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ABSTRACT

The guide focuses on short-term faculty development programs for allied health faculty located in health care facilities and academic institutions. The instructional improvement program may be conducted for faculty from one allied health discipline or from across a number of disciplines. The guide (1) provides the philosophical framework for planning short-term development programs; (2) discusses administrative procedures and details; (3) identifies teacher competencies, specifying the skills necessary for teaching in allied health programs; (4) provides guidelines for coordinating and teaching in the development program; and (5) contains a sequence of seven instructional modules, including competency-based objectives, a content outline, suggested participant activities, required readings, and an annotated bibliography. (HSE)

Manual for Allied Health Faculty Development in Short Term Education Programs

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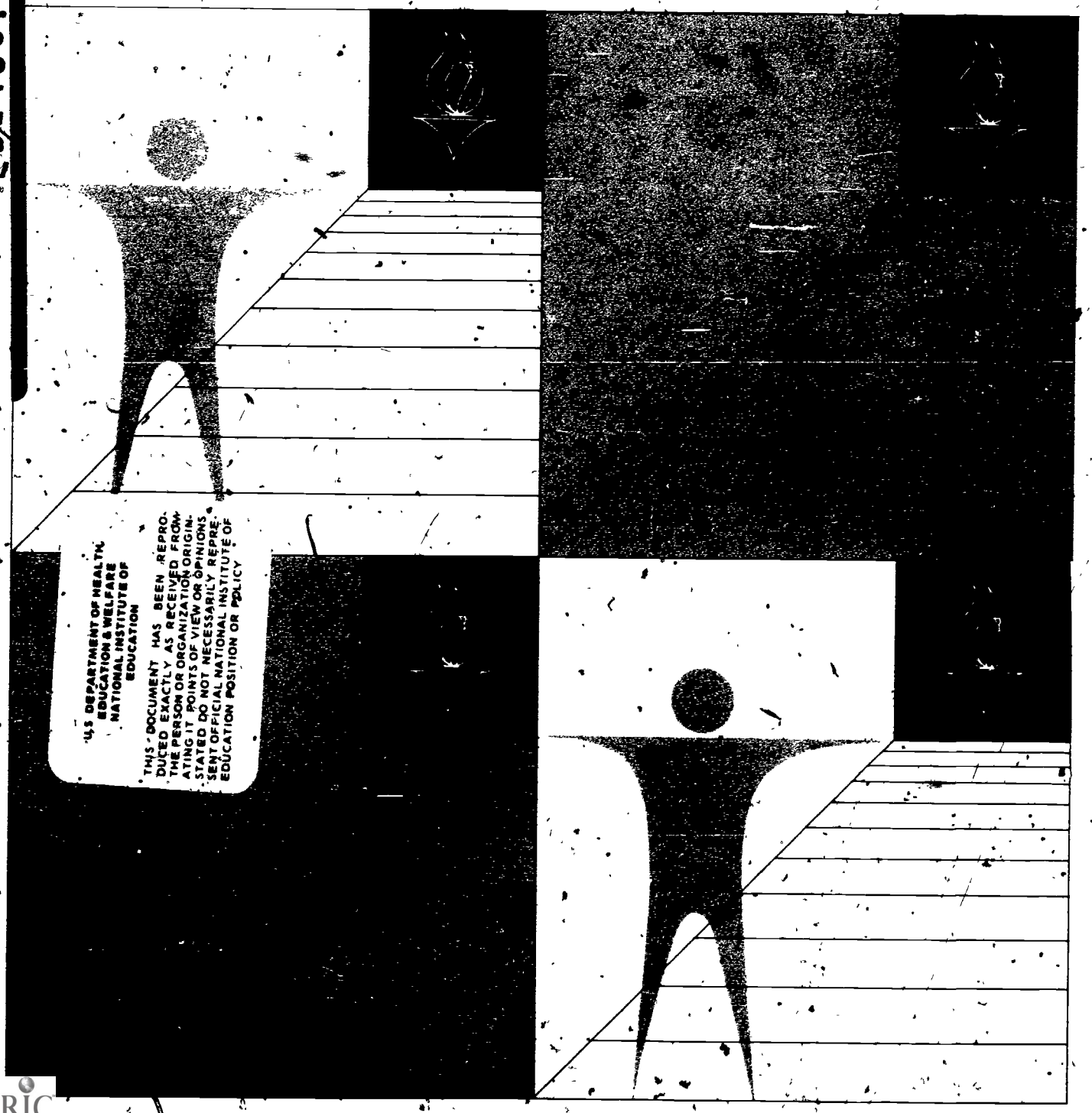

Manual for Allied Health Faculty Development in Short Term Education Programs

Health Manpower References.

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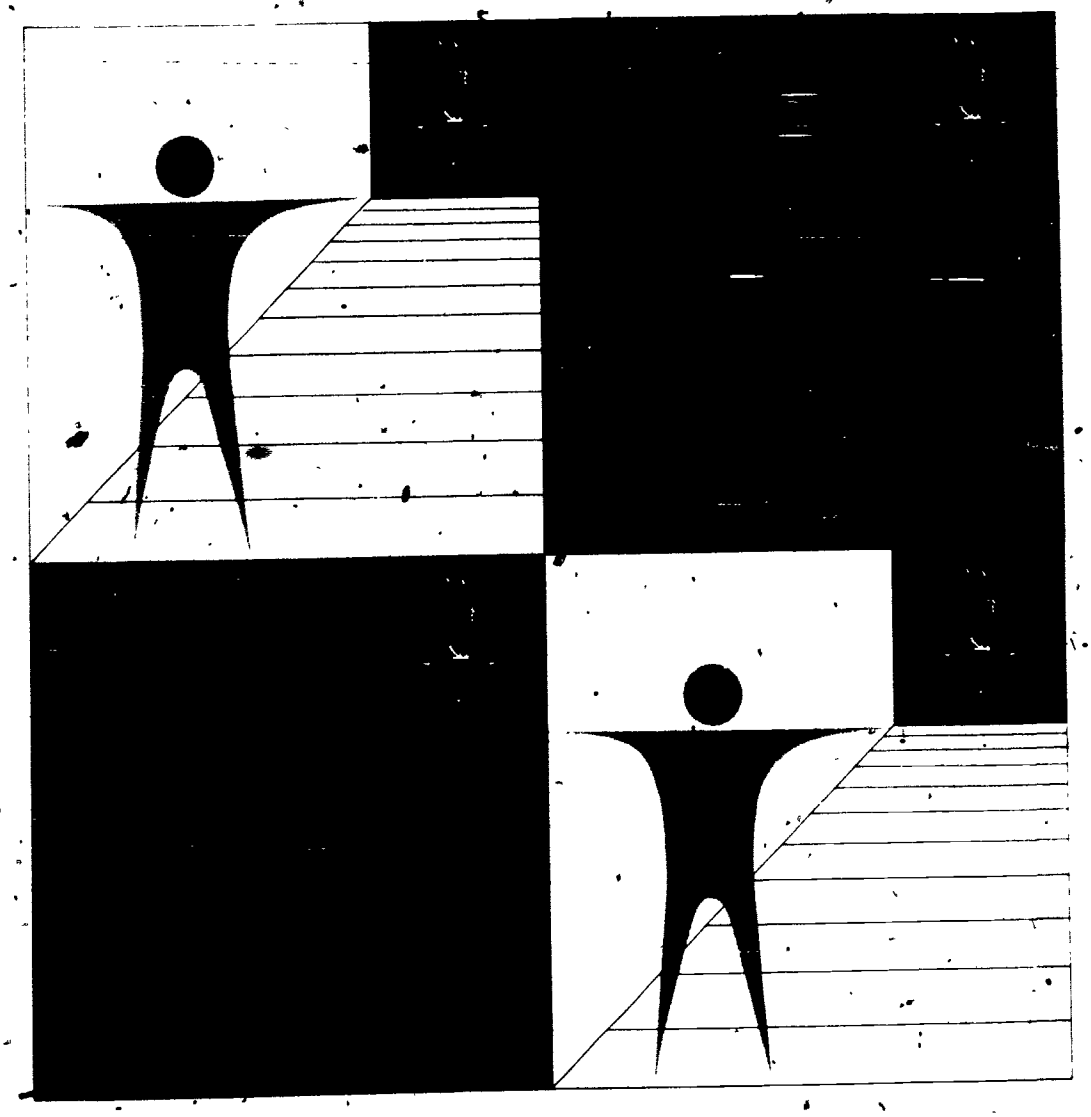

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Planning Short-Term Faculty Development in Allied Health Education

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CONTENTS

PREFACE

This guide has as its focus the development of short-term faculty development programs for allied health faculty located in health care facilities and academic institutions. The program may be conducted for faculty from one allied health discipline or for faculty from across a number of disciplines.

Selection of allied health faculty is usually determined by the specific discipline preparation of the individual and adequate work experience as a professional practitioner. Specific preparation for teaching is not an essential condition of employment since few allied health professionals have teacher education backgrounds. Because of this lack of specific preparation for college or hospital-based teaching, adequate orientation programs for new faculty, as well as inservice programs for refreshment and improvement of existing faculty, are imperative for the program or school intent on maintaining standards of teaching effectiveness.

Also, faculty development is being mandated by the Council on Medical Education as the accreditation essentials for allied health disciplines are updated. The council will require all programs seeking accreditation from the American Medical Association to demonstrate evidence of faculty development.

This guide is designed to help administrators and program directors plan and develop orientation and inservice education programs to increase the teaching effectiveness of their faculty.

GUIDE USERS

Two-Year and Four-Year Allied Health Administrators. This guide is intended to assist deans and heads of schools or divisions of allied health in planning and developing faculty orientation and inservice education programs. It is structured to accommodate a mixture of participants from multiple disciplines since this approach would be of cost benefit to a division composed of a number of programs.

Academic Department or Program Coordinators. This guide is also meant to assist specific discipline program directors or coordinators in planning and developing faculty enrichment programs to increase the teaching effectiveness of their faculty.

Program Directors from Health Facilities. This guide is intended to help program or education directors from health facilities plan and develop short-term faculty development programs. The health facility may be a hospital, rehabilitation center, laboratory--any community facility where allied health workers are trained. Training may include both didactic and clinical aspects, or it may include only the clinical education component if the facility is a clinical training center for academic institutions.

Teacher Education Specialists. This guide can also provide help to teacher education specialists who are interested in planning and conducting short-term teacher preparation programs for allied health practitioners and educators.

GUIDE OVERVIEW

The first two chapters provide the philosophical framework for planning short-term faculty development programs. The first summarizes the issues and concerns in faculty development. The second focuses on a theoretical approach to program planning.

Chapter Three discusses administrative procedures and details for the planning and development of faculty preparation programs. These include use of a planning committee; selection of a program type, time, place, faculty, and speakers; budgeting; program evaluation; and use of course credit.

Chapter Four identifies a list of teacher competencies that specifies the skills necessary for teaching in allied health programs. The competencies or skills are not limited to classroom teaching activities but encompass the responsibilities appropriately performed by the faculty member. These skills or competencies form the starting point for the planning and development of faculty preparation or development programs.

Chapter Five provides guidelines for those who will coordinate and teach in the faculty development program. It focuses on two major areas of competencies or skills, those for a director of learning and for a facilitator of interpersonal relationships. It describes four curriculum resource units that might be used to plan and develop a short-term faculty preparation program. These units are (1) classroom methods and teaching techniques, (2) use of instructional media, (3) evaluation of classroom learning, and (4) clinical education and evaluation. Each unit includes a rationale, an overview, a list of the general objectives for the unit, a suggested workshop format and schedule of activities, evaluation forms, and administrative details necessary for the planning of the unit.

Chapter Six is comprised of the seven instructional modules listed and sequenced in Chapter Five. This final chapter provides the framework for each instructional module, including such items as an overview of the module; the competency-based objectives, a content outline, suggested participant activities, required participant readings, and a selected annotated bibliography.

CHAPTER ONE

Faculty Development

Allied health education is now at a point where the emphasis is on qualitative improvement of existing programs rather than on proliferation of new programs. Crucial to the success of existing programs is the availability of effective faculty. Yet during a period of no growth it is difficult to recruit faculty members without unfairly terminating present staff who have their strengths as well as weaknesses. Since training programs can no longer afford the luxury of improvement through addition of new faculty, the current emphasis for faculty development must clearly be on an attempt to alter the behaviors of existing faculty members. In addition, with the rapid growth in knowledge, improvements in technological devices to assist in teaching, and new student groups such as ethnic minorities, first-generation college students, and older adults entering post-secondary education, the establishment of better ways to update faculty must be sought.

Existing faculty must accept the responsibility for program improvement. Steps, thus, must be taken together by faculty and administrators to improve faculty capabilities. Fortunately, faculty development is one of those happy concepts about which faculty and administrators universally agree that more ought to be done.

While unanimity of opinion on the need for faculty development exists, efforts to develop specific plans often go awry. Faculty development can be neither understood nor improved, however, unless it is approached from a perspective that allows systematic analysis of the process. In such an analysis the following areas of concern should be examined: How can schools help faculty members design effective learning experiences and adopt innovative methods of instruction? What strategies can administrators employ to encourage faculty members to improve their teaching? How can administrators develop programs to increase the faculty members knowledge of the management and governance of the school?

Currently many administrators view faculty development as an activity that takes place during periodic interruptions in the normal institutional routine when internal or external experts provide new information or during periods when faculty members are sent to workshops and/or professional meetings to upgrade current knowledge and acquire new knowledge. Obviously, faculty members need to attend workshops and professional meetings, but these activities represent only a starting point. Many allied health programs are limited at present in establishing effective faculty development programs by the absence of a conceptual framework that relates activities designed to upgrade faculty to the ongoing processes of the institution. Unless faculty members integrate their new knowledge into their teaching, their newly acquired information loses its effectiveness. If faculty development is a priority, then faculty members must not only be cognizant of new ideas, but they must relate these ideas to

institutional processes and settings and be sufficiently motivated to turn the newly acquired information into action.

The extent to which administrators can help faculty members alter their attitudes and specific behaviors depends on the administration's commitment to faculty growth. For example, the administration can encourage innovations in classroom teaching techniques or it can encourage the status quo. It can reward excellence in teaching or it can stress publications and advanced graduate education. In other words, the values of an administration as expressed through its reward system determine the success or failure of an effective faculty development program.

According to Lahti (1973), all institutions pass through a growth phase characterized by initiative, vision, determined leadership, and experimentation. After approximately four years, the growth rate levels off, and the institution enters a critical period during which the groundwork is laid for continued growth or eventual decline. The determinants of future direction include the following:

Effective planning

Development of subordinates

The values promoted by the system of rewards

The use of effective planning, teamwork, delegation of responsibilities and evaluation leads to improved performance for the institution and continuing development for the faculty. In contrast, institutions that demonstrate lack of controls, crisis management, and lack of teamwork enter a period of decline characterized by little or no faculty development.

The implications are clear. The environment of the college or university is a crucial determinant in the process of continued faculty growth. Given the most effective consultants, an adequate budget for attendance at professional meetings, and other visible signs of faculty development, faculty behavior will not change unless the administration supports the concept of an academic community where all participants learn and grow--not just students.

THE ACADEMIC MARKETPLACE

Since piecemeal efforts to improve college and university teaching have generally proven ineffective, we must turn to a more comprehensive approach through which we can develop new methods of classroom and clinical evaluation, find viable ways of introducing new technology, and explore new approaches to instructional improvement.

Faculty development has become an increasingly important concept for a growing number of faculty members and administrators. Currently postsecondary education faces the harsh realities of decreased funding, steady-state or declining enrollment, and declining faculty mobility simultaneously with demands for accountability voiced by students, parents, administrators and government.

Although institutions have focused attention on what they can do to facilitate the development of their allied health faculty, most active professional development programs have been those that help instructors update their knowledge in their respective allied health fields. Travel to professional association meetings, sabbatical leaves, and research support have been typical developmental activities.

It is generally accepted by many allied health administrators that a discipline-related degree is sufficient preparation for teaching. While it is a necessary condition for teaching effectiveness, it is not a sufficient condition. Consequently, while teaching is a significant part of the faculty member's role and should be highly valued, apparently it is not a serious concern in the education or hiring of college teachers. Yet faculty members are definitely concerned about the quality of their teaching (Sanford and Freedman, 1973). These researchers concluded that college and university professors like to teach and do not neglect their teaching duties in favor of research. Most of the faculty members they interviewed worked hard at teaching and wanted to be seen as effective.

EXISTING APPROACHES TO FACULTY DEVELOPMENT PROGRAMS

Existing approaches for improving teaching have, in isolation, failed to meet the challenges posed by changes in higher education. This failure is particularly disappointing when one considers the amount of money available to colleges and universities in the early and mid-1960s.

Three of the most widely used approaches to faculty development are the following:

Attendance at professional association meetings: While attendance at professional association meetings may provide faculty members with the opportunity to upgrade and update their knowledge in their respective allied health fields, it does not necessarily improve the quality of teaching. Although this knowledge can enrich and complement teaching, it does not assist faculty members in expanding their instructional strategies and increasing their skills in working with students.

Purchase of advanced-technology equipment: The purchase of costly new instructional equipment such as videotape systems, computers, and learning machines has not been a great success for many reasons. Many college teachers, because of low interest or few resources, remain unacquainted with the potentials of instructional technology. Even when resources and programs are available, many faculty members strongly resist them. For example, the videotaping of his/her lecture may threaten a faculty member. Mere purchase of highly technological equipment is ineffective unless an ongoing program related to use of the equipment is also implemented. Instructional technology has rarely been introduced by an administration as part of an ongoing longitudinal faculty development program.

Recruitment of instructional resource personnel: The recruitment of instructional resource personnel can provide opportunities for faculty members to improve the quality of their teaching. However, encouraging the faculty to use these consultants is a challenge for the most competent administrator. While faculty members are comfortable with the use of consultants in such areas as computer programming, their use of teaching consultants is quite new. Often the initial task of convincing tenured faculty that an instructional resource person can offer valuable assistance is a difficult one. Furthermore, serious problems are encountered by the staff member who has been recruited to assist the faculty in instructional improvement. The position is often a marginal one sandwiched between the faculty and administration. Many instructional resource personnel have faculty appointments, but are not fully functioning members of an academic department. In contrast, some have administrative appointments but have no administrative authority. These marginal positions create anxiety and are unattractive to many professionals.

Recent efforts at faculty development have often been ineffective. The mere attendance at professional association meetings, purchase of advanced-technology equipment, and/or recruitment of instructional resource personnel remain by themselves ineffective approaches to improved teaching.

NEW APPROACHES

To accomplish significant changes in faculty instruction, Bergquist and Phillips (1975) propose that changes must take place at three levels: (1) attitude, (2) process, and (3) structure.

All groups resist change; faculty members are not immune to this phenomenon. Often a faculty member will adopt a quiet passive resistance to exploring any alternative instructional method. He/she may be fearful of displaying shortcomings as a teacher. Consequently, a faculty development program must consider the attitudes and values of the faculty member.

Even when the faculty member has a positive attitude concerning new teaching methods and technologies, he/she may encounter institutional restrictions or barriers. As administrators begin planning for faculty development programs, they must consider organizational barriers as well as personal attitudes.

Consequently, the first task for the administrator is to deal effectively with the attitudes of the faculty member and then to remove institutional restrictions. Finally, attention can focus on the process of instruction, for example, current instructional methods and technology, curriculum development, and classroom and clinical evaluation.

Similarly Toombs (1975) suggests a three-dimensional plan for faculty development. The three dimensions proposed are: the professional dimension, the curricular dimension, and the institutional dimension. From a consideration of these dimensions, Toombs develops a set of principles for planning and a matrix for programming.

For professional dimension, he concludes that professional development programs must be determined in some way by the career stage of the individual, simply designated as one of the following:

> Preservice: interns, visiting students, part-time students, student teachers
>
> New inexperienced: recent graduates with credentials but a minimum of applied experience
>
> New experienced: arrivals from the field of practice, but new to the educational setting
>
> Established experienced: tenured professionals
>
> Nonteaching academics: counselors and placement officers

An early step in the design of a faculty development program must be consideration of the various stages of career development represented by the faculty.

The curricular dimension comprises the instructional side of the faculty role. It involves a thorough review of the entire curriculum and the total teaching-learning system. It encompasses not only the teaching of facts and principles but also the development of attitudes and values and permits an unlimited variety of teaching-learning situations. Faculty members become expert at instructional goal setting with the ability to write behavioral objectives. In addition, they become adept at assessing entering behavior of their students and planning appropriate learning strategies based on this information. Finally, within this curricular dimension, they develop the ability to assess the learning and teaching that has taken place and to replan experiences based on this post assessment.

To enhance the institutional dimension of their faculty role, faculty members should become more knowledgeable about the management and governance of an institution. According to Toombs, basic facts related to student flow and costs per credit hour, per student, or per degree should be common economic information. Only when faculty members are aware of the institution as a whole can they sense the implications of their collective efforts. Toombs states that this information should become familiar for all academic circles. Faculty members also need to become more aware of the extra-institutional factors that affect the life of the institution: areas like manpower, taxes, statewide involvement in academic program approval and regional planning.

In concluding, Toombs recommends a basic matrix within which program profiles can be described (see Figure 1). The matrix simultaneously considers the career stages of individual faculty members and the three-dimensional view of faculty development.

Figure 1

DIMENSIONS	CAREER STAGE				
	Preservice	New Inexperienced	New Experienced	Established Experienced	Nonteaching Academics
Professional					
Curricular					
Institutional					

The third conceptual framework of staff development to be presented is one proposed by Richardson (1975). Richardson suggests six necessary stages of staff development. The first two encompass staff development, the next three incorporate organizational development, and the final stage involves evaluation and maintenance:

Stage 1. Individual and small-group learning experiences. At this stage the primary methods involve attending professional meetings, workshops, and seminars, reading professional publications, attending structured internal sessions, and visiting other institutions.

Stage 2. Application of information from stage 1 to classroom.

Stage 3. Analysis and revision of the administrative and governance structure to allow for the changes encouraged by stages 1 and 2.

Stage 4. Establishment of goals and priorities for the institution. The effect of stage 3 should be an organizational structure and governance procedure that encourages a more cohesive institution and makes it possible for the college to establish mutually agreed-on tasks and priorities.

Stage 5. Identification of goals for individuals and attainment of goals. Once an institution has identified its major direction and priorities, these must be translated into a strategy for action. Each faculty member must identify his/her own goals and relate these to the larger purpose of the institution. This stage is critical to development both of the individual and the institutional goals and priorities.

Stage 6. Evaluation and feedback. An effort must be made to assess the individual and institutional changes that have been effective and to maintain them. Alternative solutions are proposed for ineffective changes. Through a continuous process of evaluation, the desired direction of the institution is maintained.

Richardson (1975) proposes that the six stages are totally interrelated. He believes that the failure of colleges to coordinate these stages leads to ineffective staff development and institutional decline. The experiences that occur during examination of the institutional structure and goals, as well as in the process of relating one's individual efforts to the direction of the total institution, are far more likely to change behavior than any individual development experience. Integrating the concept of staff development within the context of organizational development points the way toward changing the attitudes and behaviors of existing faculty members.

From these three approaches, it is clear that staff attitudes, organizational and institutional structures and career stages of individual faculty members all have an impact on faculty development programs. This curriculum guide focuses on the process of instruction; however, before planning for faculty development programs begins, the other factors must also be considered.

THE CHALLENGE

Successful faculty development programs will not solve all the problems of an institution. However, changes in faculty attitudes, knowledges, and skills may move us all toward faculty and instructional renewal through the improvement of teaching. Obviously, faculty development is not the panacea of all the ills of higher education, but used effectively it can be a strong and valuable force enhancing the claim that both faculty and student growth are our business.

If faculty members believe that institutions of education stand slightly apart from society, to be in some special measure a center for independent thinking, a place where creativity and criticism are encouraged, then let them also know in a time of increased pressure for accountability that they are themselves professionals who must assume leadership in helping plan, implement, and evaluate their own faculty development programs.

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CHAPTER TWO

A Systems Approach to Program Planning

While one of the primary problems in higher education is how to provide meaningful faculty development programs, an equally perplexing problem exists in determining what specifically should be included in such programs so that faculty may increase their effectiveness. For instance, allied health faculty members have diverse educational backgrounds. Many have been practitioners for a number of years before entering teaching; others have become teachers after only a few years in the field. Some allied health faculty members have taught for several years, while others are new to the teaching field. Some may have used informal teaching methods in a hospital-based program and are finding it difficult to teach larger, more impersonal classes with fewer readily relevant examples at hand as were available in the hospital. The need for faculty development programs has been presented in the previous chapter, but the question still remains: given a heterogeneous group of allied health faculty members, what should they know to enhance their effectiveness; what experiences, procedures, and materials should they receive; and how can it be ascertained whether they have benefited from the enrichment experiences?

This chapter provides a theoretical framework for a systematic approach to planning and implementing faculty development programs. These programs might involve a variety of experiences such as seminars, courses, and workshops.

THE SYSTEMS CONCEPT

Diverse learning systems have been developed over the past two decades, and the field of instructional technology has reached high levels of sophistication. Some critics such as Kneller (1972) contend that the systems approach to instruction "rests on assumptions about human behavior that are reductionist, deterministic and physicalist. It is opposed to the view that learning is self-directed, unstructured and in large part unpredictable." However, there is convincing evidence that instructional systems models have found broad application and acceptance in education in general (e.g., Roueche and Pitman, 1972; Popham and Baker, 1970) and in medical and health-related curricula in particular (e.g., Heidgerken, 1965; Holcomb and Garner, 1973; Segall et al., 1975).

The concept of a system has been generally defined by Banathy (1968), who in part notes that:

> Systems are assemblages of parts that are signed and built by man into organized wholes for the attainment of specific purposes. The purpose of a system is realized through processes

> in which interacting components of the system engage in order to produce a predetermined output. Purpose determines the process required and the process will imply the kinds of components that make up the system . . . (p. 12).

The concept of a system has been related to education by Kemp (1971), who suggests that a system essentially comprises a process that establishes a way to examine instructional problems and sets a procedure for dealing with them. Applying the systems approach to instructional problem solving has provided a number of models. The basic elements of an instructional system are objectives, criterion levels of learner performance, learning activities, and evaluation and revision procedures (Roueche and Pitman, 1972). These components can be ordered in many ways and are generally designed as a closed loop that is constantly self-adjusting (e.g., Banathy, 1968; Kemp, 1971; Popham, 1965; Merrill, 1971).

While each system tends to have its own particular aspects and idiosyncrasies, all systems are similar in that they are nontraditional learning-oriented systems. Table 1 indicates some of the differences between learning systems and more traditional teaching-oriented approaches that are prevalent in higher education.

Banathy's definition of a system is easily seen in its application to the instructional learning-oriented system presented in Table 1. The components are interactive, with the purposes of instruction clearly stated in terms of behavioral objectives. This allows for selection of learning experiences and selection of the methods and media for teaching. Finally, an effective evaluation process determines to what extent the system has worked (learning has occurred among students).

While the systems approach to instructional planning is appropriate for curriculum development, it is equally applicable for planning allied health faculty development programs. There are several justifications for using a systematic approach to planning. Some of these are:

- To provide for a more integrated, coordinated, and complete program of faculty development
- To provide for consideration of individual differences in academic background, teaching experience, etc., of allied health faculty members
- To provide for specific competencies that allied health faculty members need in order to improve their instruction
- To provide for systematic development of learning experiences with appropriate teaching methods and materials for allied health faculty members
- To provide for modes of assessment to determine whether faculty development programs are helping allied health teachers improve their teaching

TABLE 1

INSTRUCTIONAL SYSTEMS

TEACHING-ORIENTED SYSTEM (TRADITIONAL)	LEARNING-ORIENTED SYSTEM (NONTRADITIONAL)
Instruction is unsystematized.	Instructional technology undergirds entire system.
Groups are instructed under controlled conditions.	Instruction is individualized.
Teacher presentation is equated with learning. Whatever has been covered in class is considered learned by the student.	Teaching has not occurred unless student has learned.
Objectives are vague and general.	Objectives are specific and measurable.
Audiovisuals are used as aids to teaching.	Media are used not as a supplement but as a component of teaching, selected on the basis of potential to cause student learning.
Only "essential" knowledge is dealt with.	Content is chosen on the basis of its relevance.
Testing is used to categorize students.	Testing is used to assess teaching.
The teacher is the actor; the students are the audience. The teacher controls the selection of objectives, content, and learning experiences; students simply react.	The students are the actors; the teacher is the manager. Students participate in the selection of objectives, content, and learning experiences.
Uniformity and regulation prevail: 30 students per teacher; 50-minute class periods; 18-week semesters or 11-week quarters.	Freedom prevails: flexible student/teacher ratio; flexible period length and scheduling; flexible semester.

SOURCE: Quoted with permission from John E. Roueche and Barton R. Herrscher. "A Learning Oriented System of Instruction." Junior College Journal (October 1970): 24.

Besides integrated program planning, use of the systems approach can have the following additional benefits as allied health faculty members are exposed to systematically designed learning experiences:

The applicability of systematized approaches to allied health curriculum planning in general will become evident.

The need to change from traditional, teaching-oriented, modes of instruction to learning-oriented modes will emerge.

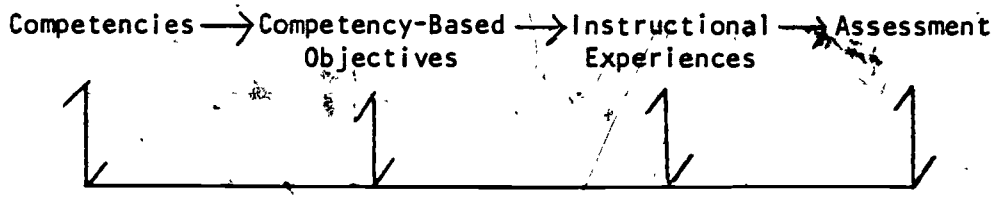
The diversity of methods, materials, and assessment processes that are available to enhance and reinforce the instructional process will become evident.

The desirability and utility of an objective-based format for planning instruction and the nonthreatening environment that is created when terminal behaviors are specifically stated as a condition for learning will emerge.

The need for allied health faculty members to acquire a strong sense of accountability for student learning will become clear.

As stated previously, many systems models have been developed and are useful in instructional planning. The model presented here focuses on a competency-based approach that includes as the system's components: general competencies, competency-based objectives, instructional experiences (methods and materials), and assessment. The system is represented in Figure 2.

FIGURE 2



All of the elements are interactive, each addressing itself to a specific task; they build on one another to create the desired behaviors. The assessment component interacts throughout in a cyclical feedback process to monitor all phases of the system continuously. Many other systems are far more involved and sophisticated, with many components and variables to consider in instructional planning. This system, in its simplicity, works as well as any of the other models and provides the instructional planner with a basic conceptual frame of reference that may be applied to any manner of instructional problem.

The rest of this chapter discusses the elements of a competency-based system, particularly as they relate to planning faculty development programs for allied health teachers.

IDENTIFICATION OF FACULTY COMPETENCIES

The first step in identification of faculty competencies is to specify the competencies or tasks a faculty member must exhibit. The essential question to be asked is: what should faculty members be able to do that will make them effective faculty? The competencies identified should encompass all the tasks and responsibilities required of faculty and should not be limited to the role of classroom teaching.

Through identification of the competencies needed by an allied health faculty member emerges a clear description of an effective faculty member. Thus, a starting point and an ending point have been established that will serve as effective guides in developing specific programs. Then specific competencies can be selected to give direction to a faculty development program.

DETERMINATION OF COMPETENCY-BASED OBJECTIVES

Having selected specific competencies for a faculty development program, planners can identify specific competency-based objectives. Competency-based objectives are a type of behavioral objective. Their most important feature is their evolution from the overall competencies identified. Without the competency statement, the ends of the instructional experience, the competency-based objectives would be vague and ambiguous.

Objectives and their use have been well explored (e.g., Mager, 1962; Cohen, 1974). Bloom (1963) notes that they provide both teachers and students with direction on the subject content and the learning processes through which the learner is expected to develop.

Competency-based objectives can be established by asking the following question: when a faculty member exhibits a specific competency, what is the underlying cognitive base for that competency, what specific skills are necessary, and what attitudes are desirable? The answer can be stated in terms of specific behaviors that the faculty member should be able to exhibit. These specific behaviors can then be classified or sequenced.

The taxonomy or classification domains of objectives have been well developed for the cognitive and affective areas of learning (Bloom, 1956; Krathwohl, Bloom, and Masia, 1964). The cognitive domain ranges from the memorization of facts to the use of problem-solving skills.

The first level of cognitive learning is knowledge. By knowledge is meant that evidence that something is remembered can be given through recall or recognition of the information. Knowledge is little more than remembering a piece of information in a form very close to that in which the information was originally encountered. However, meeting such low-level objectives is extremely important because later learning will be limited, or facilitated, by the amount and quality of information stored. Unfortunately, objectives are often at this level when, in fact, only higher-level cognitive objectives would ensure acquisition of the competency desired (Roueche and Pitman, 1972).

The second level of cognitive learning is comprehension, which is probably the largest category of educational objectives. There are three types of comprehension behavior. First is comprehension through translation, in which the learner puts abstract ideas into concrete or everyday terms. Second is comprehension through interpretation, in which the learner is able to reorder ideas and concepts and communicate these effectively in their new form. Third is comprehension through extrapolation, which includes making judgments based on trends, tendencies, or conditions described in the communication.

The third level of cognitive learning is application. By application is meant that, given a problem, the learner will choose and apply the appropriate responses based on previous abstract knowledge. This level includes an ability to transfer previous learning. Since most ideas, principles, and theories are meant to be applied, competency-based objectives that provide for application are extremely important.

These three comprise lower cognitive levels of objectives, while the last three are considered to be of a higher cognitive level. The fourth level of cognitive learning is analysis. In analysis, the learner must be able to break down ideas into parts and perceive new relationships or hierarchies of ideas. This level includes an ability to analyze elements, relationships, and organizational principles.

The fifth level of cognitive learning is synthesis. At this level the learner should be able to combine elements in order to form new ideas or concepts that were not evident before. Included at this level is an ability to produce a unique communication, produce a plan or proposed set of operations, and derive a set of abstract relationships.

The sixth level of cognitive learning is evaluation. By evaluation is meant that the learner can make judgments in terms of internal evidence (which might include the accuracy of a communication from such evidence as logical accuracy and consistency and internal criteria. Also this level includes the learner's ability to make judgments in terms of external criteria (which might include selected or remembered criteria). On the basis of such judgments, the learner can either modify ideas or maintain them intact. The learner is able to judge what is reasonable and what is not.

The initiation of affective characteristics in students has posed a difficult dilemma for educators, particularly in terms of how appropriate learning experiences can be planned and how such experiences can be assessed. Krathwohl, Bloom, and Masia (1964) have provided a taxonomic hierarchy of the affective domain which focuses on the process of internalization of attitudes, values, appreciations, and interests. The first stage is receiving, which is a willingness to be aware of stimuli. The learner must be aware of the stimulus, show a willingness to receive it, and give it some degree of controlled or selected attention. The learner is not expected to respond to or become emotionally involved with the stimulus. Initially, this awareness is unconscious, which may give way to the learner's willingness to receive the stimulus.

The second stage of affective learning is responding. Now the learner goes beyond receiving and acts or responds to the stimulus. Three substages of responding have been defined: (1) acquiescence in responding, (2) willingness

to respond, and (3) satisfaction in response. First, the learner tries out new behaviors to determine their appropriateness. If positive reinforcement follows this response, the learner will receive satisfaction and will desire to use the behavior again.

These two stages allow for the instructional process to be used as a mechanism for initiating affective changes.

The last three stages require the learner to somehow manifest the behaviors desired. It is possible to structure situations (clinical setting, teaching laboratory) in which appropriate behaviors may be reinforced, but the learner must have continuous reinforcement of the desired affective behaviors over a lengthy period before the behaviors can be said to be part of an internalized value system.

The third stage of affective learning is valuing. In this stage the learner has the ability to attribute worth to a particular behavior. The learner comes to value the behavior and perceives it to be in harmony with his/her overall value structures and relatively consistent with the environmental value structure in which he/she must function. The following three substages have been identified: (1) acceptance of a value, (2) preference for a value, and (3) commitment to or conviction toward the value.

The fourth stage of affective learning is organizing. In this stage, the learner manipulates previously internalized values into an order or system that assigns priorities to and determines the interrelationship of the learner's values. Two substages have been defined: (1) conceptualization of a value, and (2) organization of a value system.

The fifth stage is characterizing. In this stage, the learner's values are already hierarchically ordered and are part of an internally consistent system. The individual is clearly characterized by the value complex which is easily manifested in appropriate situations.

The taxonomy for psychomotor learning has not yet been provided with a structure that has received wide acceptance. However, several models are available to provide a skill hierarchy (DeCecco, 1968).

The first step in planning for psychomotor learning is to analyze the component parts of the skill. This essentially involves a task analysis of the distinct parts of the skill. The second step is to assess the entering behavior of the learner. The instructor must assess the learner's general readiness, past learning experiences, and overall motivation. The third step is to divide the skill into component units for teaching. The fourth step is to give an actual demonstration of the overall task. This should probably be performed even before step three so the learner has an overall concept of the skill to be learned and can develop skill with the component units while equipped with a relevant frame of reference. At this time the learner must begin to develop proficiency in sequencing component parts of the skill into the overall psychomotor task. It is important to remember that verbal instruction should be kept to a minimum and should deal with only the most essential aspects of the skill. Forcing excess information onto the learner will tend to confuse the learner and produce a poor performance; too little information may produce

equally poor proficiency with the task. Step five allows for the student to experience three learning conditions--contiguity, practice, and feedback--in a single step because they must be provided concurrently rather than sequentially. By contiguity is meant that the learner must be able to sequence the subtasks of the skill in proper order without unnecessary pauses. The learner must be able to have practice to (1) rehearse specific subtasks of a skill that are only partially learned, (2) sequence tasks in proper order of performance, (3) prevent extinction and forgetting of the subtasks, and (4) develop sophistication and efficiency in use of the skill. Feedback must be provided so the learner can compare his/her actual performances with the standard performance of a skill.

Through systematic planning, a rational approach to developing competencies and competency-based objectives can be attained. Next comes the process of planning and designing structured learning experiences and selecting appropriate methods and materials to achieve the competency-based objectives.

PLANNING OF INSTRUCTIONAL EXPERIENCES

The designing of instructional experiences requires that planners first decide on the appropriate knowledge base for the competency-based objectives. Since content follows from the objectives, the content areas will probably fall easily into a sequence that indicates which parts of the content must be mastered as a basis for subsequent learning (Kemp, 1971). Some assessing and ordering may also be necessary to ensure that the content is presented in a logically ordered pattern. If sequencing is chronological, understanding will come more easily and retention will last longer for the learner.

Planning for the presentation of content requires that decisions be made regarding the selection of appropriate teaching methods and audiovisual learning aids. A diversity of teaching strategies are available to choose from, each with advantages and disadvantages, depending on the specific outcomes desired. There are at least five criteria by which appropriate teaching methods may be chosen.

The first criterion is that the method must be suited to the competency-based objectives and the content base. Depending on the types of objectives to be met, certain instructional methods may be better than others. Davies (1973) has summarized the major trends in the research literature (see Table 2) and suggests the following generalizations in choosing an appropriate teaching method:

Cognitive objectives: All teaching strategies can be employed to realize cognitive objectives. However,

Lower-order cognitive objectives can best be realized by lectures, lesson demonstrations, programmed learning, and computer-assisted instruction.

Higher-order cognitive objectives can be realized by all teaching strategies.

TABLE 2

OPTIMAL TEACHING STRATEGIES FOR OBJECTIVE

TEACHING STRATEGY	CLASS OF LEARNING OBJECTIVE					
	Cognitive		Affective		Psychomotor	
	Low	High	Low	High	Low	High
Lectures	x	x	x			
	x	x	x			
Lesson demonstration	x	x	x		x	x
	x	x	x		x	x
Group discussions		x	x	x		
		x	x	x		
Tutorials		x	x	x	x	x
		x	x	x	x	x
Role-playing	x	x	x	x		
	x	x	x	x		
Case studies		x	x	x		
		x	x	x		
Gaming		x				
		x				
Brainstorming		x	x	x		
		x	x	x		
Programmed learning	x	x	x			
	x	x	x			
Computer-assisted instruction	x	x	x	x		
	x	x	x	x		
Independent study		x	x	x	x	x
		x	x	x	x	x
Leaderless groups		x	x	x		
		x	x	x		
Sensitivity training		x	x	x		
		x	x	x		

SOURCE: Quoted with permission from Ivor K. Davies, Competency-Based Learning: Technology, Management and Design. New York: McGraw-Hill Book Company, 1975, p. 175.

Affective objectives: All teaching strategies, except perhaps gaming, can be employed to realize affective objectives. However,

Lower-order affective objectives can be realized by all teaching strategies.

Higher-order affective objectives can be realized by group discussions, tutorials, role-playing, case studies, brainstorming, computer-assisted instruction, independent study, leaderless groups, and sensitivity training.

Psychomotor objectives: Lesson demonstrations, practical tutorials, and independent study are the only teaching strategies most likely to realize psychomotor objectives.

The second criterion is that methods must be chosen in accord with sound learning principles. Several writers have shown the relevance of learning theory to the selection of learning activities, with perhaps the best being Hilgard and Bower (1966). At least five principles seem to interface these theories and provide a common criterion to aid in selection of teaching methods:

Rewarding of achievement: Behavior that leads to the achievement of competency-based objectives should be rewarded with a feedback response to communicate that the achiever has responded appropriately. The nature of the reward would vary, depending on the learner and learning situation. An adult learner may need only the feedback which can be internalized as a reward for correct behavior. A younger learner may need an extensive system of rewards for assurance that the behavior is correct and for motivation to perform other desired behaviors.

Differences in learning rates: Learning is a unique experience occurring at different rates among individuals. Some learners do not comprehend a set of information in the same way as other learners. Many have distinct learning deficiencies (e.g., in reading level or verbal comprehension) that clearly affect their ability to assimilate information. Some learners have learning disabilities that must be compensated for before learning can take place.

Whole learning before part learning: Learning is more effective if it is relevant. When the whole of the problem, skill, knowledge base, etc., is perceived, a relevant outcome to which the learner can relate is established. Movement toward this outcome through the various learning parts is thus more easily effected. For instance, in demonstrating a psychomotor skill, the whole skill should be demonstrated first, then the smaller skills that comprise the whole skill should be demonstrated. When teaching systems theory, the instructor should discuss the major components of the system and show a diagrammatic model first. Then, when the components are discussed in more depth, the learner can understand the specifics more effectively in terms of the interrelationships within the whole system.

Learner Involvement in learning: Active involvement in the learning process is more effective than passive observation. Instructors allow for more active involvement of students in a lecture situation through the use of communication skills such as questioning, cueing, and reinforcement techniques. Effective audiovisual aids allow for greater involvement of the learner. Programmed learning texts involve the learner through a continuing process of testing and feedback.

Teaching for transfer: The teaching-learning situation must allow for transferability of knowledge. Guided practice, mediated by the teacher, increases the probability of knowledge transfer to new problems that require the use of the same principles for their solution. For instance, a problem-solving model is taught to clinical instructors so they can aid students in working through specific patient-care situations.

The third and fourth criteria for use in selecting appropriate methods are the entering behavior (academic background, learning styles, etc.) of the learner and the teaching preferences of the instructors. These criteria are discussed together because they are interrelated and critically affect one another.

In choosing an appropriate method of instruction for a faculty development program, planners must carefully consider the background of their audience. Lectures or demonstrations may be perceived by participating faculty members with many years of teaching experience as very authoritarian. Such individuals may perceive the instructors as talking down to them. On the other hand, many faculty members, particularly those in allied health, are used to structured modes of learning and tend to be more comfortable with them. While more permissive strategies may be more useful, a problem still exists in that faculty members could be unused to and ill-prepared for such styles and thus not benefit from them. For instance, a faculty development program may use sensitivity-training methods to enhance interpersonal communication among participating faculty, but may have the adverse effect of raising anxiety levels and defenses to the extent of total ineffectiveness.

Davies (1973) notes that teaching styles may be categorized into two general areas: autocratic, or teacher-centered modes and permissive or student-centered, modes. The teacher-centered modes tend to be more conventional in style. The content is determined by the teacher's emphasis on intellectual changes, and there is little or no attempt to develop or use group cohesiveness. Autocratic teaching methods include lectures and lesson demonstrations.

Student-centered modes tend to be less conventional in style. Content is largely determined by the participants; emphasis is on attitudinal as well as intellectual changes; and attempts are made to develop and use group cohesiveness. Permissive teaching methods include tutorials, group discussions, role-playing, computer-assisted instruction (problem solving), independent study, leaderless groups, and sensitivity training.

Instructors will have special preferences about special styles they will use in the classroom, depending on individual personality and the levels of learning to occur. Some will feel more comfortable in informal small-group situations where there is ample opportunity for interpersonal interaction and group responsibility for direction of learning. Conversely, others will desire to have overall control of the learning situations and will feel more comfortable using formats such as the lecture method. Being able to mediate between his/her own teaching preferences, the entering behavior of the learners, and the type of content to be learned is one of the most critical planning considerations of the teacher.

The fifth criterion for determining a method of instruction is that the method should be efficient. Using small-group seminars to disseminate knowledge may be a more comfortable method for some instructors, but it is not necessarily as efficient as the lecture method. The important consideration is whether the method chosen is the most efficient in terms of time available for instruction, complexity of subject matter, expense, etc. Clinical education is a most inefficient mode of instruction because of the extensive time, personnel, and expense involved. However, it is a vital component of any allied health program because of the complexity of learning involved, including application, analysis, synthesis, and evaluation; demonstration of psychomotor skills; and demonstration and practice of affective attitudes in a clinical setting.

In addition to appropriate teaching methods, audiovisual aids provide an important resource in facilitating the learning process and comprise an important component in instructional planning. Many instructors may tend to shun audiovisual aids for older, more experienced audiences, thinking that they would not actually reinforce learning. However, audiovisual aids have been found to contribute to the teaching-learning process (Klevins, 1972).

In determining the appropriateness of audiovisual aids in the teaching-learning situation, Davies (1973) has drawn three broad generalizations from the research literature:

> People do learn from audiovisual materials.
>
> The amount they learn depends on the appropriateness of the audiovisual aid to the learning objectives and on the structural properties of the task.
>
> Learning from audiovisual aids can be directly and appreciably enhanced if teachers--
>
> - Introduce the materials and state the objectives to be realized
> - Obtain student participation
> - Employ attention-getting devices like arrows and pointers, questions and discussions, assignments and projects
> - Use audiovisual materials to repeat student exposure to the content.

These findings point up not only that audiovisual materials are applicable to the teaching-learning environment but also that they are worth using well. It follows that selection of appropriate audiovisual media must be based on specific criteria. The five criteria presented in the selection of instructional methods are equally appropriate for the selection of audiovisual aids.

The first criterion is that the media should be suited to the learning objectives. The research literature indicates that, depending on the actual conditions, particular types of media are appropriate for specific domains of competency-based objectives. Davies (1973) outlines the selection process in terms of the following generalizations (see Table 3):

> Cognitive objectives can be realized by all audiovisual media.
>
> Affective objectives are best realized by audio aids, pictures, films, television, simulators, and language laboratories.
>
> Psychomotor objectives are best realized by audio aids, large models of reality, simulators, language laboratories, and field visits.

The second criterion is that media should be selected in accordance with sound learning principles. Appropriate media will help to promote perception and understanding, aid in the transfer of learning, provide reinforcement or knowledge of results, and assist in learner retention of knowledge (Kemp, 1968; Davies, 1973).

The third and fourth criteria are that instructional media should be compatible with the entering behavior of the learners and with the personality of the teacher. Although the personality of the instructor is less a critical factor with media selection, some teachers do find themselves more uncomfortable when using overhead transparencies, slides, or films. The background and sophistication of the learners is also an important consideration. Some learners are not accustomed to sophisticated media equipment and may experience operational difficulties that might hinder learning. Many learners also may not be accustomed to self-instructional methods using media aids and may experience difficulty in learning from slidetapes, films, etc.

The fifth criterion is that the chosen medium be efficient. The question is: does the medium present the content in the best way possible allowing the learners to acquire the subject matter in the most effective manner?

Competency-based objectives have provided the basis for sequenced instructional planning. Relevant subject matter has been structured in the most presentable form to learners, and appropriate methods and media materials have been selected as mechanisms for the dissemination of content. The system has reached the point where it may be implemented. However, careful planning also dictates that a mechanism for assessing the adequacy of this planning be provided.

ASSESSMENT AND EVALUATION

The final phase of the competency-based systems approach to instructional planning is the evaluation component. An effective evaluation strategy is a continuous process that incorporates assessment throughout the systems cycle.

New data are regularly received and serve as feedback into each component of the model. In one faculty development workshop, a competency-based objective required that instructors be able to demonstrate an ability to counsel students. The method chosen to achieve the objective was lecture-discussion in which the concepts of facilitative communication were discussed along with various types of student problems. A paper-and-pencil test indicated that the participants could recall the material; however, a mid-course assessment of objectives showed that the participants had difficulty applying this knowledge in actual situations. Reassessment of methods led to the inclusion of role-playing in the workshop. Participants then had the opportunity to practice and gain skill in counseling interactions in a controlled environment. Further assessment provided feedback to determine whether this method was more effective.

An effective evaluation process will provide continuous assessments and hence feedback into every component of the systems model. In general, the major purposes of an evaluation protocol are as follows:

To measure the extent to which learners have achieved the competency-based objectives

To determine which competency-based objectives have not been achieved so that appropriate remedial action can be taken

To provide data for the instructors on the appropriateness of the teaching strategy so that strengths and weaknesses can be determined

To provide data to improve course or curriculum revision and determine whether additional learning resources are necessary

Two types of evaluation processes exist: formative and summative. Formative evaluation relates to periodic assessment of an instructional sequence to determine the degree of mastery of a given learning task and to pinpoint the parts of the task that are not mastered. The intent is to determine in a partisan fashion if the objectives, subject matter, instructional methods, etc., are appropriate. The formative evaluator wants the instructional sequence he/she is working with to improve and will use short-term assessments, sample tryouts, and the like to help develop a more effective sequence. In a faculty development program, tests, anecdotal records, rating scales, and course assessments provide data for formative decision making.

Summative evaluation appraises the worth of a completed instructional sequence. It is a general assessment of the degree to which the larger outcomes have been obtained over the entire course or some substantial part of it (Bloom, Hastings, and Madaus, 1971). This evaluation process tends to be nonpartisan and influences more global decisions regarding overall programs, systems approaches, etc. Summative evaluation of a faculty development program might include data from the same assessments used in the formative evaluation process, but used to determine general overall trends or outcomes. Additionally, other data-gathering mechanisms of a general nature

might be used such as past graduate longitudinal studies or assessments from individuals who are in a position to observe the program or system but are not directly associated with it.

The important point to be made is that all assessment be based on preplanned outcomes that have been clearly stated at the onset of the learning experience through competency-based objectives.

SUMMARY

The competency-based systems approach to instructional design has been discussed with regard to its primary components: competencies, competency-based objectives, instructional experiences, and assessment. These components provide the basis for a logical sequence of program and course planning. Each focuses on a specific aspect of the decision-making process that must occur as a final design is developed.

In terms of planning for faculty development, this system provides an ordered approach to acquiring only a few competencies in a one-day workshop or to acquiring several competencies through integrated interrelated learning sequences or workshops over an extended period of time. The strongest justification for competency-based systems planning is the combination of flexibility and a decision-making structure. The competence-based system is certainly more appropriate than the current haphazard approaches to faculty development planning.

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CHAPTER THREE

Administrative Procedures for Program Implementation

A successful faculty development program can be likened to an iceberg--three-fourths of it lies below the surface. The one-fourth that does show (the meetings themselves) is too often taken for the whole iceberg. The unseen three-fourths (planning, organizing, and evaluating) is generally more important in the long run.

The first step in planning a faculty development program is to identify its specific purposes. This guide focuses on seven basic modules of instruction that might be the primary building blocks for short-term faculty development programs. You could arbitrarily decide which modules would be useful for your faculty; however, you, and your faculty, will probably benefit from a more objective assessment of faculty needs. Identification of specific faculty needs with the development of program objectives and program details can best be handled by a planning committee.

PROGRAM PLANNING COMMITTEE

This committee should be composed of individuals who are the accepted representatives of the faculty members who will participate in the program. With a committee composed of people who represent the interest of the faculty, you can aim at meeting the needs perceived by the faculty, not just the desires of the administration.

PROGRAM PARTICIPANTS

The basic weakness in most workshops or conferences is frequently traceable to the fact that program planners did not take time to analyze their audience. Planning begins and concludes with the most important element: the participants. This means that the planning committee must involve faculty members in the planning process by finding out what teaching problems are most crucial to them. This important step not only provides information that is helpful in planning but also helps convince faculty members that the program actually will be planned according to their interests.

This involvement can be accomplished by having faculty members react to the two major areas of competencies identified in Chapter Four and the seven basic modules of instruction. A ranking of their needs can be accomplished through a questionnaire, through interviews with a cross section of the faculty, or through a preparatory meeting of the planning committee with the faculty members who will be attending the program. The purpose of this communication, whatever its form, is to provide information to the planners and to allow the faculty members who will be attending the program to think ahead about the subjects to be discussed during the program.

PROGRAM TYPE

The type of program selected depends on the objectives set for program participants. The seven modules in Chapter Six include three major kinds.

Some objectives focus on development of a content base (e.g., identify and discuss the common types of instructional media presentations or describe the components of a good test instrument).

Other objectives focus on skill in application or construction (e.g., demonstrate the ability to make a variety of types of overhead transparencies or write adequate test directions). Still other objectives focus on the problem-solving ability needed to identify a teaching problem, develop a method for solution, test out the method, and improve the method after adequate testing and feedback (e.g., develop an adequate assessment instrument for a particular course, including analysis of the objectives and course content, developing the instrument, administering the instrument, and refining it based on feedback following its administration).

Three basic types of programs may be considered to fit these three major kinds of objectives. Each has both advantages and disadvantages.

Course: A course usually provides for content experts and for sharing of staff members' experiences and can best provide for the three kinds of objectives described. It may involve a series of short meetings over an extended period. The advantages include a more flexible time schedule and meeting place. A course also allows time for participants to prepare for each meeting and to develop an in-depth project. The disadvantages include limited time during each meeting for disseminating information and sharing experiences and the necessity for securing content experts over an extended period.

Conference: A conference, the least desirable format, usually involves content experts and a limited sharing of participant experiences within a one- or two-day format. The advantage is a cost savings because experts are engaged for only a short time. The disadvantages include limited time for sharing experiences and for disseminating content, no time for projects, and no time for feedback to participants as they implement ideas.

Workshop: A workshop may involve content experts and the opportunity for sharing experiences. It usually runs from three to five days. The advantages include the opportunity for in-depth investigation of a particular topic by participants. The disadvantages are scheduling for an extended time and insufficient time for participants to prepare for each meeting and try out ideas in their teaching. If a workshop format is chosen, a three-phase experience will provide for the three types of learning. Phase 1 would be used to provide a content base for the workshop and would involve content experts. During Phase 1, participants would identify problems and action alternatives. Phase 2 would be a back-home experience in which participants test out alternatives and review the results. Phase 3 would be a second workshop to review the problems and results and come up with recommendations for change. The three-phase format is utilized for the workshop outlines described in Chapter Five.

PROGRAM SETTING

Once program planners have carefully examined the interest of the participants who will attend the program and have selected objectives and

a format, they can consider appropriate times and locations for the meetings. As they plan, they must keep an eye on interfering holidays, seasonal pressures, and other conferences and meetings. They must also decide whether to hold sessions during work hours, after hours, or on weekends after they ponder the possible effects of their choice on the participants.

The location should suit the majority of the participants and contain all the necessary physical facilities. Such things as suitable parking, comfortable tables and chairs, distance from business interruptions, and reasonable traveling time should be considered. Often program planners like to conduct a meeting in an off-the-beaten-track location to assure greater privacy. This may be a good idea as long as participants can get there easily and the facilities are adequate and comfortable.

PROGRAM STAFF AND SPEAKERS

Finding the right staff members or speakers may spell the success or failure of the entire program. Staff members must have three things: useful information, the ability to deliver the information, and the ability to make the information relevant to the needs of the allied health-oriented participants. Those who can blend applied educational theory with the needs of allied health instruction are difficult to find but the most likely places to look are the several Kellogg-funded Centers for Allied Health Instructional Personnel.

Another staffing alternative does exist. An institution can achieve this combination by inviting selected faculty members from the school of education to cooperate with experienced allied health teachers. The selection must be done with care since the basic orientation of most educational faculty members is towards primary and secondary education. It works best to seek faculty members from departments of higher education, adult education, or vocational education because those departments focus on adult learners. The allied health faculty members can work in an advisory capacity with the education specialists to develop programs relevant to the needs of the allied health participants. They will need adequate lead time to plan together.

Once selected, the program staff should gain a complete understanding of the program. Part of their familiarity will come from reading this manual, whose basic guidelines can be adapted to the specific interests of the participants.

PROGRAM BUDGET

The program budget will be determined by the type of program and the resources available locally. Prior to the program, you will probably need to budget for such things as committee meetings, telephone service, supplies, printing, and travel but expenses will continue to accrue during and after the program.

During the program items such as signs, handouts, and teaching supplies; rental of video equipment, overhead projectors, and slide projectors; faculty honorariums and travel; room rental fees; and secretarial services will be needed.

After the program, preparing reports, mailing evaluation forms, or shipping materials will require funding. These costs too, should be anticipated and included in the budget.

PROGRAM ASSESSMENT AND EVALUTION

The final step in the program process is to seek answers to two questions: How did we do? Would we have done better if we had tried something else? One of the major weaknesses of many workshops and conferences has been the lack of yardsticks to measure results. Although evaluation takes time, it is worthwhile.

Evaluation of the program is crucial to planning subsequent programs. A word of caution: evaluation is not limited to the traditional postconference huddle when members of the planning committee agree, "it was a huge success." Evaluation requires program assessment. How did we do? It also requires participant assessment. Did the participants meet the objectives that were set for the program? Evaluation may include the opinions of the participants as well as the planners and may also include a content-based assessment of what the participants learned. Examples of these types of assessment are described for each of the four workshops outlined in Chapter Five.

PROGRAM CREDIT

Most allied health disciplines mandate continuing education for registration, certification, or licensure renewal. Efforts should be made during the planning period to provide either academic credit or CEU's (continuing education units) for the program. Academic credit may be awarded by the institution sponsoring the program or may be arranged with a nearby two-year or four-year school that offers credit and would be interested in a joint program. Continuing education credit may be awarded by these same educational institutions or may be secured through the specific allied health professional associations. Most associations will grant CEU's only after a pre-program evaluation, so one must be incorporated into the planning phase.

CHAPTER FOUR

Teacher Competencies

If a teacher preparation program is to be effective, it must be relevant to the real world of teaching. Nothing is more devastating to a faculty development program than to prepare individuals who cannot function in a teaching situation. Curriculum planning, based on identified competencies, has developed in recent years as the most appropriate means for providing the relevancy necessary for ensuring student success.

The Inventory of Teacher Competencies described in this chapter defines the teaching competencies necessary for faculty members teaching in allied health programs. It should be noted that the competencies are not limited to classroom teaching activities but encompass the responsibilities appropriately performed by the teacher in his/her total role as a faculty member.

The definition describes the faculty member's role in performance terms for each of five areas of competency. These areas are not totally discrete but to a great degree are integrated. They are only separated for the purpose of analysis and clarification.

The effective allied health faculty member demonstrates competence in each of the following areas:

As a Director of Learning, the teacher plans and develops effective learning experiences for students. He/she also implements the plans and effectively evaluates the results.

As a Counselor and Advisor of Students, the teacher manifests a concern for students and assists the student in developing self-awareness during preparation to assume a vocational role in the health care delivery system.

As a Facilitator of Interpersonal Relationships, the teacher assists the student in developing effective interpersonal relationships through utilizing communication skills.

As a Member of Teaching Staff, the teacher contributes to the planning and evaluation of the objectives of the school and of the specific allied health program articulating these objectives with his/her classroom objectives.

As an Educator within a Health Care Specialty, the teacher understands the total health care system and his/her relationships as an educator and as an allied health practitioner to the system.

Each of these five areas is presented in outline format.

The Inventory of Teacher Competencies is the result of data compiled from a variety of resources. The basis for the Inventory was developed by the Department of Health Sciences Education and Evaluation at State University of New York at Buffalo as a result of developmental grants from the W. K. Kellogg Foundation, the Office of Education and the Bureau of Health Resources Development. Additionally an extensive literature search as well as a review of the Instrument for Comprehensive and Relevant Education (ICARE) Program developed by R. Merwin Deever and William Smith through a contract awarded by the Bureau of Health Resources Development, U.S. Public Health Service was accomplished. A draft list of teacher competencies was refined and an advisory committee was convened to react to this list, adding and deleting as its members considered appropriate. The final competency list became the basis for development of the competency-based objectives described in this chapter.

Director of Learning

1.1 Plans performance objectives

1.11 Develops learning objectives consistent with job expectations

1.12 Develops learning objectives consistent with the students' learning styles, aptitudes, and previous experiences

1.13 Formulates measurable learning objectives

1.14 Demonstrates ability to write learning objectives

1.15 Provides for student participation in developing learning objectives

1.2 Adapts learning experiences to individual students

1.21 Demonstrates awareness of physical and emotional development of students

1.22 Develops and uses information on student needs through continuous assessment of individual growth

1.23 Demonstrates an understanding of learning theory

1.3 Develops a variety of learning experiences to accomplish the performance objectives

1.31 Demonstrates proficiency in selecting and using a variety of instructional methods relevant to learning objectives

1.32 Demonstrates proficiency in selecting and using a variety of instructional materials relevant to learning objectives

1.33 Arranges instructional methods and materials to meet individual student needs

1.34 Uses area resource specialists in the learning experiences

1.35 Allows for flexibility in selecting learning experiences to allow for individual needs of students

1.36 Plans an appropriate sequence of learning experiences based on the needs of the students

1.37 Coordinates clinical and classroom learning experiences

1.4 Provides a learning environment that facilitates individual development

1.41 Maintains an effective balance of freedom and security in the learning experiences

1.42 Demonstrates effectiveness in dealing with health maintenance of individual students

1.43 Identifies and resolves learning difficulties

1.5 Uses an effective evaluation process

1.51 Continuously assesses the instructional process in terms of identified learning objectives

1.52 Develops and uses appropriate assessment instruments and techniques to collect data

1.53 Involves students in the evaluation process

1.54 Involves consumers and colleagues in the evaluation process

1.55 Assists each student to assess his/her own progress as a learner

1.56 Uses assessment data to improve through adjustments the teaching-learning process

Counselor and Advisor of Students

2.1 Manifests a commitment and concern for students

2.11 Identifies problems that affect the learning process and effectively deals with them

2.12 Accepts each student as unique and able to work at his/her own level of abilites, achievements, and interests

2.2 Assists each student to achieve greater self-awareness during the student's growth and development

2.21 Creates an accepting environment for students

2.22 Assists each student to know his/her potential

2.23 Assists each student in defining realistic goals

2.24 Directs each student to sources of information on vocational opportunities and careers in the health care field

2.25 Assists each student to assess his/her capabilities in relation to job requirements

2.3 Enters into facilitative relationships with students

2.31 Uses suitable counseling techniques

2.32 Uses specialized services to help students with problems

Facilitator of Interpersonal Relationships

3.1 Assists students toward gaining greater awareness of themselves during the students' growth and development

3.2 Assists students to be open to and understanding of individual and cultural distinctions

3.21 Guides students in developing respect for the dignity of the individual

3.22 Seeks to build student respect for other cultures

3.23 Provides a variety of experiences in which students can interact with individuals of other cultures

3.3 Assists students in developing effective interpersonal relationships

3.31 Provides a variety of experiences for students to develop communcation skills

3.32 Assist students in using communication skills in solution of problems

3.4 Assists students in the development of attitudes and skills that allow them to function effectively as a member of a group

3.41 Develops in students an understanding of the elements of group process

3.42 Assists students in developing group interactive skills

3.43 Provides students with a variety of experiences as group leaders

3.5 Assists students in using interpersonal communcation skills for effective participation in a changing health care delivery system

3.51 Assists students in dealing with patients and their families

3.52 Provides students with experiences to practice interrelating effectively with other members of the health team

Member of Teaching Staff

4.1 Contributes to definition of the overall objectives of the school

4.11 Works with other faculty members to define school objectives

4.12 Articulates his/her program objectives with those of school

4.2 Contributes to definition of the objectives of the allied health program

4.21 Works with other faculty members to define program objectives

4.22 Works with appropriate members of the health care profession and community to define program objectives

4.23 Demonstrates knowledge of the regulations of the accrediting agencies and professional associations

4.24 Demonstrates awareness of current curricular trends

4.25 Works with other institutions in the area to effect horizontal and vertical articulation

4.26 Articulates program objectives with those of cooperating health care institutions

4.27 Works with cooperating health care institutions to implement program objectives

4.28 Effectively participates in team teaching and planning efforts

4.3 Articulates classroom objectives as director of learning with the objectives of the program.

4.4 Contributes to the planning and implementation of school activites

4.41 Participates in policy development for the operation of the school

4.42 Participates in planning and guidance of student activities

4.43 Participates in internal governance of the school

4.5 Participates in program evaluation

4.51 Participates in a continuous evaluation of program

4.52 Develops and uses appropriate assessment instruments and techniques to collect data

4.53 Involves consumers and colleagues in the evaluation process

4.54 Uses the data to improve through adjustments the program

4.55 Participates in professional accreditation of the program

4.6 Assumes appropriate administrative responsibility for operation of the program

Educator Within a Health Care Specialty

5.1 Understands the total health care system

5.11 Is aware of current trends in the health care system

5.12 Is aware of the ways the changing nature of the health care system may influence his/her health care specialty

5.13 Understands the importance of the interrelationships and cooperation among health specialists in the delivery of health care

5.2 Demonstrates professional competency in the health care specialty

5.21 Demonstrates knowledge of the theoretical basis for the specialty

5.22 Demonstrates current knowledge of the specialty

5.23 Demonstrates current skills in the specialty

5.3 Demonstrates responsibility for continuing education as an educator within the health care specialty

5.31 Increases his/her knowledge of current literature and research in the specialty

5.32 Increases his/her knowledge of current literature and research in the field of education

5.33 Applies current educational trends and practices to the teaching of the specialty

5.34 Upgrades skills in the specialty

5.4 Participates in professional activities

5.41 Participates in professional activities of the health care specialty

5.42 Participates in professional education activities

5.43 Contributes to the development of professional standards for both allied health education and the professional specialty

5.5 Assists lay groups in understanding the health care delivery system

5.51 Provides information on the specialty

5.52 Provides information on the health care delivery system in relationship to the specialty

5.53 Seeks and supports legislation to improve the health care system

5.6 Assists lay groups in understanding the goals and practices of education

5.61 Provides information on education

5.62 Seeks and supports legislation to improve education

REFERENCE

Instrument for Comprehensive and Relevant Education (ICARE). A contract supported by Division of Associated Health Professions, Bureau of Health Manpower, Health Resources Administration, Public Health Service, Bethesda, Maryland.

CHAPTER FIVE

Curriculum Resource Units

Evolution of the Units. Among the generally defined roles or competencies essential for an effective allied health faculty member, two of the most critical to actual teaching are those here labelled director of learning and facilitator of interpersonal relationships. Because of their special importance, these two competency areas were chosen for the development of sample curriculum resource units.

General participant-centered objectives were developed from the two roles or competency areas selected. These objectives, which describe the general participant behavior that is desired as an outcome of the faculty development program, were developed and ordered according to the types of learning and levels of learning desired.

After the general objectives were set, four broad curriculum resource units emerged: (1) classroom methods and teaching techniques, (2) use of instructional media, (3) evaluation of classroom learning, and (4) clinical education and evaluation.

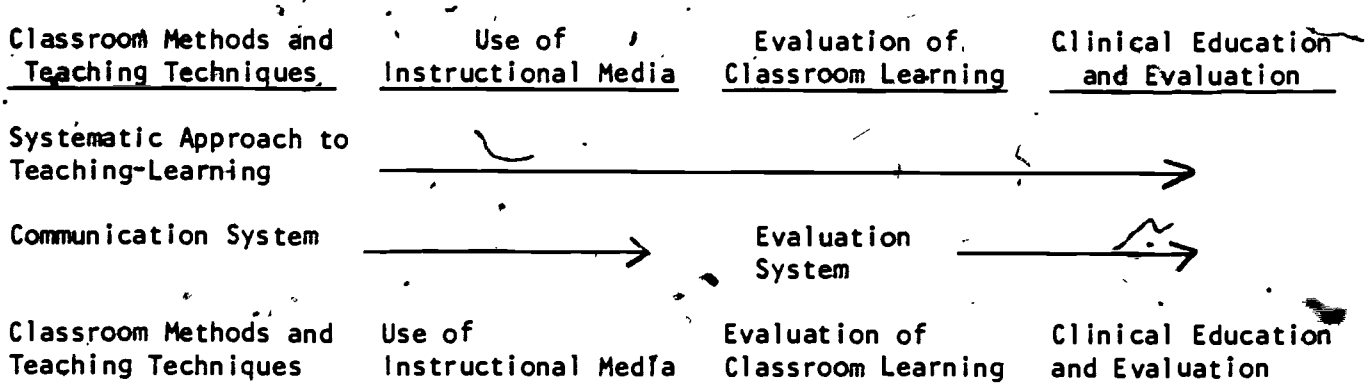
The next step involved listing the appropriate objectives under each of the four major curriculum headings. It became apparent that a separate common set of objectives involving a systematic approach to teaching-learning was shared by each of the four units. This set of objectives formed the basis for a specific module for instruction to be included in each of the four broad curriculum units.

Another set of general objectives common to the areas of classroom methods and teaching techniques and use of instructional media was identified. Dealing with the process of communication, this set formed the basis for another specific module for instruction.

A third set of general objectives common to the units on evaluation of classroom learning and clinical education and evaluation became apparent. Involving the evaluation system, this set of objectives formed the basis for a third new module for instruction.

This left four large sets of objectives dealing with classroom methods and teaching techniques, use of instructional media, evaluation of classroom learning, and clinical education and evaluation. Thus, a total of seven specific modules for instruction--three smaller modules and four larger ones--appeared necessary to cover the four curriculum units of the two roles or competency areas. Each of the curriculum resource units would incorporate a a module on its major subject and modules on two other important topics. The minor topics would each overlap at least two resource curriculum units and would provide informational and skill prerequisites for the larger module (see Figure 3).

Figure 3



Description of the Units. The remainder of this chapter outlines in detail the four curriculum resource units that were designed incorporating the seven modules for instruction. Each resource unit has been planned as a complete instructional package that can be used by an administrator or program director in planning specific faculty development programs. Each resource unit includes a specific rationale for the unit, an overview of the unit (a list of the appropriate instructional modules), a list of the general unit objectives, a suggested workshop format, suggested schedule of workshop activities, suggested evaluation forms for the unit, and administrative considerations for implementing the unit.

CLASSROOM METHODS AND TEACHING TECHNIQUES

I. RATIONALE

This unit on classroom methods and teaching techniques is designed to introduce a systems approach to selecting and planning educational methods for allied health education. Emphasis will be on encouraging participants to develop advanced levels of competency in using selected methods.

II. OVERVIEW

This resource unit is comprised of three sequential instructional modules:

SYSTEMATIC APPROACH TO THE TEACHING-LEARNING PROCESS
COMMUNICATION SYSTEM
CLASSROOM METHODS AND TEACHING TECHNIQUES

III. GENERAL UNIT OBJECTIVES

A. SYSTEMATIC APPROACH TO THE TEACHING-LEARNING PROCESS

1.0 Describe the design of an instructional system
2.0 Discuss the development of performance objectives
3.0 Construct performance objectives
4.0 Describe the relationships between objectives to the instructional process

B. COMMUNICATION SYSTEM

1.0 Describe the communication system
2.0 Describe the model for perception

C. CLASSROOM METHODS AND TEACHING TECHNIQUES

1.0 Identify various methods of instruction and employ appropriate criteria in their selection
2.0 Use the lecture method in the instructional program
3.0 Use the discussion method in the instructional program
4.0 Use the demonstration method in the instruction program
5.0 Discuss the use of the laboratory method in the instructional program
6.0 Discuss the use of the independent study method in the instructional program

IV. SUGGESTED WORKSHOP FORMAT

The format suggested for a workshop on Classroom Methods and Teaching Techniques is organized into three distinct phases.

Phase 1. Phase 1 provides for an intensive five-day workshop. A detailed schedule for Phase 1 follows in Section V.

Phase 2. Two of the principal goals of the workshop are (1) to change participants' attitudes in the direction of greater receptivity to employing a variety of methods, and (2) to develop in participants advanced competency in using selected methods. Despite the intensive approach of Phase 1, participants need additional practice in order to acquire the advanced, problem-solving competency involved in method selection and to develop advanced skill in using the methods.

Phase 2 provides a supervised practicum that develops in participants the ability to solve the problems they encounter while selecting methods for achieving learning goals. Following Phase 1 of the workshop, when participants have returned to their regular teaching assignments, they will be expected to complete a series of three practicum projects. Each participant will submit to the workshop staff the following three assignments for review:

Assignment 1. One month after Phase 1, each participant will prepare an analysis of the competency-based objectives for a unit he/she is currently teaching. This analysis should identify the competencies and specify the levels of objectives to be achieved.

Assignment 2. Two months after Phase 1, each participant will submit a planning protocol designed to help the participant achieve the objectives specified in the first field assignment. This plan will identify the methods the participant will employ to acquire the identified competencies.

Assignment 3. The workshop staff will complete two observations of each participant's teaching in his/her classroom. Each observation will be followed by a conference to assess the participant's progress toward acquiring an advanced level of competence in using the methods emphasized in the workshop.

Phase 3. The final phase has been designed to follow up on the participants' achievement of the advanced goals for the workshop. This session will be a problem-solving seminar in which participants and staff will work together to solve significant problems in selecting and using educational methods. Phase 3 will also provide any areas in which participants need additional opportunities to develop competence.

V. SUGGESTED SCHEDULE OF WORKSHOP ACTIVITIES (PHASE 1)

Day 1

Time	Topic	Type of Group
9:00-11:00	Administrative Details and Orientation to Workshop	Large group and small discussion groups
11:00-12:00	Introduction of Systems Approach Instruction	Large group
12:00-1:00	Lunch	
1:00-2:00	Setting General Program Competencies	Large group
2:00-5:00	Course Development Laboratory	Small disciplinary labs
5:00-7:00	Cocktails and Dinner	
7:00-9:00	Objectives Laboratory	Small disciplinary labs

Lab Assignments:

1. Develop general competencies and specific learning objectives for a discipline course
2. Review self-instructional materials on development of objectives

Day 2

Time	Topic	Type of Group
9:00-11:00	System of Communication	Large group
11:00-12:00	Introduction to Methods of Teaching Criteria for Selecting Methods	Large group
12:00-1:00	Lunch	
1:00-2:30	Lecture Method	Large group
2:30-4:00	Introduction to Microteaching	Large group
4:00-5:30	Cold Teach Laboratory	Three interdisciplinary labs

Evening Assignment: 1. Prepare a 10-minute microteaching session
including: Introduction
Closure
Objectives
Content
including: Two skills--Use of examples
Planned repetition

Day 3

Time	Topic	Type of Group
9:00-10:00	Discussion Method	Large group
10:00-11:00	Group-Interaction Laboratory	Two interdisciplinary labs
11:00-12:00	Elements of Group Interaction	Large group
12:00-1:00	Lunch	
1:00-2:30	Critique of Group-Interaction Laboratory	Large group
2:30-5:30	Microteaching Laboratory 1	Three interdisciplinary labs
5:30-7:30	Cocktails and Dinner	

Evening Assignment: 1. Prepare a 10-minute microteaching session,
including: Introduction
Closure
Objectives and content
including: Two skills--Questioning
Cueing

Day 4

Time	Topic	Type of Group
9:00-10:00	Independent Study Method	Large group
10:00-10:30	Use of Computer-Assisted Instruction	Large group
10:30-12:00	Independent Study Laboratories: Computer-Assisted Instruction Programmed Instruction Slidetape	Three interdisciplinary labs
12:00-1:00	Lunch	
1:00-2:30	Demonstration Method	Large group
2:30-6:00	Microteaching Laboratory 2	Three interdisciplinary labs

Evening Assignments:
1. Plan for a five-minute demonstration
2. Study for test

Day 5

Time	Topic	Type of Group
9:00-11:00	Laboratory Method	Large group
11:00-12:00	Lunch	
12:00-2:00	Demonstration Laboratory	Three interdisciplinary labs
2:00-3:00	Examination	Large group
3:00-3:30	Workshop Evaluation	Large group

VI. SUGGESTED EVALUATION FORMS

Classroom Methods and Teaching Techniques Examination

1. Please classify the following objectives as belonging to either:

   A. Affective
   C. Cognitive
   P. Psychomotor

   a. _____ Is able to identify and label the parts of a respirator

   b. _____ Demonstrates concern for patient by protecting him/her from any unnecessary fear stimuli

   c. _____ Is able to fabricate splints for a disabled patient

   d. _____ Plans a treatment care plan for a diabetic patient with extensive peridontal disease

   e. _____ Sets up and operates a computer terminal

2. Which of the objectives mentioned in item 1 can be classified as higher-level cognitive (circle one)?

   a b c d e

3. List the criteria employed during the workshop to select educational methods?

   a.

   b.

   c.

   d.

   e.

4. Using the criteria you identified in Question 3, please analyze any one of the methods discussed in class.

Post-Assessment

1. The objectives below were identified as the goals of this workshop. We are anxious to have your assessment of our success in effectively teaching you these skills. For each objective, please rate your achievement, using the following scale:

4	3	2	1
I have fully achieved this objective and feel confident about it	I have achieved this objective but need more practice	I have only partially achieved this objective	I did not achieve this objective

a. _____ Describe the design of an instructional system

b. _____ Discuss the development of performance objectives

c. _____ Construct performance objectives

d. _____ Describe the relationships between objectives and the instructional process

e. _____ Describe the communication system

f. _____ Describe the model for perception

g. _____ Identify various methods of instruction and employ appropriate criteria in their selection

h. _____ Use the lecture method in the instructional program

i. _____ Use the discussion method in the instructional program

j. _____ Use the demonstration method in the instructional program

k. _____ Discuss the use of the laboratory method in the instructional method

l. _____ Discuss the use of the independent study method in the instructional method

2. Please assess your understanding of workshop topics using the following scale:

4	3	2	1
I feel confident about this topic	I understand this topic but need additional work in the area	I have only a vague understanding of this topic	I don't understand this topic at all

a. Instructional system

(1)____Definition

(2)____Development of performance objectives

b. Communication system

(1)____Definition

(2)____Components

(3)____Modes of communication

(4)____Barriers to communication

c. Perception system

(1)____Definition

(2)____Components

(2)____Principles of Perception

d. Range of methodologies available

(1)____Types of methods

(2)____Criteria for selecting methods

(3)____Role of teacher in learning

e. Lecture method

(1)____Definition

(2)____Purposes

(3)____Characteristics

(4)____Application of criteria for selecting lecture method

(5)____Ability to plan and use lecture method

f. Discussion method

(1)____Definition

(2)____Purposes

(3)____Characteristics

(4)____Application of criteria for selecting discussion method

(5)____Preparation for a discussion

(6)____Elements of group interaction

(7)____Ability to lead a discussion group

g. Demonstration method

(1)____Definition

(2)____Purposes

(3)____Characteristics

(4)____Application of criteria for selecting demonstration method

(5)____Preparation of a demonstration

(6)____Ability to conduct a skill demonstration

h. Laboratory method

(1)____Definition

(2)____Purposes

(3)____Characteristics

(4)____Application of criteria for selecting laboratory method

(5)____Preparation of a laboratory experience

i. Independent study method

(1)____Definition

(2)____Purposes

(3)____Characteristics

(4)____Application of criteria for selecting independent study method

(5)____Preparation of an independent study

Staff Evaluation

Please rate each of the staff behaviors below, using the scale from one to five provided.

	Strongly agree 1	2	3	Strongly disagree 4	Not relevant 5
1. Discusses points of view other than his/her own if appropriate to the specific class					
2. Contrasts implications of various theories if appropriate to the specific class					
3. Discusses recent developments in the field					
4. Emphasizes conceptual understanding					
5. Explains clearly					
6. Is well prepared					
7. Presents content in an organized fashion					
8. Is careful and precise in answering questions					
9. Summarizes major points					
10. States objectives for class session					
11. Encourages class participation					
12. Invites students to share their knowledge and experiences					
13. Invites criticism of his/her own ideas					

	Strongly Agree 1	2	3	Strongly disagree 4	Not relevant 5
14. Knows whether the class understands him/her					
15. Has students apply concepts in order to demonstrate their understanding					
16. Has a genuine interest in students					
17. Relates to students as individuals					
18. Seems to enjoy teaching					
19. Is enthusiastic about his/her subject					
20. Seems to have self-confidence					
21. Anticipates problems and tries to make difficult topics easy to understand					
22. Relates class topics to practical problems students can relate to					

Instructor:

_____

Workshop Evaluation

Please circle your choices.

1. All things considered, this workshop was:

   a. Excellent
   b. Good
   c. Fair
   d. Poor

2. Generally, how would you describe the handouts and resource materials for this workshop?

   a. Totally adequate
   b. Adequate
   c. Somewhat inadequate
   d. Totally inadequate

   Comments:

3. Generally, how would you describe the work load required during this workshop?

   a. Excessive
   b. Heavy
   c. Just right
   d. Rather light

   Comments:

4. Overall, how would you rate the lectures in this workshop?

   a. Extremely interesting
   b. Somewhat interesting
   c. Dull
   d. Extremely dull

   Comments:

5. Overall, how would you rate the variety of teaching methods employed in this workshop?

   a. Highly relevant
   b. Somewhat relevant
   c. Somewhat inappropriate
   d. Inappropriate

   Comments:

6. Overall, how would you rate the microteaching labs during this workshop?

a. Totally adequate
c. Somewhat inadequate
b. Adequate
d. Totally inadequate

Comments:

7. Overall, how would you rate the group-interaction labs conducted during this workshop?

a. Totally adequate
c. Somewhat inadequate
b. Adequate
d. Totally inadequate

Comments:

8. Overall, how would you rate the audiovisuals used during this workshop?

a. Totally adequate
c. Somewhat inadequate
b. Adequate
d. Totally inadequate

Comments:

9. How well did this workshop meet your personal needs and expectations?

a. Fully
c. Somewhat
b. Considerably
d. Not at all

Comments:

10. Did you enjoy this workshop?

a. Yes
b. Somewhat
c. No

11. On the whole, how much do you think you learned?

a. A great deal
c. Not very much
b. Some
d. Nothing

12. What do you consider the principal strengths of this workshop (please list at least two)?

13. What do you consider the principal weaknesses of this workshop (please list at least two)?

14. Is there anything else you would like us to know?

VII. ADMINISTRATIVE CONSIDERATIONS FOR IMPLEMENTING THE UNIT

Planning and implementing a workshop takes considerable time and effort from all involved and planning for administrative details is as important as the curricular details in ensuring a smoothly run and effective workshop. Several administrative considerations are discussed here to help planners develop the workshop.

Group Size. This workshop is designed to focus on strategies for selecting appropriate teaching methods and to develop advanced competency in using selected methods of teaching. In order to provide maximum opportunity for participants to develop advanced competency, the size of the group should be controlled. The workshop is structured so that participants sometimes meet in small groups (no more than five persons) to develop proficiency in using certain skills and at other times as a classroom group to consider various theories. Because of the high emphasis on small-group interation, the total group should be limited to 15-20 participants.

Equipment. A central feature of this workshop is the use of microteaching techniques to develop advanced competency in using selected educational methods. Microteaching does not depend on videotaping; however, the processes of feedback and self-critique are enormously facilitated by use of videotaping laboratory exercises. The minimum equipment needed for one microteaching laboratory is as follows:

> One portable videotape recorder, a portable video-sound camera, a monitor, a 16 mm projector.

While the cost of these materials is significant, our experience indicates that most educational institutions already have or may readily borrow these materials.

The films necessary for conducting microteaching may be rented through the General Learning Corporation, cited on page 151.

Staff. Staff must be knowledgeable in the systems approach to instructional design, communication and perception theory and classroom methods and teaching techniques. It would also be an asset to have staff skilled in the use of microteaching.

Time. The schedule is for a five-day workshop. It may be expanded (for example, one-day workshops every two weeks for 16 weeks of a semester) but should not be shortened.

Miscellaneous Considerations.

1. It is important that participants complete as many of the required readings as possible before the workshop.

2. It is necessary for each workshop participant to have access to course outlines, textbooks, and other educational materials for courses they are teaching. These materials will be needed for planning and practicing methods during the laboratory sessions.

USE OF INSTRUCTIONAL MEDIA

I. RATIONALE

Current theories of learning and instruction take into account the potential of instructional media presentations in the teaching-learning process. Increasing enrollments, a shortage of adequate clinical facilities, new kinds of students to be served, and the very nature of the subject matter of the sundry allied health disciplines also motivate use of the newer approaches to instruction.

This unit focuses on participants' understanding the decision-making considerations involved in selection of appropriate instructional media packages, becoming familiar with the media resources available, and producing functional media packages suitable for classroom use.

II. OVERVIEW

This resource unit is comprised of three sequential instructional modules:

SYSTEMATIC APPROACH TO THE TEACHING-LEARNING PROCESS
COMMUNICATION SYSTEM
USE OF INSTRUCTIONAL MEDIA

III. GENERAL UNIT OBJECTIVES

A. SYSTEMATIC APPROACH TO THE TEACHING-LEARNING PROCESS

1.0 Describe the design of an instructional system
2.0 Discuss the development of performance objectives
3.0 Construct performance objectives
4.0 Describe the relationships between objectives to the instructional process

B. COMMUNICATION SYSTEM

1.0 Describe the communication system
2.0 Describe the model for perception

C. USE OF INSTRUCTIONAL MEDIA

1.0 Discuss the concept of learning through use of media
2.0 Identify and discuss the common types of instructional media
3.0 Identify the major resources available for securing media

4.0 Define the criteria for selection of an appropriate medium
5.0 Demonstrate effective operation of the major types of media equipment
6.0 List the elements of a production planning model and demonstrate the ability to prepare a production plan
7.0 Demonstrate the ability to produce selected media packages

IV. SUGGESTED WORKSHOP FORMAT

A five-day workshop on Use of Instructional Media offers little time to become experienced at planning and developing media packages. It provides no opportunity to test-out developed instructional media packages in a classroom environment. However, a three-phase approach to planning and implementing the workshop can include a post-workshop practicum and follow-up session to provide a structured problem-solving assignment that can be completed on an independent study basis. The assignment can focus on the selection, planning, and development of a high-quality teacher-made instructional media package for classroom use. Additional assignments can be designed as desired by workshop planners. Assignment results can ultimately be shared by other participants in a one- or two-day session held from four to six months after the workshop.

A suggested format for the three phases follows:

Phase 1. Participants will complete a five-day workshop. A detailed schedule for this workshop follows in Section V.

Phase 2. The second phase includes completion of assignments by participants at their instructional sites. There participants will investigate an area of their discipline or subject area that is extremely difficult to teach by traditional classroom methods.

Having focused on a particular area, they will investigate the media resources available commercially on the subject. If these resources are limited or non-existent, participants will then proceed through the workshop model for planning and developing an instructional media sequence.

Within a month after the workshop, each participant will have completed a written proposal for the development of an instructional media package. It will include a complete outline of competencies, competency-based objectives, and content to be included in the media sequence. The choice of medium will be indicated along with justification for the choice, alternative possibilities, and a plan for completion of the project (including proposed time schedule, a list of equipment needed, and identification of the resources available). The participant will send the proposal to a preselected workshop staff member who will review and critique the proposal.

Upon receiving approval, each participant will complete a storyboard and script (if appropriate) and forward them to the staff member for review and critique.

Phase 3. Within four to six months after the workshop, participants and staff will meet in a two-day follow-up session. On the first day, all completed media projects will be reviewed and critiqued by all participants. The staff should reiterate and reinforce basic media principles introduced during the workshop. Afterwards the staff should meet to discuss any product weaknesses and to design any remedial instruction needed. On the second day, the staff will provide any needed remedial instruction and deal with individual problems. Additional activities might focus on identifying possible sources for commercial publication of the finished packages or on touring a sophisticated television studio.

V. SUGGESTED SCHEDULE OF WORKSHOP ACTIVITIES (PHASE I)

Day 1

Time	Topic	Type of Group
9:00-11:00	Administrative Details and Orientation to Workshop	Large group and small discussion groups
11:00-12:00	Introduction of Systems Approach to Instruction	Large group
12:00-1:00	Lunch	
1:00-2:00	Setting General Program Competencies	Large group
2:00-5:00	Course Development Laboratory	Small disciplinary labs
5:00-7:00	Coctails and Dinner	
7:00-9:00	Objectives Laboratory	Small disciplinary labs

Lab Assignments: 1. Develop general competencies and specific learning objectives for a discipline course

2. Review self-instructional materials on development of objectives

Day 2

Time	Topic	Type of Group
9:00-11:00	System of Communication	Large group
11:00-12:30	35mm Camera Laboratory	Large group
12:30-1:30	Lunch	
1:30-4:30	Planning for Slidetape Production	Large group
4:30-5:30	Slidetape Laboratory	Two small labs
5:30-7:00	Dinner	
7:00-8:30	Photography Laboratory	Two small labs

Day 3

Time	Topic	Type of Group
9:00-10:30	Introduction to Instructional Media Presentations	Large group
10:30-12:00	Transparency Demonstration Laboratory	Two small labs.
12:00-1:00	Lunch	
1:00-3:00	Common Types of Media	Large group
3:00-3:30	Available Media Resources	Large group
3:30-5:30	Transparency Production Laboratory	Two small labs
5:30-7:30	Cocktails and Dinner	

Day 4

Time	Topic	Type of Group
9:00-10:00	Common Types of Media	Large group
10:00-11:00	Criteria for Selection of Medium	Large group
11:00-12:30	Computer-Assisted Instruction Laboratory	Large group lab
12:30-1:30	Lunch	
1:30-3:30	Slidetape Scripting and Audio Laboratory	Two small labs
3:30-5:30	Videotape Demonstration Laboratory	Two small labs

Day 5

Time	Topic	Type of Group
9:00-10:30	Videotape Planning Laboratory	Two small labs
10:30-12:00	Videoscript Development Laboratory	Two small labs
12:00-1:00	Lunch	
1:00-2:00	Examination	Large group
2:00-2:30	Workshop Evaluation	Large group

VI. SUGGESTED EVALUATION FORMS.

Use of Instructional Media Examination

Use a separate sheet or booklet to answer the items below.

1. List four general learning principles important to instructional media and briefly discuss their relevance to the use of media.

2. Briefly discuss the considerations involved in developing a basic self-instructional course on the anatomy of the head and neck region. Your answer should include the following:

   a. Type of media to be developed
   b. Justification in terms of:

      (1) Types of instructional objectives
      (2) Types of levels of learning
      (3) Entering behavior of students

   c. Advantages of the type of media you are using and possible disadvantages
   d. Types of equipment needed to make and use the learning sequence
   e. How would your media presentations be used (in what environment, with what other stimuli)?

3. Briefly discuss the considerations involved in developing a media presentation on pipetting that would allow students to acquire this skill. Your answer should include the following:

   a. Type of media to be developed
   b. Justification in terms of:

      (1) Types of instructional objectives
      (2) Types of levels of learning
      (3) Entering behavior of students

   c. Advantages of the type of media you are using and possible disadvantages
   d. Types of equipment needed to make and use the learning sequence
   e. How would your media be used (in what environment, with what other stimuli)?

4. Briefly discuss the considerations involved in planning a media presentation that would allow occupational therapy students to develop an empathetic, helping relationship with patients. Your answer should include the following:

   a. Type of media presentation to be developed
   b. Justification in terms of:

      (1) Types of instructional objectives
      (2) Types of levels of learning
      (3) Entering behavior of students

c. Advantages of the type of media presentation you are using and possible disadvantages
d. Types of equipment needed to make and use the learning sequence
e. How would your media presentation be used (in what environment, with what other stimuli)?

Post-Assessment

1. The objectives below were identified as the goals of this workshop. We are anxious to have your assessment of our success in effectively teaching you these skills. For each objective, please rate your achievement, using the following scale.

4	3	2	1
I have fully achieved this objective and feel confident about it	I have achieved this objective but need more practice	I have only partially achieved this objective	I did not achieve this objective

a. ____ Describe the design of an instructional system

b. ____ Discuss the development of performance objectives

c. ____ Construct performance objectives

d. ____ Describe the relationships between objectives to the instructional process.

e. ____ Describe the communication system

f. ____ Describe the model for perception

g. ____ Discuss the concept of learning through use of media

h. ____ Identify and discuss the common types of instruttional media

i. ____ Identify the major resources available for securing media

j. ____ Define the criteria for selection of an appropriate medium

k. ____ Demonstrate effective operation of the major types of media equipment used in the daily instructional process

l. ____ List the elements of a production planning model and demonstrate the ability to prepare a production plan

m. ____ Demonstrate the ability to produce selected media packages

2. Please assess your understanding of workshop topics using the following scare:

4	3	2	1
I feel confident about this topic	I understand this topic but need additional work in the area	I have only a vague understanding of this topic	I don't understand this topic at all

a. Instructional system

(1)____Definitions

(2)____Development of performance objectives

b. Communication system

(1)____Definition

(2)____Components

(3)____Modes of communication

(4)____Barriers to communication

c. Perception system

(1)____Definition

(2)____Components

(3)____Principles of perception

d. Instructional media presentations

(1)____Definition

(2)____Concept of hardware and software

(3)____Main uses of media presentations

(4)____General theory on types of media presentations

(5)____General learning tenets important to media presentations

e. Common types of media

(1)____Still-projection presentations

(2)____Audiotape presentations

(3)____Motion films

(4)____Programmed learning

(4)____Developing content from objectives

(5)____Determining channels of communication

(6)____Assembling a list of media

(7)____Searching for an appropriate media presentation

(8)____Exploring options for rental or purchase or following procedures for producing media presentations

j. Production of media packages

(1)____Overhead transparencies

(2)____Slidetape presentations

(3)____Videotape presentations

Staff Evaluation

Please rate each of the staff behaviors below, using the scale from one to five provided.

	Strongly agree 1	2	3	Strongly disagree 4	Not Relevant 5
1. Discusses points of view other than his/her own if appropriate to the specific class					
2. Contrasts implications of various theories if appropriate to the specific class					
3. Discusses recent developments in the field					
4. Emphasizes conceptual understanding					
5. Explains clearly					
6. Is well prepared					
7. Presents content in an organized fashion					
8. Is careful and precise in answering questions					
9. Summarizes major points					
10. States objectives for class session.					
11. Encourages class participation					
12. Invites students to share their knowledge and experiences					
13. Invites criticism of his/her own ideas					

	Strongly agree			Strongly disagree	Not relevant
	1	2	3	4	5
14. Knows whether the class understands him/her					
15. Has students apply concepts in order to demonstrate understanding					
16. Has a genuine interest in students					
17. Relates to students as individuals					
18. Seems to enjoy teaching					
19. Is enthusiastic about his/her subject					
20. Seems to have self-confidence					
21. Anticipates problems and tries to make difficult topics easy to understand					
22. Relates class topics to practical problems students can relate to					

Instructor:

_____

Workshop Evaluation

Please circle your choices.

1. All things considered, this workshop was:

   a. Excellent
   b. Good
   c. Fair
   d. Poor

2. Generally, how would you describe the handouts and resource materials for this workshop?

   a. Totally adequate
   b. Adequate
   c. Somewhat inadequate
   d. Totally inadequate

   Comments:

3. Generally, how would you describe the work load required during this workshop?

   a. Excessive
   b. Heavy
   c. Just right
   d. Rather light

   Comments:

4. Overall, how would you rate the lectures in this workshop?

   a. Extremely interesting
   b. Somewhat interesting
   c. Dull
   d. Extremely dull

   Comments:

5. Overall, how would you rate the use of interdisciplinary groups in planning and producing slidetape and videotape sequences?

   a. Extremely interesting
   b. Somewhat interesting
   c. Dull
   d. Really dull

   Comments:

6. Overall, how would you rate the overhead transparency lab conducted during this workshop?

a. Totally adequate
b. Adequate
c. Somewhat inadequate
d. Totally inadequate

Comments:

7. Overall, how would you rate the slidetape lab conducted during this workshop?

a. Totally adequate
b. Adequate
c. Somewhat inadequate
d. Totally inadequate

Comments:

8. Overall, how would you rate the videotape lab conducted during this workshop?

a. Totally adequate
b. Adequate
c. Somewhat inadequate
d. Totally inadequate

Comments:

9. How well did this workshop meet your personal needs and expectation?

a. Fully
b. Considerably
c. Somewhat
d. Not at all

Comments:

10. Did you enjoy this workshop?

a. Yes
b. Somewhat
c. No

11. On the whole, how much do you think you learned?

a. A great deal
b. Some
c. Not very much
d. Nothing

12. What do you consider the principal strengths of this workshop (please list at least two)?

13. What do you consider the principal weaknesses of this workshop (please list at least two)?

14. Is there anything else you would like us to know?

VII. ADMINISTRATIVE CONSIDERATIONS FOR IMPLEMENTING THE UNIT

Planning and implmenting a workshop takes considerable time and effort from all involved and planning for administrative details is as important as for the curricular details in ensuring a smoothly run and effective workshop. Several administrative considerations are discussed here to help planners develop the workshop.

Staff. Staff for the workshop should be selected from instructors with some background in allied health education as well as knowledge of the system approach to instructional design, communication and perception theory and extensive background and experience in development of media packages. If this combination is not possible, faculty members from college and university schools of education, with specialities in use of media packages for instruction or qualified media specialists from campus communications centers can conduct the workshop. Many health science schools have media centers with instructional design and production personnel that are familiar with the health professions. If the staff members selected have no direct experience with the allied health fields, then workshop planners should obtain input from experienced allied health teachers.

Methods of Instruction. Any workshop that is concentrated into a one-week experience of necessity relies on diverse teaching methods. Basic cognitive information is provided within a large-group lecture-discussion format. Small groups are used in developing planning and production skills in the audiovisual laboratory. An independent study format in which there is close communication between a staff member and participant is used for the practicum experience.

Facilities. The facilities that should be available for this workshop include a classroom and several other rooms to be used for planning and production laboratories. The number depends on the size of the group. Generally one laboratory room per six participants is adequate.

A television production studio might be helpful but is not necessary. In fact, too much technical sophistication has a tendency to scare away many participants, particularly if they lack easy access to the same equipment on their campuses.

A terminal for computer-assisted instruction is needed. One should be available through any up-to-date college or university library.

Group Size. To be successful, this workshop requires that close supervision be available and that participants have hands-on experience with a diversity of media. The most effective learning environment is a small group, with 6-10 participants per staff member.

Equipment. This workshop requires some investment in equipment and materials to be successful. The amount of these supplies will vary considerably, depending on the number of participants and the sophistication of the experience to be gained through the media laboratories. Much of the equipment is available through college and university media center. The

cost of software will vary, depending on the type of material and the place from which it is purchased. A list of the basic hardware and software necessary for the media laboratories in this workshop follows:

Overhead transparency laboratories:

Write-on clear film, transparency mounting frames, felt-tip pens for transparencies, press type (various sizes) press film (various colors), art tape, miscellaneous symbols such as arrows, infrared transparency film for thermofax, pencils, rulers, masking tape.

Video-tape laboratories:

One complete 1/2-inch videotape unit per group of 5-6 participants (including a camera, monitor, and recorder), color and/or black and white videotape, material for basic graphics (including anything from cardboard and felt-tip pens to more sophisticated commercial equipment for graphics).

Slidetape laboratories:

One 35 mm camera per group of 3-5 participants, a slide projector and carousel, a tape recorder with slide synchronization capability, 35mm daylight and tungsten film cassette tapes, materials for graphics, and a photocopier.

Computer-assisted instruction laboratory:

There is limited time available for instruction and extended practice with programmed learning; however, computer-assisted instruction provides an excellent introduction and reinforces the principles of programmed learning while not consuming too much time.

Many health science libraries and media centers have terminals and access to computer-assisted programs. Currently, computer-assisted programs in a variety of health science areas are also available from:

Laboratory Computer Science
Massachusetts General Hospital
32 Fruit Street
Boston, Massachusetts 02114

Division of Computing Services for
Medical Education and Research
College of Medicine
076 Health Sciences Library
Ohio State University
376 West 10th Avenue
Columbus, Ohio 43210

Miscellaneous Considerations.

1. It is helpful if participants bring appropriate texts, workbooks, laboratory manuals to the workshop with them. Their availability facilitates participant selection and development of relevant instructional materials for classroom use.

2. It is helpful to have on hand examples of other student-produced materials. Participants can observe and critique these productions, thus learning from the experiences of others.

3. The workshop can be extended to allow for more time to plan and produce instructional materials, but all projects must be completed, reviewed, and critiqued by all participants so reinforcement can be used as a learning aid.

EVALUATION OF CLASSROOM LEARNING

I. RATIONALE

Evaluation is a critical component of allied health education since a great deal of responsibility is placed on educational institutions to monitor the quality of practice of graduates of allied health professional programs. If they are to be held accountable, faculty members need to have adequate understandings and abilities to develop and carry out evaluation protocols.

II. OVERVIEW

This resource unit is comprised of three sequential instructional modules:

SYSTEMATIC APPROACH TO THE TEACHING-LEARNING PROCESS
EVALUATION SYSTEM
EVALUATION OF CLASSROOM LEARNING

III. GENERAL UNIT OBJECTIVES

A. SYSTEMATIC APPROACH TO THE TEACHING-LEARNING PROCESS

1.0 Describe the design of an instructional system
2.0 Discuss the development of performance objectives
3.0 Construct performance objectives
4.0 Describe the relationships between objectives to the instructional process

B. EVALUATION

1.0 Describe the systematic approach to evaluation
2.0 Discuss the integration of the evaluation system with the teaching-learning process

C. EVALUATION OF CLASSROOM LEARNING

1.0 Discuss the role of evaluation in the instructional process
2.0 Define the types of objective assessment instruments
3.0 Define the types of subjective assesssment instruments
4.0 Describe the components of a good assessment instrument
5.0 Discuss value of item analysis and conduct an item analysis
6.0 Describe the assessment planning process and plan a test, using the process

7.0 Describe ways in which raw scores can be ordered for ease of inspection and presentation
8.0 Discuss the philosophy and approaches to reporting data
9.0 Discuss the implications for altering the teaching-learning process by using assessment procedures

IV. SUGGESTED WORKSHOP FORMAT

The format suggested for a workshop on Evaluation of Classroom Learning is organized into three distinct phases.

Phase 1. Phase 1 provides for an intensive five-day workshop. A detailed schedule for Phase 1 follows in Section V.

Phase 2. Despite the intensive approach of Phase 1, participants need additional practice in order to acquire advanced competency involved in development of excellent classroom assessment instruments. Consequently Phase 2 provides a supervised practicum that focuses on development of classroom assessment instruments.

When participants have returned to their regular teaching activities, they will complete the following four assignments:

Assignment 1. Two weeks before beginning Phase 3, each participant will develop a plan for an hour examination, stating the competencies of one course or course unit, as follows:

a. Give the general competencies and specific objectives for the course or unit. The objectives should be written in behavioral terms.

b. Make a table of specifications, showing the relative weights to be given to the content areas and behaviors to be tested (see Assignment 2b).

c. Make a second table of specifications after the items have been written. Indicate the particular items (by number) that compose each cell.

d. Frequently an item may involve more than one type of behavior, but classification is to be made only in terms of the primary behavior required by the item.

Assignment 2. Each participant will construct test items, following these guidelines:

a. Construct a set of test items based on the table that you have prepared. Item quality is the essential goal, but you should develop approximately 30-40 items altogether. Use your ingenuity to develop a test that you feel would be a worthwhile measurement instrument.

b. Any type of objective or subjective items may be used with the following restrictions:

(1) At least 50 percent of the items must test competencies other than knowledge or information.

(2) No more than 10 true-false, 10 matching, 10 short-answer or completion items may be used (note that you may choose all multiple-choice items, but if you use true-false, etc., items, then you must stay within the above limits).

(3) Correct answers are to be indicated for all items.

(4) All items should be original and provide evidence of your creative effort.

Assignment 3. Each participant will give the test in his/her classroom. Based on this administration, the participant will then: (1) analyze the test item by item, (2) analyze the test by means of statistical methods, and (3) write a one-two page criticism of the test.

Assignment 4. Each participant will prepare the following:

a. A keyed and unkeyed copy of the test

b. Directions for administering and scoring the test.

Phase 3. The final phase is designed to follow up on the participants' achievement of the Phase 2 assignment. This phase will provide practice in any areas in which participants need additional practice to develop competence.

V. SUGGESTED SCHEDULE OF WORKSHOP ACTIVITIES (PHASE I)

Day 1

Time	Topic	Type of Group
9:00-11:00	Administrative Details and Orientation to Workshop	Large group and small discussion groups
11:00-12:00	Introduction of Systems Approach to Instruction	Large group
12:00-1:00	Lunch	
1:00-2:00	Setting General Program Competencies	Large group
2:00-5:00	Course Development Laboratory	Small disciplinary labs
5:00-7:00	Coctails and Dinner	
7:00-9:00	Objectives Laboratory	Small disciplinary labs

Lab Assignments:
1. Develop general competencies and specific learning objectives for a discipline course
2. Review self-instructional materials on development of objectives

Day 2

Time	Topic	Type of Group
9:00-11:00	Introduction to Evaluation System	Large group
11:00-12:00	Use of Evaluation, Assessment, and Measurement	Large group
12:00-1:00	Lunch	
1:00-2:30	Item Analysis Laboratory	Three small labs
2:30-5:00	Issues in Classroom Evaluation	Large group

Evening Assignment: 1. Identify content and possible learning experiences for a unit of classroom instruction

Day 3

Time	Topic	Type of Group
9:00-10:00	Types of Objective Assessment Instruments	Large Group
10:00-10:30	Types of Subjective Assessment Instruments	Large Group
10:30-12:30	Components of a Good Assessment Instrument	Large Group
12:30-1:30	Lunch	
1:30-3:00	Planning the Assessment Process	Large group
3:00-5:00	Test Construction Laboratory	Three small labs
5:00-7:00	Cocktails and Dinner	

Day 4

Time	Topic	Type of Group
9:00-12:00	Frequency Distribution Laboratory	Three small labs
12:00-1:00	Lunch	
1:00-5:00	Variability Laboratory	Three small labs
5:00-7:00	[illegible] and Dinner	
7:00-9:00	Statistics Laboratory	Three small labs

83

Day 5

Time	Topic	Type of Group
9:00-10:00	Norm-Referenced and Criterion-Referenced Scores	Large group
10:00-12:00	Grading	Large group
12:00-1:00	Lunch	
1:00-2:00	Improvement of Teaching-Learning Process	Large group
2:00-3:00	Examination	Large group
3:00-3:30	Workshop Evaluation	Large group

VI. SUGGESTED EVALUATION FORMS

Evaluation of Classroom Learning Examination

Choose the answer appropriate for each question and mark the number of your answer on a separate answer sheet. Be sure to fill in the dotted lines on the answer sheet with a #2 pencil mark. Be certain the answer space corresponds with the question on which you are working.

1. The systematic approach to evaluation involves the following three components:

   A. Valuation, assessment, implementation
   B. Identification of specific objectives
   C. Assessment of outcomes from objectives
   D. Alteration of teaching-learning system to better define and attain stated objectives

   a. A, B, C
   b. A, B
   c. A
   d. A, B, C, D

2. All of these are advantages of essay tests except:

   a. Ease of scoring
   b. Ease of construction
   c. Elimination of guessing
   d. Encouragement for student to organize

3. Which of the following statements is most accurate?

   a. A teacher should use essay items whenever possible and use other types only when absolutely necessary.
   b. A teacher should use multiple-choice items whenever possible and use other types only when absolutely necessary.
   c. A teacher should use items of all types since no one type always works best.

4. The mean is to central tendency as the standard deviation is to:

   a. Average
   b. Variability
   c. Relationship
   d. Standard score

5. The following are important concepts related to entering behavior:

   a. Maturation
   b. Readiness
   c. Individual differences and personality
   d. a, b, c
   e. a, c

6. Which one of the following is a suggestion for writing matching test items?

   a. Select distractors that are plausible
   b. Minimize use of negative expressions
   c. Avoid use of such words as "only," "never," "always," etc.
   d. Arrange premises in a logical order.

7. A reliable test is one which:

   a. Is scored objectively
   b. Has norms based on many cases
   c. Measures consistently
   d. Measures what it claims to measure
   e. Has high predictive validity

8. Janet answered 85 percent of the questions on an examination correctly. From this we can infer that:

   a. She did better than 85 percent of her classmates.
   b. She did poorer than 85 percent of her classmates.
   c. She is above average in ability.
   d. She scored above the median.
   e. She missed 15 percent of the questions.

9. All of the following are purposes of classroom testing except:

   a. Reporting student progress
   b. Motivation of students
   c. Teacher evaluation
   d. Diagnosis of learning objectives
   e. Evaluation of instructional objectives

10. Matching items consist of two specific parts which are:

   a. Stem and distractor
   b. Premises and response
   c. Validity and reliability
   d. Foil and response

11. The correlation 1.00 denotes:

   a. Perfect positive relationship
   b. Perfect negative relationship
   c. Absolutely nothing
   d. Relationship of zero
   e. None of these

12. If most of the test scores cluster near 90 percent correct, the distribution will probably be:

   a. Negatively skewed
   b. Positively skewed
   c. Normal
   d. Impossible to tell

13. For supply-type completion items, which one of the following is false?

a. Avoid removing statement directly from textbook
b. Place blank space anywhere in sentence
c. Design item so there is only one correct answer
d. Avoid revising words until meaning is almost lost

14. Choose the only procedure that will not improve test reliability:

a. Increase number of test items
b. Write clear test directions
c. Change the position of your test items
d. Increase the number of alternatives for each test item

15. Seventy students took a 30-item algebra test. The mean score was 16 and the standard deviation was 5. Assuming a normal distribution, approximately what percentage of scores fell between 21 and 11?

a. 32 percent
b. 50 percent
c. 34 percent
d. 68 percent

16. What would be the effect of having many items with specific determiners on a test?

a. It would tend to raise scores.
b. It would tend to lower scores.
c. The effect would be impossible to predict.

17. The one indispensable requirement of any satisfactory test is:

a. Adequate norms
b. High reliability
c. Objectivity
d. Validity
e. Variance

18. A test with a variance of 25 has a standard deviation of:

a. 50
b. 2.5
c. 5
d. 0.5
e. 1

19. Which test item is best for measuring the student's ability to organize?

a. Multiple-choice
b. True-false
c. Completion
d. Essay

20. The Spearman-Brown formula estimates:

a. Objectivity
b. Variability
c. Validity
d. Reliability
e. Error

21. For a test with a normal distribution, approximately _____ of the scores lie between the mean and one standard deviation above the mean.

a. 68 percent
b. 16 percent
c. 2.5 percent
d. 34 percent

22. The first step in the construction of a teacher-made achievement test is to:

a. List the subject matter areas that you want to cover in the test
b. Determine the type of test you will use (e.g., essay vs. objective)
c. List the objectives of the test
d. Construct a number of test items, from which those to be included in the test will be chosen
e. Determine how difficult the test should be

23. Item analysis procedures can be most useful to the teacher in helping to:

a. Establish levels of minimum acceptable performance
b. Determine which students are working at a level below their abilities
c. Improve his examination by revising individual items
d. Determine how any given class performed in relation to a class of another teacher

24. Derived scores based on standard deviation units are called for:

a. Mean scores
b. Standard scores
c. Raw scores
d. Central rank scores
e. Percentile scores

25. In which type of test item is the student most likely to hit upon the correct answer by guessing?

a. Essay
b. Multiple-choice
c. Matching
d. Correlated recall
e. True-false

26. The limits of the coefficient of reliability are:

a. -1.00 to +1.00
b. Minus infinity to plus infinity
c. 0.00 to 1.00
d. 0.00 to plus infinity
e. -1.00 to 0.00

27. "Scores on the Social Adjustment Inventory correlate +.30 with ratings of leadership given by teachers." This statement is an example of:

a. Content validity
b. Criterion related validity
c. Construct validity

28. In a normal distribution, the mean is equal to the ____ percentile.

a. 16th
b. 50th
c. 84th
d. 97th

29. As the distance from the mean increases, percentile units:

a. Are changed to z-score units
b. Become smaller
c. Remain the same
d. Become larger
e. Become larger or smaller, depending on the nature of the variable under study

30. The variance, standard deviation, and range are all measures of:

a. Central tendency
b. Partition values
c. Variability
d. Grouping

31. "The items on the dental assisting examination were based on an analysis of the skills necessary to succeed in dental assisting." This statement is an example of:

a. Content validity
b. Criterion-related validity
c. Construct validity

32. On a test with a mean score of 100 and a variance of 64, how many standard deviations from the mean is a score of 116?

a. .25
b. .50
c. 2.00
d. 1.50

33. To determine a test's stability reliability you would:

a. Use parallel examination instruments
b. Construct a table of specifications
c. Use Kuder-Richardson formula
d. Repeat the test

34. When considering the discriminating power of a test item

a. The larger the positive value, the poorer is the discriminating power.
b. The larger the positive value, the better is the discriminating power.
c. Items less than 0.20 suggest questionable discriminating power.
d. Item over 0.20 suggest questionable discriminating power.

35. "The writer of an occupational-therapy textbook sends an early version of her manuscript to practitioners and teachers for a critique of each chapter. She then uses their comments to revise the manuscript." This is an example of:

a. Formative evaluation
b. Summative evaluation
c. Impossible to tell from the data presented

36. "Mr. Rich has been asked to design an evaluation project that will permit college officials to decide whether to retain a costly medical technology program or to replace it with a new social science program." This is an example of:

a. Formative evaluation
b. Summative evalution
c. Impossible to tell from the data presented

Designate whether the following individuals are engaged primarily in measurement (Mark No. 1) or evaluation (Mark No. 2).

37. Mr. Roentgen, a radiologic technology teacher, has been asked to supply a complete breakdown of his school's achievement scores. Accordingly, he selects scores for each student from the national registry examination, then presents the median and mean score for each of the last five graduating classes.

38. Mrs. Bird, the director of a respiratory therapy program, has been observing each student's clinical performance and, on the basis of a carefully constructed observation schedule, rates each student as above average, or below average.

39. Mr. Lipid, an instructor in the medical laboratory technician program, gives his students weekly quizzes in clinical chemistry. He returns the papers to the class after scoring them in terms of percentage of right answers for each student.

40. Ms. Twist, a physical therapist, compares the effectiveness of two different treatment modalities. She employs a carefully randomized pretest and posttest two group design and discerns via a test analysis that one method is 42 percent more effective than the other in promoting restoration of function, a difference which is significant beyond the .001 level of confidence.

Classroom Learning Examination Key

1.	d	21.	d
2.	a	22.	c
3.	c	23.	c
4.	b	24.	b
5.	d	25.	e
6.	d	26.	a
7.	c	27.	c
8.	e	28.	b
9.	c	29.	d
10.	b	30.	c
11.	a	31.	a
12.	a	32.	c
13.	b	33.	d
14.	c	34.	e
15.	d	35.	a
16.	a	36.	b
17.	b	37.	a
18.	c	38.	b
19.	d	39.	a
20.	d	40.	a

Post-Assessment

1. The objectives below were identified as the goals of this workshop. We are anxious to have your assessment of our success in effectively teaching you these skills. For each objectives, please rate your achievement, using the following scale:

4	3	2	1
I have fully achieved this objective and feel confident about it	I have achieved this objective but need more practice	I have only partially achieved this objective	I did not achieve this objective

a.____Describe the design of an instructional system

b.____Discuss the development of performance objectives

c.____Construct performance objectives

d.____Describe the relationships between objectives to the instructional process

e.____Describe the systematic approach to evaluation

f.____Discuss the integration of the evaluation system with the teaching-learning process

g.____Discuss the role of evaluation in the instructional process

h.____Define the types of objective assessment instruments

i.____Describe the components of a good assessment instrument

j.____Discuss value of item analysis and conduct an item analysis

k.____Describe the assessment planning process and plan a test, using the process.

l.____Describe ways in which raw scores can be ordered for ease of inspection and presentation

m.____Discuss and philosophy and approaches to reporting

n.____Discuss the implications for altering the teaching-learning process by using assessment procedures

2. Please assess your understanding of workshop topics, using the following rating scale:

4	3	2	1
I feel confident about this topic	I understand this topic but need additional work in the area	I have only a vague understanding of this topic	I don't understand this topic at all

a. Instructional system

(1)____Definition

(2)____Development of performance objectives

b. Evaluation system

(1)____Components of the system

(2)____Purposes of classroom evaluation

(3)____Differences between measurement, assessment, and evaluation

(4)____Definition of entering behavior

(5)____Four concepts related to entering behavior

c. Types of objective test items

(1)____Definition of objective test items

(2)____Types

(3)____Short-answer and completion items

(4)____True-false items

(5)____Multiple-choice items

(6)____Matching items

d. Types of subjective test items

(1)____Definition of subjective test items

(2)____Types

(3)____Essay items

e. Components of a good assessment instrument

(1)____Validity

(2)____Reliability

(3)____Practicality

(4)____Interpretability

(5)____Availability of adequate test instructions

f. Item analysis

(1)____Index of discriminating power

(2)____Index of item difficulty

g. Planning the assessment process

(1)____Analysis of components of teaching-learning process

(2)____Criteria for selection of appropriate test items

(3)____Advantages of developing a test blueprint

(4)____Designing a test

(5)____Administrative considerations

h. Analyzing assessment data

(1)____Frequency distributions

(2)____Variability

(3)____Derived scores

(4)____Norm-referenced and criterion-referenced scores

i. Reporting assessment data

(1)____Uses of reporting data

(2)____Reporting data based on growth and achievement

(3)____Grading

j. Improving the teaching-learning system through analysis of assessment procedures

(1)____Redefining entering behavior

(2)____Redefining objectives

(3)_____Redefining methods utilized

(4)_____Redefining assessment procedures

(5)_____Improving teaching effectiveness

Staff Evaluation

Please rate each of the staff behaviors below, using the scale from one to five points

	Strongly agree 1	2	3	Strongly disagree 4	Not Relevant 5
1. Discusses points of view other than his/her own if appropriate to the specific class					
2. Contrasts implications of various theories if appropriate to the specific class					
3. Discusses recent developments in the field					
4. Emphasizes conceptual understanding					
5. Explains clearly					
6. Is well prepared					
7. Presents content in an organized fashion					
8. Is careful and precise in answering questions					
9. Summarizes major points					
10. States objectives for class session					
11. Encourages class participation					
12. Invites student to share their knowledge and experiences					
13. Invites criticism of his/her own ideas					

	Strongly agree 1	2	3	Strongly disagree 4	Not relevant 4
14. Knows whether the class understands him/her					
15. Has students apply concepts in order to demonstrate understanding					
16. Has a geniune interest in students					
17. Relates to students as individuals					
18. Seems to enjoy teaching					
19. Is enthusiastic about his/her subject					
20. Seems to have self-confidence					
21. Anticipates problems and tries to make difficult topics easy to understand					
22. Relates class topics to practical problems students can relate to					

Instructor:

Workshop Evaluation

Please circle your choices.

1. All things considered, this workshop was:

   a. Excellent
   b. Good
   c. Fair
   d. Poor

2. Generally, how would you describe the handouts and resource materials in this workshop?

   a. Totally adequate
   b. Adequate
   c. Somewhat inadequate
   d. Totally inadequate

   Comments:

3. Generally, how would you describe the work load required during this workshop?

   a. Excessive
   b. Heavy
   c. Just right
   d. Rather light

   Comments:

4. Overall, how would you rate the lectures in this workshop?

   a. Extremely interesting
   b. Somewhat interesting
   c. Dull
   d. Really dull

   Comments:

5. Overall, how would you rate the introductory session conducted the first morning?

   a. Extremely interesting
   b. Somewhat interesting
   c. Dull
   d. Really dull

   Comments:

6. Overall, how would you rate the laboratories conducted during this workshop?

a. Totally adequate
b. Adequate
c. Somewhat inadequate
d. Totally inadequate

Comments:

7. Overall, how would you rate the audiovisuals used during this workshop?

a. Totally adequate
b. Adequate
c. Somewhat inadequate
d. Totally inadequate

Comments:

8. How well did this workshop meet your personal needs and expectations?

a. Fully
b. Considerably
c. Somewhat
d. Not at all

Comments:

9. Did you enjoy this workshop?

a. Yes b. Somewhat c. No

10. On the whole, how much do you think you learned?

a. A great deal
b. Some
c. Not very much
d. Nothing

11. What do you consider the principal strengths of this workshop (please list at least two)?

12. What do you consider the principal weaknesses of this workshop (please list at least two)?

13. Is there anything else you would like us to know?

VII. ADMINISTRATIVE CONSIDERATIONS FOR IMPLEMENTING THE UNIT

Group Size. This workshop is designed to focus on strategies for improving classroom evaluation. In order to provide maximum opportunity for participants to develop advanced competency, the size of the group should be controlled. The workshop is structured so that participants sometimes meet in small groups (no more than five persons) to develop proficiency in such areas as writing objectives, manual performance, item analysis, and developing statistical skills. Consequently, it is recommended that the total group be limited to 15-20 participants.

Staff. Ideally staff for the workshops should be recruited from the several programs that are currently conducting allied health teacher preparation. If this is impractical, faculty members from college or university schools of education with backgrounds in educational psychology can conduct the workshops, with input from experienced allied health teachers.

Time. The schedule is for a five-day workshop. However, this schedule may be expanded (for example, a one-day workshop weekly for five weeks), but it is recommended that the workshop not be shortened.

Facilities. The facilities that should be available for this workshop include a classroom and an additional room available for small-group activities.

Miscellaneous Considerations.

1. It is important the participants bring textbooks, course outlines, and other relevant educational materials for the course they teach. These materials will be needed for developing appropriate assessment instruments.

2. It is important that participants complete the required readings before attending the workshop.

CLINICAL EDUCATION AND EVALUATION

I. RATIONALE

Although clinical education consumes a major portion of most allied health curricula, little information is available concerning the development and evaluation of clinical education. Using a systematic approach and integrating the teaching-learning process and the evaluation process, this unit focuses on the decision-making actions involved in clinical education and evaluation.

II. OVERVIEW

This resource unit is comprised of three sequential instructional modules:

SYSTEMATIC APPROACH TO THE TEACHING-LEARNING PROCESS
EVALUATION SYSTEM
CLINICAL EDUCATION AND EVALUATION

III. GENERAL UNIT OBJECTIVES

A. SYSTEMATIC APPROACH TO THE TEACHING-LEARNING PROCESS

1.0 Describe the design of an instructional system
2.0 Discuss the development of performance objectives
3.0 Construct performance objectives
4.0 Describe the relationships between objectives to the instructional process

B. EVALUATION SYSTEM

1.0 Describe the systematic approach to evaluation
2.0 Discuss the integration of the evaluation system with the teaching-learning process

C. CLINICAL EDUCATION AND EVALUATION

1.0 Describe the systems involved in developing clinical education
2.0 Discuss the learning process
3.0 Describe methods of learning applicable to clinical education
4.0 Describe the health care delivery system
5.0 Discuss the teaching process
6.0 Discuss assessment of student learning within a clinical practicum
7.0 Discuss the types of and frequency of reporting results of assessment to students

IV. SUGGESTED WORKSHOP FORMAT

The format suggested for a workshop on Clinical Education and Evaluation is organized into three distinct phases.

Phase 1. Phase 1 provides for an intensive, five-day workshop. A detailed schedule for Phase 1 follows in Section V.

Phase 2. The format followed in this workshop is designed to provide participants with advanced-level competency in planning clinical learning experiences and in developing valid and reliable evaluation protocols that focus on assessing student mastery of high-level cognitive, affective, and psychomotor goals. The one-week intensive workshop in Phase 1 serves to increase participants' knowledge of the theory of clinical education so they can apply general principles to planning and evaluation of clinical education.

In order to provide participants with opportunities for extended practice in which they can demonstrate mastery of problem solving, Phase 2 utilizes problem-solving case studies that are based on the real world of the participants' regular teaching assignments. Each participant will complete a series of two case-study assignments that will be reviewed by the workshop staff:

Assignment 1. One month after Phase 1, each participant will submit an analysis of a unit for clinical education. The unit should include a listing of competency-based objectives identified by level of knowledge, as well as a plan for how these objectives will be evaluated.

Assignment 2. Two months after submitting the first assignment, each participant will prepare for review by the workshop staff samples of the assessment instruments used to implement the evaluation protocol outlined in the first assignment.

Phase 3. Phase 3 has been designed to follow up on the participants' achievement of the advanced goals for the workshop. Because it is anticipated that participants will differ widely within and among groups, Phase 3 will be left open-ended (i.e., specific plans for Phase 3 will not be made until workshop staff members have completed their own assessments of the success of Phases 1 and 2).

Phase 3 will likely consist of specific sessions designed to remedy any weaknesses observed in the Phase 2 practicum. It will also provide an opportunity for participants and staff to compare insights developed in the process of clinical education and evaluation.

V. SUGGESTED SCHEDULE OF WORKSHOP ACTIVITIES (PHASE I)

Day 1

Time	Topic	Type of Group
9:00-11:00	Administrative Details and Orientation to Workshop	Large group and small discussion groups
11:00-12:00	Introduction of Systems Approach to Instruction	Large group
12:00-1:00	Lunch	
1:00-2:00	Setting General Program Competencies	Large group
2:00-5:00	Course Development Laboratory	Small disciplinary labs
5:00-7:00	Cocktails and Dinner	
7:00-9:00	Objectives Laboratory	Small disciplinary labs

Lab Assignments:
1. Develop general competencies and learning objectives for a clinical course
2. Review self-instructional materials on development of objectives

Day 2

Time	Topic	Type of Group
9:00-11:00	Introduction to Evaluation System	Large group
11:00-12:00	Systematic Approach to Clinical Education 1	Large group
12:00-1:00	Lunch	
1:00-2:00	Systematic Approach to Clinical Education 2	Large group
2:00-3:00	Present Health Care Delivery System: Advantages and Disadvantages	Large group
3:00-5:00	Development of Attitudes (Film: Hospital)	Large group

Evening Assignment: 1. Identify content and possible learning experiences for a unit of clinical instruction

Day 3

Time	Topic	Type of Group
9:00-11:00	Changing Health Care Patterns and Implications for Clinical Education (Film: Beyond the Wall)	Large group
11:00-12:00	Clinical Education: Process and Problems	Large group
12:00-1:00	Lunch	
1:00-3:00	Roles and Perceptions of Clinical Faculty (Panel Discussion)	Large group
3:00-4:30	Selection of Clinical Sites and Clinical Contracts	Large group
4:30-6:00	Clinical Competency Laboratory	Two small groups
6:00-7:30	Cocktails and Dinner	

Evening Assignment: 1. Complete clinical unit of instruction

Day 4

Time	Topic	Type of Group
9:00-10:30	Assessment of Student Learning in a Clinical Setting	Large group
10:30-12:00	Pretesting and Grid Development Practice Laboratory	Two small labs
12:00-1:00	Lunch	
1:00-2:30	Development of Interview Questionnaire Practice Laboratory	Two small labs
2:30-3:00	Development of Anecdotal Record	Large group
3:00-5:30	Checklist Development Practice Laboratory	Two small labs

Lab Assignment: 1. Construct a grid, questionnaire, anecdotal record, and checklist for assessing part of the unit. Read about rating scales and be prepared to construct one in lab tomorrow.

Day 5

Time	Topic	Type of Group
9:00-11:30	Rating Scale Development Practice Laboratory	Two small labs
11:30-12:00	Standardized Attitudinal Tests	Large group
12:00-1:00	Lunch	
1:00-1:30	Administrative Considerations in Testing	Large group
1:30-2:30	Grading and Reporting Grades	Large group
2:30-3:30	Examination	Large group
3:30-4:00	Workshop Evaluation	Large group

VI. SUGGESTED EVALUATION FORMS

Clinical Education and Evaluation Examination

1. Briefly differentiate between assessment and evaluation.

2. Please discuss the types of behavioral objectives that are best suited to clinical education.

3. List the six stages of problem solving in clinical education and indicate which assessment instruments are suited to each stage.

4. Discuss one of the major problems you have experienced with clinical education or evaluation and discuss how you might approach this problem based on what you have learned this week.

5. How can you maintain reliable and valid data in clinical assessment?

Post-Assessment

1. The objectives below were identified as the goals of this workshop. We are anxious to have your assessment of our success in effectively teaching you these skills. For each objective, please rate your achievement, using the following scale:

4	3	2	1
I have fully achieved this objective and feel confident about it	I have achieved this objective but need more practice	I have only partially achieved this objective	I did not achieve this objective

a. ____ Describe the design of an instructional system

b. ____ Discuss the development of performance objectives

c. ____ Construct performance objectives

d. ____ Describe the relationships between objectives to the instructional process

e. ____ Describe the systematic approach to evaluation

f. ____ Discuss the integration of the evaluation system with the teaching-learning process

g. ____ Describe the systems involved in developing clinical education

h. ____ Discuss the learning process

i. ____ Describe methods of learning applied to clinical education

j. ____ Describe the health care delivery system

k. ____ Discuss the teaching process

l. ____ Discuss assessment of student learning within a clinical practicum

m. ____ Discuss the types of and frequency of reporting results of assessment to students

2. Please assess your understanding of workshop topics, using the following rating scale:

4	3	2	1
I feel confident about this topic	I understand this topic but need additional work in this area	I have only a vague understanding of this topic	I don't understand this topic at all

a. Instructional system

(1)_____Definition

(2)_____Development of performance objectives

b. Systematic approach to clinical education

(1)_____Learning process

(2)_____Teaching process

(3)_____Integration of the two processes

c. Learning process

(1)_____Components of the process

(2)_____Definition of variables influencing the process

(3)_____Principles of learning applied to clinical education

(4)_____Methods of learning applied to clinical education

d. Health care delivery system

(1)_____Present system

(2)_____Changing health care delivery system

e. Teaching process

(1)_____Components of the process

(2)_____Components of entering behavior

(3)_____Classification of learning objectives

(4)_____Specific objectives appropriate for clinical education

f. Method for conducting clinical education

(1)_____Planning stage for clinical learning experience

(2)_____Guidelines for selection of clinical learning experiences

(3)____Actual selection of learning experiences

(4)____Preparation of student for the clinical experience

(5)____Actual implementation of the plan

(6)____Postclinical review with student

(7)____Use of clinical faculty

(8)____Development of clinical contracts

g. Assessment method

(1)____Assessment of student learning

(2)____Reporting results of assessment to students

h. Construction of instruments

(1)____Grid

(2)____Interview questionnaire

(3)____Rating scale

(4)____Check list

(5)____Anecdotal record

Staff Evaluation

Please rate each of the staff behaviors below, using the scale from one to five points.

	Strongly agree			Strongly disagree	Not relevant
	1	2	3	4	5
1. Discusses points of view other than his/her own, if appropriate to the specific class	___	___	___	___	___
2. Contrasts implications of various theories, if appropriate to the specific class	___	___	___	___	___
3. Discusses recent developments in the field	___	___	___	___	___
4. Emphasizes conceptual understanding	___	___	___	___	___
5. Explains clearly	___	___	___	___	___
6. Is well prepared	___	___	___	___	___
7. Presents content in an organized fashion	___	___	___	___	___
8. Is careful and precise in answering questions	___	___	___	___	___
9. Summarizes major points	___	___	___	___	___
10. States objectives for class session	___	___	___	___	___
11. Encourages class participation	___	___	___	___	___
12. Invites students to share their knowledge and experiences	___	___	___	___	___

	Strongly agree			Strongly disagree	Not relevant
	1	2	3	4	5
13. Invites criticism of his/her own ideas	___	___	___	___	___
14. Knows whether the class understands him/her	___	___	___	___	___
15. Has students apply concepts in order to demonstrate understanding	___	___	___	___	___
16. Has a genuine interest in students	___	___	___	___	___
17. Relates to students as individuals	___	___	___	___	___
18. Seems to enjoy teaching	___	___	___	___	___
19. Is enthusiastic about his/her subject	___	___	___	___	___
20. Seems to have self-confidence	___	___	___	___	___
21. Anticipates problems and tries to make difficult topics easy to understand	___	___	___	___	___
22. Relates class topics to practical problems students can relate to	___	___	___	___	___

Instructor: _____

Workshop Evaluation

Please circle your choices.

1. All things considered, this workshop was:

   a. Excellent
   b. Good
   c. Fair
   d. Poor

2. Generally, how would you describe the handouts and resource materials for this workshop?

   a. Totally adequate
   b. Adequate
   c. Somewhat inadequate
   d. Totally inadequate

   Comments:

3. Generally, how would you describe the work load required during this workshop?

   a. Excessive
   b. Heavy
   c. Just right
   d. Rather light

   Comments:

4. Overall, how would you rate the lectures in this workshop?

   a. Extremely interesting
   b. Somewhat interesting
   c. Dull
   e. Really dull

   Comments:

5. Overall, how would you rate the introduction to competency-based objectives on the first day?

a. Extremely interesting
b. Somewhat interesting
c. Dull
d. Really dull

Comments:

6. Overall, how would you rate the small-group laboratories conducted during this workshop?

a. Totally adequate
b. Adequate
c. Somewhat inadequate
d. Totally inadequate

Comments:

7. Overall, how would you rate the discussion of health care delivery conducted during this workshop?

a. Totally adequate
b. Adequate
c. Somewhat inadequate
d. Totally inadequate

Comments:

8. Overall, how would you rate the evaluation instrument laboratories presented during this workshop?

a. Totally adequate
b. Adequate
c. Somewhat inadequate
d. Totally inadequate

Comments:

9. How well did this workshop meet your personal needs and expectations?

a. Fully
b. Considerably
c. Somewhat
d. Not at all

Comments

10. Did you enjoy this workshop?

a. Yes
b. Somewhat
c. No

11. On the whole, how much do you think you learned?

a. A great deal
b. Some
c. Not very much
d. Nothing

12. What do you consider the principal strengths of this workshop (please list at least two)?

13. What do you consider the principal weaknesses of this workshop (please list at least two)?

14. Is there anything else you would like us to know?

VII. ADMINISTRATIVE CONSIDERATIONS FOR IMPLEMENTING THE UNIT

Planning and implementing a workshop takes considerable time and effort from all involved and planning for administrative details is as important as for the curricular details in ensuring a smoothly run and effective workshop. Several administrative considerations are discussed here to help planners develop the workshop.

Group Size. This workshop is designed to focus on strategies for selecting appropriate methods of clinical evaluation and to develop advanced competency in designing selected evaluation instruments. In order to provide maximum opportunity for participants to develop advanced competency, the size of the group should be controlled. The workshop is structured so that participants sometimes meet in small groups (no more than five persons) to share insights into the development of evaluation protocols and at other times as a classroom group to consider theories. Because of the high emphasis on small-group interaction, the total group should be limited to 15-20 participants.

Staff. Ideally, staff for the workshops should be recruited from the several programs that are currently conducting allied health teacher preparation. If this is impractical, faculty members from college and university schools of education, with input from experienced allied health teachers, can conduct the workshop, using the resources provided in this unit.

Time. The schedule is for a five-day workshop. The schedule may be expanded (for example, one-day workshops every two weeks for 16 weeks of a semester) but should not be shortened.

Miscellaneous Considerations.

1. It is important that participants complete as many of the required readings as possible before attending the workshop.

2. It is necessary for each workshop participant to have access to course outlines, textbooks, and other educational materials for courses they are teaching. These materials will be needed for planning and practicing methods during the laboratory sessions.

3. It would be useful for workshop staff members to have on hand selected examples of evaluation instruments from different programs. Participants should also be urged to bring samples of instruments with them so these can be critiqued and improved.

CHAPTER SIX

Instructional Modules

This chapter describes the follow seven modules:

Systematic approach to the teaching-learning process

Communication system

Evaluation system

Classroom methods and teaching techniques

Use of instructional media

Evaluation of classroom learning

Clinical educational evaluation

Each module contains all relevant items from the following list of materials:

Overview of the module

Competency-based objectives for the module

Detailed outline of subcompetency-based objectives and related content

Suggested activities

Required readings

Selected annotated bibliography

General bibliography

SYSTEMATIC APPROACH TO THE TEACHING-LEARNING PROCESS

A. OVERVIEW

The systems approach is not as some of the uninitiated assume, a cold and mechanical process. It does not restrict or dictate curriculum content. Rather, the systematic approach is a conceptual framework that can be applied to any course content, and is especially well suited to allied health instruction. It encompasses not only the teaching of facts and principles but also the development of attitudes and values, and it permits a virtually unlimited variety of teaching-learning situations.

This module provides the framework for the design of the instructional system.

Prerequisite Module: None

B. COMPETENCY-BASED OBJECTIVES

Upon completion of this module, participants will be able to:

1.0 Describe the design of an instructional system
2.0 Discuss the development of performance objectives
3.0 Construct performance objectives
4.0 Describe the relationships between objectives to the instructional process

C. SUBCOMPETENCY-BASED OBJECTIVES AND CONTENT

OBJECTIVES	CONTENT
1.0 Describe the design of an instructional system	I. Design of an Instructional System
1.1 Define the teaching process	A. Definition and Advantages
1.2 List the advantages of a systematic approach to allied health instruction	Performance Objectives → Entering Behavior → Instruction → Performance Assessment ↕ ↕ ↕ ↕
	B. Aspects
	1. Purpose
	2. Components
	3. Processes
	4. Feedback
	5. Adjustment
	C. Maintenance of the System
2.0 Discuss the development of performance objectives	II. Identification of Performance Objectives
2.1 Describe the development of the purpose	A. Definition of Purpose
2.2 Describe the specification of competencies	B. Specification of Competencies
2.3 Describe the specification of learning objectives	C. Specification of Learning Objectives
	1. Cognitive objectives
	a. Knowledge (recall of specifics)
	b. Comprehension (use of specifics)
	c. Application (use of concrete situations)
	d. Analysis (identification of concept relationships)
	e. Synthesis (assembling parts into whole)
	f. Evaluation (judgment and alteration)

OBJECTIVES	CONTENT
	2. Psychomotor objectives a. Communication (oral (speaking); nonoral (writing, body language)) b. Motor 3. Affective objectives a. Attitudes b. Feelings and appreciations c. Interests
3.0 Construct Performance Objectives	IV. Rules for Writing Performance Objectives A. Use Performance-Based Terms (Performance Directly Visible or Assessable) B. Avoid Fuzziness C. Test for Abstraction D. List Subcompetencies E. Construct Behavioral Objectives
4.0 Describe the relationship between objectives to the instructional process	V. Relationships of Objectives to Parts of the Instruction System A. Entering Behavior of Learner B. Methods Used in Instructional Process C. Content To Be Conveyed D. Types of Media Selected E. Assessment Methods Used

D. SUGGESTED ACTIVITIES

1. In a laboratory session, identify general cognitive, psychomotor, and affective performance objectives appropriate for a specific allied health discipline.

2. Practice constructing and writing performance objectives.

E. REQUIRED READINGS

Cohen, A. Objectives for College Courses. Beverly Hills, Cal.: Glencoe Press, 1974.

Mager, Robert F. Preparing Instructional Objectives. Palo Alto, Cal.: Fearon Publishers, 1962.

F. SELECTED ANNOTATED BIBLIOGRAPHY

Banathy, Bela. Instructional Systems. Belmont, Cal.: Fearon Publishers, 1968.

A concise and logical presentation of the merits of employing the systems approach to instruction, including suggestions for basic design and implementation of the systems approach.

Kemp, Jerrold. Instructional Design. Belmont, Cal.: Fearon Publishers, 1971.

Guidelines to follow in planning for unit and course development within a systems approach to education. This is a useful resource with many examples that teachers new to the systems approach will find provides them with models that can be adapted for their own planning.

G. GENERAL BIBLIOGRAPHY

Cohen, A. Objectives for College Courses. Beverly Hills, Cal.: Glencoe Press, 1974.

DeCecco, John P. The Psychology of Learning and Instruction: Educational Psychology. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1968.

Holcomb, J. David, and Garner, Arthur. Improving Teaching in Medical Schools. Springfield, Ill.: Charles C. Thomas, 1973.

Mager, Robert F. Preparing Instructional Objectives. Palo Alto, Cal.: Fearon Publishers, 1962.

Popham, W. James, and Baker, Eva. The Prentice-Hall Teacher Competency Development System (pamphlets). Englewood Cliffs, N.J.: Prentice-Hall, 1973.

Roueche, John, and Pitman, John. A Modest Proposal: Students Can Learn. San Francisco: Jossey-Bass, 1972.

COMMUNICATION SYSTEM

A. OVERVIEW

Traditionally, teachers have taken two communication approaches: "to tell them what I know," or "to get them to see things the way I do." Current approaches to communication focus on the human relations aspects of the communication process, taking into account such factors as selective perception, interpersonal barriers to communication, and the development of behavior patterns that emphasize more meaningful communication.

This module focuses on some of the more prevalent communication and perceptual problems found in the teaching-learning situation and offers possible solutions. It provides a conceptual foundation for the modules on Classroom Methods and Teaching Techniques and Use of Instructional Media.

Prerequisite Module: Systematic Approach to the Teaching-Learning Process

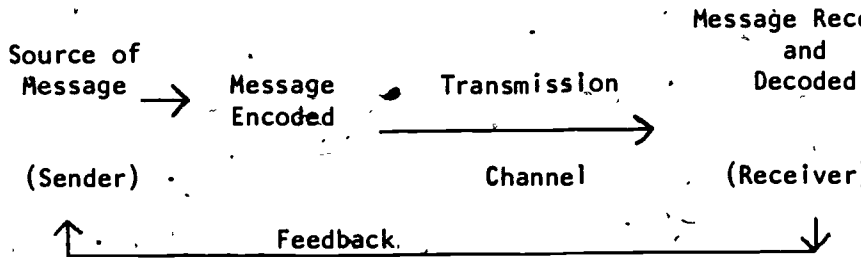
B. COMPETENCY-BASED OBJECTIVES

Upon completion of this module, participants will be able to:

1.0 Describe the communication system
2.0 Describe the model for perception

C. SUBCOMPETENCY-BASED OBJECTIVES AND CONTENT

OBJECTIVES	CONTENT
1.0 Describe the communication system	I. System of Communication A. Model
1.1 Describe the components of the model	B. Components 1. Source of message (message originates in sender) 2. Message encoded (message converted into transmittable form) 3. Transmission channel (medium for transmission such as air, paper) 4. Message received and decoded (message received by an individual through the senses and connected into receiver's thought process) 5. Feedback (a return communication from receiver to sender)
1.2 Describe the communication process as it relates to the teaching-learning environment	C. Use in Instruction 1. In two-way versus one-way communication 2. In teacher-oriented learning environments 3. In student-oriented learning environments
1.3 Describe the modes of communication	D. Modes of Communication 1. Symbolic modes a. Dress, hair, cosmetics b. Status symbols



OBJECTIVES	CONTENT
	2. Verbal modes 3. Nonverbal modes a. Ambulation b. Posturing c. Gesturing
1.4. Describe barriers to the communication process that affect the teaching-learning process	E. Barriers to Student-Teacher Communications 1. Defensive modes of communication in the classroom 2. Physical factors, speech and language problems 3. Emotional factors, insecurity, lack of confidence 4. Age factors, different levels of comprehension and differences in value systems
1.5. Identify modes of overcoming barriers to the communication process	F. Ways of Overcoming Barriers 1. Recognition of message-oriented communications a. Communication of content b. Communication of feelings 2. Dealing with communication barriers a. Using positive attending behaviors b. Active listening, reflection, and clarification c. Developing coping behaviors d. Enhancing classroom through i. Developing specificity of communication through the use of objectives ii. Using repetition in classroom communication iii. Striving for congruency of verbal and nonverbal cues iv. Allowing for feedback process

OBJECTIVES	CONTENT
2.0 Describe the model for perception	II. Model for Perception A. Definition (Process Whereby an Individual Becomes Aware of the Surrounding World)
2.1 Identify the characteristics of perception	B. Characteristics of Perception 1. Perception consists of many sensory messages that do not occur in isolation but are related and combined into complex patterns. 2. Individual reacts to only a small part of all that is taking place in environment at any one instance. 3. Perception is individual and unique.
2.2 Describe the components of the perception process	C. Components of Perception Process 1. Internal state of individual 2. Surrounding environment 3. Frame of reference (based on internal state and environment) 4. Stimulus 5. Response 6. Consequence of response 7. New internal state
2.3 Identify the general principles of perception	D. General Principles from Research on Perception Theory 1. Purposive behavior requires perception. 2. Perceiver and environment are interdependent. 3. Individual perceives in terms of past experiences 4. Perceptual experiences are personal and individual. 5. Two people will see slightly different environments. 6. Though no two people can take exactly the same meanings from things observed, common experiences tend to produce shared meanings that make communication possible.

OBJECTIVES	CONTENT
2.4 Describe application of the perception process to the teaching-learning process	E. Application to Teaching-Learning Process 1. Performance objective 2. Entering behavior 3. Instruction 4. Performance assessment

A

D. SELECTED ANNOTATED BIBLIOGRAPHY

Berlo, David K. The Process of Communication. New York: Holt, Rinehart and Winston, 1960.

A basic introduction to the theory of communication. Communication is described as an ongoing, dynamic process without starting or stopping points. Much of the text focuses on the interdependence of communication sources and receiver behavior. It provides an excellent, comprehensive overview.

Haney, William. Communication and Organizational Behavior Text and Cases. Rev. Ed. Homewood, Ill.. Richard Irwin, 1967, pp. 51-77.

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McCardle, Ellen S. Nonverbal Communication. New York: Marcel Dekker, 1974.

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A discussion of several theories of communication as they relate to interpersonal interaction. Depending on the frame of reference used in teaching communication theory, the book may offer helpful information.

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McLuhan, Marshall. The Mechanical Bride. Boston: Beacon Press, 1951.

McLuhan, Marshall. Understanding Media: The Extensions of Man. New York: New American Library, Signet Books, 1964.

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EVALUATION SYSTEM

A. OVERVIEW

Assuming that a systems approach is valid for the development and implementation of the teaching-learning process, it is then consistent to assume that a systematic approach to gathering and assessing feedback data and instituting change in the teaching-learning process is also valid.

This module provides a conceptual framework for integration of a systematic evaluation process with the teaching-learning process.

Prerequisite Module: Systematic Approach to the Teaching-Learning Process

B. COMPETENCY-BASED OBJECTIVE

Upon completion of this module, participants will be able to:

1.0 Describe the systematic approach to evaluation

2.0 Discuss the integration of the evaluation system with the teaching-learning process

C. SUBCOMPETENCY-BASED OBJECTIVES AND CONTENT

OBJECTIVES	CONTENT
1.0 Describe the systematic approach to evaluation	I. Introduction to Systematic Approach to Evaluation
1.1 Define evaluation system	A. Components of the System 1. Identification of specific performance objectives (valuation) 2. Assessment of outcomes from objectives (assessment) 3. Alteration of the system to better define and attain stated objectives (implementation)
1.2 Describe purposes of evaluation system	B. Purposes of Evaluation in Educational Setting 1. To justify past behavior or continuing an action 2. To monitor present behavior with an aim to making improvements as action occurs and keeping within certain boundaries 3. To learn about future behavior by looking at what is done or what is happening.
1.3 Describe types of evaluation system	C. Types of Evaluation Systems 1. Closed system (system is established with almost no opportunity for alteration during operation of the process) 2. Open system (system is constantly changing depending on the feedback of data from assessment)
1.4 Describe approaches to evaluation	D. Approaches to Evaluation 1. Formative evaluation (evaluation is a continuous process with change built into the system) 2. Summative evaluation (evaluation is based on a go/no go approach after assessment data is gathered)

OBJECTIVES	CONTENT
2.0 Discuss integration of the evaluation system with the teaching-learning process	II. Integration of Evaluation System with the Teaching-Learning Process A. Performance Objective B. Entering Behavior C. Instruction D. Performance Assessment

D. SUGGESTED ACTIVITIES

As an orientation to the process of evaluation, meet in small groups (5-6 participants) to identify problems with evaluation of student performances.

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Contains an excellent review of the philosophical bases of evaluation which elaborates in some detail the purposes and principles of evalution.

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CLASSROOM METHODS AND TEACHING TECHNIQUES

A. OVERVIEW

Many alternative methods for presenting the learner with selected content exist, as has been reported in educational research. One of the most complex tasks of the designer of an educational system for learning is to identify or predict the effectiveness of each method of instruction in relation to differences among learners and to what the learner is supposed to learn.

This module focuses on strategies for selecting appropriate methods. It traces the strategies back through specification of objectives, specification of content for each learning task, and consideration of variabilities among learners. The module also provides the opportunity for participants to develop advanced levels of competency in using important methods of teaching.

Prerequisite Modules: Systematic Approach to the Teaching-Learning Process
Communication System

B. COMPETENCY-BASED OBJECTIVES

Upon completion of this module, participants will be able to:

1.0 Identify various methods of instruction and employ appropriate criteria in their selection

2.0 Use the lecture method in the instructional program

3.0 Use the discussion method in the instructional program

4.0 Use the demonstration method in the instructional program

5.0 Discuss the use of the laboratory method in the instructional program

6.0 Discuss the use of the independent study method in the instructional program

C. SUBCOMPETENCY-BASED OBJECTIVES AND CONTENT

OBJECTIVES	CONTENT
1.0 Identify various methods of instruction and employ appropriate criteria in their selection	I. Range of Educational Methodologies Available A. Types of Methods 1. Teacher-centered 2. Learner-centered B. Criteria for Selecting Methods 1. Is method appropriate for objectives and nature of material? 2. Is method adapted to the following capacities of the learner? a. Personality? b. Readiness? c. Motivation? 3. Is method adapted to teacher's personality and style? 4. Is efficiency an important consideration? C. Role of the Teacher in Purposeful Learning 1. Presents a stimulus in one of the following ways: a. Gives concrete examples b. Introduces a problem containing abstract concepts c. Relates material to cognitive skills of students 2. Directs attention to learner activities 3. Provides a model for terminal performance

OBJECTIVES	CONTENT
	4. Furnishes external prompting 5. Guides direction of thinking 6. Induces learning transfer 7. Assesses learning outcomes 8. Provides feedback
2.0 Use the lecture method in the instructional program	II. Lecture Method
2.1 List the purposes and characteristics of the lecture method	A. Definition (A Formal, Organized, Preparation and Oral Discourse on a Particular Topic) B. Purposes 1. To convey facts, concepts, principles, and cognitive knowledge 2. To synthesize material from many sources 3. To present information otherwise unavailable 4. To use the expertise of a specialist 5. To facilitate attitude development based on the credibility of teacher C. Characteristics 1. It is efficient for conveying a large amount of information in a short period of time. 2. Key concepts can be developed and emphasized.

OBJECTIVES	CONTENT
	3. It can be customized to meet the needs of students and their past experiences.
	4. It can provide a framework for future student learning.
	5. Students are physically passive.
	6. It is aimed primarily at one sense.
	7. It limits provision for feedback.
	8. It allows for larger class size.
	9. It can be used in conjunction with discussion.
2.2 Describe the appropriate criteria for selecting the lecture method	D. Application of Criteria for Selecting Lecture Method
	1. Are lower-level cognitive objectives sought?
	2. Is lecture method suitable to learners' abilities?
	3. Is lecture method adaptable to teacher's personality and style?
	4. Is ratio of teacher input to student learning appropriate?
2.3 Demonstrates the ability to prepare a plan for use of the lecture method	E. Microteaching
	1. Definition (a laboratory exercise for practicing component skills of lecturing)
2.4 Demonstrates the ability to employ appropriate lecture skills	2. Three laboratory preparations of lectures, in which the participant demonstrates mastery of the following skills: a. Stimulus variation b. Set induction and use of examples c. Planned repetition

OBJECTIVES	CONTENT
3.0 Use the discussion method in the instructional program	III. Discussion Method
3.1 List the purposes and characteristics of the discussion method	A. Definition (An Oral Interchange between Teacher and Students or Student and Students)
	B. Purposes
	1. To facilitate student integration of knowledge already learned
	2. To analyze concepts and find relationships
	3. To problem-solve and apply knowledge
	4. To foster critical thinking
	5. To develop or modify attitudes and to set standards
	6. To strengthen group relationships
	C. Characteristics
	1. Both teacher and student are active participants.
	2. Rate of transfer of knowledge is slow.
	3. Immediate feedback is available.
	4. Flexible since discussion can be highly structured or nonstructured.
	5. Peer learning can take place.
	6. It promotes group cohesiveness.
	7. It provides emotional outlets.

OBJECTIVES	CONTENT
	8. Its effectiveness is based on participants having necessary knowledge and appropriate direction.
	9. It is limited to small groups.
3.2 Describe the appropriate criteria for selecting the discussion method	D. Application of Criteria for Selecting Discussion Method
	1. Are higher-level cognitive objectives, in which basic concepts are applied in analysis of problems, sought?
	2. Is discussion method suitable to learners' abilities?
	3. Is discussion method adaptable to teacher's personality and style?
	4. Is ratio of teacher input to student learning acceptable?
3.3 Demonstrate the ability to prepare a plan for use of the discussion method	E. Preparation for a Discussion
	1. Identify purpose of discussion.
	2. Decide how much direction is needed and set up agenda.
	3. Provide participants with knowledge necessary for effective participation.
	4. Decide on optimal size for groups.
	5. Consider forms such as panel discussions.
	6. Give rationale for composition of groups.
	7. Be prepared with comprehensive knowledge of the topic.

OBJECTIVES	CONTENT
3.4 Identify the elements of group interaction	F. Elements of Group Interaction 1. Role-playing 2. Conflict and hostility 3. Consensus-sharing 4. Group cohesiveness and group achievement 5. Problem-solving strategies
3.5 Demonstrate the ability to lead a discussion group	G. Microteaching 1. Definition (laboratory exercises for practicing component skills of discussion leadership) 2. One laboratory preparation of discussion 3. Sequence a. Establish a frame of reference (identify purpose and review pertinent information necessary for discussion). b. Start discussion with questions and comments or a problem. c. Lead discussion and keep it within the stated agenda. d. Mediate and set standards. e. Reinforce participation. f. Summarize, giving results of discussion.
4.0 Use the demonstration method in the instructional program	IV. Demonstration Method A. Definition (A Carefully Planned Presentation in Which the Student Is Shown a Practical Procedure or Process as Procedure is Explained)

OBJECTIVES	CONTENT
4.1 List the purposes and characteristics of the demonstration method	B. Purposes 1. To illustrate a principle or concept by concrete means 2. To demonstrate a procedure or task for skill learning C. Characteristics 1. Students can observe what they are being told; a procedure is more readily understood if it can be both described and seen. 2. It provides students with an efficient, step-by-step approach on which to base their practice. 3. Creates and maintains student interest. 4. It involves several senses. 5. It is limited to several examples. 6. It can be harmful if it is not simple and easy to follow.
4.2 Describe the appropriate criteria for selecting the demonstration method	D. Application of Criteria for Selecting Demonstration Method 1. Is a psychomotor skill sought? 2. Is demonstration method suitable to learners' abilities? 3. Is demonstration method adaptable to teacher's personality and style? 4. Is ratio of teacher input to student learning acceptable?

OBJECTIVES	CONTENT
4.3 Demonstrate the ability to prepare a plan for conducting a skill demonstration	E. Preparation of a Demonstration 1. Identify objective of the demonstration. 2. Work through the step-by-step procedures comprising the skill. 3. Work through each component of skill. 4. Make sure key points are emphasized. 5. Have all necessary materials and equipment available and in good working order.
4.4 Demonstrate the ability to conduct a skill demonstration	F. Microteaching 1. Definition (laboratory sessions for practicing demonstrations) 2. One laboratory preparation of a skill demonstration, using videotaping 3. Sequence a. Establish a frame of reference and spell out objectives b. Be sure demonstration is visible to all students c. Demonstrate the skill in its entirety d. Provide a running description of what is being done e. Emphasize key point in step-by-step narrative f. Demonstrate each component part g. Allow students to verbalize what they saw h. Re-demonstrate the entire skill
5.0 Discuss the use of the laboratory method in the instructional program	V. Laboratory Method A. Definition (First-hand Experience Acquired through Use of Actual or Simulated Data and Materials)

OBJECTIVES	CONTENT
5.1 List the purposes and characteristics of the laboratory method	B. Purposes 1. To allow students to use actual or simulated experiences in solving real problems or in practicing skills 2. To facilitate application of theory to practice 3. To facilitate integration of problem-solving skills with skill performance goals C. Characteristics 1. Students actively participate. 2. It arouses motivation and interest. 3. Learning can take place in a situation as realistic as possible. 4. It can be relevant to learners' needs. 5. It is more time-consuming than other methods. 6. Students must have the necessary psychomotor abilities before they can practice. 7. It provides for immediate feedback. 8. Motor skill practice, as well as reinforcement of knowledge, occurs.
5.2 Describe the appropriate criteria for selecting the laboratory method	D. Application of Criteria for Selecting Laboratory Method 1. Is laboratory method suitable to objectives? 2. Is laboratory method suitable to learners' abilities?

OBJECTIVES	CONTENT
5.3 Demonstrate the ability to prepare a plan for conducting a laboratory-based experience	3. Is laboratory method adaptable to teacher's personality and style? 4. Is efficiency ratio of teacher input to student learning acceptable? E. Preparation of a Laboratory Experience 1. Prepare task analysis of the desired behavior 2. Determine objectives. 3. Determine necessary prerequisite knowledge and skills necessary for laboratory; assess students. 4. Prepare laboratory agenda for students. 5. Identify and have available necessary materials and equipment. 6. Prepare student guide questions. 7. Determine assessment procedure.
6.0 Discuss the use of the independent study method in the instructional program	VI. Independent Study Method A. Definition (Guided Self-Learning) B. Examples 1. Slidetapes 2. Programmed learning instruction 3. Computer-assisted instruction

OBJECTIVES	CONTENT
6.1 List the purposes and characteristics of the independent study	C. Purposes 1. To learn in situations where a formalized program is either unavailable or infeasible 2. To develop habits and skills of independent learning 3. To provide flexibility for individualizing teaching in accordance with student needs D. Characteristics 1. Students are active and responsible for learning. 2. Students are allowed to progress at their own rates. 3. It is customized to meet individual student needs. 4. Students must have motivation, ability, and opportunity to study. 5. The teacher acts as a resource guide. 6. It can be more time-consuming than more formal methods.
6.2 Describe the appropriate criteria for selecting the independent study method	E. Application of Criteria for Selecting Independent Study Method 1. Are lower cognitive and problem-solving skills sought? 2. Is independent study method suitable to learners' abilities? 3. Is independent study method adaptable to teacher's personality and style? 4. Is ratio of teacher input to student learning acceptable?

OBJECTIVES	CONTENT
6.3 Demonstrate the ability to prepare a plan for setting up an independent study project	F. Preparation of an Independent Study 1. Help student to: a. Identify objectives. b. Identify available resources. c. Develop a methodology for achieving objectives. d. Set up a periodic advisement schedule. e. Establish a reporting procedure. f. Establish an evaluation procedure. 2. Assess results of the independent project.

D. SUGGESTED ACTIVITIES

1. Plan a unit of instruction for a specific allied health course:

   a. Define specific competency-based objectives
   b. Define content for the unit
   c. Identify specific methods of instruction
   d. Identify student activities
   e. Develop a bibliography for the unit
   f. Identify length of unit

2. Create at least two one-h[redacted]n plans for the above unit:

   a. Define specific subcompetency-based objectives
   b. Define specific content
   c. Identify specific method of instruction
   d. Identify student activities
   e. Identify references

3. In a microteaching laboratory, present three 10-minute laboratory presentations, demonstrating mastery of the identified microteaching skills.

4. In a microteaching laboratory, present one 10-minute laboratory presentation, demonstrating mastery of the skills needed to lead a group discussion.

5. In a microteaching laboratory, demonstrate one psychomotor skill.

E. REQUIRED READINGS

Allen, Dwight, et al. Microteaching Skills (pamphlets). Washington, D.C.: General Learning Corporation, 1969.

Banathy, Bela. Instructional Systems. Belmont, Cal.: Fearon Publishers, 1968.

Cohen, Arthur. Objectives for College Courses. Beverly Hills, Cal. Glencoe Press, 1970.

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Allen, Dwight, and Ryan, Kevin. Microteaching. New York: Addison-Wesley Publishing Company, 1969.

Describes the concept of breaking teaching down into component parts and then provides the reader with detailed descriptions of how to develop a training program that uses microteaching.

Allen, Dwight, et al. Microteaching Skills (pamphlets). Washington, D.C.: General Learning Corporation, 1969.

A series of pamphlets with accompanying trigger films to be used as structured laboratory experiences. The pamphlets provide an in-depth analysis of each microteaching skill, a discussion of relevant learning theories, and suggested training and evaluation protocols.

Banathy, Bela. Instructional Systems. Belmont, Cal.: Fearon Publishers, 1968.

A concise and logical presentation of the merits of employing the systems approach to instruction. Suggestions for basic design and implementation of the systems approach are included.

Cohen, Arthur. Objectives for College Courses. Beverly Hills, Cal.: Glencoe Press, 1970.

A good introduction to written objectives for college courses. This presentation includes a useful discussion of the rationale for employing objectives at the college level.

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Miller, George E., et al. Teaching and Learning in Medical School. Cambridge, Mass.: Harvard University Press, 1972.

Postlethwait, S., et al. The Audio-tutorial Approach to Learning. Minneapolis: Burgess Publishing Company, 1972.

Postman, Neil, and Weingartner, Charles. Teaching as a Subversive Activity. New York: Dell Publishing Co., Delta Books, 1969.

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Roueche, John E. and Pitman, John. A Modest Proposal: Students Can Learn. San Francisco: Jossey-Bass, 1972.

Skinner, B. F. The Technology of Teaching. New York: Appleton-Century-Crofts, 1968.

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Pertinent Professional Journals

Allied Health Trends

American Education

Educational Technology

Improving College and University Teaching

Journal of Medical Education

Journal of Teacher Education

Junior College Journal

Phi Delta Kappan

Professional journals for allied health professions

USE OF INSTRUCTIONAL MEDIA

A. OVERVIEW

Current theories of learning and instruction take into account the potential of instructional media presentations in the teaching-learning process. Increasing enrollments, a shortage of adequate clinical facilities, new kinds of students to be served, and the very nature of the subject matter of the sundry allied health disciplines also motivate use of the newer approaches to instruction.

This module focuses on participants' understanding the decision-making considerations involved in selection of appropriate instructional media packages, becoming familiar with the media resources available, and producing functional media packages suitable for classroom use.

Prerequisite Modules: Systematic Approach to the Teaching-Learning Process
Communication System

B. COMPETENCY-BASED OBJECTIVES

Upon completion of this module, participants will be able to:

1.0 Discuss the concept of learning through use of media presentations
2.0 Identify and discuss the common types of instructional media presentations
3.0 Identify the major resources available for securing media presentations
4.0 Define the criteria for selection of an appropriate medium
5.0 Demonstrate efficient operation of the major types of media equipment used in the daily instructional process
6.0 List the elements of a production planning model and demonstrate the ability to prepare a production plan
7.0 Demonstrate the ability to produce selected media packages

C. SUBCOMPETENCY-BASED OBJECTIVES AND CONTENT

OBJECTIVES	CONTENT
1.0 Discuss the concept of learning through use of media presentations	I. Introduction to Instructional Media Presentations A. Definition (Instructional Resources in Which Course Content Has Been Represented by a Mechanical or Electrical Means in a Predetermined Sequence that Can Be Repeated To Bring About a Desired Change in Behavior) B. Concept of Hardware and Software
1.1 Discuss the major uses of instructional media presentations	C. Main Uses of Media Presentations 1. Supplement to primary presentation 2. Primary means of instruction
1.2 Discuss the theory that has been developed from research on various types of media presentations	D. General Theory on Types of Media Presentations 1. 16mm and 8mm teaching films can increase learner acquisition of information and skills. 2. Well-planned graphic materials--including charts, diagrams, graphs, pictures, etc.--promote greater conceptualization and understanding than that usually gained through verbal narration. 3. Carefully selected audio materials have been found to significantly help students achieve learning goals. 4. Systematic classroom use of instructional television can significantly increase learning. 5. Carefully planned projected still images--including slides and filmstrips--have been found to significantly increase learning, particularly when accompanied by verbal narration.

OBJECTIVES	CONTENT
	6. Programmed instruction, when experienced by students compatible with the demands of the process, has produced significant and accelerated learning outcomes.
	7. Individualized learning modules can be devised which permit learners to proceed at their own pace and to learn significantly more information through self-tutorial involvement than they would learn if they were bound to keep the pace of large-group instruction.
1.3 Identify the general learning concepts and principles that are relevant to the use of media presentations	E. General Learning Tenets Important to Media Presentations
	1. Motivation of the learner
	a. Uniqueness of learner considered b. Perception as foundation of learning
	2. Concept of relevancy in learning
	3. Organizational factors
	4. Participation and practice by the learner
	5. Repetition and variation of stimuli and strategies
	6. Appropriateness of presentation rate
	7. Clarity, relevance, effectiveness of medium
	a. Media use for repetition b. Media use for clarification of messages
	8. Teaching for transfer
	a. Learning and behavior change b. Media and creative learning

OBJECTIVES	CONTENT
	9. Prompt reporting of results a. Use of teaching machines for immediate reinforcement b. Principles from field of behaviorism
2.0 Identify and discuss the common types of instructional-media presentations	II. Common Types of Instructional Media Presentations
2.1 Discuss still-projection presentations as a medium	A. Still-Projection Presentations 1. Types a. Overhead transparencies b. Slides and filmstrips 2. Research on still pictures a. Still pictures stimulate student interest. b. Properly selected and adapted, pictures help readers understand and remember the content of accompanying rental materials. c. Simple line drawings can be more effective as information transmitters than either shaded drawings or realistic drawings; fully realistic pictures flood the viewer with visual information and are thus less effective as learning stimuli than simplied pictures or drawings. d. Color in pictures may pose a problem. i. Color in pictures may not enhance teaching and learning. ii. If used, color should be realistic, not just random decoration. iii. If what is taught involves color concepts, pictures in realistic color are preferred.

e. When concepts involve motion, a single still picture is likely to be less effective than a motion-picture film of the same action, but a sequence of still pictures might reduce flooding by too rapid a flow of live action.
f. Verbal and/or symbolic cueing of still pictures through use of arrows or other marks can clarify the message.

3. Selection of still projection

a. Generally not suitable if motion concepts are required
b. Suitable where step-by-step developments according to a fixed logical progression need to be presented
c. Suitable where visual ideas must be communicated
d. Suitable if brief written cues are needed to organize learning

i. Statements of objectives
ii. Recap of important points made during lecture

4. Overhead transparencies

a. Uses

i. To project words, pictures, diagrams, flow charts
ii. As substitute for a blackboard

b. Advantages

i. Allow teacher to face class
ii. Present information in systematic step-by-step sequences
iii. Are highly flexible
iv. Are always under the control of the instructor
v. Are suited for planned repetition and review
vi. Require only limited planning

vii. Can be prepared by a variety of inexpensive methods
viii. Provides more stimuli than a blackboard in terms of color, images, pictures
ix. Are particularly useful with large groups

c. Disadvantages

i. Requires special equipment, facilities, and skills for more advanced preparation methods
ii. Are unsuited to long narrative visuals

5. Slides and filmstrips

a. Uses

i. To illustrate and develop concepts through use of concrete pictures presented sequentially
ii. To tell a story
iii. To illustrate something that cannot be brought into classroom

b. Advantages

i. Are inexpensive to make and use
ii. Can be paced to suit learner
iii. Result in colorful, realistic reproductions of original subjects
iv. Are easily revised and updated
v. Are easily handled and stored
vi. Utilize any 35mm camera
vii. Can be combined with narrative tape for greater effectiveness

c. Disadvantages

i. Require some skill in photography
ii. Require special equipment for close-up photography and copying
iii. Can get out of sequence if handled improperly

OBJECTIVES	CONTENT
2.2 Discuss audiotape presentations as a type of medium	B. Audiotape Presentations 1. Types of audiotapes a. Reel-to-reel b. Cassette 2. Research on audiotape presentations a. It has been found that audiotape presentations by themselves can be effective as a means of learning. b. Audio-cueing is important in conjunction with visuals. Some verbalization is better than none, although no optimum amount has been identified. c. A visual message is often ambiguous and subject to personal interpretation; the use of words is often essential for clarification. 3. Uses a. To store and retrieve information b. Alone as a supplement or with other media as the prime means of instruction 4. Advantages a. Are easy to prepare with regular tape recorders b. Require easy-to-use equipment c. Are inexpensive d. Can store speeches or lecture for use at a later date e. Can be used to provide verbal narration in conjunction with other media 5. Disadvantages a. May be overused b. Provide only one stimulus for learning

OBJECTIVES	CONTENT
2.3 Discuss motion films as medium	C. Motion Films 1. Types a. 16mm film b. 8mm film c. Videotape 2. Research on motion films a. Films may be used as the sole means of teaching certain factual materials or performance skills. b. Built-in viewer-participation activities and planned repetition of key points seem to produce greater learning. c. Learning may be increased by providing a verbal introduction to the film and by stating the purpose of the film and the importance of the showing. Learning can also be increased by repeated showings of the film, as well as by pretesting and posttesting. d. One showing of film that demonstrates a complex skill is unlikely to be sufficient. Repeat showings are recommended especially if students can practice the skill on the spot and refer repeatedly to the film. e. Notes should not be taken during the film. f. Motion in films appears to improve the types of learning that involve speed, action, and reaction; changing viewpoints; and progressive changes. 3. Uses a. To introduce and illustrate a concept b. To illustrate procedures and activities that involve motion c. To provide an overview of a subject

OBJECTIVES	CONTENT
	4. Advantages a. Incorporate sound and picture in one package; can facilitate total learner involvement b. Can be used as a supplement or can play a primary role in instruction c. Are useful with individuals, as well as groups of all sizes d. Ensure a smooth flowing presentation of subject e. Can be recorded for playback when guest lecturers and experts are unavailable f. Allow students and teachers to view themselves and critique their own performances g. Can be low in cost and easy to use in cartridge form (e.g., Super-8 films)
	5. Disadvantages a. Can be expensive to prepare in terms of time, equipment, materials, and services b. Require careful planning and skill in production c. Are shown at a set pace, and no time for student questions d. May quickly become obsolete in content
2.4 Discuss programmed learning as a medium	D. Programmed Learning 1. Types a. Printed text b. Computer format 2. Research on programmed learning a. Research does not show that programmed learning teaches more quickly than teachers, but students can successfully use it.

163

b. Programmed learning, because of its small sequential steps, reduces student errors during the learning process.
c. A learning program tends to level the differences in learning capacities among students.
d. Individual learning time for completion of a learning program may vary considerably since students work at their own speeds.
e. Predicting individual student success may be harder with programmed learning, because slow learners may perform better on programmed material than would have been anticipated.
f. Programmed learning may increase the student's motivation to learn because it can provide immediate knowledge of success.

3. Uses

a. Programmed learning usually works best with lower cognitive learning objectives for acquiring cognitive knowledge of procedures.
b. Computer-assisted instruction is particularly appropriate for game simulation and problem-solving approaches to learning.
c. Programmed learning is best used in conjunction with other methods of instruction (e.g., other audio-tutorial instructional packages, classroom presentations, etc.)

4. Advantages

a. Can save the learner time
b. Can save the teacher time
c. Allows material to be presented to each student in small steps
d. Allows for orderly presentation of material
e. Reduces student errors during the learning process
f. Allows students to actively respond to material

g. Facilitates immediate feedback
h. Allows the student to proceed at own rate of speed
i. Allows student to evaluate own learning
j. Allows instructor to gauge learning progress
k. Can allow for updating more easily than printed pages (e.g., computer-assisted instruction)
l. Keeps answers hidden until the student chooses an answer; prevent cheating
m. Can store large amounts of information efficiently

5. Disadvantages

a. Some programs, especially those organized linearly, tend to be dull.
b. Learning programs take a great deal of teacher time to plan and implement. They are also time-consuming to field-test.
c. The ethical concern of dehumanizing the learning process may need to be considered.
d. Computer-assisted instruction is very costly; at least initially.
e. Computer-assisted instruction requires skilled computer technicians to develop programs and operate equipment.
f. Computer time for instruction may be hard to get if institutional computers are overtaxed.
g. Students may have a difficult time adapting to programmed learning if they are used to learning in other ways.

3.0 Identify the major resources available for securing media presentations

III. Available Resources for Media Presentations

A. Examples of Federal Sources

1. National Medical Audio-visual Center
National Library of Medicine
NMAC Annex
2111 Plaster Bridge Road, NE
Atlanta, Georgia 30324

2. Central Office Film Library
Veterans Administration
Vermont Avenue and H Street, NW
Washington, D.C. 20025

3. Medical Film Library
U.S. Naval Medical School
National Naval Medical Center
Rockville Pike
Bethesda, Maryland 20014

B. Examples of State Sources

1. Office of Public Health Education
New York State Department of Health
84 Holland Avenue
Albany, New York 12208

2. Educational Recordings Library
State University of New York
99 Washington Street
Albany, New York 12201

C. Examples of Professional Associations

1. American Hospital Association Film Library
44 East 23rd Street
New York, New York 10010

2. American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

3. ANA-NLN Film Library
National League for Nursing
10 Columbus Circle
New York, New York 10019

OBJECTIVES	CONTENT

D. Examples of National Associations

1. American Cancer Society
   219 East 42nd Street
   New York, New York 10017

2. National Headquarters
   American National Red Cross
   18th and D Streets, NW
   Washington, D.C. 20006

E. Examples of Educational Associations

1. Audio-Visual Center, Indiana University
   Bloomington, Indiana 47401

2. Audio Visual Center, Film Library
   University of Kentucky
   Reynolds Bldg.
   Lexington, Ky. 40506

3. Film Distribution Supervisor
   Division of Motion Pictures
   Ohio State University
   1885 Neil Avenue
   Columbus, Ohio 43210

F. Examples of Commerical Organizations

1. Eastman Kodak Film Library
   343 State Street
   Rochester, New York 14608

2. Text Film Division
   McGraw-Hill Book Company
   330 West 42nd Street
   New York, New York 10036

OBJECTIVES	CONTENT
4.0 Define the criteria for selection of an appropriate medium	3. Trainex Corporation P.O. Box 16 Garden Grove, California 92642 IV. Criteria for Selection of an Appropriate Medium A. Medium Should Be Appropriate to Instructional Objectives 1. Cognitive objectives 2. Psychomotor objectives 3. Affective objectives B. Medium Should Be in Accord with Learning Theory 1. Should present a stimulus (basic knowledge) 2. Should direct the learner's attention 3. Should provide a model of expected performance 4. Should furnish external prompting 5. Should guide direction of learner's thinking 6. Should induce learning transfer 7. Should assess learning outcomes 8. Should provide feedback C. Medium Should Be Adapted to the Capacity of the Learner 1. Should be adapted to learning levels of students 2. Should be adapted to prior background of students

OBJECTIVES	CONTENT
	D. Instructional Materials Should Be Stimulating
	1. Should utilize a number of stimuli for learning
	2. Should not be boring
	3. Should involve the learner actively through tests and general responses
	E. Medium Should Be Instructionally Efficient and Effective
	1. Should organize material into cogent learning sequences
	2. Should be evaluated to determine whether objectives of the presentations are met
	3. Should utilize the format established for the medium
5.0 Demonstrate effective operation of the major types of media equipment used in the daily instructional process	V. Operation of Equipment
	A. 35 mm Slide Projector
	B. 16mm Motion-picture Projector
	C. 8mm Motion-picture Projector
	D. Filmstrip Projector
	E. Tape Recorder
	F. Videotape Recorder
	G. Overhead Projector
	H. 35mm Camera
	I. 8 mm Camera
	J. 8mm Single-loop Projector

OBJECTIVES	CONTENT
6.0 List the elements of a production planning model and demonstrate the ability to prepare a production plan	VI. Planning Model--Selection, Production, and Use of Instructional Media Presentations A. Assess Entering Behavior of Learners B. Define Instructional Objectives C. Identify Types of Objectives Selected 1. Cognitive objectives 2. Psychomotor objectives 3. Affective objectives D. Develop Content from Objectives E. Determine Possible Channels of Communication Based on Identified Objectives and Content F. Assemble a List of Media that Might Satisfy the Requirements for E 1. Use criteria for selection of appropriate medium (refer to IV). 2. Delete any media that will not adequately achieve objectives and convey content material. 3. Delete any media that are unlikely to suit your target students. G. Search for a Media Presentation Appropriate to Objectives and Content that is Available through Other Resources (Refer to III); If No Appropriate Media Presentation is Available, Determine Whether Producing Your Own Media Package is Feasible.

169

OBJECTIVES	CONTENT

H. Procedures for Obtaining Media Presentations

1. If an appropriate media presentation is available for sale or rent,

   a. Obtain a review of it.
   b. Preview it to determine if the presentation is appropriate for student learning.
   c. Present it to class.

      i. Clearly state the objectives.
      ii. Allow for a playback either in class or on an independent basis.
      iii. Evaluate the effectiveness of the media presentation by assessing student learning.

2. If producing own instructional media presentation becomes necessary,

   a. Estimate cost and plan a production schedule.
   b. Plan the media presentation.

      i. Outline it on storyboards.
      ii. Be sure objectives are specifically stated and can be achieved through the media presentation.
      iii. Develop script.

         a. Be brief.
         b. Write simply.
         c. Don't be too technical.
         d. Revise as often as necessary.
         e. Make sure script has an opening, a body, and a conclusion.

OBJECTIVES	CONTENT
	iv. Determine graphics needed. v. Plan for and obtain sets and props. vi. If using a studio, determine lighting, space considerations, etc., that will affect the quality of the production.
	c. Produce the presentation after rehearsing it several times if possible. d. Present final product to learners. e. Evaluate the effectiveness of the media presentation. i. Allow learners to respond regarding its effectiveness. ii. Evaluate the effectiveness of the media presentation by assessing student learning.
	f. If necessary, revise the presentation media.
7.0 Demonstrate the ability to produce selected media packages	VII. Production of Media Packages
7.1 Demonstrate the ability to make a variety of types of overhead transparencies	A. Overhead Transparencies 1. Planning and preparation

OBJECTIVES	CONTENT
	a. Determine objectives and content that should be illustrated--concepts, statistics, charts, etc. b. Prepare or obtain transparencies. i. Handmade, hand sketched--using self-adhesive letters and symbols ii. Thermofax--infrared process, copying from an original with carbon base either sketch or from printed materials iii. Diazo--using ultraviolet light and ammonia vapor iv. Picture/light process--with ink from the original transferred to the acetate 2. Operation of overhead projector 3. Considerations in producing transparencies a. Keep transparencies clear and simple. b. Make sure content details are accurate. c. Determine whatever overlays should be utilized. d. Decide if and how color should be used. e. Make lettering large enough to be read (1/4 inch to 3/8 inch is minimum size).
7.2 Demonstrate the ability to make a slidetape presentation	B. Slidetape Presentations 1. Planning and preparation a. Follow planning model presented in VI b. Prepare slidetape i. Prepare storyboard visuals and if audio is to be used, plan rough script. ii. Take photographs for slides after careful planning. iii. Prepare script by following identified objectives and content; be brief and specific iv. Narrate script and synchronize slides with tape.

OBJECTIVES	CONTENT
	2. Operation of equipment a. 35mm camera b. Slide projector c. Tape recorder (with synchronization capability) 3. Considerations in producing slidetapes a. Keep slides simple (one idea, one picture); each slide should add to the student's knowledge of the subject. b. Avoid clutter; remove unnecessary elements without destroying the main idea. c. Duplicate important slides before they get lost or damaged. d. Do not let personal familiarity with the subject matter cause presentation to be cut short; if this happens students will have insufficient background. e. Make titles short enough to be read in the time they will be shown. f. The narration should clearly introduce the objectives near the beginning and summarize them near the end. g. Be sure to repeat important points. h. Provide for learner involvement through use of a pretest, posttest, and student responses.
7.3 Demonstrate the ability to develop a videotape presentation	C. Videotape Presentations 1. Planning and Preparation a. Follow planning protocol. b. Prepare videotape presentation. i. With storyboards carefully plan visuals and script. ii. Plan carefully for sets, props, lighting, graphics, camera positions. iii. Rehearse production several times to remove flaws and to ascertain whether presentation achieves objectives.

OBJECTIVES	CONTENT
	2. Operation of equipment a. Video camera b. Recorder, monitor i. Insert electromagnetic tape. ii. Make proper connections between camera, monitor, and recorder. 3. Considerations in producing videotapes a. State objectives clearly; repeat important points. b. Involve learners through a pretest, posttest, and responses such as actually trying a procedure while watching it on videotape. c. Maintain a ratio of 3:4 (height:width) in all graphics. d. Be concerned about the length of the presentation; a long one can be boring. e. Be creative; try to vary visual stimuli in order to keep student interest.

D. SUGGESTED ACTIVITIES

1. In a media laboratory, interact with a small group to plan and produce:

   a. A 5-10 minute 35mm slidetape presentation
   b. A 5-10 minute videotape presentation

   The above productions should relate to cognitive, psychomotor, or affective areas of knowledge in the allied health fields or in the teaching of these disciplines.

2. For the above productions, work with your group to present a rationale for its use and selection of the medium. The presentation should include:

   a. A statement of the teaching situation in which the production is to be used
   b. Identification of specific competency-based objectives achieved in the production
   c. Discussion of the specific content covered in the production
   d. Identification of the possible types of media that might be used to produce a presentation covering the competency-based objectives and subject matter
   e. Justify the medium that was selected and identify the advantages and disadvantages of its use

3. In the media laboratory, develop overhead transparencies related to an allied health discipline and appropriate for classroom use. This assignment should include preparation of

   a. At least three overhead transparencies with various overlay formats
   b. At least two Thermofax transparencies

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EVALUATION OF CLASSROOM LEARNING

A. OVERVIEW

Evaluation of classroom learning is a continuous process, enjoyed by faculty members as well as students. Effective evaluation leads to improvement in teaching, learning and ultimately the entire curriculum. Classroom evaluation is concerned with assessing the behavioral changes in students as a result of the instructional sequence.

This module is designed for allied health practitioners who are concerned with classroom evaluation. It focuses on the philosophy of evaluation, a conceptual framework for planning evaluation, and analysis of the process of evaluation. This module explores components of classroom evaluation such as construction of appropriate assessment instruments based on an analysis of identified competencies, analysis of various types of classroom instruments including computer-scored teacher-made tests, basic statistical concepts necessary to interpret teacher-made tests, and the development of a rationale for traditional and nontraditional forms of grading.

Prerequisite Modules: Systematic Approach to the Teaching-Learning Process
Evaluation System

B. COMPETENCY-BASED OBJECTIVES

Upon the conclusion of this module, participants will be able to:

1.0 Discuss the role of evaluation in the instructional process

2.0 Define the types of objective test items

3.0 Define the types of subjective test items

4.0 Describe the components of a good assessment instrument

5.0 Discuss the value of item analysis and conduct an item analysis

6.0 Describe the assessment planning process and plan a test, using the process

7.0 Describe ways in which raw scores can be ordered for ease of inspection and presentation

8.0 Discuss the philosophy and approaches to reporting data

9.0 Discuss the implications for altering the teaching-learning process by using assessment procedures

C. SUBCOMPETENCY-BASED OBJECTIVES AND CONTENT

OBJECTIVES	CONTENT
1.0 Discuss the role of evaluation in the instructional process	1. Introduction to the Evaluation System
	A. Components of the System
	1. Valuation
	2. Assessment
	3. Implementation
1.1 List the purposes of classroom evaluation	B. Purposes of Classroom Evaluation
	1. To pinpoint student strengths and weaknesses
	2. To improve the teaching-learning process
	3. To motivate students
	4. To provide students with psychological security
	5. To help improve teacher effectiveness
	6. To ensure credibility with outside agencies and organizations
	7. To provide a basis for reporting student progress
1.2 Distinguish between measurement, assessment, and evaluation	C. Differences between Measurement, Assessment, and Evaluation
	1. Measurement is the process used to identify the quantified representative of a trait. For example, a test score is a measurement.
	2. Assessment is the process used to collect and analyze the data.
	3. Evaluation is the process used to analyze data in order to alter the system.

OBJECTIVES	CONTENT
1.3 Describe the entering-behavior concepts useful for planning and evaluating instruction	D. Definition of Entering Behavior (Describes the Current Status of the Student's Knowledge and Skill in Reference to a Planned Future Status) E. Four Concepts Related to Entering Behavior 1. Readiness refers to prerequisite performances. 2. Maturation refers to biological growth. 3. Individual differences The measured IQ is an important segment of individual differences. However, if the teacher knows a class contains students of varying ability, he/she may opt for different teaching methodologies. a. Example from Stolurow (1964)

Program I	Results
Fractions ordered consecutively so students could anticipate which fractions would come next	Little reported differences in scores between low- and high-ability groups.

Program II	Results
Fractions presented in scrambled sequences	Large differences between groups. High-ability group scored markedly better than the low-ability group.

OBJECTIVES	CONTENT
	i. The easier program did for the low-ability group what students in the high-ability group could do for themselves. ii. Efficient instruction for students of low mental ability will produce achievement that has 0.0 correlation with intelligence. Personality a. A wide range of personality structures have been proposed: i. Freudian (behavior is explained in terms of conscious and unconscious processes with occasional conflicts among id, superego, ego) ii. Rogerian (behavior is determined by self-concept; the individual does not respond to the objective environment, but to how he/she perceives the environment; thus, behavior is organized to preserve self-concept) iii. Trait psychology (personality and thus behavior is determined by a number of traits, i.e., relatedness/aloofness, flexibility/rigidity, independence/dependence)
2.0 Define the types of objective test items	II. Types of Objective Test Items A. Definition of Objective Test Item (One That Can Be Scored in Such a Way That Judgment for All Practical Purposes is Eliminated When the Correctness of a Student's Response is Evaluated) B. Types 1. Supply-type items a. Short-answer b. Completion

OBJECTIVES	CONTENT
	2. Selection-type items a. True-false b. Multipe-choice c. Matching
2.1 Define and construct short-answer and completion items and guidelines for writing them	C. Short-Answer and Completion Items 1. Guidelines for writing short-answer and completion items a. Provide one correct answer that is short and definite. b. Avoid removing statements verbatim from textbooks. c. Avoid changing the statement until its meaning is all but lost. d. Place blanks near the end of statement, not near the beginning. e. Always indicate the units in which answer is to be expressed. 2. Advantages and disadvantages a. Minimize the likelihood of correct guessing b. Are relatively easy to construct c. Are difficult to score d. Often demand only recall of information
2.2 Define and construct true-false items and guidelines for writing them	D. True-False Items 1. Guidelines for writing true-false items a. Write statements that are true or false without qualification. b. Avoid using specific determiners. c. Keep items relatively short and restricted to one idea. d. Be sure the percentage of true or false items is not constant from test to test.

OBJECTIVES	CONTENT
	2. Advantages and disadvantages a. Test a large amount of content in a small amount of time b. Are quick to score c. Often test relatively unimportant pieces of information d. Encourage guessing e. Are often ambiguous
2.3. Define and construct multiple-choice items and guidelines for writing them	E. Multiple-Choice Items 1. Components and types of items a. Components: stem, distractor or foil, correct answer b. Types: negative, multiple-response, incomplete-response, combined-response 2. Guidelines for writing multiple-choice items a. Select plausible distractors. b. Vary number of available options (at least three but not more than five to increase readability). c. Be sure length is not related to tendency to be correct. d. Put as much information as possible in the stem. e. Be grammatically consistent. f. Minimize use of negative expressions. 3. Advantages and disadvantages a. Are versatile b. Can test recall and complex problem solving c. Are quickly and easily scored d. Are difficult to construct

OBJECTIVES	CONTENT
2.4 Define and construct matching items and guidelines for writing them	F. Matching Items 1. Guidelines for writing matching items a. Make lists as homogeneous as possible. b. Write clear directions. c. Arrange premises of responses in logical order. d. Keep responses short. 2. Advantages and disadvantages a. Much factual information can be tested in short time. b. Good items are difficult to construct.
3.0 Define the types of subjective test items	III. Types of Subjective Test Items A. Definition of Subjective Test Items (A Subjective Test Is One Which Demands a Response or Pattern of Responses Such That the Accuracy and Quality Can Be Judged Only By a Person Skilled and Informed in the Subject) B. Types 1. Essay items 2. Oral-exam items 3. Take-home items 4. Case-studies items 5. Laboratory-report items
3.1 Define and construct essay items and guidelines for writing them	C. Essay Items 1. Types a. Extended-response b. Restricted-response

OBJECTIVES	CONTENT
187 4.0 Describe the components of a good assessment instrument 4.1 Describe validity	2. Guidelines for using essay items a. Adapt item to fit background of student. b. Allow student enough time to answer. c. Score all papers anonymously. d. Score test items one at a time. e. Score content independently of writing style and grammar. f. Prepare a scoring key. 3. Advantages and disadvantages a. Can measure both knowledge and complex achievement b. Can measure ability to organize response c. Eliminates guessing d. Items are relatively easy to construct e. Scoring is difficult, time consuming and unreliable IV. Components of a Good Assessment Instrument A. Validity (Instrument Measures What It's Supposed To Measure) 1. Content validity a. The most basic kind of test validity, its purpose is to be representative of the material on which the test is based. b. It is obtained by sampling from the material taught and determined by the adequacy of the sampling. 2. Criterion-related validity a. Its purpose is to determine the degree of the relationship existing between test performance and other kinds of student performance either now or in the future. b. It is obtained by correlating these two measures.

OBJECTIVES	CONTENT
4.2 Describe reliability	3. Construct validity a. Like criterion-related validity, it usually involves a correlation between test scores and values of another variable; however, the outside variable is really not a criterion, even though it is a variable which should logically relate to the test. For example, a correlation could be calculated to measure the relationship between a personality inventory and a clinical performance measure. b. It usually gauges the psychological meaningfulness of the test. B. Reliability (Measures Consistently) 1. Stability reliability (a correlation coefficient is determined by giving the same test to the same students at two different times; however, for obvious practical reasons, it is not useful for most classroom tests) 2. Equivalence reliability (a correlation coefficient is determined by preparing equivalent forms of the test) 3. Internal-consistency reliability a. Spearman-Brown (or split-half, odd, even) coefficient. Divide the test into two equal halves, usually odd numbers vs. even numbers; score each half separately; then correlate the scores. b. Kuder-Richardson coefficient. Estimates a reliability coefficient from the item analysis data. 4. Ways of improving reliability a. Increase length of test by addition of more items. b. Replace items which are either too hard or too easy (i.e., replace items which have either high or low item difficulty). c. Replace items that have negative item discrimination (i.e., items that discriminate in favor of the lower 50 percent of the class).

OBJECTIVES	CONTENT
	d. Increase the number of alternatives or options for each test item. e. Write more complete and clear test directions.
4.3 Discuss practicality	C. Practicality 1. Is easy to administer 2. Has clear directions 3. Is easy to score 4. Is low in cost 5. Is objective
4.4 Discuss interpretability	D. Interpretability (Allows for Interpretation of Raw Scores)
4.5 Write adequate test directions	E. Availability of Adequate Test Directions, Including: 1. The number of items or questions composing the test 2. The number of pages making up the test booklet 3. The amount of time in the testing period 4. A statement relating how the test will be scored 5. A statement explaining how the student is to indicate his/her answer. 6. A statement indicating the arrangement of the questions on the answer sheet 7. A statement telling the student to inspect the test before beginning it

OBJECTIVES	CONTENT
5.0 Discuss the value of item analysis and conduct an item analysis	V. Improvement of Item Reliability: Item Analysis A. Index of Discriminating Power 1. The discriminating power of a test item is its ability to differentiate between the students who have achieved well (the upper 50 percent) and those who have achieved poorly (the lower 50 percent). 2. The most common method used to compute this index is called the internal-consistency method. 3. The larger the positive value, the better the discriminating power. 4. Values between 0.0 and +.15 suggest that the discriminating power of the item is questionable. 5. A good test item should have an index of at least +.15. B. Index of Item Difficulty (The Percentage of Students Who Answer Each Test Item Correctly)
6.0 Describe the assessment planning process and plan a test using the process	VI. Planning the Assessment Process A. Analysis of Significant Components of Teaching-Learning Process 1. Identified objectives 2. Content 3. Type of student B. Criteria for Selection of Appropriate Test Items 1. Identified objectives 2. Content 3. Type of student

OBJECTIVES	CONTENT
	C. Advantages of Developing a Test Blueprint 1. Measures specific behavioral changes 2. Produces tests superior to casually unsystematically produced tests 3. Assists in a continuing construction of classroom achievement tests 4. Provides a more realistic view of the testing situation (the teacher is more aware of what the test scores do and do not reveal) D. Designing a Test E. Administrative Considerations 1. Cost 2. Time 3. Personnel
7.0 Describe ways in which raw scores can be ordered for ease of inspection and presentation 7.11 Describe types of frequency distribution	VII. Analyzing Assessment A. Frequency Distributions 1. Types of distributions a. Simple frequency distribution i. An arrangement of scores so that the number of times a score appears is counted (i.e., frequency). ii. By inspection, it allows the teacher to see the range of scores.

iii. Provides a rough average level of performance.
iv. Always has interval width of 1.

b. Grouped frequency distribution

i. An arrangement of scores so that the number of times a range of scores appears is counted.
ii. Sacrifices some accuracy for convenience and summarizes a large number of scores.
iii. Always has interval width greater than 1.

c. Cumulative frequency distribution

i. Any frequency distribution (simple or grouped) can be easily converted to a cumulative frequency distribution by adding an additional column at the right hand of the frequency column.
ii. Cumulative frequency simply provides a cumulative count for the numbers in the frequency column.
iii. Beginning at the bottom of the "f" column, add. The final number should equal the total N. (Note: this also provides a check that all scores have been included ONLY once.)

2. Percentage column

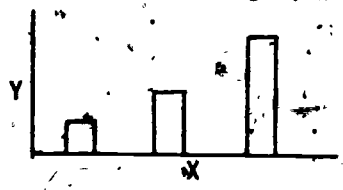
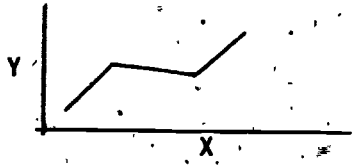
$$\frac{f}{N} \times 100 = \%$$

f = frequency (or times a score appears)
N = total number of scores

3. Cumulative percentage column

$$\frac{cf}{N} \times 100 = C\%$$

cf = cumulative frequency
N = total number of scores
C% = cumulative percent.

OBJECTIVES	CONTENT
	4. Histograms and Polygons (Pictorial Representations of a Frequency Distribution).
	a. Both show the relationship between scores and frequency of those scores; therefore, scores and frequency each become a scale on an axis of the graph.
	b. Histogram (bar graph)  i. y = frequency of each score ii. x = actual scores
	c. Frequency polygon (line graph)  i. y = frequency of each score ii. x = actual scores
	iii. It allows two or more distributions to be compared on the same graph.
	iv. Since the data have been grouped, the midpoint of each interval is used to plot the scores on the axis.
	v. As in iv, the frequency of the interval is plotted on the y axis.
7.11 Describe and compute measures of central tendency	5. Central tendency (measures that indicate central point of a distribution)
	a. Mode (the score in a set of scores that occurs most frequently; it is the most easily obtained measure of central tendency)

i. In the set of scores (22, 63, 63, 80, 90, 90, 90, 100), the mode is 90 because it occurs more often than any other score. (Note: The mode is the most frequent score [90], not the frequency of that score [3] in this example.)

ii. Once data have been arranged in a frequency distribution, the mode can be determined at a glance.

iii. A distribution may have more than one mode (e.g., if two scores appear with equal frequency, the distribution is said to be bimodal); not every score affects the mode.

b. Median (The point on the score scale that has 50 percent of the scores below it and 50 percent above it)

i. In the set of scores (4, 7, 7, 8, 10, 14 and 17), the median is 8 since there are three scores below 8 and three above 8.

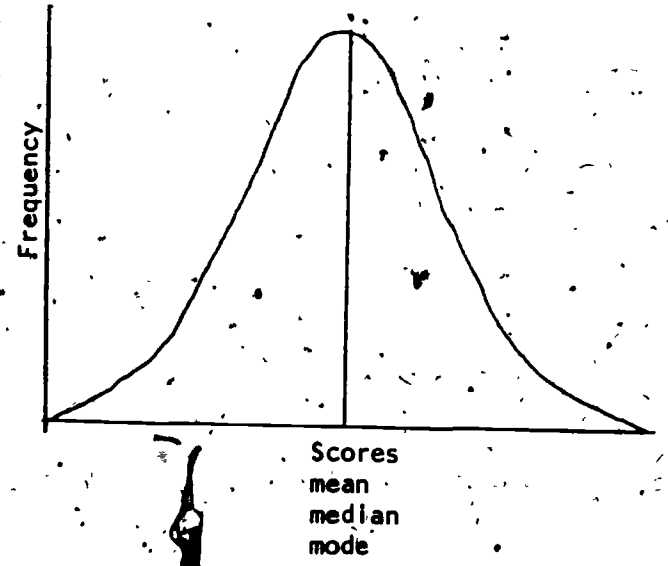
ii. The median is a kind of average based on the criterion of having an equal number of scores below it and above it.

c. Mean (The arithmetic average, or the score found by summing all scores and dividing by the number of scores summed)

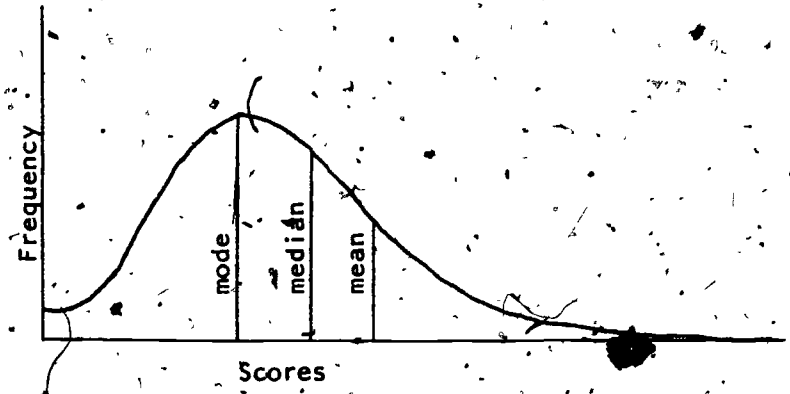
i. In the set of scores (4, 9, 10, 8, 9), the mean is:

$$\bar{X} = \frac{EX}{N} = \frac{(4+9+10+8+9)}{5} = \frac{40}{5} = 8.0$$

$\bar{X}$ = the mean
E = the sum of
X = the raw score
N = total number of scores or events

OBJECTIVES	CONTENT
7.12 Describe graphical representation of scores	ii. A ~~score that is a considerable~~ distance from the mean (i.e., an ~~extreme~~ score) has a considerable effect on the mean value. iii. The mean is affected by <u>every</u> score in the distribution. If a score is added to a distribution of scores and the score is greater than the mean, the mean will increase. Conversely, if a score is added to a distribution of scores and the score is less than the mean, the mean will decrease. 6. Graphical representation of scores a. Normal curve  i. It is symmetrical, with 50 percent of the scores in each half of the curve, ii. It is unimodal. iii. Most of the scores cluster in the middle of the curve.

b. Positively skewed curve



i. When a set of scores is positively skewed, the mode, median, and mean will no longer be equal.

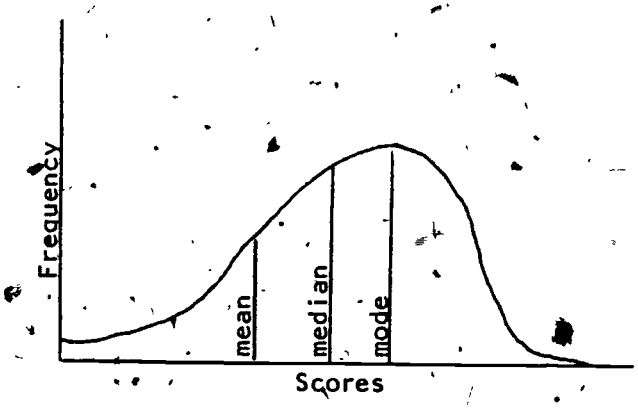
ii. In almost any unimodal, positively skewed distribution, we find the above relationship.

- The mode is on the left. (Note: With the lowest score value but as its definition dictates, the highest frequency value.)

- The median is in the middle. (Note: Remember its definition.)

- The mean is on the right, with the highest numerical scores. (Note: A little thought will tell you why. In a positively skewed distribution, the hump is on the left; therefore, the mode must be a [illegible] value. The tail, with its extreme values, is on the right. Consequently, the mean, which is affected by every score, is pulled to the right by the extreme scores and is a high value.)

c. Negatively skewed curve



i. Again, if a set of scores are negatively skewed, the mode, median, and mean are no longer equal.

ii. In almost any unimodal negatively skewed curve, we find the above relationship.

(a) The mode is on the right, with the highest score value.

(b) The median again is in the middle. (Note: Remember its definition.)

(c) The mean is pulled to the left, with the lowest numerical scores, because it is affected by the extreme scores. (Note: For both curves (negatively and positively skewed) the three measures of central tendency are found in alphabetical order starting from the tail.)

OBJECTIVES	CONTENT
7.13 Define criteria for selecting the appropriate measures of central tendency	d. The relationship between the mean and median in skewed curves is clear enough that some writers recommend calculating indices of skewness based on the differences between their values: mean - median = skewness i. If the mean is greater than the median, the index is positive, indicating positive skewness: mean = 15 median = 12 15 - 12 = +3 ii. If the median is greater than the mean, the index is negative, indicating negative skewness: mean = 12 median = 15 12 - 15 = -3 e. Bimodal curves i. The bimodal curve has 2 scores which appear with equal frequency 7. Criteria for selecting the appropriate measure of central tendency a. The mode is preferred only if the distribution is multimodal and a multivalued index is satisfactory. The mode is the most convenient to use because it can be determined by mere inspection. b. The median is preferred if interest is centered on typical rather than total score and if the distribution is skewed. It is least affected by extreme score values. For a skewed distribution, the median is a better description for average group performance. The median is also useful if some scores are missing and it is impossible to compute the mean.

OBJECTIVES	CONTENT
	c. The mean is preferred if the distribution is approximately symmetrical and interest is centered on total rather than typical score. It is the most widely used measure of central tendency. It is extremely important because it is used to compute other statistics.
7.2 Describe types of variability measures	B. Variability (Measures Dispersion) 1. Types of variability measures a. Range b. Variance c. Standard deviation
7.21 Define and compute range	2. Range (highest score minus the lowest score) a. In the set of score (22, 63, 63, 80, and 100), the range is: 100 - 22 = 78 b. The major limitation of the range is that since it is based on only two scores, it fails to reflect the scores between the extremes.
7.22 Define and compute variance	3. Variance (average amount of dispersion of scores from a center of distribution) a. The variance is a special kind of mean, the mean of the squared deviations from the mean of the distribution. Or, in nonmathematical terms, the variance is an average of the amount of spreadoutness of the scores from the center of the distribution.

200

7.23 Define and compute standard deviation

b. To compute the variance, connect each observation or score to a squared deviation from the mean, sum these values, and divide by the total number of observations:

$$s = \frac{E(X-\bar{X})^2}{n}$$

s = the variance

E = sum of

X = raw score

$\bar{X}$ = mean

N = number of scores

Score	Score - Mean	(Score-Mean)^2
1	1 - 3 = -2	4
1	1 - 3 = -2	4
3	3 - 3 = 0	0
5	5 - 3 = +2	4
5	5 - 3 = +2	4
15		16

$N = 5 \quad \bar{X} = \frac{EX}{N} = \frac{15}{5} = 3.0 \quad s = \frac{E(X-\bar{X})^2}{N} = \frac{16}{5} = 3.2$

4. Standard deviation (positive square root of the variance)

a. Standard deviation: The standard deviation is the positive square root of the variance. It can also be defined as an average of the amount of spreadoutness of the scores from the center of the distribution.

b. Computing the standard deviation requires one step beyond computation for the variance. Once the variance has been computed, its positive square root is the standard deviation.

OBJECTIVES	CONTENT

$$\sigma = \frac{E(X-\bar{X})^2}{N}$$

σ = standard deviation
E = the sum of
X = the raw score
$\bar{X}$ = the mean
N = number of scores
$\sqrt{}$ = square root

Using the problem in 3b, the standard deviation is equal to:

$$\sqrt{\frac{E(X-\bar{X})^2}{N}} = \sqrt{\frac{16}{5}} = \sqrt{3.2} = 1.79$$

c. The standard deviation is preferred to the variance as a descriptive tool because it is expressed in original raw score units in contrast to the variance, which is expressed in squared units.

5. Criteria for selecting appropriate measures of variability

a. The range is preferred only if there is a need for a fast, easy measure of variability since it is easy to compute.
b. The variance is expressed in squared score units and is of little use at the level of descriptive statistics. It is primarily important in statistical inference.
c. The standard deviation is the preferred measure of variability for descriptive statistics. It is responsive to the exact position of each score in the distribution.

201

7.24 Define criteria for selecting appropriate measures of variability

OBJECTIVES	CONTENT
7.3 Describe derived scores	C. Derived Scores (Raw Scores That Have Been Transformed To Facilitate Interpretation)
7.31 Define and compute percentile rank	1. Percentile rank (point in distribution at or below which a given percentage of frequencies occurs) a. Definition b. Uses and disadvantages c. Computation
7.32 Define and compute standard z-scores	2. Standard z-scores (method to convert raw scores into standard scores) a. Useful in the interpretation of teacher-made tests:

	Test 1	Test 2	Average
Tim			
Raw score	98	10	54
Maximum score	100	25	
Michele			
Raw score	84	24	54
Maximum score	100	25	

To average the raw scores and report that both Tim and Michele have the same average distorts the representation of their level of mastery. Therefore, it is best to convert to standard scores.

b. Computation of a z-score from a raw score

$$z = \frac{X-\bar{X}}{\sigma}$$

z = z-score

X = raw score

$\bar{X}$ = mean

σ = standard deviation

OBJECTIVES	CONTENT
	c. A z-score is the simplest form of a raw score. i. The z-score tells how many standard deviations the score is above and below the mean of the distribution. ii. It also tells the performance of the individual relative to the performance of other individuals in the same distribution. iii. The mean of a distribution of z-scores is always 0, and the standard deviation is always 1. iv. A z-score of 0 corresponds to a raw score that lies exactly at the mean. v. A negative z-score indicates that the raw score lies below the mean. vi. A positive z-score indicates that the raw score lies above the mean. vii. The greater the numerical value of a z-score, the farther the z-score lies from the mean.
7.4 Define and compare norm-referenced and criterion-referenced scores	D. Norm-Referenced and Criterion-Referenced Scores 1. Norm-referenced scores compare a student's performance level in relation to the performance levels of other students taking the same test. 2. Criterion-referenced scores compare a student's performance level to an established performance standard.
8.0 Discuss the philosophy and approaches to reporting data	VIII. Reporting Assessment Data
8.1 Describe uses of reporting data	A. Uses of Reporting Data 1. To motivate students 2. To guide teachers in directing and facilitating learning 3. To communicate to parents and administrators 4. To improve the teaching-learning process

OBJECTIVES	CONTENT
8.2 Describe differences in reporting data based on growth and achievement	B. Reporting Data Based on Growth and Achievement 1. Growth means change or gain. To interpret it adequately we must be able to measure the difference between the student's entering and exiting behavior. 2. Achievement is a measure of the students present status. Achievement is generally judged against standardized norms without the consideration of prior experiences or environment.
8.3 Describe types of grading practices	C. Grading 1. Types of grading practices a. Letter/number system b. Dual marking system for achievement and effort c. Checklist d. Oral or written narrative e. No grade f. Three-point letter system g. Pass/fail
8.31 Describe advantages and disadvantages of each practice	2. Advantages and disadvantages of each practice
8.32 Discuss the philosophical considerations of grading	3. Philosophical considerations of grading

OBJECTIVES	CONTENT
9.0 Discuss the implications for altering the teaching-learning process by using assessment procedures	IX. Improving the Teaching-Learning Process Through Analysis of the Assessment Procedures A. Redefining Entering Behavior B. Redefining Objectives C. Redefining Methods Utilized D. Redefining Assessment Procedures E. Improving Teaching Effectiveness

D. SUGGESTED ACTIVITIES

1. In a laboratory situation, develop a plan for an hour examination, stating the competencies of one course or course unit as follows:

   a. Give the general and specific competencies for the course or unit. The most detailed set of competencies should be in behavioral terms.

   b. Make a table of specifications, showing the relative weights to be given to the content areas and to the behaviors to be tested (see 2b).

   c. Make a second table of specifications after the items have been written, indicating the particular items (by number) that compose each cell.

   d. Frequently an item may involve more than one type of behavior, but classification is to be made only in terms of the primary behavior called for in the item.

2. In a laboratory situation, construct test items as follows:

   a. Construct a set of test items based on the table prepared. Quality of items is the essential goal, but approximately 30-40 items should be developed. Use ingenuity to develop a worthwhile measurement instrument.

   b. Any type of objective or subjective items may be used with the following restrictions:

      i. At least 50 percent of the items must test competencies other than simple acquisition of knowledge or information.

      ii. No more than 10 true-false, 10 matching, 10 short-answer, or 10 completion items may be used. (Note: The participant may use all multiple-choice items, but if he/she uses true-false, etc., then he/she must stay within the above limits.)

      iii. Correct answers are to be indicated for all items.

      iv. All items should be original and evidence the participant's creative ability.

3. In a laboratory situation, complete the statistical assignments dealing with analysis of the assessment data designated by the staff member.

4. Attend a field trip to a computer-assisted scoring center.

E. REQUIRED READINGS

Books

Gellman, Estelle . Descriptive Statistics for Teachers. New York: Harper & Row, Publishers, 1973.

Wick, John W. Educational Measurement. Columbus, Ohio: Charles E. Merrill Publishing Company, 1973.

Journal Articles

Ladas. Harold. "Grades: Standardizing the Unstandardized Standard." Phi Delta Kappan (November 1974), pp. 185-87.

Max, Marshall. "Student Response to Criticism." Phi Delta Kappan (March 1974), pp. 487-88.

Postman, Neil. "A D+ for Mr. Ladas." Phi Delta Kappan (November 1974), pp. 187-88.

Shields, Mary. "A Model for a Curriculum Goal." Nursing Outlook 20(December 1972):782-85.

F. SELECTED ANNOTATED BIBLIOGRAPHY

Ahmann, J. Stanley, and Glock, Marvin D. Evaluating Pupil Growth. Boston: Allyn & Bacon, 1971.

Comprehensive textbook on classroom evaluation. Topics include types of assessment instruments, manual item analysis, and standardized testing. Primarily written for secondary school teachers.

Armitage, P. Statistical Methods in Medical Research. New York: John Wiley and Sons, 1971.

For measurement specialists or advanced students interested in medical research. Its 17 chapters include discussions of statistical inference; planning of statistical investigations; analysis of variance, multiple regressions, and survivorship tables.

Games, P. A., and Klare, G. R. Elementary Statistics. New York: McGraw-Hill Book Company, 1967.

Provides a rigorous verbal, but not graphic, statement of the more important concepts in elementary statistics.

Koosis, Donald J. Statistics. New York: John Wiley and Sons, 1971.

A supplementary programmed instruction text for the student interested in performing specific mathematical calculations necessary for basic statistics.

Lindquist, E. F., ed. Educational Measurement. Washington, D.C.: American Council on Education, 1951.

Comprehensive textbook on measurement theory still widely used in spite of its publication date. Chapters are contributed by several authorities in the discipline.

Lyman, H. B. Test Scores and What They Mean. Englewood Cliffs, N.J.: Prentice-Hall, 1963.

Useful for teachers who have a limited background in tests and measurement. Topics include statistics, norms, and derived scores.

Tyler, Leona E. Tests and Measurements. Englewood Cliffs, N.J.: Prentice-Hall, 1963.

Primarily for teachers who need knowledge of basic measurement concepts in order to read test information. This book emphasizes necessary concepts for reading research literature.

Wallen, Norman E. Educational Research: A Guide to the Process. Belmont, Cal.: Wadsworth Publishing Company, 1974.

An unusual book prepared for introductory courses in educational research. The author provides a series of exercises that allow students to experience what doing research actually means. The book places little emphasis on statistics.

G. BIBLIOGRAPHY

Ahmann, J. Stanley, and Glock, Marvin D. Evaluating Pupil Growth. Boston: Allyn & Bacon, 1971.

American Council on Education. College Testing: A Guide to Practices and Programs. Washington, D.C.: American Council on Education, 1959.

Anderson, Scarja B.; Ball, Samuel; and Murphy, Richard T. Encyclopedia of Educational Evaluation. Washington, D.C.: Jossey-Bass, 1975.

Armitage, P. Statistical Methods in Medical Research. New York: John Wiley and Sons, 1971.

Bellack, Arno A., and Westbury, Ian, eds. Research into Classroom Processes: Recent Developments and Next Steps. New York: Teachers College Press, 1971.

Bloom, Benjamin S.; Hastings, J. Thomas; and Madaus, George F. Handbook on Formative and Summative Evaluation of Student Learning. New York: McGraw-Hill Book Company, 1971.

Bloom, Benjamin S., ed. Taxonomy of Educational Objectives, Handbook 1: The Cognitive Domain. New York: David McKay Company, 1956.

Brown, F. G. Principles of Educational and Psychological Testing. Hinsdale, Ill.: The Dryden Press, 1970.

Cohen, Arthur M. Objectives for College Courses. Beverly Hills, Cal.: Glencoe Press, 1970.

DeCecco, John P. The Psychology of Learning and Instruction: Educational Psychology. Englewood Cliffs, N.J.: Prentice-Hall, 1968.

Ebel, R. L. Measuring Educational Achievement. Englewood Cliffs, N.J.: Prentice-Hall, 1965.

Goldstein, Leo S., and Gotkin, Lassar G. Descriptive Statistics: A Programmed Textbook. New York: John Wiley and Sons, 1967.

Green, J. A. Teacher-Made Tests. New York: Harper & Row, Publishers, 1963.

Gronlund, N. E., ed. Readings in Measurement and Evaluation: Education and Psychology. New York: Macmillan Publishing Company, 1968.

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Lev, Joseph and Walker, Helen M. Elementary Statistical Methods. New York: Holt, Rinehart and Winston, 1958.

Lindquist, E. F., ed. Educational Measurement. Washington, D.C.: American Council on Education, 1951.

Lyman, H. B. Test Scores and What They Mean. Englewood Cliffs, N.J.: Prentice-Hall, 1963.

Mager, Robert F. Preparing Instructional Objectives. Palo Alto, Cal.: Fearon Publishers, 1962.

McMorris, Robert F., and Payne, David A. Educational and Psychological Measurement. Waltham, Mass.: Blaisdell Publishing Company, 1967.

Mehrens, W. A., and Ebel, R. L. eds. Principles of Educational and Psychological Measurement. Chicago: Rand McNally, 1967.

Payne, D. A. Educational and Psychological Measurement: Contributions to Theory and Practice. Waltham, Mass.: Blaisdell Publishing Company, 1967.

Payne, David A. The Specification and Measurement of Learning Outcomes. Waltham, Mass.: Blaisdell Publishing Company, 1968.

Popham, James W. Criterion-Referenced Instruction. Belmont, Cal.: Fearon Publishers, 1970.

Sanders, N. M. Classroom Questions: What Kinds? New York: Harper & Row, Publishers, 1966.

Stolurow, Lawrence M. "Social Impact of Programmed Instruction: Aptitudes and Abilities Revisited," Educational Technology, New York: Holt, Rinehart & Winston, Inc., 1964. pp. 348-55.

Thorndike, Robert L., and Hagan, Elizabeth. Measurement and Evaluation in Psychology and Education. 3rd ed. New York: John Wiley and Sons, 1969.

Tyler, Leona E. Tests and Measurements. Englewood Cliffs, N.J.: Prentice-Hall, 1963.

Wallen, Norman E. Educational Research: A Guide to the Process. Belmont, Cal.: Wadsworth Publishing Company, 1974.

Pertinent Professional Journals

American Educational Research Journal

Educational and Psychological Measurement

Journal of College Student Personnel

Journal of Educational Measurement

Journal of Educational Psychology

Journal of Educational Research

Review of Educational Research

CLINICAL EDUCATION AND EVALUATION

A. OVERVIEW

Although clinical education consumes a major portion of most allied health curricula, little information is available concerning the development and evaluation of clinical education.

Using a systematic approach and integrating both the teaching-learning process and the evaluation process, this module focuses on the decision-making actions involved in clinical education and evaluation.

Prerequisite Modules: Systematic Approach to the Teaching-Learning Process
Evaluation System

B. COMPETENCY-BASED OBJECTIVES

Upon completion of this module, participants will be able to:

1.0 Describe the systems involved in developing clinical education

2.0 Discuss the learning process

3.0 Describe methods of learning applied to clinical education

4.0 Describe the health care delivery system

5.0 Discuss the teaching process

6.0 Discuss assessment of student learning within a clinical practicum

7.0 Discuss the types of and frequency of reporting results of assessment to students

C. SUBCOMPETENCY-BASED OBJECTIVES AND CONTENT

OBJECTIVES	CONTENT
1.0 Describe the instructional system applied to clinical education	I. Instructional System Applied to Clinical Education A. Performance Objectives B. Entering Behavior C. Clinical Education D. Performance Assessment
2.0 Discuss the learning process	II. Learning Process A. Components of the Process 1. Stimulus 2. Perception 3. Response 4. Consequence
2.1 Define the variables influencing the learning process	B. Definition of Variables Influencing the Process 1. Mediation of perception (manipulation of how the learner perceives) 2. Readiness (emotional and physical preparedness) 3. Motivation (arousal to act) 4. Situation characteristics (external stimuli affecting the learner, such as the physical environment) 5. Reinforcement (either positive or negative influence to continue response)

OBJECTIVES	CONTENT
2.2 Identify principles of learning applied to clinical education.	6. Extinction (influence to decrease and finally cease responses) 7. Integration (continual response without reinforcement) C. Principles of Learning Applied to Clinical Education 1. Behavior that represents achievement or partial achievement of educational objective should be positively reinforced through communication between teacher and learner. 2. Introduction of cues that arouse motivation towards achievement of the objective increases the effectiveness with which the objective is achieved. Therefore, teacher should mediate the situation and communicate with learner to judge learner motivation and readiness. 3. Learning occurs at different rates with different learners. 4. Comprehensive learning before partial learning is most effective. 5. Learners learn more effectively if they make the responses to be learned rather than if they learn by observing someone else make the responses. 6. Practice in applying a principle to solution of a problem increases the probability of transfer to a new problem that requires the same principle for its solution.
3.0 Understand methods of learning applied to clinical education	D. Methods of Learning Applied to Clinical Education 1. Attitude learning a. Student perceives attitude through examples being modeled. b. Student accepts attitude as being something he/she wishes to demonstrate.

c. Student Demonstrates attitude in a nonthreatening situation, being reinforced by a significant other.

d. Student practices attitude over a period of time, with reinforcement.

e. Student integrates attitude into own personality.

2. Psychomotor learning

a. Teacher analyzes total skill.

b. Teacher describes and demonstrates total skill.

c. Teacher demonstrates each component.

d. Student demonstrates each component.

e. Student demonstrates entire skill.

f. Student practices entire skill.

3. Problem-solving learning

a. Student collects pertinent data and identifies problem.

b. Student categorizes data in terms of relevant theory.

c. Student gains insight into relatjonships between data and theory.

d. Student develops a plan of action.

e. Student implements the plan.

f. Student assesses the results of the plan.

g. Student alters the plan based on the assessment.

OBJECTIVES	CONTENT
4.0 Describe the health care delivery system	III. Health Care Delivery System
	A. Present System
4.1 Discuss the present health care system	1. Concept of health
	2. Problems inherent in the system
	3. Advantages of the present system
4.2 Discuss the changing health care delivery system	B. Changing Health Care Delivery System
	1. Changing health needs
	2. Attitudes toward health care
4.3 Discuss implications for clinical education	3. New Patterns for delivery
	4. Implications for clinical education
5.0 Discuss the teaching process	IV. Teaching Process
	A. Components of the Process
	1. Performance objectives
	2. Entering behavior
	3. Methods and media
	4. Performance Assessment
5.1 Discuss the components of entering behavior	B. Components of Entering Behavior
	1. General readiness
	a. Psychological b. Physical

OBJECTIVES	CONTENT
	c. General aptitudes, such as ability to read and write and to classify knowledge
	2. Background in theory
	a. General education b. Related discipline coursework c. Discipline coursework
	3. Background in clinical work
	a. Communication skills b. Motor skills c. Problem-solving skills
5.2 Discuss the three classifications of learning objectives	C. Classification of Learning Objectives
	1. Cognitive objectives
	a. Knowledge (recall of specifics) b. Comprehension (use of specifics) c. Application (use of concrete situations) d. Analysis (identification of concept relationships) e. Synthesis (assembling parts into whole) f. Evaluation (judgment and alteration)
	2. Psychomotor objectives
	a. Communication < oral (speaking) nonoral (writing, body language) b. Motor
	3. Affective objectives
	a. Attitudes b. Feelings and appreciations c. Interests

OBJECTIVES	CONTENT
5.3 Identify specific types of objectives appropriate for clinical education	D. Specific Objectives Appropriate for Clinical Education 1. Problem-solving objectives 2. Communication objectives 3. Motor skill objectives 4. Attitudinal objectives
5.4 Describe a method for conducting clinical education	V. Method for Conducting Clinical Education A. Planning Stage for Clinical Learning Experience
5.41 Identify the steps in the planning stage	1. Orient personnel of facility to clinical program. 2. Gain familiarity with clinical facility. 3. Identify specific objectives for the learning experience and specific competencies students must be able to demonstrate at end of experience. 4. Identify appropriate types of learning experiences. 5. Review the entering behaviors of each student.
5.42 List guidelines for selection of clinical learning experiences	B. Guidelines for Selection of Clinical Learning Experiences 1. Make sure learning experiences are consistent with identified objectives. 2. Provide student with the opportunity to practice the type of competency described in the planning stage. 3. Select those experiences that give students satisfaction in carrying out the tasks.

OBJECTIVES	CONTENT
	4. Provide experiences that students can reasonably try out that remain a challenge.
	5. Realize that one experience may fill several objectives and that several different experiences can fulfill the same objective.
	6. Arrange for continuity of learning (reiterate major elements).
	7. Provide for sequencing of learning, building one experience on another.
	8. Provide for integration of learning, interlinking theory and practice, as well as discrete areas of theoretical knowledge.
5.43 Discuss the actual selection of learning experiences	C. Actual Selection of Learning Experiences
	1. Review objectives and expected competencies.
	2. Identify specific experiences that will allow fulfillment of the competencies.
	3. Match the specific experiences with individual students.
5.44 Discuss how to prepare a student for the clinical experience	D. Preparation of Student for the Clinical Experience
	1. Review objectives.
	2. Identify appropriate data for problem area.
	3. Review the theoretical component necessary for understanding the problem.
	4. Facilitate the student's interrelating of the data.
	5. Facilitate the student's development of an appropriate plan of action.

OBJECTIVES	CONTENT
5.45 Discuss the role of the instructor during implementation of the plan	E. Actual Implementation of the Plan 1. Decide on the appropriate amount and type of supervision. 2. Establish a facilitative nonthreatening environment. 3. Facilitate the student's transfer and integration of theory with practice. 4. Help to prevent student's mistakes. 5. Assist student in implementing his/her plan.
5.46 Discuss the postclinical review conducted with the student	F. Postclinical Review with Student 1. Facilitate the student's review of results 2. Help the student assess results in terms of the projected outcomes. 3. Guide the student in altering his/her plan based on the assessment.
5.47 Discuss the utilization of clinical faculty	G. Use of Clinical Faculty 1. Qualifications of clinical faculty 2. Role of clinical faculty in education and evaluation 3. Relationship between clinical faculty and academic faculty 4. Selection of clinical sites
5.48 Discuss the development of clinical contracts	H. Development of Clinical Contracts

OBJECTIVES	CONTENT
6.0 Discuss assessment of student learning within a clinical practicum	VI. Assessment Method
	A. Assessment of Student Learning
6.1 Discuss reasons for assessment	1. Reasons for assessment a. To help improve the program b. To help improve the teaching c. To facilitate improvement of the teaching-learning process d. To help pinpoint student strengths and weaknesses e. To provide feedback and motivation to the student f. To provide student with psychological security of knowing where he/she is in the process g. To provide creditibility for professional accreditation and eligibility for registration and/or licensure
6.2 Describe general characteristics of data gathering	2. General characteristics of data gathering a. Objectivity vs. subjectivity of collector of data b. Validity of the data c. Reliability of the data d. Practicability in collecting data; time, cost, ease
6.3 Discuss and construct various assessment instruments used in clinical education	3. Assessment instruments used in clinical education
6.31 Discuss and construct a grid for data gathering	a. Grid i. Definition ii. Uses iii. Advantages and disadvantages iv. Administration

OBJECTIVES	CONTENT
6.32 Discuss paper-and-pencil pretests as a preliminary activity to clinical practicum	b. Paper-and-pencil pretest i. Definition ii. Uses iii Construction of test iv. Administration v. Use of results
6.33 Discuss and construct an interview questionnaire to assess problem-solving abilities	c. Interview questionnaire i. Uses ii. Construction of questionnaire (open versus closed) iii. Administration
6.34 Discuss and construct a rating scale for gathering data on student behavior	d. Rating scale i. Uses ii. Construction of scale iii. Advantages and disadvantages iv. Hazards of use v. Originator of data
6.35 Discuss and construct a checklist for gathering data on student behavior	e. Checklist i. Uses ii. Construction of checklist iii. Advantages and disadvantages iv. Cautions in use v. Originator of data
6.36 Discuss and construct an anecdotal record for gathering data on student behavior	f. Anecdotal record i. Uses ii. Construction of record iii. Advantages and disadvantages iv. Originator of data

OBJECTIVES	CONTENT
6.37 Discuss the use of standardized attitudinal tests for gathering data on attitudes of students	g. Standardized attitudinal test i. Types ii. Uses iii. Advantages and disadvantages
6.4 Discuss administrative considerations for assessment of student learning	4. Administrative considerations a. Individuals who can provide data on student b. Frequency of assessment c. Uses for assessment d. Considerations for alterating teaching-learning process
7.0 Discuss the types of and frequency of reporting results of assessment to students	B. Reporting Results of Assessment to Students 1. Types of reports a. Oral reports b. Written reports 2. Types of grading a. Narrative b. Pass fail grading c. Letter grading d. Absolute versus relative standards for grading 3. Frequency of reports

D. SUGGESTED ACTIVITIES

1. In a laboratory situation, analyze general competency-based objectives for a clinical course then develop appropriate subcompetency objectives (cognitive, psychomotor, and affective).

2. In a laboratory situation, identify suggested learning situations that would allow students to acquire the identified subcompetency objectives.

3. In a laboratory situation, practice constructing a grid, interview, questionnaire, checklist, anecdotal record, and rating scale.

4. Plan a clinical unit of instruction as follows:

   a. Define specific competency-based objectives
   b. Identify content for the unit
   c. Identify suggested learning experiences
   d. Construct appropriate assessment instruments
   e. Define rationale for reporting and grading

E. REQUIRED READINGS

Chuan, Helen. "Evaluation by Interview." Nursing Outlook 20(1972):726.

Shields, Mary. "A Model for a Curriculum Goal." Nursing Outlook 20(1972):782.

F. SELECTED ANNOTATED BIBLIOGRAPHY

Chuan, Helen. "Evaluation by Interview." Nursing Outlook 20(1972):726.

A valuable resource that provides guidelines for the clinical conferences included among the recommended assessment instruments for this module.

Heidgerken, Loretta E. Teaching and Learning in Schools of Nursing: Principles and Methods. Philadelphia: J.B. Lippincott Co., 1965.

Despite its rather early publication date, an excellent source for examples of various kinds of assessment procedures.

Mager, Robert F. Preparing Instructional Objectives. Palo Alto, California: Fearon Publishers, 1962.

The clearest and most complete introduction to writing objectives. A programmed text format liberally sprinkled with humor assures that the reader masters the content and enjoys the task.

Moore, Margaret; Parker, Mabel; and Nourse, E. Shepley. Form and Function of Written Agreements in the Clinical Education of Health Professionals. Thorofare, New Jersey: Charles B. Slack, Inc., 1972.

Analyzes the problem areas in developing clinical contracts so the user can anticipate difficulties and resolve problems. The book also contains useful examples of the suggested content for clinical agreements.

Shields, Mary. "A Model for a Curriculum Goal." Nursing Outlook 20(1972):782.

Provides the reader with a three-dimensional model that may be used for analyzing clinical objectives, sequencing of instruction, and sequencing of activities to achieve higher-level goals.

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Bloom, B. S., and Krathwohl, D. R., eds. Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: The Cognitive Domain. New York: David McKay Company, 1956.

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Furst, Edward. Constructing Evaluation Instruments. New York: David McKay Company, 1958.

Gold, Harold, et al. "Peer Review-A Working Experment." Nursing Outlook 21(1973):635-36.

Heidgerken, Loretta E. Teaching and Learning in Schools of Nursing: Principles and Methods. Philadelphia: J.B. Lippincott Company, 1965.

Johnson, Dale, and White, Mary. "Reliability and Validity of Subjective Evaluation of Baccalaureate Program Nursing Students." Nursing Research 22(1973):3.

Kelly, Ruth. "Evaluation is More than Measurement." American Journal of Nursing 73(1973):114.

Kern, B. P., et al. "The Development and Use of an Evaluation Instrument for Clinical Education." Physical Therapy 51(1971):541.

Litwack, Laurence, et al. Counseling, Evaluation, and Student Evaluation. Philadelphia: Saunders Publishers, 1972, Chapter 10, p.14.

Mager, Robert F. Preparing Instructional Objectives. Palo Alto, Cal.: Fearon Publishers, 1962.

McIntyre, Hattie, et al. "A Simulated Clinical Nursing Test." Nursing Research 21(1972):429.

Miller, George, et al. Teaching and Learning in Medical Schools. Cambridge, Mass.: Harvard University Press, 1962.

Moore, Margaret; Parker, Mabel; and Nourse, E. Shepley. Form and Function of Written Agreements in the Clinical Education of Health Professionals. Thorofare, N.J.: Charles B. Slack, 1972.

Nehring, Virginia, and Geach, Barbara. "Patients' Evaluation of Their Care." Nursing Outlook 21(1973):317-21.

Osborn, William. "Framework for Performance Testing." Training 11 (May 1974):28.

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APPENDIX A

Bibliographic Report

This bibliographic report was developed as a preliminary step in the development of the curriculum guide. It is divided into two major sections. The first provides a general introduction to the literature on allied health teacher preparation, college teacher preparation, and continuing and inservice education, as well as a description of the research methodology followed in compilation of this bibliography. The second section includes a selected annotated bibliography on each of these subjects.

Preliminary considerations prior to establishing the priorities for the literature search indicated a task of unusual complexity. Despite evidence of considerable national interest in teacher preparation for the allied health fields, the relevant literature appeared to be both limited and not readily evident. However, a systematic search of the literature on the combined topics of medicine and education retrievable through MEDLARS (Medical Literature Analysis and Retrieval System) and ERIC (Educational Resources Information Centers), revealed the most significant references.

THE LITERATURE ON ALLIED HEALTH TEACHER PREPARATION

The search uncovered a limited body of literature dealing specifically with teacher preparation for the allied health fields. Only recently has emphasis been placed on establishing centers for allied health teacher preparation. Leadership in this activitiy has come from the W. K. Kellogg Foundation. In the first section of the annotated bibliography are listed the most significant contributions to the literature on this subject.

Canfield and others (1973) present a modest but useful list of competencies for allied health educators. Hamburg, Mase, and Perry (1974) review the philosophies of some of the most prominent allied health educators and suggest types of educators needed to meet the challenges of allied health education. McTernan and Hawkins (1972) offer a compendium of articles that provides insight into the administrative complexities of allied health education a topic germane to anyone concerned with the preparation of allied health educators. In a report on a national conference, the National Academy for the Sciences (1972) sketches the dimensions of the need for specifically trained allied health educators. Similarly, the World Health Organization (1973) makes qualitative and quantitative recommendations about the preparation of allied health educators.

The inescapable conclusion from a review of this portion of the literature is the obvious need to develop specific guidelines for the preparation of allied health educators which can be used by institutions interested in developing teacher preparation programs. Holloway's (1970) report of a research project in teacher preparation for health occupations educators furnishes useful guidelines and references for short-term teacher preparation workshops.

THE LITERATURE ON COLLEGE TEACHER PREPARATION

An extensive literature exists on preparation of effective college teachers. One of the difficulties for someone who would like to draw on this resource is the lack of commentators who have been willing to pull together these diverse theories into a comprehensive model of teacher preparation. It is clear that those authors who have been most successful in this regard are those who have focused their attention on the preparation of two-year college teachers. This may be because there appears to be more consensus on the role of the two-year college teacher as opposed to his/her counterpart in the four-year institution. Because of the emphasis on teaching and service (with limited focus on research) i allied health teaching, the literature on community college teacher preparation was especially relevant.

A useful bibliography prepared by Ross (1972) reviews the major approached to community college teacher preparation. It is apparent from the literature that strong support has developed for the systems approach to the teaching-learning process. Two books of particular significance to the systems approach to instruction should be noted. Cohen and Brawer (1972) have provided one of the best critiques of the current status of community college teacher preparation. A Modest Proposal: Students Can Learn by Roueche and Pitman (1972) is a superior example of the development of an eclectic theory for applying the findings of recent research in learning theory to college teaching. The challenge remains to adopt some of the best of this research in college teaching to the improvement of allied health teacher preparation.

While the literature on college teaching is too broad to cover in a review of this nature, the sophisticated inquirer should be aware of the importance to continuously monitor the contemporary literature in college teacher preparation. Thus, anyone seriously concerned with the topic should regularly consult the following journals in his/her efforts to stay current: Change, Community and Junior College Journal, Research in Education (ERIC), and Review of Educational Research.

In addition to following the research literature on college teaching, it is important to assiduously read the professional journals of sundry allied health professions. Increasingly these journals have begun to report results of experimentation with different approaches to curriculum and teaching methodologies. A useful aid to staying current with this literature is the annual bibliographic report published by Ohio State University entitled Education in the Allied Health Professions.

THE LITERATURE ON CONTINUING AND INSERVICE EDUCATION

Most of the literature reviewed in this part of the search consisted of descriptive reports on limited programs developed by individual institutions. According to O'Banion (1972), the only real leadership in the field has been provided by the American Association of Community and Junior Colleges (AACJC) through its strong advocacy of development

of meaningful inservice programs. A report of the AACJC (1970) on its developing institutions program contributes a useful review of some of the more successful EPDA (Teacher Preparation Programs which have been sponsored by the Education Professions Development Act) programs sponsored in recent years.

Selected Annotated Bibliography
on
Allied Health Teacher Preparation

Canfield, Albert A., et. al. "Competencies for Allied Health Educators." Journal of Allied Health 20(1973):180-86.

The authors list 10 broad goals for teacher preparation programs in the allied health field and several specific competencies that must be attained by students in these programs.

Cooper, Signe. "Faculty Preparation for Continuing Nursing Education." Journal of Continuing Education in Nursing 3(May/June 1972):12-18.

The author notes that continuing education is necessary in nursing in order to keep practitioners informed of new developments in the field. Teachers of continuing nursing education need experience in the fields of nursing and adult education.

burg, J.; Mase, D.; and Perry J. Review of Allied Health Education. Lexington, Ky.: University of Kentucky Press, 1974.

This review is a collection of thoughtful and often insightful essays by prominent scholars from several allied health professions. The authors provide an interesting series of philosophical perspectives on the role of the allied health educator. The topics include dental education, clinical laboratory work, radiologic technology, the physician's assistant, and occupational therapy.

Holcomb, J. David, and Garner, Arthur E. Improving Teaching in Medical Schools:A Practical Handbook. Springfield, Ill.: Charles C. Thomas, 1973.

This book summarizes research on teaching methods, behavioral objectives, and evaluation of teaching and learning. It has a practical orientation and can be applied to the allied health fields.

Holloway, Lewis D., ed. Guidelines and Supportive Papers for Planning and Conducting Short-Term Teacher Education Activities. Iowa City, Iowa: University of Iowa, 1970.

This report of a work conducted for a U.S. Office of Education training institute for teacher educators contains a series of lesson outlines for six modular units, including designing learning programs, the educational process, and evaluation.

Lazerson, Alan M. "Training for Teaching: Psychiatry Residents as Teachers in an Evening College." Journal of Medical Education 47(1972):576-78.

The author notes that the community mental health movement occurs in professional, university, and community settings. He expresses the belief that content mastery alone is not a sufficient background for teaching. He describes his department's Training for Teaching Program, in which psychiatry students, in conjunction with the school of education, study education and gain teaching experience in the evening college.

Light, Israel, and Frey, Don C. "Dual Responsibility for Allied Health Manpower Training," Hospitals: Journal of the American Hospital Association 47(1973):85-90.

The authors suggest that colleges must provide theory and hospitals must provide practice in order to produce competent allied health personnel. Too often only a college degree is required to get a job. Hospitals should develop accurate statements of competencies needed for the various allied health positions to help make preparation more meaningful. Clearly written contracts between hospitals and colleges would help define the role of each of the cooperating institutions in allied health education. Joint committees on allied health education could help colleges and hospitals become more cooperative partners.

McTernan Edmund J., and Hawkins, Robert O. Educating Personnel for the Allied Health Professions and Services: Administrative Considerations. St. Louis: C.V. Mosby Company, 1972.

This excellent reference for allied health educators contains several chapters that deal with allied health as a functional concept that needs to be incorporated into teaching programs. While the book is not a how-to manual, it does contain a series of 22 articles on topics ranging from instructional technology to core curriculum. The articles offer guidelines for teaching in the allied health professions.

Posthuma, Allan B., and Barbara W. "Effect of Faculty Personality on Occupational Therapy Students." American Journal of Occupational Therapy 27(1973):480-83.

The authors examine and refute two related hypotheses through an experiment in a class of occupational therapy students. The refuted hypotheses are that students whose personality profiles are most like those of the faculty would get the best grades, and that students' personality profiles would change over time to become more like those of the faculty. The students least like the faculty were found to receive the best grades, and students became less like the faculty over time. The directions of student personality change indicated that the successful students, rather than the faculty members, were the model.

Scully, Rosemary M. Clinical Teaching of Physical Therapy Students. Dissertation, Columbia University, 1974.

The primary mission of clinical teachers is pacing students after diagnosing their readiness and selecting appropriate clinical problems.

Veldman, Donald J. Comprehensive Personnel Assessment System for Teacher Education Programs. Washington, D.C.: National Institute of Education, U.S. Department of Health, Education, and Welfare, 1973. Mimeo.

The author describes a system used in assessing students in a teacher education program. The system assumes no perfect model but attempts to treat each individual as unique so that the program can be tailored to maximize the potential of each individual. The assessments are viewed as information rather than as evaluation, and the results are made known to the student.

World Health Organization. The Training and Preparation of Teachers for Schools of Medicine and of Allied Health Services. Technical Report Series No. 521. Geneva: World Health Organization, 1973 (obtainable from the National Library of Medicine, Bethesda, Md. 20014).

This report expresses the views of an international group of experts regarding the needs, goals, and methods of teacher training programs in the allied health field. The report contains suggestions relating to the objectives and curricula of such programs. The World Health Organization's own teacher preparation program is discussed, and its continuation is recommended.

Selected Annotated Bibliography
on
College Teacher Preparation

Bitzer, Maryann D., and Boudreaux, Martha C. "Using a Computer To Teach Nursing." Nursing Forum 8(1973):234-54.

The authors describe a computer-based course in a nursing department. Since such a course is student-directed, the students become active learners rather than passive learners. Students paced themselves, used individualized approaches, and got immediate feedback. An experiment showed that students in this course mastered the cognitive material more than twice as quickly as students in the same course but taught by conventional methods. Computer-based education supplements, rather than replaces, the teacher. The teacher can gain more time for clinical instruction and individual guidance by using the computer to teach cognitive material.

Cohen, Arthur M., and Brawer, Florence B. Confronting Identity: The Community College Instructor. Englewood Cliffs, N.J.: Prentice-Hall, 1972.

The authors suggest that due to the rapid growth and multiple goals of community colleges, teachers in community colleges tend not to have clearly defined professional goals. They suggest that the most effective community college teachers generally use the behavioral objectives approach and utilize all available technology to promote student learning. Because the authors would like to see community college faculty members define their own roles and institutional identity in terms of student development, they include a model program for preparing community college teachers.

Cohen, Wallace F. "Knowing the Student and the College." Community and Junior College Journal 43(October 1972):17-18.

The author comments that community college faculty members must know not only their subject matter; they must also know how students learn, how to teach, and the goals of the institution. The best means to achieve these ends is through the development of preservice and inservice training programs.

DuBois, Eugene E. "Training and Nurture of Community College Personnel." Improving College and University Teaching 20(1972):112-17.

The author states that teachers in higher education generally have little formal preparation for teaching, that knowledge in a field is felt by most to be adequate preparation for teaching. Although some programs are designed to prepare people for community college teaching and administration, these programs are too small and too few in number. The author concludes that these programs generally are not innovative and do not meet the needs of community colleges. He states that the internship should be the most important part of such programs, but in most of the programs in which it is used it has little value. He sees the need for growth and great change in these programs.

Kumpf, Patrick C. An Analysis of the Needs for Community College Teacher Preparation. Dissertation, University of Cincinatti, 1974.

The author concludes that community college teachers should have a master's degree in their major disciplines, as well as electives in education and an internship. Those already employed should have access to inservice programs.

Reade, Harold C. The Preparation of Mississippi Public Junior College Teachers. Dissertation, University of Southern Mississippi, 1973.

The author found most of the faculty members he studied to have had little or no specific preparation for teaching in a junior college. Most faculty and administrators in the sample felt a need for such preparation.

Ross, Naomi V. Community College Teacher Preparation Programs in the United States: A Bibliography with Introductory Notes. University Park, Pa.: Center for the Study of High Education, Pennsylvania State University, 1972.

The introductory section of this annotated bibliography gives a general view of community college teacher preparation programs. In it the author suggests three categories into which such programs can be divided. The actual bibliography is classified under seven headings and cross-referenced.

Roueche, John E., and Pitman, John. A Modest Proposal: Students Can Learn. San Francisco: Jossey-Bass, 1972.

Selected Annotated Bibliography on Continuing and Inservice Education

American Association of Junior Colleges. Faculty Development in the Junior College: A Second Interim Report on the Program with Developing Institutions. Publication No. 710. Washington, D.C.: American Association of Junior Colleges, 1970.

This paper contains a discussion of the various programs involving community college teachers that were conducted with Education Professional Development Act money and coordinated by the American Association of Junior Colleges. It is an interesting look at a variety of inservice programs.

Anderson, LaVeta Ann. Effects of a Training Program for Teaching Assistants. Dissertation, University of Missouri at Columbia, 1974.

The author concludes that teaching assistants and other faculty members who participated in a teacher training program became more familiar with the writing of behavioral objectives and with the use of statistics in evaluation. Participants' attitudes toward the use of educational theory in teaching became more positive. Participants' subsequent classroom behavior included less lecturing and elicited more student response.

Keenan, Virginia R. "Orienting Staff to College Goals." Community and Junior College Journal 43(October 1972):16.

The author notes that community college faculty members have diverse preparatory backgrounds. As a result, few of them are fully aware of the goals of the community college, so faculty development is necessary.

LeCroy, R. Jan. "Training in the Multi-College District." Community and Junior College Journal 43 (October 1972):17.

The author suggests that while each campus in a multi-campus community college needs a different emphasis in its faculty development program, leadership and funding must come from the central administration.

O'Banion, Terry. "Staff Development Priorities for the Seventies." Community and Junior College Journal 43(October 1972):10-11.

The author advocates inservice staff development programs in the community colleges, as opposed to preservice programs and as opposed to sending staff to universities for inservice programs. Staff development is necessary because many two-year college faculty members have values opposed to the philosophy of community colleges and because many faculty members lack teaching skills. Inservice programs in nearly all states suffer from poor planning and poor financial backing, but the author suggests that Florida is an exception and should be used as an example.

Pelham, Peter D. "Training on a Junior College Campus." Community and Junior College Journal 43(October 1972):18.

The author suggests that graduate training in the disciplines does not adequately prepare community college teachers. The best preparation is teaching internships.

Perry, J., and Hawthorne M. Study of Allied Health Education. Washington, D.C.: American Association of Community and Junior Colleges, 1972.

This publication is a report on the national study of allied health education which considered the role of the community college in meeting health manpower needs in primary and ambulatory care. One of the most significant conclusions of the study calls for the establishment of a center for allied health information. The commission's recommendations include many suggestions with respect to continuing education, community involvement, and teacher competencies. An excellent bibliography is included.

Rose, Clare. "An In-Service Program for Teaching Assistants." Improving College and University Teaching 20(1972):100-102.

This article describes an experimental program for teaching assistants at U.C.L.A. Teaching Assistants met in classes to discuss teaching and learning, to study oral communication, and to study college level instruction. The course on instruction was competency based, and the eight general objectives of the course are listed. The course advocated a criterion referenced approach to instruction. One problem encountered was the lack of literature on college level instruction. The author suggests that most doctoral students become faculty members so teaching experience should be a part of most doctoral programs.

Simmons, Howard. "Priorities for Training Minority Staff." Community and Junior College Journal 43(October 1972):15-16.

The author suggests that since the pool of minority members qualified to join community college staffs is small, marginally qualified minority persons should be recruited and improved through internships.

Sims, David M., and Bounds, Glen I. "EDPA at a Community College." Community and Junior College Journal 43(October 1972):14-15.

The author describe the professional development program at their institution. The program includes support for research on teaching, faculty workshops, and participation in the area's Graduate Career Development Center for Community College Personnel.

Werner, Arnold, and Schneider, John M: "Teaching Medical Students Interactional Skills." New England Journal of Medicine 290(May 1974): 1,232-37.

The authors describe a course designed to teach medical students to interact with patients. The study of communication skills is a major part of the course. The students practice these skills in simulated interview settings. Instructors use uniform teaching methods, and student behavioral changes are measured.

APPENDIX B

Description of Field-Testing

In July 1975 field-testing of each of the modules contained in this resource guide was conducted. The various modules were combined into four one-week workshops. The dates and topics of these workshops were as follows:

Date	Title of Workshop	Number of Participants
July 7-11	Classroom Methods and Teaching Techniques	10
July 14-18	Use of Instructional Media Presentations	6
July 21-25	Evaluation of Classroom Learning	12
July 28-August 1	Clinical Education and Evaluation	17

Participants in these four workshops were selected from a pool of applicants drawn from a five-state area. They represented the full range of allied health professions and were all actively employed in teaching positions in postsecondary allied health educational programs.

Each workshop was such an intensive experience that participants found themselves involved in structural activities up to twelve hours per day. Despite the pressures of this rigorous schedule, the participants were unanimous in their opinion that the workshops had significant impact on their development as educators.

Prior to the field-testing, extensive planning went into the development and sequencing of the content for each module. During the field-testing, the project staff met each evening to assess progess towards achieving the identified objectives. This formative evaluation resulted in numerous revisions of the original plan. Institutions using this resource guide will find continuous formative evaluation an important facet of their administration of the faculty development program.

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