This paper traces the forces that stimulated a faculty to completely revise its occupational therapy curriculum. The process of the revision, which was largely adapted from a test development model, is recounted. The paper also describes the broad array of teaching/learning methodologies used. Comparative data from the American Occupational Therapy Association Certification Examination indicate that student achievement has significantly improved since the revised curriculum was implemented.

The need for a major undergraduate curriculum revision in the Department of Occupational Therapy at the University of Illinois had evolved over approximately ten years as a result of faculty efforts to increase enrollment and to update course content. New concepts and skills had been added to the course of study, but rarely had an equal number been deleted. The identified problems were as follows:

- **A compacted curriculum.** Some basic science instruction, all clinical medicine instruction, and all occupational therapy theory and application courses, except one, were presented in seven months of the senior year.
- **Intense instruction.** For seven months students spent an average of five to six hours a day, five days a week attending lectures of uneven quality and laboratories. This did not provide students with sufficient opportunities for problem solving and self-direction in learning, behaviors that were held in high esteem by the faculty and believed to be attributes of successful therapists.

Coincidently, several events caused faculty members to question their instructional strategies and curriculum content. One event was the faculty's contribution to the identification of entry-level competencies and development of materials for use in an equivalency/proficiency test development project sponsored in part by the Area Health Education System at the University of Illinois. Another event was the institution of an alternate pathway of study for students during seven months of the senior year to provide instruction in an underserved health care area of the state where there were fewer resources for clinical medicine instruction. This environment allowed the initiation of a guided-study curriculum and the use of a wider variety of instructional methods. The third event was that faculty members who attended the 1976 American Occupational Therapy Association (AOTA) Educator Institutes undertook three...
projects, which included a critical examination of the curriculum and its philosophy.

Nationally, changes in occupational therapy education took place that also influenced the faculty’s decision and direction concerning curriculum revision. The AOTA Curriculum Study (1958–1963) produced a large volume of data. This nationwide, three-phase study examined current academic and clinical educational experiences along with on-the-job-performance. It heralded a movement in occupational therapy to develop faculty with expertise in education and clinical skills. A series of Educator Forums, the first took place in Chicago in 1966, brought in experts in medical education to teach the occupational therapy faculty skills in designing and evaluating instruction. The Kellogg Foundation provided money for several developmental efforts in educator preparation in allied health in the early 1970s. At about this time, there was a vigorous thrust in education first for behavioral objectives and then for competency-based instruction. This evolution was reflected in the 1973 Essentials for an Accredited Program for Occupational Therapists, Registered, which changed from identifying specific required courses with numbers of hours listed to specifying bodies of knowledge and skills and more liberalized clinical education experiences (Basic Approach). In the mid-1970s, the AOTA Regional Educator Institutes on curriculum theory and development introduced the efficacy of designing curriculum around a conceptual model and frame of reference. It was after these institutes that the faculty committed themselves to redesigning the total program.

The Process

Goal Setting.

As the impact of these events began to be realized, the entire faculty made the commitment to embark on a major curriculum revision with the following goals:

- institution of a curriculum of two years in length (junior and senior),
- incorporation of a wider variety of teaching methodologies related to learning style needs of students,
- introduction of occupational therapy theory and application instruction earlier in the program,
- an increase in the number of hours devoted to occupational therapy content,
- encouragement of independent functioning and self-direction on the part of the students, and
- retention of closely integrated didactic and clinical instruction, a unique hallmark of the existing curriculum.

A calendar and time flow chart were projected; implementation of the new curriculum was targeted for January 1979. The revision encompassed changes in admission requirements, length of the program, curriculum design, and instructional methods. It also required that the faculty develop and agree on a conceptual model and the philosophy of the program. On one hand, this total revision proved to be a monumental task because it had to be accomplished while the faculty continued to provide a program of study for the currently enrolled students. On the other hand, total revision permitted all aspects of the program to be considered and an integrated and congruent system to be constructed. Members of the Center for Educational Development at the university and therapists from the community provided expertise and assistance during the entire revision process.

Identification of Philosophy and Conceptual Model

Once the goals for the curriculum revision had been identified, the faculty, in a series of meetings, explored and made explicit its philosophy of humans, education, and occupational therapy. This philosophy became the foundation for subsequent planning. The faculty, believing that curriculum design must consider the organization, delivery, and content of knowledge, used three entities proposed by Posner and Strike (1) as the basis for the curriculum’s conceptual model. These entities included the phenomenon of a given subject matter, the empirical properties of learners and of the learning process, and the use to which the knowledge or skill is put. The developmental nature of the human individual formed the basis for restructuring content organization and presentation. A majority of the occupational therapy content followed sequentially through the life stages of infancy, childhood, adolescence, young adulthood, middle age, and old age. Normal developmental tasks with clinical problems characteristic of each developmental stage were selected as the focus for courses. The new curriculum was a developmental model curriculum. Occupational therapy theory, principles, and related skills were presented concurrently in an integrated, problem-solving manner. All courses were designed in a modular format.

Specification of Competencies

The Professional Performance Situation Model (2) was con-
structured to identify occupational therapist competencies for the previously mentioned proficiency test development project. This model and these competencies became the basis for identifying specific content for the new two-year curriculum. The primary concept of that model is that professional competence is situation-bound. To illustrate, consider the following question. Is a Denver Developmental Screening Test an appropriate evaluation instrument to use? The answer to this question depends on the presenting problem and age of the patient. Thus, further specification of the situation is necessary before the correctness can be judged. For occupational therapy, it was determined that the patient's age and background, the clinical problem, and the clinical setting were the most essential aspects of the professional situation.

A two-pronged study was conducted to identify pertinent clinical problems. Therapists in the Chicago area were asked to rank clinical conditions as having high or low priority using three criteria: the frequency with which the condition is seen in practice, the degree to which occupational therapy intervention directly influences patient outcome, and the degree to which the clinical problem and/or treatment disrupts the patient's life. The resulting categorization was compared with data from the AOTA membership survey, which identified conditions that members treat. The local findings, though more specific and detailed, were found to be congruent with the national survey results.

The faculty examined these findings and selected 17 clinical problems distributed over the life span that were high priority and that appeared to cover the various specific dysfunctions commonly encountered in the practice of occupational therapy. For example, patient situation no. 2 was defined as follows:
- age category: adolescent,
- clinical problem: spinal cord injury,
- clinical setting: rehabilitation center,
- sex/age/ethnicity: male, 16, black,
- significant others: both parents, 3 siblings, niece,
- socioeconomic status: lower-middle class,
- housing: inner-city, second floor walk-up apartment,
- specific dysfunctions: passive range of motion (ROM) within normal limits except for slight tightness in shoulders; muscle strength: normal neck control and scapular elevators, fair-to-good shoulder control, good elbow flexion, wrist extension, and supinators, no finger function or elbow extensors, fail trunk and lower extremities; no bowel or bladder control; sensation absent below nipple line and in hands; apathetic and depressed; irritable and demanding of staff; noncommunicative (2).

The aforementioned 17 clinical problems were then used as the basis for the construction of scenarios. A member of the test development team met with a clinician whose practice included one of the particular problems; together they wrote a description of a case from the onset to the discontinuation of occupational therapy services (3).

These scenarios, or descriptions of practice, were then analyzed by teams consisting of several faculty members and one clinician to identify what occupational therapists needed to do and what they would need to know to deal with the problem. This procedure resulted in a long list of specific items of knowledge and skills, which contained many repetitions and related items. The knowledge items and skills were grouped into general domain statements (e.g., gathers and assesses information from various documents, verbal communication, and observation). These general domain statements were then amplified according to procedures recommended by Baker (4). Although Baker's procedure was originally intended as a means of constructing criterion-referenced tests, it was valuable for curriculum construction in that the specification of content limits for all domain statements produced a body of competencies that could be allocated among course offerings (e.g., [for the above domain], What kinds of information? What documents?).

Knowledge and skills were grouped into related clusters around a focal clinical problem and became the basis for modules of instruction. Modules were grouped into courses that were sequenced according to development over the life span. Thus, domain statements were derived from clinical practice situations with their embedded knowledge and skills. These statements became the bases for the competencies that the students were expected to acquire. These competencies were translated into objectives for each module. Learning experiences and resources were identified and keyed to the objectives. A variety of evaluations of student achievement suited to the competencies and learning methodologies employed in each module were chosen.

Teaching/Learning Methodologies

The learner and the learning process were the basis for faculty
consideration of the methods and techniques to be employed in the revised curriculum. Because the major goal of a professional educational program is to assist the student in acquiring the competencies necessary for effective practice, an achievement-oriented, modified competency-based curriculum was developed. Beliefs and principles that guided the faculty in developing specific methodologies included a) people learn in a variety of ways, b) learning is a personal responsibility and takes place through the active efforts of the student, c) modes of learning should approximate the desired outcome behaviors as closely as possible, d) learning is facilitated if it is relevant, consistent, unified, and reiterated over a period of time, and e) general principles can be learned and later used in meeting new situations. A wider variety of teaching methods was used by the faculty in all courses in the new curriculum. Descriptive examples follow.

Reading and the use of programmed texts and audiovisual and computer-aided materials with self-study guides replaced many instructors’ lectures. These types of teaching/learning methods have been found to be especially effective or efficient with certain kinds of students and specific types of materials (5–7). This approach offers students several advantages. Programmed texts and computer-aided materials often provide immediate feedback to the student. Also, students may select the time and place that is best for them to study, and they may review portions of the material that are more difficult or work quickly through the parts that are easy or familiar.

Another alternative to lectures is the small-group method. A specifically focused topic or subject (eg., value orientation, living and dying, geriatric programming) was identified for each group session. The students were expected to prepare for the session by completing an assignment (eg., interviewing an individual, keeping a log, or preparing a report). The faculty members served as a resource person or facilitator. These small groups were planned opportunities to share ideas and/or feelings with classmates and faculty and were meant to promote active and personal learning for all participants.

Closely akin to the small groups were the laboratories. These provided students with hands-on opportunities to practice techniques that require psychomotor skills or interpersonal components. While 7 or 8 students participated in each small-group session, 10 to 14 students took part in each laboratory section. Students benefited from the individualized attention of the instructor and the opportunity to participate actively in the learning experience.

Individual tutorials were included as an integral part of the methodology. Each student met with his or her assigned faculty member (tutor). During these sessions, the student could seek clarification of content or assignments, the tutor could pose questions to determine if the student was integrating previous subject matter with present content, or the student and tutor could discuss how the content was related to occupational therapy practice. The students were expected to take the initiative in making appointments with their tutor and in preparing for these sessions, but tutors could guide a portion of the discussion as indicated by their perception of the student’s grasp of the subject matter. This general procedure varied from tutor to tutor, student to student, and week to week; it gave the students an opportunity to individualize their learning according to their backgrounds and needs in relation to the content being covered.

Students’ communication skills were built through various kinds of oral and written reports. The students were required to adhere to time and length limitations similar to those used in current practice. Students enhanced their problem-solving abilities by having the faculty question them during individual tutorials, by exploring different viewpoints on the same topic (sometimes with vigorous debate), and by role playing and working with simulated clinical treatment problems.

The scenarios, mentioned above in relation to development of the curriculum content, were also used as instructional devices. Portions were reproduced for the students and served as “paper patients.” For example, background information, symptoms, and evaluation data were used as the bases for students to identify goals of treatment and treatment methods. Additional information could be given to students, who would then specify appropriate changes in goals and methods for the patient.

Students’ self-understanding was encouraged through participation in the small groups. Collaborative efforts were required to complete many assignments. Each student’s individual tutorial faculty member reviewed the student’s progress quarterly in the affective domain of behavior through the use of an attitudinal rating scale.

The program emphasized a close correlation between didactic instruction and clinical practice. Early in the junior year, the student was assigned to spend some time in an occupational therapy
clinical setting, first observing and then participating in the treatment. The specifications for these experiences were included in the modules for several courses. These pre-clinical assignments and the following Level I fieldwork experiences provided opportunities for students to interact with patients (whose clinical problems they were studying), to observe therapists, and to begin using the techniques they had learned in the academic situation. Two full-time Level II fieldwork assignments for 12-week periods with persons who had physical dysfunction and psychosocial dysfunction and a seven-week assignment in developmental aspects of health care (either pediatrics or geriatrics) were scheduled during the final three quarters of the program so students could practice a full range of occupational therapy competencies. Under the supervision of registered therapists, students gained skill in evaluating and treating patients, collaborated with other health care professionals, and experienced day-to-day administrative responsibilities. Two didactic courses were offered during the final quarter of the senior year. These courses required students a) to investigate current issues pertinent to the profession and b) to research information about a treatment technique or problem and offer an "in-service" type of presentation to their classmates.

In summary, the conceptual framework considerations in the development and implementation of the University of Illinois occupational therapy curriculum fall into three arenas:

1. the character of the subject matter—the developmental nature of the human individual.
2. the use to which skill and knowledge might be put—the work situation with its attendant roles and functions of the occupational therapist, and
3. the learner and the learning process—the acquisition of competencies through active, practice-related, problem-solving modes of learning.

Implications

The creation of the new curriculum resulted in a feeling of great satisfaction by the faculty members, because it had been a genuine team effort from the decision to undertake it to the final consensus on each module's content, methodology, and mode of evaluation. As time drew near for initial implementation of the new curriculum, the faculty realized that these new modes of teaching/learning required them to learn new skills. What seemed ideal in the abstract now necessitated a change from the ways in which most of the faculty had functioned. Consultants from the university's Center for Educational Development were contacted, and regular meetings were held over a period of months to explore a variety of teaching/learning methodologies. Different techniques were discussed and tried by various faculty members, and outcomes were analyzed by the group. Faculty members encouraged and supported each other to make the transition to using the broader array of teaching methods. Efforts to refine the use of tutorial approaches, computer-assisted learning, small-group methods, and a variety of evaluation techniques, in particular, continue.

It became apparent that the students needed help in undertaking the new curriculum, because it was quite different from what most of them had experienced previously. An explanation of the program and methods was developed, which described specific differences from the more traditional types of instruction and showed what was required in terms of faculty and student responsibilities. This description is now attached to the brochure that is provided to all prospective students. When candidates for admission are interviewed, questions or concerns regarding the curriculum are answered. A slide/sound program was developed to explain the curriculum, the diverse instructional methodologies, and the accompanying requirements in terms of faculty and student behavior. This slide program is shown during student orientation sessions and is discussed later in small groups with the students' assigned tutors.

Early in the program, many students find it difficult to pace themselves and to set priorities without the structure of regularly scheduled lectures and other classroom activities. Therefore, they are encouraged to improve their time management and organizational skills by attending workshop sessions held by the campus counseling services. As students become more adept at self-pacing, the flexibility of the program becomes more appealing to them. The faculty emphasized that the ability to schedule and to pace oneself is a significant skill used daily by occupational therapists in clinical practice.

Initiation of the new curriculum required other changes, such as the construction of new evaluation forms for courses and faculty to coincide with the various modes of instruction, the development of different ways of identifying and reporting faculty work load, the implementation of a system for reporting grades to the student's tu-
tor and course coordinator, and the designing of a scheduling system.

Evaluation of the Product

A curriculum revision is not complete without an evaluation of its effectiveness. Therefore, three aspects were evaluated: attainment of revision goals, appropriateness of methods and content, and student achievement. With regard to the first aspect, faculty members determined that the goals they had set for the revision were attained but they had reservations concerning the evaluation of goal e. This goal, defined as the "encouragement of independent functioning and self-direction on the part of the students," was evaluated through review of AOTA Fieldwork Performance Reports (FWPR) and discussions with fieldwork supervisors regarding students’ performances. These reviews indicated satisfactory achievement of goal e; however, its measurement was not objective. An attempt was made to abstract pertinent items from the FWPR to use in a comparison study of students’ performances before and after revision. This was not a satisfactory procedure for research purposes, nor was it feasible to use a "word-count" approach with comments made by supervisors on the last page of the FWPR.

Though lacking measurable prerevision data for comparison purposes on this goal, a future study may be attempted that would document the degree of presence or absence of characteristics of independent functioning and self-direction in the graduates of the revised curriculum.

The second aspect, methods and content, was evaluated through two processes: the approval procedures of the University and State of Illinois and the accreditation of the American Occupational Therapy Association and the American Medical Association’s Committee on Allied Health Education (AOTA/AMA-CAHEA). The curriculum did not use supervision effectively. This complaint has diminished during the five years the revised curriculum has been in effect. In an attempt to evaluate student achievement objectively, statistical analyses of two sets of data were conducted. The first was a t test, using student scores from the FWPR. Student scores from the four years immediately prior to the revision were compared with scores from the first three classes following it. Although there was a slight improvement on the physical dysfunction and developmental fieldwork scores a slight decrease in the psychosocial dysfunction fieldwork scores, the differences were not significant (p < .05) (see Table 1).

The third area of evaluation, student achievement, was more difficult to determine. Informal feedback from fieldwork supervisors was generally positive, but several supervisors commented that students coming from the revised curriculum did not use supervision effectively. This complaint has diminished during the five years the revised curriculum has been in effect. In an attempt to evaluate student achievement objectively, statistical analyses of two sets of data were conducted. The first was a t test, using student scores from the FWPR. Student scores from the four years immediately prior to the revision were compared with scores from the first three classes following it. Although there was a slight improvement on the physical dysfunction and developmental fieldwork scores and a slight decrease in the psychosocial dysfunction fieldwork scores, the differences were not significant (p < .05) (see Table 1).

The other standardized measure available for comparison was performance on the AOTA Certification Examination for Occupational Therapist, Registered. The national mean on this test had been gradually rising over the eight years under study, the use of raw scores would be misleading and bias the results in favor of the revised curriculum. Therefore, examination percentiles (which reflect students’ rank as compared with all other students who took the exam) were used as the basis for comparison. Student percentile scores from the four years previous to the revision were compared with percentile scores from the four years following it. Some scores were missing from the analysis because students failed to sign releases. Results indicated that students from the revised curriculum received percentile scores significantly higher than students from the former curriculum (see Table 2). Because the admission procedures had also been revised, the hypothesis that students from the revised curriculum were "smarter" and that therefore the results of the Certification Examination...
Scores were biased was plausible. However, a t test, performed on the entering grade point averages of both groups of students, indicated no significant difference between the grade point averages of prerevision students and those of postrevision students (see Table 3).

**Summary**

The University of Illinois Department of Occupational Therapy implemented an aggressive program revision to address identified weaknesses in the previous curriculum. A two-year program that incorporates a wide variety of teaching methodologies sensitive to students' learning styles resulted. The program's integration of clinical and didactic experience was retained, while an expansion of time given to occupational therapy content and increased emphasis on student self-direction were effected.

Curriculum content was reconstructed on a developmental model; this was done by integrating theory, principles, and skills in a problem-solving format, which was presented in learning modules. Domain statements and competencies were derived from selected practice situations and served as the basis for module objectives. The modified competency-based curriculum used a wide range of instructional methodologies, such as programmed texts, computer-assisted instruction, audiovisual materials, small-group sessions, laboratories, individual tutorials, role playing, student interviews, logs and reports, and paper patient scenarios.

Evaluation of the new program shows that the initial goals were achieved, even though student independent learning requires objective documentation. Student achievement, as measured by professional standardized exams, exceeded that of students in the previous program. Finally, university, state, and professional approvals have been granted.

Research on and modification of the program continue. Faculty feedback, student input, and ongoing evaluation procedures were implemented to ensure a dynamic and responsive program open to the continuing need to adjust and/or revise as new questions arise.

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**REFERENCES**