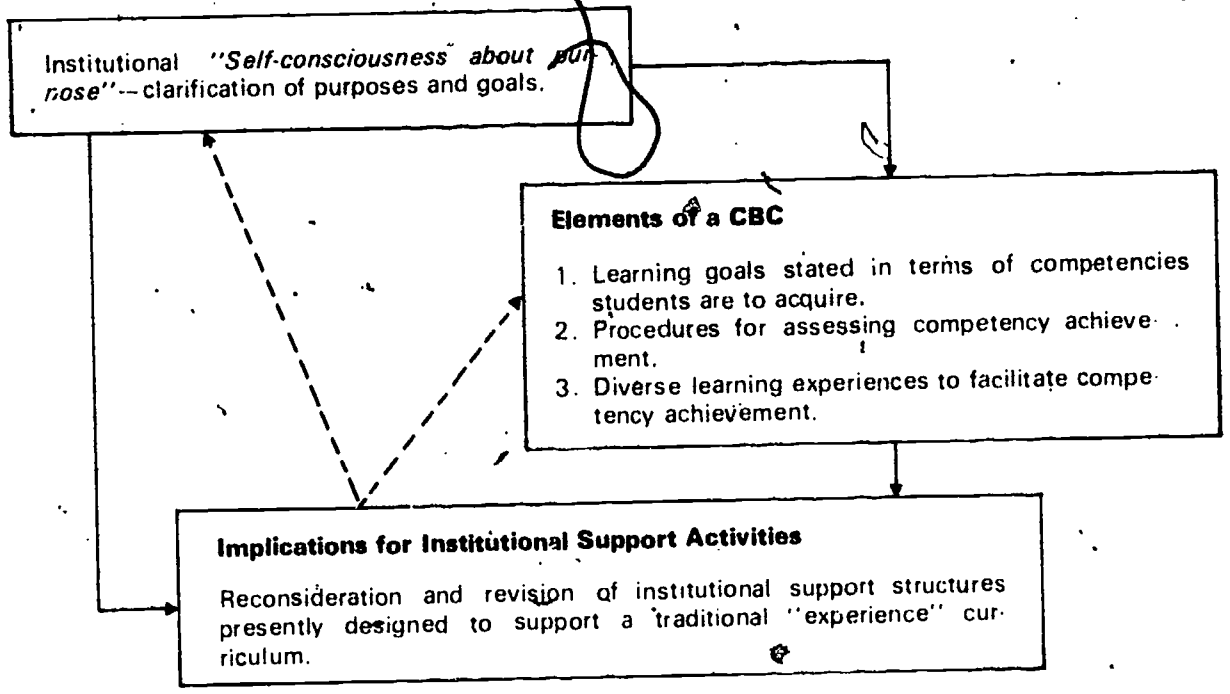
When one talks about clarifying objectives and being clearheaded and explicit about outcomes, people both inside and outside educational institutions are brought into the kind of attractive net that is being formed around the word "competence." Persons outside educational institutions seem attracted to notions of accountability and performance which some think follow from the competency concept. Because of all these things, it seems to me that the competency-based movement is one of the most exciting things in American higher education today.

Implementing the Curriculum

There are three interlocking and interrelated stages through which an institution must go in order to develop a competency-based curriculum: (1) clarification of institutional purpose and goals; (2) design of the three basic elements, or components, of a CBC; and (3) restructuring institutional support activities presently designed to support a traditional curriculum so that they will support a CBC.

The diagram graphically illustrates these stages and possible relationships among them.

STAGES IN DEVELOPING A COMPETENCY-BASED CURRICULUM



The first stage an institution must go through before developing the specific elements of the CBC is the very difficult process of defining and clarifying its purposes. Once this initial effort to define and clarify goals in contemporary terms has been completed, the second stage, developing the elements of the curriculum, can begin, though goals may be further revised or restated as this second and then the third stage is developed.

The curriculum, itself, requires the development of three elements, or components. These three elements are written explicit statements of competencies students are to acquire, evaluation or assessment procedures for each competency, and learning experiences designed to assist students in attaining the required competencies.

The third stage requires the institution to adjust, reorganize, and rethink present institutional support structures so they will support the competency-based curriculum. For any innovation to succeed, an institution must be willing "to follow out the logic" of the innovation, as Edgerton put it. Therefore adjustments may have to be made in areas such as admissions procedures, faculty roles, administrative relationships, advising and counseling services, transcript formats, financial and fee structures, and external influences and relationships.

What follows in this section of the report is a presentation of what was learned in the conference about each of the CBC components and the institutional activities that might be affected by the adoption of a CBC. The amount of information contained here represents the extent to which the conference dealt with these aspects and the extent to which information and insight have been developed in relation to CBC.

Clarification of Purposes and Goals

It is clear that an institution must begin development toward a CBC with a rigorous examination of its own purposes and goals. Edgerton said the decision to move to a CBC immediately causes an institutional "self-consciousness about purpose." The institution must be able to clearly state just what its goals and purposes are for its students. It must be able to answer the questions, "What are the students expected to learn?" "What should the students be able to do upon successful completion of the program?"

Achieving agreement among trustees, administration, faculty, students, and alumni on the purposes of an educational institution, division or program is a difficult task. Careful strategies and programs must be developed to achieve this end; otherwise the competency curriculum will turn out to be no more than

the rearrangement of a variety of requirements and experiences, perhaps with a new look, but probably lacking the integrity and wholeness that is the essential difference in this new effort. Several work conference participants pointed out that institutions go through this soul-searching process every ten years for accreditation self-study. However in order to arrive at agreement among a majority of institutional members, the resulting statement of purpose is often so vague that it borders on being meaningless. A serious attempt to clarify institutional purposes, then, is a most important and most meaningful step for an institution to go through in developing a CBC, even if it moves no further.

Designing the Elements of a CBC

There are three elements to be designed in order to implement a CBC. These are the statements of competencies students are to achieve, the assessment procedures to guide student progress and certify competence, and the learning experiences to assist students in achieving the competencies.

Developing Competency Statements

After institutional purposes have been agreed to, or program purposes if the CBC is to be in a program rather than the total institution, then institutional or program learning goals for the students must be stated in terms of the competencies students are to acquire. Institutional or program individuality requires that these statements be designed in each location in order to fit unique purposes and goals. Competency statements also must be written for each possible level of the institution's or program's curriculum—division, major, course and module—so that each overall institutional statement of competency has a related series of statements for accomplishment at each program level.

Harold Hodgkinson cited examples of competency statements from various institutions and discussed how these statements evolve from broad institution-wide goals down to statements of objectives for courses and modules. Since the heart of the competency approach is the fact that time spent in learning is not as important as the ability to demonstrate attainments of competency, the competency statement is the expectation rather than the set of experiences to be undertaken. Hodgkinson presented a sample set of college-wide competency statements from six actual institutions, as shown on Chart "A".

Chart A

Sample Competencies in Six Colleges

	INSTITUTIONS					
	A	B	C	D	E	F
1. Comprehend Christian Heritage	●	●				
2. Demonstrate Awareness of Values & Commitments	●	●		●		●
3. Demonstrate How to Use & Acquire Knowledge	●	●	●	●	●	●
4. Comprehend the Artistic & Aesthetic Dimensions of Culture	●	●	●		●	●
5. Comprehend the Relationship of Man to His Physical & Social Culture	●	●	●	●		●
6. Demonstrate Depth Knowledge of One Field	●	●	●	●	●	
7. Demonstrate Physical Skill in a Recreational Area	●	●	●			
8. Demonstrate Competency in Verbal Communication	●	●	●	●	●	●
9. Work in a Group Formulating Problem Solutions and Then Act on Them	●	●				●
10. Proficient in Self-knowledge		●	●	●	●	

While discussing these examples he urged conference participants to note particularly how the language of a competence curriculum differs from the language of a more traditional curriculum. For example, the list of expectations in traditional terms might read:

> to know, to understand, to *really* understand, to appreciate, to *fully* appreciate, to grasp the significance of, to enjoy, to believe, to have faith in;

while in CBC terms they would be:

> to write, to recite, to identify, to differentiate, to solve, to construct, to list, to compare, to contrast.

Hodgkinson pointed out that unlike the "behavioral objectives" movement, the competency-based model adopts the stance that learning should be cumulative and additive, leading to the development of the "whole" or "competent" person the institution would like to produce. Therefore, both small and large educational objectives have to be designed and related, from individual course objectives all the way up to the overall objectives of the institution. All of these should "stick together," with the objectives at lower levels "adding up" to the overall institutional objectives, which together articulate that holistic view of a "competent person."

Chart B

Sample Breakdown of One Competency

LEVEL I: COLLEGE COMPETENCIES	"TO BE ABLE TO REASON"		
LEVEL II: MAJOR COMPETENCIES	*Biology* Can use experimental techniques	*Philosophy* Can analyze and produce philosophical arguments	*Sociology* Knows how to use statistical methods of inquiry
LEVEL III: COURSE COMPETENCIES	*Biological Methods* Understands the meaning and use of controls	*Philosophical Reasoning* Understand inductive arguments	*Statistics* Knows how to use sampling techniques
LEVEL IV: COURSE MODULES OR SUB-COURSE UNITS	*Interval Measurement* Understands and can use spacing and time points	*Induction* Understands the "new riddle of induction"	*Sampling* Understands random sampling
LEVEL V: DIRECT MEASURES	*Use of Time Points* Can design and run an experiment requiring time checks	*Predicates* Can produce a "Grue-like" predicate	*Randomized Samples* Can draw and interpret a stratified random sample
LEVEL VI: ITEM POOLS FOR DIRECT MEASURES	Given a frog's leg, calculate the best time intervals for a study of oxygen levels in tissue degeneration	Given the predicated "is a boy" and "is a girl," produce a pair of contradictory projectable predicates	Given a telephone book, produce a random stratified sample of 200 men and 200 women

To illustrate this point, Hodgkinson presented the sample breakdown of one competency as shown on Chart "B". Level I in this chart shows the college-wide competency, "To Be Able To Reason." Levels II through VI show how this one college-wide competency can be broken down to competencies in a major field, Level II; to competencies in particular courses, Level III; to competencies in course modules or sub-course units, Level IV; to direct measures, Level V, which enables us to know whether or not the material in Level IV has been learned; and to a series of item pools of measures, Level VI, which can help determine whether the student can perform the direct measures in Level V.

We can see from Chart "B" that the theory of a competency-based curriculum is to provide a genuinely coherent sequence of educational activities and behaviors to get all the way from a pool of certain items to the achievement of a college-wide competence.

When this model for achieveing one competency of an institution is related to a total set of competencies for an institution, one immediately sees that it is possible for the number of competency options and item pools for measurement to become quite large very quickly. Chart "C" presents a model which illustrates that situation. If an institution has 8 college-wide competencies, there may be as many as 6,240 items in the measurement pools, for example. But Hodgkinson made the important point that a student does not have to encounter all 6,240 of these items.

Rather, a path must be created for each student to move through the system rather than having the system move him. "If there is a problem with competency-based programs," Hodgkinson said, "it is that the programs appear so monolithic to the student that he has a feeling there's nothing much that he can do; that the system is manipulating him." In fact, however, the variety of learning experiences that a properly designed CBC makes available to a student provides maximum individualization. Students strive toward common competencies but by the method and at the speed that most nearly fit each individual's learning style and abilities.

Chart C
Competency System

I. COLLEGE-WIDE COMPETENCIES - 8

II. COMPETENCIES FOR MAJORS—88
(22 MAJORS x 4 COMPETENCIES)

III. COURSE COMPETENCIES—520
(130 COURSES x 4 COMPETENCIES)

IV. COURSE SUB-UNITS (MODULES)—1560
(520 COURSE COMPETENCIES x 3 MODULES)

V. DIRECT ASSESSMENT MEASURES—3120
(1560 MODULES x 2 MEASURES)

VI. ITEM POOLS FOR DIRECT MEASURES—6240 ITEMS
(3120 MEASURES x 2 ITEMS)

DO THE 6240 ITEMS "ADD UP" TO THE ATTAINMENT OF THE 8 COLLEGE-WIDE COMPETENCIES?

Richard Meath dealt with the subject of designing competency statements by posing and answering a series of questions he finds most often asked. The questions and answers from that portion of his presentation follow:

Who decides what the competencies will be?

There are seven authority bases now in use by colleges and universities with competency-based programs.

1. The individual himself. Students are writing their own statements of competency in a number of programs around the country.
2. The recipients of competence. For example, the patients of a doctor, the student of a teacher.
3. Practitioners. People in the field who are graduates of a program of study.
4. Faculty. This is the most frequently used authority base.
5. Employers.
6. Experts. These are consultants or people outside an agency or organization who write or design competency statements.
7. Government. For many colleges, this is the primary agent for setting competencies – state boards, legislatures, federal agencies.

By whose authority is a person competent?

Any one or a collection of the seven categories above might also set the determination of when a person has met the competencies. The same persons should not set the competencies *and* determine when they are met, however.

Is "competence" an absolute concept?

As a concept, "competence" is not an absolute term in that there have always been levels of competence in our society. Not only are there levels of competence, but also levels of mastery and levels of difficulty within a competency curriculum. In addition, the concept cannot be considered absolute because students often can set their own competencies, and they can modify them before the time of assessment. But once the competency statement is fixed, then competency becomes an absolute term in a given context.

How do "competencies" differ from "goals"?

First there is a tense difference. The word "competency" is present oriented and used in the present tense. The word "goals" is future oriented and used in the future tense. Competencies are written in the present or present perfect tense – "A person *can* or *knows how*" to do whatever the competency might be. A goal describes what a person ought to be able to do or will be able to do at some point in the future. A second and related difference is that competency emphasizes outcome or realized ability, whereas goals emphasize ability or expectations.

A third difference is that goals are time based, related to a point in the future, and competencies are not time oriented. When a person reaches "competency," he or she is competent without any specified time reference.

How do "competencies" differ from "behavioral objectives"?

Some argue that there is very little difference except that competencies are phrased in the present tense instead of the future tense. But there are important differences. In competency emphasis is based on the outcome, the skill, or the knowledge, or attitude, in a stronger way than in behavioral objectives. In behavioral objectives, the tendency is to tie the experience of learning too directly to the outcome, suggesting that someone knows the best learning experience for each behavioral objective. "Upon completion of these activities, a person will be able to . . . ," is the way behavioral objectives are usually stated. Behavioral objectives tend to be reductionist, to break learning into smaller and smaller units, whereas competency tends to be more global, or gestalt, by nature. In design, the broader the skill or the knowledge base, the more appropriate are competencies. Behavioral objectives can include by definition only overt behavior; competence can include covert behavior as well, such as thinking and feeling. Moreover, competencies are open to a broader range of assessment techniques than are behavioral objectives.

Finally, behavioral objectives are different from competencies in that the emphasis in behavioral objectives, because they have been tied to experiences, is on what the teacher will do to get the student to the point of competence, or accomplishment of the objective, whereas competency stresses what the learner must do or know.

Are competencies random statements?

In too many instances they are. But in theory, they should not be. If competencies are to be any different than completion of a collection of courses, in terms of relationship of learning, then they need to be related in some way to a learning or knowledge theory. One example of this is at Mars Hill College where an effort has been made to relate the basic competencies to Philip Phenix's knowledge theory, as stated in his book, *Realms of Meaning*.

Can a competence curriculum be developmental? Can it be student oriented?

A competency-based curriculum will be developmental if the competencies themselves are based on a developmental theory of learning; that is, if they are tied together. The Mars Hill program, for example, is based on Arthur Chickering's seven vectors of student development, as described in *Education and Identify*,

which Chickering thinks comprise a gestalt, a student developmental sequence. A competency-based curriculum also can be developmental by letting the students design their own competencies, as at the Community College of Vermont.

A competency-based curriculum also can be developmental by the way in which evaluation criteria levels are set and the way in which evaluation itself takes place. There should be a sequence of learning and a sequence of assessment, with not all assessment taking place in the last weeks of an academic year. Finally a competency-based curriculum can be developmental by the range of experiences recommended to the learner for meeting competence. Some people already may possess certain competencies and may want to "test in" immediately. Some students may have ways of learning a competency different from those recommended by the faculty.

Assessment Procedures

The area of evaluation and assessment is perhaps the most important in the development of competency programs. Harold Hodgkinson stated at one point that if there is anything clearly new about the competency movement, it is the area of assessment. And in the same vein, as reported earlier in this report, Russell Edgerton stated that institutional willingness to experiment with new modes of assessment and faculty willingness to give up some control in this area are necessary conditions for the success of a competency-based program.

Categories of Assessment

When participants at the work conference spoke about the issue of assessment criteria and methodology, they referred primarily to the matter of assessing or evaluating student progress toward the achievement of competencies. Hodgkinson pointed out, however, that there are other areas as well in which the issue of evaluation and assessment arises in competency programs. He suggested seven areas of assessment participants should keep in mind as they begin to deal with this subject:

- assessment of faculty skills required in a competency-based program, particularly in diagnosing student learning needs and attainments;
- assessment of the success in achieving general college-wide requirements;
- assessment of the impact of competency-based programs on campus climate;
- assessment of the impact of competency-based programs on admissions;
- assessment of the impact of competency-based programs on student attrition;
- assessment of the impact of competency-based programs on faculty morale and aspirations;
- assessment of the competency-based program's financial impact on the institution.

Evaluation and assessment of student progress toward the achievement of competencies, however, was what concerned participants most, and was, therefore, the area on which the conference focused.

Terminology

An important matter of concern in this area is clarifying the various terms related to evaluation and assessment. It was very clear that among the conference speakers, and undoubtedly among participants, there were specific meanings attached to these terms, though many were used interchangeably. The distinctions being made among various terms related to the judgmental process in competency were not always clear but both Hodgkinson and Meeth made an effort to clarify the concepts with which they work in dealing with evaluation and assessment.

Hodgkinson considered the differentiation of these two terms particularly significant. He used the word *evaluation* to refer to the type of testing which has been so much a part of traditional college programs. In this evaluation, or testing, we usually look at one person's performance in comparison with others' performance on the same test as a kind of final evaluation of accomplishment. Hodgkinson used the term *assessment*, however, to refer to the diagnostic process used for advising the student along the way toward completion of the competencies. Faculty who have been accustomed to developing normative-type tests for evaluation purposes probably will find that diagnosing student learning potential and progress requires very different skills. Institutions need to be sure that faculty have or can develop the competencies needed to properly *assess* students before they go into a CBC.

Meeth also made a careful distinction between the terms evaluation and assessment, although of a somewhat different nature. He, like Hodgkinson, stressed the importance of *assessment* in competency-based programs. However, Meeth suggested that "we think of the word 'evaluation' as the general idea covering all ways of evaluating, and use the word 'measurement' to mean *objective evaluation* and the word 'assessment' to mean *subjective evaluation.*" He distinguished between these concepts as follows:

> "Assessment" techniques, like observation, consensus, intuition, authority, and, for some, revelation, are typically the humanistic methodoligies that have gone out of favor in much of learning theory and are just now beginning to come back. These have been long established techniques or methodologies for assessing human behavior. They are the basis, for example, in art and literary criticism. The "measurement" methodologies, like observation, experimentation and control, that we have identified with the scientific methodology, are much more in vogue, however, but they limit us to overt behavior, that is to things that can be observed and measured objectively. Competencies should not be limited to that category, but also

should include those activities that we can only assess.

The process of assessment and evaluation has two purposes in a competency-based curriculum. First, a student is assessed for diagnostic purposes in order to determine the level at which he or she begins, his or her weaknesses, and the learning path to follow in order to achieve the desired learning goals. Second, a student goes through the assessment or evaluation process to determine his or her progress along the way and to be certified for having completed predetermined levels toward achievement of the specific competency. In the process both objective and subjective judgments can be made because competencies include both overt and covert behavior.

Types of Measures

John Harris, Director of Instructional Research and Service at Florida State University, offered two general guidelines to be followed in the development of assessment strategies and techniques when using "a time-free, variable-method, mastery-learning approach." "First," he said, "assessment strategies and techniques ought to be criterion-referenced rather than normative-referenced; and, second, criterion-referenced assessment strategies and techniques should emphasize measures of maximum performance." Rather than measuring one's achievement against what is considered typical for his reference group, a student in a CBC should be measured against preset criteria.

Harris suggested that assessment criteria and strategies be explicit, comprehensive, and tentative. Objectives and criteria should be stated explicitly so as to be clear to all concerned and should be comprehensive enough to provide the students and assessors a broad range of activities from which to draw the desired proportion to build the "constellation of attainments" that describe the competent person the institution wishes to produce. Harris said:

> We need to become more clear about what the major domains of proficiency are for college graduates and then proportionately assess accomplishments from all of them. If we believe that the abilities to write, to argue, and to be articulate are more important than some other things, then those abilities ought to be more heavily weighted in a comprehensive assessment for awarding a degree. If we think decision-making and creativity are more important, then they ought to be more heavily weighted.

Although it is important to be explicit and comprehensive in stating assessment criteria and strategies, it also is important to be tentative and remain open to possibilities for change, according to Harris. This requires deliberate effort to change criteria and to refocus and redirect strategies even though it is almost contradictory to the development of explicit and comprehensive criterion-referenced assessment procedures. When striving to be explicit and compre-

hensive it is very difficult to recognize something new; however, as Harris said, to prevent excessive rigidity and maintain relevant criteria and procedures for assessment a certain amount of "tentativeness" must be maintained. In addition, Harris strongly urged participants to keep in mind that criterion measures ought to be chosen in terms of their sensitivity to instructional differences.

The second guideline for assessing time-free, mastery learning offered by Harris is that measures of "maximum" performance ought to be emphasized rather than attitudinal measures, which have been typical in traditional higher education. By maximum performance, Harris said that he meant those kinds of performance assessments on which one does his best, such as a piano recital, preparation for an art show, a dissertation defense, or solving mathematical problems. He said, "Typical performance measures are those on which you relate, or betray, how you usually feel, such as on a vocational interest blank, inventories of values, and so forth." According to Harris, then,

> In assessing student performance as a basis for awarding degrees we should concentrate on criterion rather than normative measures, and on measures of maximum performance rather than typical performance measures mainly designed to help an individual inventory his emotions, attitudes, and values.

It is clear that assessment and evaluation in competency-based programs is much more than what is implied in the traditional use of the term "testing."

Focus of Evaluation

The essential point in developing successful assessment criteria and procedures for a CBC is that students should be evaluated on what they know and what they can do rather than just on the exposure to certain educational experiences. In the assessment process, as in the process of designing competencies and learning experiences, it is important to keep in mind that a competency program must have as its central focus an overall view of the "competent person" the institution strives to produce. In a competency program, it is not assumed that this competent person automatically results from the sum of a host of unconnected parts. Instead, it is important that all the parts of a student program be additive from the student's point of view. All the parts should add up to a whole and both the institution and the student should have a clear view of what it is that they are striving for and how the various parts add up to it.

A student will enter the assessment process immediately upon entry into the institution because learning experiences are to be designed to take the student from where he is to where he should go by the process most conducive to his own learning ability and style. A student also will get credit for

what he or she already knows, which is another aspect of the concept of immediate assessment.

In designing a competency curriculum, as Hodgkinson pointed out in the preceding section, competencies are stated, first at the institutional level, and then are broken down into departmental, major, course, and perhaps, module competencies. As these competencies are broken down into smaller and smaller units, they will be stated more or less precisely in terms of what the student must be able to do to demonstrate competence. That is, the competence will state in fairly precise language just what is to be assessed. For example, at Alverno College in Milwaukee, Competency #7 is "Develop awareness and understanding of the world in which the individual lives." Level 1 of that competency is, "Demonstrate awareness, perception, and knowledge of observable events in the contemporary world." In order to demonstrate achievement of Level 1 of Competency #7 at Alverno, students know that they must be able to do the following:

For 2 international, 2 national and 2 local events

- Identify issues and significant personnel
- State associations concerning short- and long-range implications of a given event for a related area, e.g. the economic implication of a political event, the psychological implications of a scientific or technological event
- Identify those aspects of a given local event which account for its significance

Thus, both students and assessors know precisely what is to be assessed, and students know precisely what it is they must be able to do to accomplish the first level of that particular competency.

Procedures

Assessment processes now in use seem to fall into two general categories: course-related and institution-wide. Course-related assessment is assessment that is included as part of a class or other learning procedure with the results evaluated by the instructor or learning facilitator. Institution-wide assessment is assessment separated from the teaching process. Hodgkinson pointed out that the trend in competency-based programs seems to be toward separating the teaching-learning function from the assessment-evaluation function especially with regard to the broader competencies which must be certified by the institution.

Competency-based programs have to avoid falling back into the practice of accepting "proxy measures" which, Hodgkinson pointed out, would be to say, "Professor Jones will teach Art Appreciation 201, and anyone who passes that course will have passed college-wide competency #2—Aesthetic Appreciation." Accepting proxy measures would be the easy but the inappropriate way out in a competency curriculum.

Techniques used in competency assessment range from traditional paper and pencil tests to the use of

portfolios, video and audio taping, observations, simulations, self-evaluation, and the use of outside team evaluations, sometimes called jury panels. These jury panels may include members of the faculty, students, and frequently persons from the community knowledgeable in the particular field. Meeth concluded that while the use of persons from the community in the authenticating process is essential to the notion of competence, it is also important that specific *practitioners* not control the judgment entirely because that would tend to maintain a strictly status-quo society.

Hodgkinson observed that jury panels seem to be used primarily when the criteria of evaluation are most vague or, as he put it, "when you really don't know what it is you want them to decide." Examples of such situations are evaluating a student's writing ability or his ability to interact socially with others. The greatest difficulty in assessment, Hodgkinson pointed out, seems to be in the affective domain because these value-oriented characteristics do not have performance bases.

Hodgkinson pointed out that no one seems to know why we use jury panels in some situations and standardized tests, or games and simulations or other tedhniques in still others. However, both Hodgkinson and Meeth urged that institutions not adopt any single assessment process for exclusive use but strive for a good mix of techniques.

Hodgkinson also pointed out that each institution needs to decide for itself whether it wants a centralized or decentralized assessment process. At least two institutions, Alverno and Mars Hill, have formal campus "assessment centers." Here, all assessment procedures and techniques the school uses are cleared and coordinated. As more institutions get deeper into competency programs, the assessment process and the role of campus assessment centers will become more clear.

Competency Levels

Competency-based programs do not eliminate the need to set levels of attainment. If the criteria are too high, the flunk-out rate will be too high, or, as some institutions have experienced, students shy away from even trying to be assessed. If the criteria are too low, questions are raised about institutional standards. The assumption always must be that when a competency statement is written, someone or some group knows what competence is. Both Hodgkinson and Meeth pointed out that the idea of competence is that it is a minimum, not a maximum, a floor rather than a ceiling that all graduates of a given institution are expected to reach. Establishing this acceptable level is both crucial and complex. Hodgkinson illustrated the complexity of the decisions to be made by using the analogy of being "competent to change a tire":

Does that mean any tire on any car? Does that include trucks, bikes, and motorcycles? Do you want the student to be able to repair leaks in tires as well as just change them? How much time are you going to give him? The pit crew at Indianapolis takes about 15 seconds, a weekender takes about 35 minutes. Where are you going to set your level of attainment? Do you want the student to know that if he doesn't handle certain British sports cars very carefully, he can strip the threads? Do you want him to know about wheel weights? Is he supposed to know that if he mixes radial tires with other types he may kill the driver?

Alverno College in Milwaukee has probably the most ambitious evaluation design of any of the institutions with a CBC. Alverno has eight competencies, and six levels of achievement within each competency. For graduation, each student must achieve at least a level 4 in all eight competencies, level 6 in at least one, and level 5 or 6 in some of the others in order to achieve the required minimum of 40 levels out of the 48 levels possible (6 levels in each of 8 competencies) for graduation. Most of the other institutions with competency programs have not moved to this stage or else have decided not to have several competency levels that students can achieve. Instead they simply will say whether a person is competent or not in a certain area.

Problems in Assessment

Richard Meeth listed five major problems in the implementation of a successful assessment procedure. They are:

Quality control. As long as assessment is based upon more or less random processes, sometimes using jury panels, sometimes not, with various kinds of membership at different times, the problem of quality control will continue. Perhaps it is unavoidable.

Faculty time. An enormous amount of faculty time is used in the assessment process, with little time left for thinking seriously about the overall program, designing new comptencies, or revising the learning experiences. This probably is due to a lack of skill and knowledge about how to design evaluation methodologies. The most common problems that faculty have when going into a competancy curriculum are distinguishing between criteria and methodology, and evaluation, and in being able to develop other than pencil and paper tests on a normative scale.

Developing criteria and methodology for evaluation.

Getting students to go for evaluation. Colleges in competence are finding that students are hesitant about entering the evaluation process.

Finding or training persons with knowledge about competency to assist colleges, particularly those which do not receive grants from outside sources.

Designing Learning Experiences for Competency Achievement

"In a competency curriculum, what the teacher does is not nearly as critical as what the student does," concluded Richard Meeth in his comparison of the differences between a CBC and the traditional "experience" or "exposure" curriculum. What is important in a competency curriculum, he said, is the conscious recognition or evaluation of the knowledge, skill, value, or attitude that a student has *gained* from an experience or exposure to a body of knowledge rather than giving credit simply for the experience or the exposure. In a competency-based curriculum, he continued, the term "credit for life experience" (or any other kind of experience, for that matter) is an entirely inappropriate concept. Instead, what is given is credit for the *meaning* of the experiences as they relate to specific competencies. Consequently, Meeth concluded, "students who come to the college expecting credit for four years in Vietnam will be disappointed in a competency curriculum unless they can apply what they have learned toward the institution's competencies in certain areas."

This same logic applies to any experience or exposure a student may have in a CBC, in or out of the classroom; if nothing related to a specific competency is learned, no credit is given. Or, to restate the point in more positive terms: the goal for students in a CBC is learning related to the accomplishment of specific competencies.

It is nothing new to educators that students arrive on campus at a variety of levels and with a variety of skills in various subject areas. It is also nothing new that different students have different learning abilities and styles: some students learn quickly, others more slowly; some do best on essay tests, others on objective tests; some are good at discussion, others are not; some succeed at independent study, others have trouble knowing where to begin; some profit greatly from field experience or internships, others do not; some pay rapt attention to lectures, others struggle to stay awake. In a competency curriculum, a variety of learning experiences are provided so that each student can proceed toward competency achievement from his or her own level in each comptency and at his or her own pace according to the learning style or approach which best suits him or her. In short, it is what is learned that is important, not the manner, time, or place in which it is learned.

In the beginning, the teaching and learning process at institutions implementing a CBC may appear little different from what it always has been: students go to class and professors teach. The key difference is that professors become more concerned about *outcomes* and less about *process* or exposure; "covering all the material" ceases to be the professor's primary concern. Syllabi and outlines are restated in terms of purposes, or the competency or competencies stu-

dents are to possess upon successful completion of the experience. Meeth pointed out that while it is natural in a CBC to move toward the most efficient learning experiences possible, this does not mean that all courses will be in the "module" format. Modular learning is not inherent or indigenous to the concept of competency, Meeth pointed out, as it often is considered to be when teaching by "performance objectives."

The essential process of adding a variety of new learning experiences to the competency-based curriculum is usually a slow one primarily because of the time required for faculty reorientation to the new roles they must play as new approaches are developed. There is little doubt that the classroom setting will continue to be an important part of the teaching-learning process at most institutions on a CBC, even though very different things will go on there. However, there will be a variety of other approaches available as well. Such additional methods might include individualized instruction, which includes a variety of forms such as the Keller Plan (or PSI) and audio-tutorial instruction; independent study; study abroad; interdisciplinary study; and the like. Institutions and faculty quickly discover that there are many possibilities for individualizing learning to match student abilities and styles when such efforts become the rule rather than the exception, and when all accept the concept that the student *learning* is more important than the teacher *teaching*.

Even though the direction in a CBC is toward students achieving the stated competencies, it does not follow that all courses or other kinds of learning experiences not directly related to the attainment of specific competencies must be abolished. Since achievement of the competencies is the minimum requirement, many students may want to achieve higher levels in certain areas or pursue alternative areas altogether, either for enrichment or for other purposes.

Developing new and improved learning experiences to better promote student achievement will be a continual process of adjustment and change as the institution constantly adapts to the needs, abilities, and styles of an ever changing clientele. The learning experiences themselves will be evaluated in a CBC institution on the basis of whether or not they have assisted learners toward competency achievement, not on students' opinions of the teachers or whether lectures were stimulating. Learning is the objective of a CBC, and all aspects of institutional activity are evaluated on whether they facilitate achievement of that objective.

Implications of a CBC for Institutional Organization and Support Structures

A CBC cannot work with a faculty that only lectures; or with an admissions process based primarily on prior records and test scores; or with advising and counselling procedures that do not fit with the new concept of assessment; or with insistence upon traditional grading and transcript formats; or with an unwillingness to be creative with fee structures, faculty load, work assignments, the credit hour, graduation requirements, and the calendar. A CBC is far more than the reorganization of courses or the addition or subtraction of a few courses here and there. It requires, instead, a totally new way of looking at the entire educational operation. For this reason, institutions moving toward a CBC must be willing to consider rethinking and reorganizing institutional organization and institutional support structures now designed to support the traditional time—or experience—based curriculum.

Faculty Role

The most dramatic change in an institution going to a competency-based curriculum takes place in the role of the faculty. Consequently the institution must be prepared to provide adequate time and resources for faculty to develop these changed roles.

Hodgkinson argued that in a competency curriculum it is best to separate the traditional faculty functions —teaching, advising, and testing—because each requires very different skills, and, in practical terms, very few faculty traditionally possess all three. A good teacher must be able to communicate effectively; a good advisor must be able to diagnose student learning styles or difficulties and know in what direction the student should go; and a good tester must be able to assess student accomplishment in such a way that the outside society finds the product worthwhile and valuable. There is the emerging attitude that general evaluating and credentialing are more the responsibility of the institution and less the responsibility of the individual faculty member, Hodgkinson said.

Meeth maintained that the faculty member's image of himself must change basically from that of teacher as a disseminator of information to that of a facilitator of learning. Instead of simply giving out information, faculty must lead students toward finding information and discovering answers for themselves. In a fully implemented CBC, Meeth said, a majority of faculty

time will be spent in evaluating learning, the second largest part in advising students, and the smallest part in doing what faculty traditionally do, disseminating information, or "teaching" courses. Meeth maintained that if competency education continues to move ahead in the next decade, it is very likely that the task of teaching courses will be relegated to peripheral part-time people and the fundamental full-time faculty task will be advising and evaluation. Retooling the faculty for these new roles, according to both Hodgkinson and Meeth, is probably one of the most difficult and crucial steps in moving to a competency-based curriculum.

As institutions begin to take on the task of developing new faculty roles, two new concepts about the teaching-learning process should be emphasized. Hodgkinson referred to these concepts as "educational value added" and "mastery learning."

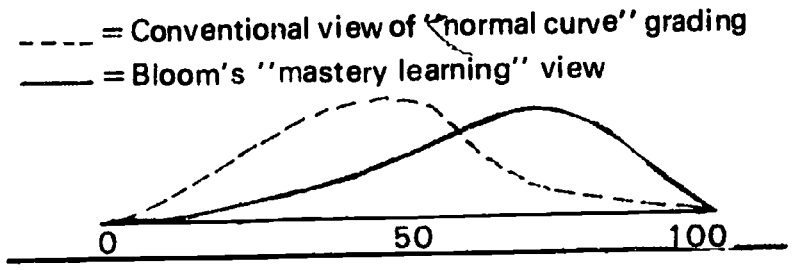
The term educational value added refers to the concept that students should be assessed when they leave the program to determine what they learned beyond what they already knew when they entered. Hodgkinson said,

> There was a time when we looked upon schools like Oberlin and Swarthmore as marvelous institutions because of the kinds of students that came out of them. On closer perusal, however, we note that such schools only admitted the "cream of the crop" in the first place, so instead of being impressed by the number of Fulbright and Woodrow Wilson fellows they produced, we probably should wonder why they produced so few!

When an institution becomes serious about the educational value added concept, the processes of advising students, diagnosing learning styles and designing individualized programs take on increased significance.

The concept of "mastery learning," to which Hodgkinson referred, has been put forth by Benjamin Bloom of the University of Chicago, among others. Bloom's theory is that given enough time, which he says is the most significant variable on standardized tests of aptitude and achievement, and a variety of learning experiences, between 70 and 80 percent of the students will achieve at the mastery level. Bloom defines "mastery" as roughly the equivalent of the traditional "A" or "B" grades. Hodgkinson presented the chart below to show grade distributions on the traditional "bell-shaped curve" and grade distributions if the "mastery learning" theory is followed.

FINAL EVALUATION OF STUDENT PERFORMANCE IN COURSE OF INSTRUCTION



Bloom has argued that following the bell-shaped curve notion makes little sense because that distribution is what one expects by the process of chance. But in an educational institution, learning should not be left to chance!

Grades, Credit Hours, and Record Keeping

Theoretically the concept of competency rules out the need for or even the usefulness of either grades or credit hours in the curriculum. Moreover, learning experiences will not be neatly packaged in courses which all consume the same amount of time. Students will start and stop at different points in the various learning experiences, and will be designing learning experiences of their own. All of this suggests that new record keeping procudures, new transcript formats, and a different or even continuous registration process might be necessary as the institution moves to a CBC.

Richard Meeth pointed out in this regard that for the time being it may be necessary for institutions beginning a CBC to operate two grading, credit, and record keeping systems, one based on accomplishment of competence and the other on the traditional concept of grades and credit hours. He said, "The motivation structure of higher education and our meritocratic society are such that probably neither grades nor credit hours can be abolished immediately." He described one situation where students demanded grades as evidence of their successes because the society, their families and friends, expected grades!

Tuition and Cost Systems

Without the credit hour, and with the concept of students starting and stopping at irregular times and receiving "credit" for prior learning, new structures for charging tuition and fees become necessary. Institutions presently on a CBC have found this an area of considerable difficulty, but the problems are being dealt with by creative approaches.

The question of what this new form of learning costs, especially in relation to the more traditional approaches, is very important. However, no one seems to be able to give definitive answers at this time. Meeth reported that start-up costs for a competency-based program appear to be about 25 percent higher than the average costs of traditional education. This increased start-up cost is not all in actual dollars, however. The figure includes the great amount of time of faculty who work long hours in planning and preparing for a CBC, most of which is not repaid in dollars. An additional major cost is that needed for retooling the faculty for their new roles and for hiring additional talent with new kinds of skills. Actual costs of *operating* a CBC, following implementation, should

be available in the not too distant future as several programs gain experience. However, once operative, CBC costs are not expected to exceed the average costs of education under a traditional curriculum.

Admissions and Graduation Requirements

A CBC also requires a rethinking of traditional admissions and graduation requirements. Traditional approaches to determining eligibility for admission, such as previous academic records and standardized tests, will not suffice in a competency curriculum. In addition, it will be necessary to assess the level at which the student finds himself upon admission in relation to the competencies the institution requires for graduation. Such assessment is essential in order to advise the student on the best learning situations to assist him to move toward the desired outcomes. A well thought out process of counselling and advising, then, becomes a vital part of the admissions process.

By the same token, the traditional awarding of a degree after the student passes a certain number of credit hours with a certain grade point average must give way to graduation based on satisfactory achievement of competencies. Transcripts, rather than recording course names and grades, then, will describe what competence the student has achieved in certain areas; in short, what he is able to do.

Institutional Accreditation

Faculty and administrators often express concern about *institutional standards* and accreditation when considering the adoption of innovative programs. This can be particularly true in considering the adoption of a CBC because of the total, fundamental nature of the change it involves. Grover Andrews, Associate Executive Secretary of the Commission on Colleges of the Southern Association of Colleges and Schools (SACS), was one of the conference discussion leaders and replied to the expressed concern about accreditation with these comments:

> I am usually asked if SACS (Southern Association of Colleges and Schools) and its accrediting teams are sympathetic to the efforts of institutions developing CBC. I think it's a healthy experience for institutions to develop innovative aspects of their educational programs; I see no accreditation problems with a competency-based program: Our Standard Nine and Ten revisions already reflect the position our Commission has toward such changes.
>
> Yet people continue to assume accreditation of non-traditional programs will be a problem. You see, there is a trap that we all fall into sometimes. When we're looking for someone to blame, we pick someone nearby who we think will protect us. So, many of the academic folks who are looking for trees to hide behind use accrediting agencies.

Our real concerns in accrediting are the planning that has gone into CBC and how it relates to the institution's mission; the goals and objectives an institution has set for going this way; the resources an institution has to do a quality job of supporting a CBC; and, finally, the overall quality of the program.

Summary

Institutions moving toward implementation of a competency program find that they must be able to state goals in terms of the competencies students are to acquire, develop assessment criteria for each competency, and design learning experiences to assist students attain the required competencies.

It has been pointed out before that in designing a competency curriculum it is important for an institution to have a holistic vision of the competent person that it wishes to produce. The concept of "wholeness" applies in the same manner to an entire institution or program moving to a CBC. All persons within the institution or program must be willing to be creative and to consider ways to adapt their roles and activities if a CBC is to have a chance to succeed.

An Example: Mars Hill College

Mars Hill College, Mars Hill, North Carolina, has established an instituion-wide competency-based curriculum for freshmen entering in the Fall of 1974. Mars Hill defines its new curriculum as

> a curriculum in which the competencies expected of all graduates are defined, agreed upon, and publicly stated, and in which learning experiences are designed for the purpose of assisting students in attaining those competencies.

This curriculum consists of three elements:

1. An overall statement of the competencies to be acquired for successful completion of the program.
2. Sets of evaluative criteria for each competence which define the proficiency levels required in order to demonstrate successful attainment of the competence.
3. Learning experiences designed to assist the student in attaining the required competencies.

At the work conference, a presentation was made by three representatives of Mars Hill relating their experience in reaching the point of instituting the new curriculum. Participants in the discussion were Dr. Richard Hoffman, Academic Vice President, and Dr. Robert Knott, Educational Development Officer, who made presentations; and Dr. William Walker, Chairman of the Department of Physical Education, who answered questions and gave his reactions as a member of the faculty.

One of the most important points to be noted about the Mars Hill experience is that adoption of the competency-based curriculum was the result of a series of events which took place over a five to eight year period. Consequently the adoption of a CBC seemed the natural culmination of a unique developmental process. Hoffman, Knott, and Walker all agreed that a CBC never could have been adopted any other way at Mars Hill.

This case dramatically illustrates the point that a CBC cannot be duplicated exactly from institution to institution. Each institution must go through its own process, adapting the various elements to the unique and different circumstances, needs and clientele in the local setting.

Adapted versions of the presentations by Hoffman and Knott comprise this section of the report.

Introduction To Mars Hill

Richard Hoffman

Mars Hill College is a private, church affiliated, liberal arts college in a rural mountain section of North Carolina in Southern Appalachia. The College has 1,500 students, 100 faculty and grants the bachelors degree as its highest degree. The College had a long history as a junior college (founded 1856) and became a senior college in 1962. Our current president, who took office in 1966, is a man receptive to change and innovation, which is a factor that cannot be over-emphasized for an institution needing or hoping to become innovative.

In 1967 68, Mars Hill began moving into "service-learning" and other internship programs, starting with Upward Bound, tutoring, community development and other kinds of government programs, funded through the Southern Regional Education Board and by the Office of Economic Opportunity. These activities involved Mars Hill in the community and excited a core of faculty about new ways to teach and to learn, and ways to blend the classroom with practice in the community. Many colleges now have these kinds of programs, but the excitement this generated on the Mars Hill campus among faculty and students was just tremendous.

Soon after this, the college received a grant from the Z. Smith Reynolds Foundation and three other grants totaling $300,000 to establish a Community Development Institute, which allowed a whole new approach to teaching and learning. Throughout this experience, from about 1967 to 1971, these questions began to arise: "How do you evaluate an internship?" "What are the criteria you are going to use to evaluate these experiences?" "How does or how can it build back into the academic program?" "How much academic credit do you give for field experiences?" The faculty had to move through all the emotional problems these questions raised and specifically whether or not these experiences were worth academic credit.

The immediate result of the internship experience was a curricular change in 1970 which moved the college from a very traditional kind of curriculum to a 4-1-4 calendar. Credit hours were changed to courses, and an "inquiry program" was introduced in the freshman year. In this inquiry program, faculty members were "facilitators of learning," without a syllabus and without the traditional directed teaching function. For two years 30 to 35 faculty members participated in this program.

After moving into the 4-1-4 program, the faculty and administration began to question the real mission of this college. We found that we still did not have the objectives of our institution clear. We really did not have our mission set forth as a senior institution.

In early 1970-71 a faculty committee began to work toward a revision of the core offerings in the natural and social sciences, to state objectives more clearly, and to make these subjects more amenable to the students. After a year of study that committee recommended that those core requirements should be placed on a competency base, and that in fact the whole general education program should become a competency-based curriculum.

During the same period, the core of faculty working with students in internship programs through the Community Development Institute began to deal with questions of evaluation. Also a core of faculty who worked as facilitators had developed through the inquiry course instituted in 1970. This group became familiar with and was influenced by the works of Carl Rogers and others in this area. During these four or five years a number of consultants visited the campus to work with faculty and administration on all of these innovations. The President was committed to taking risks and he did so with every program that was developed from 1968 on. The institution also had a lot of outside help. The ideas developed seemed to generate the outside help, especially money from foundations. Of equal importance was the fact that there was very able leadership within the faculty and staff.

In 1971, the Governor of North Carolina, with funds from the National Endowment for the Humanities and several foundations, invited 15 colleges including Mars Hill to participate in a summer institute held at Cullowhee, North Carolina. The purpose of the institute was to allow a team from each institution to study a specific problem that it faced on its campus. Mars Hill used this opportunity to see if a competency-based curriculum would give the college the focus for which it was searching. We wanted to try to define the purpose of Mars Hill College in seven, eight or nine competencies, developing the experiences that would be necessary to reach those competencies, and to see if we could then in fact come close to living up to what we had stated in our catalog. At Cullowhee a working paper was developed in which ten competencies and the proposed experiences were stated. This paper then was presented to the full faculty in the Fall of 1971.

On October 5, 1971, after a real hassle over the presentation of the paper from Cullowhee, the faculty decided that the college should make a study of the current educational program in view of the ten competencies developed at the Cullowhee institute. A grant from the Kellogg Foundation for $100,000 over two years made this study possible and enabled the college to employ Robert Knott, who had previously been on the staff, to direct the program. During these past two years the faculty has been working to design the experiences and develop the criteria for evaluating the competencies. This brings us up to where we are now.

I would like to say, from the administrative point of view, that moving into a competency-based curriculum is a fantastic risk to take. Enrollment at Mars Hill has increased 15 percent for next year. We have been

able to maintain a good level of program development money from the outside. Thus, when we thought of moving into something as completely new as a competency-based curriculum, it was a high-risk undertaking for the administration. But we had taken risks in the past. With the commitment of over two-thirds of the faculty, we felt we could go with this kind of program because it enables Mars Hill to pull together what was a fragmented set of experiences that developed over a period of four or five years, and to gear those experiences toward these competencies so that we now have a whole program rather than a fragmented program.

The Competence Curriculum

Robert Knott

Mars Hill College is in the process of instituting a competency-based curriculum in all of its programs. However, these new curricular developments neither constitute a radical break with recent trends in curriculum development at Mars Hill nor alter the basic philosophical assumptions presently shaping the curriculum. In fact, it is the continual working out of an existing philosophy of higher education for Mars Hill College which led to the judgment that a competency-based curriculum is the most appropriate vehicle available for the design of an effective and efficient program consistent with institutional philosphy and student needs.

Three basic assumptions about the nature of teaching and learning in higher education have shaped Mars Hill College's curriculum. First, *learning is a total experience which extends beyond the classroom in time and place*. Through all of the teaching-learning experiences that have utilized the community as a valuable resource, over 4,000 students have had an opportunity to experience new approaches to learning as well as opportunities to become involved in the solutions to special problems.

Second, *the student's individual development is at the center of the curriculum.* This assumption was evident in the curricular changes which were made in 1970 to enhance the affective or emotional and psychological development as well as the cognitive development of the student. A strong diagnostic testing and counselling program began in the fall of 1974. Increased student responsibility for their own education, more electives, more flexibility in scheduling, independent study, interim terms, a freshman inquiry program building on student interests, interdisciplinary programs with student participation in the design were important curricular additions.

Third, *students are characterized by multiple talents and differing levels of talent development.* In order to assist each student toward actualization of his or her total personal potential, the curriculum should be a means of both identifying the student's various talents and promoting his fullest possible development.

It has become increasingly obvious that the diversity of educational backgrounds, levels of talent, and skill development existing among students entering Mars Hill makes impossible the utilization of uniform sets of curricular experiences to foster genuine and effective intellectual development for all students. Mars Hill accepts almost everyone who applies, about 800 of 1000 applicants. Those who are rejected are generally rejected for reasons which indicate that, in our judgment, they should be doing something other than coming to Mars Hill College. We do not have selective criteria which automatically eliminate applicants, such as minimum SAT scores. As a result, we have a wide range of talents and abilities represented among the students who actually enroll. To use the SAT as one indicator of the width of the range, we have students who score a little over 1550 on the combined SAT score as well as students who score right at 500. If you take that diversity of students, with the SAT score as only one rough indicator of their academic backgrounds and abilities, and attempt to put them in the same classroom, you can imagine some of the educational problems with which our faculty has to deal.

An item of immediate concern to us was how to treat those at the lower end of the spectrum of academic preparation. Do you treat them as second class citizens? Do you put them into "remedial" programs and perpetuate the problems of self-image these students come with? We have found this to be a critical factor in their inability to do some of the academic work which we require. We concluded it was unwise to reinforce negative self-images, so we wanted a program, a curriculum, that would take each student where he or she is and give him or her as much flexibility as possible to develop toward graduation requirements at our institution.

We also felt that the educational relevance of the outcomes of a wide range of nontraditional curricular experiences were increasingly questionable without an adequate framework for the diagnosis of student knowledge and ability levels at entry to such experiences and an overall structure to form the design of these flexible learning experiences. The competence curriculum model made it possible to focus on student outcomes and free-up entrance requirements as well as design an educational program around individual students' needs. It was in an attempt to pull all of these concerns together into one consistent curriculum that led us to adopt a competence-based program.

Goals and Objectives

In constructing the new curriculum, we first had to define what we meant by a liberal education, since we are a liberal arts college. Our rough working definition is as follows:

> **Liberal education is conceived at Mars Hill College as a process which develops specific human capacities rather than as a set of studies with inhering liberal qualities. The chief goal and end result of that process is the liberation of an individual's intelligence. To be liberated is to be free. The only freedom that is of enduring importance is freedom of intelligence, that is to say, "freedom of observation and of judgment exercised in behalf of purposes that are intrinsically worth while". The major consequence of an effective liberal education is the development of the power to "frame purposes and to execute or carry into effect purposes so framed".**

The influence of John Dewey is apparent in the statement as well as that of other philosophers, especially Whitehead.

We first obtained general agreement that we wanted to focus on the abilities that students as persons should have to formulate their own sense of meaning, their purposes in life. That led us to state three abilities we felt all our graduates should possess, at least at a minimum level. We realized that when students left the institution they would have gone through some critically formative years and would be moving on to develop those abilities further in life. The three abilities to be produced by a liberal education at Mars Hill College, as we have defined them, are to formulate and critically examine purposes; to design and act upon means of executing purposes, and to assess the consequences of action on selected or formulated purposes.

As we agreed on these abilities, we identified four basic dimensions to be included in the competence-based curriculum design. These dimensions are an analytical division of human knowledge concerning meaning or purpose; an area of advanced expertise; a developmental model; and institutional values.

Analytical Division of Human Knowledge

We decided that if we were going to talk about developing purpose or meaning in life, then the student had to have some understanding of how the human race, up until this point, had formulated meaning. We needed some analytical division of knowledge concerning purpose so we selected the six realms of meaning as conceived by Philip Phenix. Phenix's six realms of meaning are symbolic communication, sciences, esthetics, personal knowledge, ethics, and world view. While arbitrarily chosen, we found this scheme useful at our institution because it was consistent with the goals that we had developed for the institution, though we have made some modifications as we put them into practice at Mars Hill. This analytical division of knowledge was our starting point to provide the student with some working knowledge of how mankind historically has tried to make sense out of his world of experience using organized facts, theories, intuitions and sense experiences. We believe that a student who is ignorant of the way the sciences operate is in trouble in our world. A student who is ignorant of the appropriate dimensions of purely per-

sonal knowledge, nonpublic knowledge, is also ignorant when it comes to being prepared fully to select his own purposes and meanings.

Advanced Expertise

Given this basic knowledge about the construction of meaning and purpose, students also needed an advanced area of expertise in which they could begin to implement some of the purposes which they had selected; to develop competence in executing and acting on purposes. We outlined three dimensions of special expertise to guide the design of student competencies in these areas (1) specification of minimal levels of knowledge and skills; (2) the ability to apply high order critical and creative thinking skills to the information of the special areas; and (3) the ability to synthesize the knowledge of the special area with broader knowledge in the construction of informed purposes and means of executing them

A Developmental Model

The third element in the design of the program is a developmental model Most of our students do not come to us with the required, already developed expertise; therefore, we wanted a developmental model to assist us in program design. We wanted some consensus on how we thought students would develop through the program since the curriculum is a process, not just the completion of a product Our question was "What kinds of developmental tasks should students be focusing on?" For help here, we turned to Arthur Chickering's *Education and Identity* in which he identified seven developmental vectors which we agreed could serve as developmental tasks all of our students should be working on. Chickering's seven vectors are: a sense of confidence in intellectual, social-interpersonal and physical-manual skills; managing emotions; developing autonomy; establishing identity; freeing interpersonal relationships; developing purpose; and developing integrity.

Institutional Values

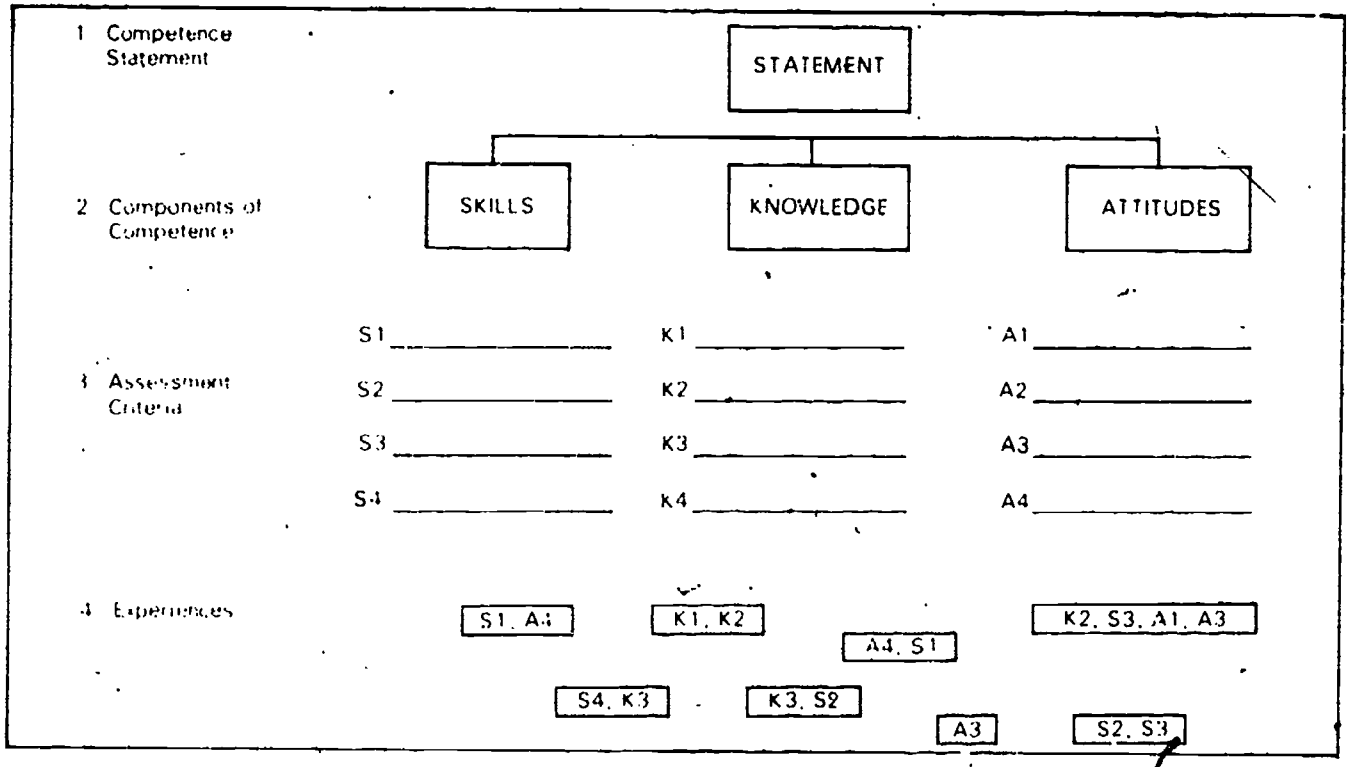
Finally, we began to be concerned about a set of institutional values which we wanted the total program to reflect. Though these are values we collectively desire to affirm and retain, we felt it inappropriate to force them upon all students in an assessment process. Therefore they are used to guide the design of learning experiences and campus organization. The following is a partial list of our institutional values.

- A concern with a diligent search for genuine personal enlightenment by all members of the college community.
- Create and sustain in the college community a lively encounter between faith and learning.
- Develop a campus atmosphere where persons experience a search for truth in its *fullness* with freedom for both unfettered inquiry and unreserved faith

- Generate in the student a growing sense of social responsibility and instill a commitment of informed, participatory citizenship.
- An experience by all members of the campus community of communal support and meaningful, constructive personal relationships.
- Cultivation of a sense of the significance of uniting theoretical knowledge and practical application.

Curricular Components

With the four elements discussed above agreed upon, the components of the competence-based curriculum at Mars Hill College began to look as follows:



It has been said that when the members of an institution start designing a competence program, they find they begin to use a different language. We too began to use a different language at this stage and it became important to work for consensus in the use of terms so that common meanings could be attached to the statements of expected outcomes.

Another development was a rapid reduction in the scope of the curriculum as we began to take outcome-specification seriously. For example, we are not sure that we can assess whether a student is an autonomous individual, and, therefore, require him to demonstrate competence in an autonomous action. We do say, however, that we hope to be able to find out whether we can comprehend the characteristics that lead a student to become more autonomous. We assume that as we get into the program and do some research on what the outcomes are we can do so. We have focused on a rather narrow dimension of autonomy in our personal knowledge competence with the assumption that it will lead to further knowledge of how and what students learn. We state as much as we are willing to hold ourselves accountable for at the present time. Later on we may be able to go beyond this, but we are starting with a minimum basis assuming that we will be able to asses autonomy better as we get into the program, which is one of the advantages we have found in designing the program to this point. We also have noted a tendency for the cognitive dimension of learning to take precedence in our design. This results from our faculty, like most faculties, coming from purely academic backgrounds where the affective was not treated formally. We have a long way to go in developing greater understanding of how the cognitive and affective domains are interwoven.

Statements of Competence

Below is a list of the seven all-college competencies we have developed at Mars Hill College:

I. A graduate of Mars Hill College is competent in communication skills.

II. A graduate of Mars Hill College can use knowledge gained in self-assessment to further his own personal development.

III. A graduate of Mars Hill College comprehends the major values of his own and one foreign culture, can analyze relationships of values between the cultures and can appraise the influence of those values on contemporary societal developments in the cultures.

IV. A graduate of Mars Hill College understands the nature of aesthetic perception and is aware of the significance of creative and aesthetic dimensions of his own experience which he can compare to other cultures.

V. A graduate of Mars Hill College understands the basic elements of the scientific method of inquiry, applies this understanding by acquiring and

analyzing information which leads to scientific conclusions and appraises those conclusions.

VI. A graduate of Mars Hill College has examined several attempts to achieve a unified world view and knows how such attempts are made. The graduate is aware of the broad questions that have been posed in the history, philosophy and religion of western civilization and can assess the validity of answers given to these broad questions in terms of internal consistency, comparative analyses and his own [illegible]ion.

VII. A graduate of Mars Hill College is competent in an area of specialization.

To further specify what we mean by each of the competence statements, we have developed about 20 pages of explanation, some of which I will share.

Competence I, communication skills, the faculty concluded, covers three basic areas. First is what we generally call verbal communication; that is, proficiency in the reception and expression of ideas and in understanding relationships of language and emotion. We also specify the development of skills in listening, writing and reading and we have added mathematics as another way of communicating with respect to certain problems of the human species. We believe the student should be aware of basic nonverbal symbolic communication, understand operational problems with real numbers, and demonstrate minimum skills in algebra and logic. All of this area is now taught in an integrated program in which the same content, basically, is used by both the mathematics and English faculty. The idea is to give students some sense of how each of these areas of communication can apply to a common set of problems. Also, dealing with the symbolic base of language, we have another competence in which we require that the student demonstrate awareness of the possibilities and limitations of communication with machines. We believe this is particularly appropriate in our time and age.

The second part of the communication skills competence deals with critical and creative thinking. Not only do we want students to be aware of the importance of symbolic communication with respect to math, English, and machines, we want them to demonstrate knowledge of how to define and set limits to an inquiry. These are some of the critical abilities that students need as they move along through the college program. We require that students utilize logical processes and analyze various forms of argument, assessing validity and reliability. We also emphasize creative abilities and demonstration of an awareness of the effect of one's own personal and social context on his efforts at creative and critical thinking. We do not require that a student produce creative works. We discussed creativity thoroughly, but no one could define it to the satisfaction of the rest of the faculty, so we simply said that students should be aware of pressures on creative energies as well as his own creative potential. Again, as we learn more, we may be able to say more.

The third part of the first competence is that the student be proficient in group communications. This is a dimension we had been working on for some time in our existing curriculum. We now include it in this competence; We want a student to be able to analyze his relationship to other persons in a group; how others function in a group; how he or she functions in a group; to communicate effectively to a group on some given topic, problem, or issue; and to be able to listen to and understand what others in the group are saying. These are simple skills that can be worked on in small or large group situations depending upon their appropriateness. The above is an example of the kind of elaboration that we are beginning to develop for each of the competence statements.

Another example of this elaboration may be seen in the second competence statement, "A graduate of Mars Hill College can use knowledge gained in self-assessment to further his own personal development." A basic part of this competency deals with a student's understanding of the way his or her body functions, and mastering at least some of the functioning of that body to make it do certain things under stress. This is in the area of physiology and recreational skills and the specific skills to be demonstrated are stated in some detail

In Competence III, a student has the flexibility to study his or her own culture and any other culture he or she chooses. In the context of the study of those cultures the student will be required to demonstrate basic knowledge and skills stated in the competence. The several parts under this competence include knowledge of basic value complexes in the cultures; the ability to look at the influence of those values on institutions, forces shaping the behavior of the people and their understanding of life's meaning and purpose in those cultures.

There are three parts under Competence IV. A student must participate in some sustained artistic activity accompanied by sustained reflection on that aesthetic and artistic participation. We are emphasizing not only theories about art and the aesthetic dimensions of human experience, but also creative dimensions and the ability to participate actively at least at a minimum level. Our hope is that students will get the sense that their lives are in some way works of art; that they will be able to see that what they put together can be put together as a whole and have meaning at least to themselves and hopefully to others It is a level of awareness that we are requiring. We are attempting to help the student lay the basis for creatively using his life. We are requiring students actually to go through some aesthetic experience, and be assessed in terms of their participation in that experience. This is not necessarily required to be on our campus, though for most it will be, but it must be under the tutelege of one of our professors. In a sense, this competence will not be "time-free"; our assessment will have a required time dimension to it.

In the second part of this competence, a student analyzes and evaluates artistic works by means of an

aesthetic theory. In the third part, the student demonstrates an awareness of the nature of aesthetic perception in a culture other than his own. This is an example of how the competencies overlap. Obviously, a student could use the same culture he had chosen for Competence III. In this way hopefully the student will gain some sense of how his educational program begins to blend together.

In Competence V, we require at least a rudimentary understanding of the methods of science, and an ability to apply that understanding to areas in which we require the student to work: the philosophy of science, the individual as science looks at him and his behavior, groups and the social context of their behavior, and the broader environment, especially the physical aspects of that environment as they affect human beings.

Competence VI, the ability to intelligently discuss various attempts in history, philosophy and religion to integrate the diverse knowledge and experiences of one's life is a stiff requirement if taken seriously. Since this is such a difficult requirement the level for accomplishment will have to be set carefully. Remember, we are talking about general students developing a minimum competence, a floor in each competence area

Competence VII is the one which we are working on in some detail now and will continue to work on throughout the next year. Each of the areas of specialization at the institution will have complete competence statements designed by next year. Each specialized area will put its program on a competence base beginning in the fall of 1975.

We now are in the process of becoming more familiar with all of the concerns that go with implementing these competencies, and to say they are substantial is an understatement.

Assessment Procedures

It is clear that the key element in the successful implementation of an effective competency-based curriculum is the design of appropriate evaluation or assessment procedures. This segment of the competency-based curriculum at Mars Hill consists of three dimensions: (1) assessment of student mastery of competencies, (2) assessment of faculty competence to design and implement curricular offering as well as their competence in assisting students to master the competencies; and (3) evaluation of the total competency-based curriculum. To facilitate the carrying out of these three dimensions, Mars Hill has established an "Assessment Center" headed by a director with expertise in technical assessment skills. The role of the Assessment Center is to design procedures and instruments for implementing the three dimensions above and to prepare and assist faculty with development of the necessary skills for their assessment and evaluation roles.

As a means of assessing student achievement of competencies, we have set up a series of assessment teams, one for each of the seven competencies. The special area competencies have assessment teams within departments, or across departments where we have interdepartmental, interdisciplinary, or nondisciplinary majors. These teams are made up of collections of faculty, and may include community people although they do not always. The faculty is hopeful that after some students have moved through the program the assessment teams also will include some upper level students. (We are phasing our program in, starting with freshmen; we are not applying it to all those in the institution at a given time, meaning that we will be in a transition phase for about three years.)

The major task of an assessment team is to clarify criteria and standards by which students may demonstrate competence in a given area. These teams are responsible either for assessing each student or delegating that assessment and then monitoring the process where it is delegated.

Each faculty member at Mars Hill College will serve on two competence faculties; that is, each faculty member will be teaching and working in some way with students in two areas, either in instructing, advising, or evaluation. One of the areas will be that of the faculty member's special expertise, a departmental or interdepartmental major program. The other area will be one of those defined by the six general competencies. Faculty members will be assessed as to their work in each area by the person who chairs a competence area, either the broad general competence or the departmental competence; by their peers; and by students in that area. So we have some incentive for faculty to put time and effort into each of these areas.

We have a continuing set of faculty and community people working on the assessment teams. Students also are participating in the design of these programs at the competence faculty level. The assessment teams will be responsible for designing the assessment criteria and either applying or approving their applications to students. The assessment teams then will feed back to the competence faculties within each of the areas the information they are getting—students are or are not progressing satisfactorily toward that competence—and an analysis of what they think are the problems. The assessment teams will be responsible for looking at the program design, reworking it where necessary and reworking the instructional processes. We are trying to leave as much flexibility as possible for different ways of instructing and for comparing those ways to see which ones are working best, or if there is indeed any difference. We want to allow experimentation in instruction and to get some fairly definite feedback in terms of what is or is not effective. This type of feedback is something we do not have consistently under a traditional curriculum. We make efforts at such assessment now, but for the most part the faculty members who teach students

also assess them. This means the process is somewhat circular when you start asking how well you are doing and how well your students are doing.

Mentor Program.

We have one other element which we think is critically important, and that is a mentor or advising program. The mentor program begins when students come to the college for orientation a week before school opens. At that time they go through extensive diagnostic testing to determine levels of academic abilities, skills, and backgrounds. Based on this testing program, along with rather extensive exercises in goal-setting and developing personal expectations about the college curriculum, the faculty and student mentors (one of each works with each student) work to assist the student in designing a tentative plan for the use of college or noncollege learning experiences to bring him toward competence in each of the required areas. This program runs throughout the first year, focusing not only on registration and getting the student to outline a program, but also on the whole area of personal development. There will be a series of about 35 developmental tasks that mentors will go through with each student, all the way from some simple goal-setting to a careful self-analysis of his or her own values, what they mean, and whether or not they are comparable to values or others in the institution. Students obviously will go through soul-searching when it comes to understanding who they are, where they want to go and how they are going to use this program. We think that some form of an intensive counselling-advising program for students is essential to make a competence curriculum work, because it is important to make sure that students use the program rather than the program using students.

That, then, is the competence program as it is developing at Mars Hill College. After we had agreed on the purposes of the College and content of the competence statements, it was necessary to come up with a process for implementing the program, for putting the idea into practice. I want to emphasize that what I have described is a *process*, not a prepackaged curriculum. A competence program never can be something that is final, approved, and ready to go in a completed way. Development of a competence program, instead, must be a process in which faculty, community people, and students are working together to gain better understanding of what they are about in the educational process. Simply put, the competence program is a means of continually asking what we are doing, why, and how well we are doing it.

Perspectives

There have been many efforts through the years to develop learning on a competency base. Persons caught up in the excitement of a new idea often are unaware of past efforts that might provide assistance to them in dealing with the immediate situation. Hopefully to help participants regain some perspective in the midst of enthusiasm, confusion, and frustration brought on by speakers and small discussion groups in the conference, a session was devoted to a review of history in higher education related to competency concepts. Dr. Ralph W. Tyler addressed the conference and discussed insights he has gained from many years of involvement with new ideas and movements for curricular change.

Dr. Tyler brought a wealth of experience to the work conference. Beginning as a high school teacher in 1921, he subsequently held positions in a number of higher educational institutions. Dr. Tyler is closely identified with the University of Chicago, where between 1938 and 1953 he served as Professor and chairman of education, university examiner, and Dean of the Social Sciences Division. Later he was Director of the Center for Advanced Study in Behavioral Sciences at Stanford University. Among his many activities through the years he was Director of Evaluation for an eight year study by the Commission on the Relation of Schools and Colleges of the Progressive Education Association in the '30's and Director of the landmark Cooperative Study of General Education for the American Council on Education, 1939-46. Dr. Tyler presently is associated with Science Research Associates in Chicago.

The full text of his address follows.

Historical Efforts to Develop Learning on a Competency Base

Ralph W. Tyler

Competency-based curricula are responses to two perennial problems that colleges have faced for generations. The first is the selection of what is to be taught. A student spends only a limited time in college. If he is to learn something that is more than ephemeral remembering and recalling, he must have time to understand it clearly and to practice it. Since effective learning requires time and the student spends only a small part of his life in college, he can learn only a limited amount while he is in college. Hence, the selection of the relatively few things that the college can help the student learn is a serious task which

should not be undertaken lightly.

The problem of what to teach is especially difficult in a society that undergoes continuing social change. Bodies of knowledge, intellectual skills, and standards of value must be continuously re-examined to identify those that have become less significant or even obsolete in the contemporary world and to substitute those that are now more meaningful and more helpful to the student.

A second perennial problem is the one called by psychologists "transfer of training," and by laymen "relating theory to practice." The college provides a certain special environment to promote learning but it is expected that what a student learns in college will not only be applied there but will be practiced in the world outside the college walls and on into the future, long after he leaves college. This transfer from the learning experiences in college to the situations in life outside does not take place automatically. Definite efforts are necessary to facilitate it.

Because these two problems are perennial ones, it is not surprising that during the last 100 years in America, a number of serious efforts have been made by colleges to select what is to be taught in terms of its contribution to the student's competency in carrying on his life effectively and in dealing with the problems he encounters and to provide means for helping students to utilize what is learned in this way. Among these efforts, I have chosen eight to serve as illustrations.

In 1862, the growing political influence of American farmers, small merchants and tradesmen stimulated the enactment of the Morrill Act by the U.S. Congress. This law, often called the Land Grant College Act, offered every state that established a college for the agricultural and mechanical classes an allotment of federal land in the western territories that could be sold to help support the college. The pressure to establish new colleges for the children of farmers, small merchants, and tradesmen developed because of the difficulty these young people encountered in seeking to enter the so-called Ivy League Colleges. Their lack of the traditional college entrance requirements caused the colleges to treat them as "not educable" or "unprepared for college."

As they were constructing their curricula during the period of 1870-1900, the new Land Grant Colleges had to deal with both of these perennial problems. They sought to select from the several college subjects those that could contribute meaningfully to the lives of farm families and others engaged in commerce and industry in the newly developing cities and towns. The reports of the work of some of these curriculum committees show a definite awareness of the need to teach their students "what was relevant to their lives and future plans," and in many cases the resulting courses were given titles to emphasize their usefulness. These titles included agricultural chemistry, physics for engineers, biology for the homemaker, English for engineers, and business mathe-

matics. In these courses, the assignments and the laboratory exercises were frequently based on the practical situations and problems the students were encountering. Many of the examinations were "practicals," that is, actual demonstrations that the student could use the principles, concepts and techniques taught in solving a practical problem. By 1900, the Land Grant Colleges were widely recognized as effective educational institutions for reaching the population for which they were designed.

In 1906, Herman Schneider, Dean of Engineering at the University of Cincinnati, expressed great dissatisfaction with the large-scale failure of engineering graduates to apply their college learning when they graduated and worked as engineers. He created a program called Cooperative Education that involved students in alternate periods of work in industry and study in college. Arthur Morgan, later President of Antioch College employed students from this program in his engineering work and was impressed with their ability to connect theory and practice. When he became President of Antioch in 1920 he established Cooperative Education as a requirement for all students. By 1958, more than 60 colleges had established programs of Cooperative Education in a variety of forms. It had become so significant that the Fund for the Advancement of Education provided funds for conducting an appraisal of the value of work-study programs. The two-year investigaton by Wilson and Lyons* found, among other things, that "the cooperative experience provides meaningful opportunities for the student to see the relevance of theory to practical situations and affords him opportunities to practice making applications." They also found that many college instructors involved in Cooperative Education had reconstructed their courses to make them more helpful to students in seeing the connections between their work experience and the subjects they were studying.

After the publication of this report, Cooperative Education was adopted by many more institutions. The Federal Government, in 1970, adopted legislation authorizing federal support to help defray the costs of expanding and improving Cooperative Education. The amount appropriated in the current year under this authorization is $10,750,000. Now more than 700 colleges appear in the list of those having programs of Cooperative Education.

The development of the curriculum of Stephens College in the 1920's was stimulated and guided by W.W. Charters, one of the early leaders in curriculum reform. He earned his Ph.D. with John Dewey at the University of Chicago in 1904, and developed a strategy for curriculum construction that focused on the present and future activities of the student. What the college should teach would be that which would help the student become more competent in these activities. Stephens College enrolled only women at that time. Graduates and other women interested in the college were asked to keep diaries of the impor-

*Work-Study College Programs, (New York: Harper & Brothers, 1961).

tant activities they carried on. The diary entries were then assembled, classified, and appraised in terms of importance, difficulty and frequency. Those judged to be important and difficult and to occur with a frequency of at least once a year became the criteria for selecting curricular content. The Stephens College courses had as their goal helping the student acquire competency in carrying on these actvities through the resources the courses provided.

While W.W. Charters was alive, he continued as consultant to the Stephens College curriculum, and the program was strongly supported by President James Wood and the major staff of the college. After the retirement of Wood and the death of Charters, the emphasis upon competency-based courses declined.

Charters was a major figure in three other competency-based currculum programs. In the early 1920's, he guided the national study of the activities of pharmacists, which was undertaken to furnish a basis for building more effective curricula for the education of pharmacists. A major basis for identifying the activities of pharmacists throughout the nation was a collection of prescriptions filled during specified sample periods. The activities involved in filling these prescriptions were rated by professional pharmacists and professors in terms of importance, difficulty and frequency. The curriculum content was selected in terms of its helpfulness in preparing the student to perform those activities that were important and difficult and which occurred with a frequency of at least once in six months. Developments of curricula on the basis of this study were largely halted with the onset of the Great Depression and the resulting low enrollments in schools of pharmacy.

The Commonwealth Teacher Training Study of 1925-28 was directed by Charters and was carried through, for the most part, while he was on the faculty of the University of Chicago. Its name derived from the fact that it was supported by the Commonwealth Fund of New York. In this study the activities of teachers were collected in a variety of ways. Some teachers kept diaries for a month. Scores of supervisors listed the teaching actvities they had observed which were poorly performed, indicating that they were difficult for teachers to carry on. Research assistants went through the literature on teaching and made lists of all the activities reported. All of the items from these several sources were put on cards so that they could be readily organized and classified. There were more than two million cards.

The activities were appraised by juries of teachers, principals, supervisors and professors. The resulting list of important, difficult and frequent activities included 1037 items. It was referred to as "The 1001 Activities of American Teachers." When the report was published in 1928, it began to be used by several teacher education institutions and organizations as criteria for competency-based programs, but at that time no college followed through to the point

of establishing a comprehensive competency-based curriculum.

Probably the most thorough competency-based curricula developed under the guidance of W.W. Charters were those constructed at the Rochester Athenaeum and Mechanics Institute, which later became the Rochester Institute, which later became the Rochester Institute of Technology. In the late 1920's, some leaders of industry in Rochester, New York, obtained funds from the Carnegie Corporation of New York to conduct a study of the needs for post-high school education in the Rochester area that might be served by the Athenaeum and Mechanics Institute. This institution was formed by the merger of the Rochester Athenaeum, an agency designed to involve interested adults in cultural and civic matters in the community, and Mechanics Institute, founded to offer continuing education to the aspiring members of the working class.

The Carnegie study identified a range of technical occupations developing in the Rochester area with its concentration of industries employing high technology. Many of these occupations required preparation beyond that provided by the high schools. The study also pointed out that in the Rochester area there were thousands of youth who were children of skilled laborers employed in industry, many of whom were from the second generation of immigrant families. These young people were completing high school successfully but were not interested in going on to college because they perceived the purpose of college as being to prepare people for the professions and as being heavily theoretical and abstract. The report recommended that the Institute focus its efforts in educating young people from this kind of background to assume technical positions in the Rochester area. This recommendation was adopted by the Institute, which then asked Charters to guide the curriculum. He asked me to serve as his associate, and for 43 years I served as consultant to the Institute, making periodic visits to Rochester to work with the staff.

Although the Institute's primary purpose is to prepare young people for employment, it recognized the importance of combining occupational with general education, so that one-fourth of the curriculum in each occupational area was allocated to general or liberal education. With the aid of advisory committees from the community, demands for technical personnel were identified and each occupational area thus identified was analyzed in terms of its functions and activities by a small team of persons from the occupational area and from the Institute. These functions and activities were then reviewed to ascertain the extent to which they required post-high school education to perform them. This resulted in the selection of occupational areas for curriculum development that offered opportunities for placement of graduates and that involved functions and activities whose performance would be substantially aided by things learned in college. The development of the curriculum for each occupational

area followed a pattern somewhat similar to the one used in Stephens College.

The Rochester program introduced Cooperative Education both to strengthen the connection between college learning and job competency and to assure students who were skeptical as to the "value of book-learning" that they were holding a job and obtaining a better understanding of their work through instruction on the campus. In the early phase of the curriculum study it was found that many students interested in preparing for positions as engineering technicians had not had three years of high school mathematics. Nor had they had much grounding in physics and chemistry. A so-called "upside-down curriculum" was designed to enable students to gain practical experience first, followed by the mathematics and science courses that provided a set of concepts by which to understand more fully and deeply their activities as well as the problems they were encountering on the job. We concluded that large numbers of young people are repelled by or prevented from entering college programs in areas in which they could probably become competent and find interesting because the most abstract parts of the curriculum are placed first or made prerequisite, and these abstract courses are not perceived as essential to competency.

Another unusual feature of the Rochester curriculum was the development of an evaluation program integral to guidance, teaching and placement. As the student entered the initial course in each subject area, he and the instructor went through a diagnostic procedure to identify what he needed to learn and to form the basis for his plan of learning. From time to time, he and the instructor evaluated his progress in order to determine when he had completed his work in that field or what revision should be made in his plan of learning. Because the learning goals included a variety of behavior, such as understanding certain things, solving certain types of problems, working effectively with others on group projects and practicing certain skills, the methods of evaluation were correspondingly varied. Of these, the behavior journal, supported by anecdotal records, gained widest recognition because it provided a fairly valid and practicable way to assess social skills and work habits.

After World War II a public technical institute and community college was established in Rochester and Rochester Institute of Technology became a four-year college and graduate institution. The cutting edge of curriculum development in the Institute shifted to a new division established by contract with the Federal Government: the National Technical Institute for the Deaf. This national institution has responsibility for preparing deaf young people for employment in fields of high technology. Finding the kinds of occupations in which the deaf can perform successfully and building curricula through which they can prepare to serve in these occupations have been major tasks in which the staff is heavily engaged. The entire curriculum is competency based.

The Cooperative Study in General Education was sponsored by the American Council on Education during the period 1939-45. Twenty-two colleges in several parts of the country worked together to develop and/or to improve their curricula in general education. I served as Director of the project. General education had become a popular idea during the 1930's. College faculties and students were increasingly dissatisfied with distribution requirements that merely required the student to take introductory courses that were usually designed as initial courses for specialists in the field and not to help the student to learn to use the discipline as a resource for dealing with his own non-specialized problems. However, the initial efforts to develop programs of general education resulted in survey courses in broad fields which gave students something of an overview of the field but did not help them use significant elements of the subject in handling their problems. The Cooperative Study in General Education provided an opportunity for faculty members from the twenty-two colleges to work together in developing curricula using intercollege committees and summer workshops as major means for cooperation.

The basic point of view on which the Study operated was that effective general education should focus on the needs and problems of the students. It was felt that the several disciplines furnished resources of knowledge, skills, and the like, that could help students meet their needs. Among the tasks undertaken in the Study were: developing and using an instrument for assisting student needs and problems; identifying the significant things in the several disciplines that, when learned, would help students in meeting their needs; constructing catalogs of learning activities and experiences that would help students learn these things; and devising means for evaluating student progress. The four-volume report of the Study was published by the American Council on Education in 1947.

The Commission on Teacher Education was established by the American Council on Education in 1938 and was directed by Karl Bigelow, now Professor Emeritus of Teachers College, Columbia University. The Commission recognized that the teacher often did not perceive his college and university education as having any very direct connection with his teaching competencies because his practice teaching, apprentice experience, and early years in professional employment were guided by practitioners who seemed to make little use of concepts, principles, and problem-solving procedures emphasized in college. Hence a major effort of the Commission was to bring theory and practice more closely together so that teaching would be illuminated and more fully understood by theory, and so that theory, in turn, would derive important realistic problems for study.

The Commission helped to establish and provide partial support for consortia of school systems and teacher education institutions. These clusters sought

to identify competencies important for teachers and materials from the scholarly disciplines that could contribute to these competencies. The Commission also established a Division of Child Development and Teacher Personnel, under the leadership of Daniel Prescott, to aid teachers in developing understanding of children and ways of studying children and their needs. The post-war pressure of soaring enrollments, with its accompanying rapid increase in faculty, largely prevented the experiences of the Commission's projects from being transmitted to the new generation of teacher educators. Now few have ever heard of the Commission and its work. The Cooperative Study in General Education experienced the same loss of continuity.

If making what is taught and learned more closely related to individual and societal needs has been such a perennial problem, why have vigorous efforts to deal with the problem been so fitful rather than continuous in the history of higher education? Several obvious factors are probably involved.

In the first place, the interests of most college faculty members are in obtaining and organizing new knowledge in terms of its own validity, consistency, and parsimony in explaining the phenomena with which their fields deal. This absorbing interest of many scholars and scientists overshadows concern for the meaning and value of this knowledge to the non-specialist. In the second place, the college and universities of the past were as much responsible for sorting young people as they were for educating them. With limited opportunities for employment in the professions and top management, or for positions among the political and social leaders, the educational system was expected to ration opportunities for further education so that the number of graduates roughly conformed to the available opportunities. One way to discourage many students was to present courses in ways that appeared to be abstracted from the real world, and of little or no value for the students. The few who could perceive the relevance of college courses to their own experience and purposes were among those whose grade point averages encouraged them to continue with higher education. Now that the demand for college graduates has moved from three percent of the age group, as it was in my day, to 30 percent, the colleges and universities recognize a greater responsibility for promoting learning rather than a preoccupation with rigorous sorting.

A third factor that probably influenced the periodic spurts of interest in these problems, followed by periods of apathy, was the simplistic character of the efforts to deal with them. They commonly were either too general and vague, or too specific and mechanistic. For example, some programs in science sought to build a connection with the everyday lives of students by setting up the vague goal of "teaching students to use the scientific method." At the other extreme, some would state a voluminous set of very specific goals, such as "knowing the composition of antacids

advertised as reducing stomach discomfort." Neither of these formulations was based on a full analysis of possible contributions of a discipline to enable students to deal more effectively and more meaningfully with the circumstances and conditions of their lives. They did not recognize the extent and the limitations of the generalizations of behavior characteristics of human beings. Students can develop cognitive maps which they can use in interpreting the kinds of situations they encounter, maps that are also useful in planning and acting in these situations. Students can be guided by principles of generalizations relating to the objects and the events of their lives. They can be stimulated to inquire into problems as they perceive the kinds and values of questions that can be appropriately asked, and learn the methods and techniques that can be used. They can learn how to use and gain meaning and satisfaction from literature and the arts. In brief, the things that students can learn from the several disciplines are many, and the selection of those that can make a relatively permanent contribution to their repertoire should be based on a comprehensive and systematic analysis of the disciplines on the one hand, and the contemporary opportunities for students to make significant use of them on the other. This has rarely been done.

Can we now develop a procedure for competency-based learning that will become a continuing effort, rather than an ephemeral one? I think it is possible, if certain conditions can be maintained. Seven conditions appear to me to be helpful. They are:

1. Recognize that formal education occupies only a small part of the lifetime of persons. Most of what we have learned was acquired outside of school or college. However if what is selected for teaching in college is carefully chosen to be different from, but supplementary or complementary to, out-of-school learning the college educational experience can have a profound effect.

2. In seeking to maximize the contribution of the college experience, efforts should be made to work on both sides; that is, to find out what the significant problems, opportunities, needs, interests and abilities of our students are and, on the other side, identify what the several subject fields have developed that can contribute to the students' effectiveness and satisfaction in attacking their problems, taking advantage of their opportunities, meeting their needs, stimulating their interests, and developing their abilities. Studies of these two sides furnish a fairly comprehensive base for planning an instructional program that focuses on teaching the things that can contribute to student competency.

3. Recognize that most college students are becoming autonomous. They are not seeking to be shaped by their professors or their college experiences, but they hope to acquire resources from the college years that will extend their capabilities and increase their satisfactions. For this reason, the college curriculum is seen by the students as more helpful

when it is consistent with this hope.

4. Formulate objectives which express the level of generalization of concepts, principles, skills, and values that students can be expected to reach, and which are clear enough to guide the teacher, the student, and the evaluation process.

5. In planning courses and other learning sequences, include both experiences with phenomena new to the student and phenomena that will provide for reflection upon and interpretation of previous experiences. The classroom can add certain critically lacking experiences that are new to the student, but much of what the disciplines can contribute that is usually absent from experiences in the world outside are the processes, principles, and criteria for gaining greater meaning from life experiences and appraising their values.

6 Provide ample opportunities to connect "theory and practice." Students can be encouraged to seek for and bring to classroom attention the problems, activities, and other matters of interest that he encounters, so that some of them can be subjects of class inquiry At the same time, group or individual assignments can be developed which furnish opportunities for students to apply what they are learning in college to significant activities, projects or programs in the outside world.

7. Whatever form the appraisal of student learning may take, it is important that it focus on the learning objectives that have been selected. For many students, the real goals of their learning efforts are the things on which they expect to be graded. To make competency-based learning effective for them requires that they actually be assessed in terms of their acquisition of these competencies.

During the past fifty years, each new effort to develop competency-based educational programs has gone somewhat farther than previous ones, and the present phase is clearly headed for developments beyond those of the 1940's. However, I believe that a more comprehensive picture of the problems and possibilities of building better educational connections between the college and the contemporary world outside can provide a background that may lead to a more continuing effort. I hope this presentation may contribute to building this comprehensive picture.

Conclusion

In the time that has passed since the conference, interest and experience with competency-based programs continue to increase. As a result, greater understanding of what a CBC is and what it can accomplish is developing. Furthermore, new questions are being raised even while answers to old ones are being found.

As steps are taken toward developing a CBC, those involved with setting outcomes and defining purposes ultimately face the question of what it is they are working toward. Curricula reforms like CBC seem inevitably to prod those involved into a preoccupation with the basic question, "What is a baccalaureate degree?" So far there is no indication that the CBC movement will be any more successful than earlier efforts at dealing with this basic, philosophical issue. However, proponents of CBC feel that the increased emphasis on clarity of outcomes will help them deal more successfully with this issue.

Another issue which develops around CBC is the irony of the seeming rigidity caused by the heavily deductive nature of the curricular elements. To the critics it seems that students will be tightly locked into rigid pathways leading toward graduation. The very essence of the competency idea is just the opposite however. Rather than providing more rigid programs, institutions with a CBC must develop multiple ways for students to demonstrate their competence, flexible time frames, and a wide variety of learning experiences to assist students in moving from where they are to the desired level of accomplishment, by the process which suits them best. The impetus for competency, at least in general programs, has been a need to find multiple ways to serve the diversity of students now in higher education. When properly planned a CBC offers more flexibility, not increased rigidity.

There also is great concern about the type of student who can be served best in a competency program. At present there are various opinions and the only agreement seems to be with the generalization that students who respond well to this approach are those who respond well to any approach. The important question, as yet unanswered, is whether this process can serve the educationally disadvantaged student. Some conference participants believed that competency would meet the needs of students with skill deficiencies since learning can be highly individualized with no rigid time frames, all of which should positively reinforce accomplishment. However, given the students' educational institutional backgrounds, colleges with CBC's find that they must spend time orienting their students to this new framework. The student's role changes dramatically from what it has been in traditional programs, especially those at the secondary level. Some participants with many years experience in educating disadvantaged students pointed out in the conference that institutions must be cautious in shifting to a CBC, especially for beginning students. Additional

strategies and procedures may have to be carefully devised if a CBC is to serve educationally disadvantaged students.

Many questions about faculty were raised during the conference, questions which continue to permeate the discussions of those involved in CBC. Questions were asked such as: "How do you convince faculty that competency can be a valid approach?" "What are ways to help faculty look at these approaches and consider their development?".

As was pointed out earlier in the report, an institution must be prepared to provide encouragement, assistance and support for faculty who must change their roles dramatically in relation to the organization as well as the learners. The key, then, to a successfully operating CBC will be an on-going faculty development program. Once faculties have decided to go with competency it still is not clear what will be required to maintain faculty morale if learning, credentailing and advising functions are distributed among sets of individuals who specialize in specific areas. What is likely to happen to faculty members who seriously "re-tool" and reorient themselves as professionals in CBC? Will they be able to move to other types of programs should the need arise, and if so, will they be able to function successfully? Will faculty who commit themselves to this general approach be lost to their disciplinary colleagues in other institutions; and will it matter?

In the final analysis the basic question remains for many, "Is this emphasis on *outcomes* going to prove any better than the emphasis on experience which this approach is to replace?" An underlying uneasiness about the tremendous effort required for a CBC seems to surface in the question, "In the long run will it be worth all the effort it will take?" Does society really want institutions to produce "competent" people; or is the current "egalitarian" thrust simply a demand for access to the experiences of higher education and the resulting traditional credential?

Whatever the impetus for the current effort toward development of the competency concept in higher education, the results will be dramatic in those settings where serious efforts are exerted. Even if institutionalized programs identified as CBC are not visible some years hence, the effort to move through the stages in developing a CBC can have a profound and beneficial effect on those institutions and individuals involved.

Appendix

The Conference

June 3-5, 1974
Atlanta, Georgia

Speakers

Harold L. Hodgkinson
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Russell Edgerton
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Group Leaders

Grover Andrews
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Betty Baer, Chairperson
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Division of Social Work
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Myron R. Blee
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Division of Community Colleges
Florida Department of Education

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Director of Special Programs
Southern Regional Education Board

Richard Hoffman
Academic Vice President
Mars Hill College

Lester I. Levin
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Sr. Roberta Schmidt
Academic Program Officer
United Colleges of San Antonio

John Sullivan
Assistant Provost
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Donald G. Trites
Visiting Lecturer in Education
Division of Educational Studies
Emory University

William Walker, Chairman
Department of Physical Education
Mars Hill College

Institutions

Alice Lloyd College
Carol Hughes
William Hughes

Austin College
Adelfo Aldana
A. J. Carlson

Birmingham-Southern College
William Baxter

Catonsville Community College
Howard Caplan
Mike Cary
Ruth Ann Patterson
Donna Skane

College of the Americas
Earle W. Newton

Dallas Baptist College
Ewing Cooley

El Centro College—Dallas County Community College District
Donald T. Rippey

Florida A & M University
Adelbert Jones

Florida Junior College
Betty Carter
Jon P. Cosby
H. J. Owens

Florida State University
Ed McClure
Gary Peterson
Robert Spivey

Hampton Institute
Edward C. Kollman

Huntingdon College
Sue Lewis

Jefferson State Junior College
Ben Clements
James Milner

Lake City Community College
Herbert E. Phillips

Lander College
Marvin Cann
John Hare
Bettie Horne
Margaret Marks

Memphis State University
James Payne
Richard Ranta
William Stallings

Miami-Dade Community College—Downtown Campus
Sandra S. Glinn

Miami-Dade Community College—North Campus
Betsy Hilbert
Stan Miron

Miami-Dade Community College—South Campus
Jane Berger
Ambrose Garner
Roberta Stokes

Miles College
Dennis Tyler

Morgan State College
Robert Dixon
Richard James

Norfolk State College
Everette Duke
Janie Gordon
Carolyn Johnson
Melvin O. Smith

North Carolina A&T State University
Joseph Bennett
Willie T. Ellis
Richard Fields

Northern Virginia Community College
Floyd Elkins
Arnold Oliver

Our Lady of the Lake College
Robert Gibbons
Sr. Marilyn Molloy
Sr. Frances Jerome Woods

Parkersburg Community College
William Kuhne
Gene Sigmon

Rust College
Benedict C. Njoko

Scarritt College
Lawrence C. Hay
John Washburn

Southern University
Matthew Crawford
Ruth Crawford
Raymond Lockett
Morgan Watson
George Whitfield

Tarrant County Community College—Northeast Campus
Jim O'Dell
Betty Swyers

University of Alabama
Harriett Cabell
Robert Garner

University of Florida
David Stryker
Jeannine Webb

University of Georgia
Thomas J. Cassen
Charles Darby
Mary T. Menendez
John C. Stephens
Grace Thomas

University of Houston
Gene Atkinson
Theodore Gish

University of Kentucky
Robert F. Sexton

University of Louisville
Robert E. Hoye
Wendall G. Rayburn

University of Maryland
Robert E. Shoenberg

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