A Model for Developing Clinical Teaching Skills of Family Practice Teachers

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The development and implementation of a weekend workshop format for faculty development in family medicine, which has met with some success in the state of Texas, is described. The topic selected for the workshop was one-on-one clinical teaching skills because of its applicability to all levels of involvement of family practice faculty. The weekend format was selected because of its cost efficiency and mobility, which allowed the center to take training to the physicians, and because of its previously demonstrated effectiveness as a format for faculty development in family medicine. A model for clinical teaching was developed to aid workshop participants' easy acquisition of the clinical teaching process through the use of positive transfer of learning from the medical problem solving process, a process well internalized by physicians through medical practice and training.

The teaching of family practice takes place in the ambulatory facilities of the family practice center and in the hospital in-patient services. The family practice center provides residents with on-site medical and non-medical faculty to integrate into the practice of family medicine the knowledge and skills learned in specialty rotations. The major mode of instruction in the family practice center is case consultation involving residents and faculty in the center, a process which has been labeled "one-on-one" clinical teaching. Because of the vital importance of this mode of instruction in the training of residents in family practice, the Family Practice Faculty Development Center of Texas has undertaken an on-going project of analysis, study, and teaching of the clinical teaching process. The purpose of this paper is to review the initial development, implementation, and evaluation of a model of clinical teaching and the use of a workshop format for teaching the use of the model for improving clinical teaching skills of faculty in family practice programs.

Program Development

The Family Practice Faculty Development Center of Texas was formed in 1978 by the McLennan County Medical Education and Research Foundation as a cooperative venture of the 14 residency programs and departments of family medicine in the state's six medical schools. Initiated with partial funding from the federal government, the center was established with two major goals: (1) to increase the number of trained full-time faculty in the state's family practice programs, and (2) to enhance the instructional skills of current faculty in the state's programs, including full-time, part-time, and voluntary faculty of all specialties that teach in family practice programs.

A basic tenet in the formation of the center was the belief that in order to achieve the goal of providing physicians with excellent educational

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Table 1. Problem Solving Schema

Medical System	Generic	Educational System
Chief Complaint	Initiation	Student Question
↓	↓	↓
Data Base Collection	Data Gathering Phase	Needs Assessment (A Process)
↓	↓	↓
Problem List	Hypothesis Phase	Instructional Need (Outcome)
↓	↓	↓
Treatment Plan	Planning Phase	Instructional Plan
↓	↓	↓
Treatment	Implementation Phase	Instruction
↓	↓	↓
Cure	Outcome	Learning
↓	↓	↓
Follow-Up	Evaluation Phase	Evaluation

skills, it would be necessary to blend the expertise from such fields as psychology, education, business, speech/oral communications, and family practice education. The location of the center in close approximation to such resources would not only allow suitable practice opportunities for training faculty, but also the cooperative development of new training models and materials for faculty in family practice programs in the state. Thus, the center was located in Waco, Texas, in association with the McLennan County Family Practice Residency Program and the Baylor University School of Education. A staff consisting of individuals experienced in education, business, management, psychology, and research and evaluation was recruited to coordinate the center's programs.

In the initial stages of program planning by the center's staff and consultants, it became obvious that various modes of training for faculty would need to be developed depending on such factors as: (1) degree of involvement in teaching family practice (ie, full-time, part-time, voluntary, precepting), (2) new vs current faculty members, (3) degree of involvement in research, curriculum development, and administration, and program administration. Despite its commitment to developing a series of faculty training programs which would address these particular factors, the staff of the center wanted to develop one basic introductory program in which instruction would focus specifically on one-on-one teaching and would be suitable for all physicians who teach in family practice programs. It was felt that certain characteristics were required and that this introductory program should: (1) be short (a weekend at most) to allow for participation of paid and voluntary faculty, (2) be mobile and cost efficient so that training could be taken to physicians in different locations, and (3) provide quick acquisition of skills by participants. In addition to having an immediate impact on the quality of family practice education, it was hoped that the short program would introduce the process of improving teaching skills to faculty and acquaint participants with the staff and capabilities of the center. The topic selected for the program was "one-on-one clinical teaching" because of its applicability to all physicians who teach in family practice programs regardless of their level of involvement in teaching and their specialty background. The mode of instruction selected was a weekend workshop because of its cost efficiency, mobility, and established effectiveness for faculty development in family medicine.[1] The method of instruction selected was a model of clinical teaching which would allow easy transfer of the process well learned by physicians in dealing with patients to the process for one-on-one teaching of residents/students by a physician.

The clinical teaching model, entitled "Problem

Solving Schema," (Table 1) was developed cooperatively by family practice faculty and educators from the School of Education at Baylor University and the Faculty Development Center staff to facilitate acquisition of the medical process of clinical teaching. The "generic model" outlines the phases through which one moves mentally in solving a problem. The "medical model" outlines the phases through which a physician moves in the diagnosis and treatment of an illness of a patient, a process internalized well by physicians through medical training and practice. The "educational model" is a proposed clinical teaching model for instructing residents or medical students as they deal with their patients. Much has been written in educational research on positive transfer of learning which can be defined as previous learning facilitating the acquisition of present learning tasks.[2] The use of such a model by drawing the parallels between them for workshop participants is a use of positive transfer for learning the clinical teaching process. The use of such a model in training not only allows the transfer of a previously learned mental process to the education of residents/students, but also reduces the need for learning a complete new language (educational jargon) by drawing on understandings from a physician's past training to apply to the teaching of medical students/residents.

Workshops

Beginning in January 1979, the Family Practice Faculty Development Center of Texas began offering clinical teaching workshops in various locations around the state. Each workshop has consisted of 12 hours of instruction accredited by the American Academy of Family Practice—eight hours on Saturday and four hours on Sunday. The content of each program is based wholly on the model previously described with the goal being to enhance faculty members' teaching of residents and students by facilitating their use of the clinical teaching model chart. Videotape vignettes and exercises are used within the program format to ensure participant understanding of the skills presented. The workshop staff consists of educators from the School of Education at Baylor University and family practice faculty members from the McLennan County Family Practice Residency Program, the parent organization of the center.

Each program opens with a videotape of a physician/patient encounter and one of an attending/resident teaching encounter. The phases of the medical model and educational model are superimposed on the screen in each vignette to draw the parallels between the two problem solving processes. Following this opening, attention is given to each phase of the educational model. (Table 2 shows content flow of the workshop.)

Student Question—Encounter Initiation

At the student question phase of the educational model, participants are instructed to be attentive to the initial communication with which the resident/student approaches an attending faculty member. The significance of the resident's use of "open" and "closed" questions is explored. Open questions are used by residents/students to broaden the scope of the interaction between the resident and attending faculty member, to solicit the faculty member's viewpoints, opinions, thoughts, and feelings. Examples of open questions are: "What are some ways I can improve compliance in my treatment of this patient with hypertension?" and "I'm not aware of any serious side effects associated with either 'Intal' or 'Vanceril.' What are some I might anticipate?" Closed questions are used by residents/students to limit the attending faculty member's response in one way or another. Closed questions are often used when the resident/student is seeking specific facts or answers, when time is limited, and/or to gain consent or assurance. Examples of closed questions include: "Shall I prescribe tetracycline or erythromycin for this patient?" "Mrs. Jones' cancer has obviously spread, hasn't it?"

Needs Assessment—Instructional Need

At the needs assessment level of the model, participants are instructed by way of videotape vignettes, lecture-discussions, and exercises to use questioning and listening skills to assess the resident's need for instruction regarding the care of the patient that is the focus of the interaction.

Table 2. Content Flow of Clinical Teaching Workshop

Content Covered	Techniques Used	Evaluation
Proposed Clinical Teaching Model	Lecture-Discussion. Videotape vignettes of patient/physician and resident/faculty encounters	Participant analysis of model phases of videotaped resident/faculty encounters
↓ Needs Assessment and Instructional Planning	Lecture-Discussion. Videotape vignettes of resident/faculty encounters	Participant application of skills to videotaped resident/faculty encounters
↓ Instructional Techniques	Lecture-Discussion on: mini-lecturing, counseling demonstration, confrontation, use of reference materials	Instructional Planning exercise
↓ Clinical Teaching Styles	Videotaped vignette of four styles	Participant self-assessment of teaching style
↓ Conditions of Learning	Lecture-Discussion on conditions of learning various skills	Learning hierarchy exercise of a hypothetical teaching encounter
↓ Evaluation of Resident Learning	Lecture-Discussion on techniques and guidelines of evaluation	Participant design of clinical teaching encounter evaluation form
↓ Interpersonal Skills	Lecture-Discussion of effective interpersonal skills	Participant analysis of interpersonal factors of videotaped encounter

The outcome of the needs assessment process is an instructional need, the next level of the model. Generally, it has been found that instructional needs of residents and students fall into one of four categories: (1) knowledge, (2) skills and procedures, (3) attitudes, or (4) reassurance/confirmation. Seldom does an interaction consist of only one instructional need, but rather as a dialogue progresses between attending faculty member and resident/student, several instructional needs are identified by the attentive faculty member. At these points, instruction is given and then the interview between faculty and resident/student continues until another instructional need is identified. Thus, the clinical teaching process consists of many repetitions of the clinical teaching model within each interview. An important part of the needs assessment process, which is emphasized in the workshop, is that the attending faculty member often needs to visit the patient with the resident/student to verify and/or clarify data which the resident/student has collected from the patient.

Instructional Plan

In the instructional plan phase of the model, participants are instructed in the process of setting educational objectives to guide their interaction with the resident/student in the one-on-one encounter. While it is recognized that an attending faculty member in a one-on-one encounter does not have the luxury of preparing written objectives prior to an interaction with a resident as classroom instructors do, the process of thinking through what is to be achieved by each instructional sequence in the clinical teaching encounter is still an important one. Thus, instructional planning in the clinical teaching process is a mental event in which the attending faculty member sets an objective for his interaction with a resident/student, which is based on the identified instruction need from the previous phase. There may be more than one instructional need identified in a clinical teaching encounter and often there will be more than one objective. The identified objectives will have par-

ticular relevance for the type of instructional technique selected in the next phase of the model.

Instruction

In the instructional phase of the model, participants are provided with various techniques for instructing residents/students in a clinical teaching encounter. Specific techniques that are reviewed are: mini-lecturing, questioning, counseling, demonstration, confrontation, and use of reference materials. Techniques for instruction in clinical teaching are selected on the basis of the instructional objective arrived at in the previous phase of the model. Certain techniques presented have particular relevance for certain kinds of objectives. For example, if the instructional need and objective for a resident/student is one involving attitude change, the counseling mode might be the most relevant.

Also having implications for participants' use of the instructional phase of the model is a presentation, "Styles of Clinical Teaching in Family Medicine." Four styles of clinical teaching, as outlined by Lincoln, are demonstrated by way of videotape including: (1) Socratic, (2) heuristic, (3) authoritarian, and (4) counseling.[3] Each of the four styles is demonstrated by the same instructor interacting with the same resident about the same case to display the differences in styles. Participants in the workshop are encouraged to select a style with which they feel most comfortable and that best fits their personality. A self-assessment instrument designed by the center's staff is used to help participants select their preferred style of clinical teaching.

Learning

Present throughout each clinical teaching encounter between an attending faculty member and a resident/student are implications from research and theory on learning. To aid participants in identifying these implications and structuring encounters so that efficient and effective learning takes place, a presentation is made on "The Conditions of Learning" drawn from the work of Gagne.[4] Five learning outcomes are presented, including: (1) verbal information, (2) intellectual skills, (3) cognitive strategies, (4) motor learning, and (5) attitude learning. The conditions necessary for various learning outcomes are drawn from previous clinical teaching encounters to aid participants in the integration of these implications into their teaching practices. Participants are given practice in structuring hypothetical teaching encounters with residents/students according to the principles identified.

Evaluation

In the section of the workshop designed to facilitate participants' use of the evaluation phase of the model, the importance of evaluating resident learning as a means of feedback to residents/students is stressed. Particular emphasis is given to the idea that in order to be effective as a feedback mechanism for residents/students, evaluation must be: (1) specific enough to provide the resident/student with information about how he might change, (2) shared with the resident/student with an opportunity for discussion and clarification with the faculty member, if needed, and (3) frequent enough to let the resident/student know if his attempts to change are being effective. Also stressed in the presentation is the idea that evaluation does not have to be time consuming and obtrusive to be effective. Examples of forms used to meet the above purpose of feedback to residents/students are taken from Corley's book, *Evaluation in Residency Training*.[5] Participants are given an opportunity to design a simple evaluation instrument and procedure to implement in their own programs under the guidance of a workshop instructor.

Interpersonal Skills

In addition to the presentations on the use of the "clinical teaching model" and its phases, the workshop also contains a presentation, "The Importance of Effective Interpersonal Skills of

Attending Faculty Members." In a family practice residency program, the instruction of residents in the family practice center beyond the first year, during which residents are often required to consult with an attending faculty member regarding each of their patients, is often left up to the residents voluntarily seeking consultation with an attending faculty member. Unless faculty members are able to build effective relationships with the residents, they will not seek consultation, thus missing many opportunities for learning. To improve faculty members' effectiveness in this crucial area, the workshop content includes a section built on the concepts presented by Truax and Carkhuff.[6] Eight dimensions of effective interpersonal skills are presented including: empathy, respect, warmth, concreteness, genuineness, self-disclosure, confrontation, and immediacy. Participants are given practice in identifying levels of each of these dimensions in a relationship by analyzing a videotape of a one-on-one encounter between a faculty member and student.

Workshop Evaluation

Including the pilot of this workshop in January 1979, the Faculty Development Center has held six clinical teaching workshops with a total number of 119 participants. Participants have included full-time, part-time, voluntary, and preceptor faculty of various medical specialties as well as some non-physician faculty in family practice programs. Several participants in the early workshops have recently begun to attend other faculty development programs offered by the center. Six workshop participants have attended a one-week institute on instructional skills and four workshop participants have attended the one-year teaching fellowship for new full-time faculty.

Evaluation of the workshop is conducted through the use of a Participant Questionnaire developed by Bland, Reineke, Welch, and Shahady[1] and used in the Society of Teachers of Family Medicine (STFM) programs. In this questionnaire, participants provide demographic information, rate workshop components, and evaluate the general quality and suitability of the workshop. Components of the workshop are measured individually on a nine-point descriptive rating scale where nine is most positive. Quality (5 items) and Suitability (10 items) are measured by a 15-item Likert scale in which participants use a five-point scale from "strongly agree" to "strongly disagree" to respond to positive and negative statements concerning the workshop. Reliability was previously established by the designers of the instruments with the Quality scale achieving .83 reliability and the Suitability scale achieving .78 reliability using Cronbachs' Alpha technique.[1] Standards for Quality and Suitability (4.0) and for program components (7.0) established by Bland et al were accepted as determination of the excellence of the workshop.

Evaluation Results

Table 3 shows the compiled results of the Participant Questionnaire for the six Faculty Development Center (FDC) clinical teaching workshops held to date. The "FDC combined" category includes a tally of the results from the 119 Participant Questionnaires collected from the workshops to date. The "Bland et al combined" category includes the combined results from a study conducted previously using the Participant Questionnaire to judge the effectiveness of weekend workshops for faculty development in family practice.[1]

There were several significant findings. First, desirable standards were easily achieved by the Faculty Development Center combined workshops for both Quality and Suitability. Secondly, all nine program components of Faculty Development Workshops achieved combined averages substantially above the 7.0 standard set for excellence. Participants in the Faculty Development Center workshops gave staff and organization highest ratings. Only cost and setting of Faculty Development Center workshops received a wide variation of evaluations. This variance was explained in personal conversation with participants as personal preference for the different workshop sites and by the fact that some participants were funded by their home programs while others had to absorb the total cost of the workshop. Thirdly, the Faculty Development Center combined workshop evaluations met or exceeded evaluations received in the Bland et al study[1] in the areas of quality, suitability, setting, objectives, staff, activities, outcomes, and organization, while falling

Table 3. Participant Ratings of Clinical Teaching Workshops

	Workshop A	Workshop B	Workshop C	Workshop D	Workshop E	Workshop F	Combined FDC	Bland et al Combined***
Scale*								
Suitability	4.3	4.0	4.0	3.9	4.3	4.2	4.1	4.14
Quality	4.4	4.1	4.3	4.2	4.3	4.3	4.3	4.11
Component**								
Philosophy	7.3	6.6	7.6	7.7	7.6	7.7	7.4	7.60
Setting	8.1	6.2	7.6	7.0	6.7	7.3	7.2	6.64
Objectives	7.3	7.3	7.8	7.6	7.8	7.7	7.6	7.10
Staff	8.1	7.5	8.3	8.3	8.4	8.3	8.2	7.92
Participants	7.9	7.1	7.7	7.7	7.2	7.6	7.4	7.99
Activities	7.4	7.5	6.8	6.8	7.4	7.3	7.2	6.92
Cost	7.7	8.1	6.9	6.9	8.2	7.3	7.5	7.64
Outcomes	7.4	7.0	8.1	7.1	7.7	7.7	7.3	7.33
Organization	8.2	7.8	8.5	7.5	8.4	8.4	8.1	7.70

*Suitability and Quality rated by participants on five-point scale ranging from Strongly Agree to Strongly Disagree in response to positive and negative statements about the workshop. Level of acceptability=4.0

**Components of the workshop were measured individually on a nine-point descriptive rating scale where nine was most positive. Level of acceptability=7.0

***Combined results of faculty development workshops reported in 1979[1]

slightly below the Bland et al results in only three areas: philosophy, participants, and cost.

Comment

Family practice residency programs have grown at a phenomenal rate in their brief existence since 1969. Currently, the number of approved programs has grown to 366, an average growth rate of 45 percent a year.[7] Priority needs to ensure the educational quality of family practice include: (1) increasing the number of teachers available to teach family medicine, and (2) enhancing the pedagogical skills of faculty members already in family practice teaching. The receptiveness of current faculty in family practice to faculty development efforts was documented in a recent STFM survey which revealed that 84 percent of the respondents indicated that their highest priority need was to increase and maintain their teaching abilities.[8] The challenge of those in faculty development efforts in family practice is to develop effective models of faculty development which must vary according to the level of involvement of a faculty member (full-time, part-time, voluntary, and precepting) and the types of activities in which a faculty member is involved (such as, research, program administration, and curriculum design).

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