This is to certify that the

dissertation entitled

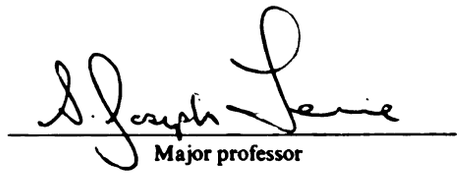
The Situational Teacher:
A Model of Instructional Styles for
Clinical Teaching in Professional Education

presented by

Lawrence M. Kammer

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Educational Administration



Major professor

Date April 13, 1988

THE SITUATIONAL TEACHER: A MODEL OF INSTRUCTIONAL STYLES FOR CLINICAL TEACHING IN PROFESSIONAL EDUCATION

By

Lawrence Matthew Kammer

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Educational Administration

1988

ABSTRACT

THE SITUATIONAL TEACHER: A MODEL OF
INSTRUCTIONAL STYLES FOR CLINICAL TEACHING
IN PROFESSIONAL EDUCATION

By

Lawrence Matthew Kammer

Clinical instruction might be defined as teaching and learning that takes place in a service setting where certified practitioners model behavior, thinking, and judgment of the mature professional providing specialized service to clients. Advanced students of the profession are responsible for varying degrees of the service provided, are subject to the demands and the unpredictability of the clinical setting, engage in problem-centered learning, and encounter the indeterminate aspects of professional practice.

Frequently clinical teachers are certified or licensed practitioners providing full-time client services, and they have spent many years preparing for clinical practice. Unfortunately, many of them have not had the time to gain the dynamic skills required for one-to-one clinical teaching.

The purpose of this study was to develop and test a model of situational teaching in a professional, clinical service setting. The primary research question was, is the situational teaching model a plausible description of clinical teaching-learning interactions observed in professional practice?

The research design and methods were drawn from the principles of qualitative research, specifically modified constant comparative analysis techniques. The major steps were: the creation of a preliminary explanation of the interaction under study, the identification of categories of data represented in the model, the comparison of the model to interactions in the field, the modification of the model to fit all cases, and the repetition of these steps until the model was fully developed. Professionals, teachers and learners in training, from medicine, nursing, and allied health served as subjects for observations. Clinical teaching-learning interactions were observed as they occurred in a 300-bed teaching hospital.

The study was conducted in three main phases. The first phase was preliminary model formulation. The second phase was devoted to gathering data. This was accomplished in three "rounds" of observations, interviews, audio-video taping, and structured interviews. The third phase was a final synthesis of the model through the creation of a clinical instructor's guide.

The central conclusion of this study addresses the primary research question, is the situational teacher model a plausible description of clinical instruction in a professional training setting? The answer is a qualified yes. The essential assumptions and elements of the preliminary model were maintained after analysis of actual teaching-learning interactions. The answer is qualified because the

model only describes the interactions observed with the subjects in the research setting at the time of the study.

The essential elements of the model include directive, suggestive, and collaborative teaching styles; situational learner demonstration of dependency on a teacher and a need for externally imposed structure on the learning situation; and a conducive or non-conducive learning environment in actual clinical settings. The process of situational teaching is based on the assumption that learners change their dependency posture from one learning situation to another, and that effective clinical teaching results from matching a teaching style with the learner's need on a situational basis. The steps of the process are to: (1) Assess the environment to determine its conduciveness to effective interactions, (2) Evaluate the learner to determine situational readiness, willingness, and ability, (3) Select a directive, suggestive, or collaborative teaching style to match the learner's dependency need, and (4) Carry out the interaction while maintaining awareness of such factors as situationality, personal agendas, environmental context, historical context, and experiential development.

ACKNOWLEDGMENTS

I would like to thank my chairman, S. Joseph Levine, and committee members Marvin Grandstaff, Robert Richards, and Stephen Yelon for their thoughtful facilitation. Especially, Dr. Levine for initiating the inquiry, Dr. Grandstaff for philosophical clarification, and Drs. Richards and Yelon for provocative questions.

Special thanks to the faculty members and residents of the Midland Family Practice Residency Program who provided grist for the mill and many hours of dialogue that was both challenging and insightful. Dr. Bob Lachance gave me the freedom I needed, and Mike McHenry, Drs. Chris Hough, Jack Pfenninger, Bill Dery, and Dave Bosscher gave me much of the substance.

Finally, to my family, sincere appreciation to my father-in-law, Dr. Bob Winborn, who was a great sounding board. And the warmest thank you's of all to my wife, Debora, and my daughters, Erika and Elyse, whose understanding and support made it all possible.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter 1

INTRODUCTION

The Problem

Clinical instruction can be defined as teaching and learning that takes place in a service setting where certified practitioners model the behavior, thinking, and judgement of the mature professional providing specialized service to clients (West and Kaufman, 1981). Advanced students of the profession are responsible for varying degrees of the service provided, are subject to the unpredictability of the clinical setting, engage in active forms of learning, and encounter the "indeterminate aspects of professional practice and judgment" (Schon, 1987). Professional medical education is perhaps the most widespread professional preparation system in the United States, and will be used as the focal point of this study.

The medical education enterprise is a huge industry operating on an estimated budget of 9.8 billion dollars per year. Over half of all training in this system is conducted in clinical settings. The American Medical Association (1986) reports that 66,604 medical students are enrolled in the 127 medical schools in the United States. Fifty percent of these students are participating in clinical training in 1,684 medical facilities. An additional 74,000 graduate

physicians are employed in residency training programs in preparation for medical specialty practice, and there are in excess of 100,000 dental, nursing, graduate, and allied health professionals in various aspects of clinical training in their fields. Over 180,000 full-time, part-time and volunteer clinical teachers offer instruction to these students.

The American Medical Association statistics clearly point to the frequency of daily teaching-learning interactions in clinical settings. The problem is that most clinical teachers lack educational preparation as instructors of adults and often fail to employ proven techniques of teaching that would promote the aims of professional education (Reichman, Browning, and Hinshaw, 1964).

Clinical instruction is defined as the interaction between clinical teacher and student which normally occurs in the vicinity of a patient and focuses on the patient or some clinical problem which concerns that patient (Stritter and Flair, 1980). Most clinical teachers are certified or licensed practitioners providing full-time patient care services. They have spent many years preparing for clinical practice and have not been required to gain skills in teaching as a part of that role. They are often busy with the demands of patient care and have little time to explore the implications of adult education theory on teaching in

clinical settings. Speaking of these issues, Reichsman, Browning, and Hinshaw (1964) state, "In no other field does the nature of the teaching material demand of the teacher this degree of preparedness without preparation."

In a major review of the research on clinical teaching, Daggett, Cassie, and Collins (1979) found that many clinical instructors over-emphasize content learning, stress a didactic approach to teaching instead of a experiential approach, dominate discussions with students, fail to respond to student needs, and are highly directive when giving instructions. These findings are contrary to the stated purposes of clinical training (Schein, 1972, pg. 97-128), and do not correspond to those teaching strategies that are normally associated with higher-order learning. Clinical training should be experiential learning conducted in actual patient care settings which is aimed at facilitating the development of cognitive strategies, problem-solving abilities, interpersonal skills, and values in the provision of health care services (Meleca et al., 1983).

Daggett and his associates (1979) also pointed out this need for teacher preparation. They called for training programs in basic teaching skills for clinical instructors. That call has gone unanswered. The American Medical Association (1986) indicates that only 409 individuals are employed directly in departments of medical education across

the country. Despite several important local efforts there is no widespread movement to train clinicians to teach (Bland, 1984).

One critic of medical education (Simpson, 1972, pg. 90) has gone so far as to say, "The way in which we appoint medical school teachers is analogous to signing up, as a football coach, a well-known violinist. We know he plays the violin well, so there's no need to watch him play football or to expect him to know anything about it."

Another aspect of this problem is that medical students, residents, interns, nurses, graduate students, and allied health professionals qualify for the status of 'adult' in every sense of the term. However, in medical education literature this fact is largely ignored. Cox and Ewan (1982, pg. 3) say, "A dilemma occurs when the medical teacher attempts to reconcile the characteristics of adult learning with the demands of medical subject mastery." A legitimate but over-riding concern with a patient's problem, traditional "teaching-the-way-we-have-been-taught," and an emphasis on content, all contribute to the poor conditions of clinical teaching found today, but the failure to consider young professionals as adults is a critical shortcoming of medical education.

Jarvis (1983) indicates that professional education has customarily been viewed as the mere transmission of knowledge in which the lack of effective adult teaching

methods has done no harm to the professions in question. He has pointed out, however, that teaching techniques based on research findings, especially in adult education literature, are greatly needed in the professions to help meet the new and ever-changing demands placed on today's practitioners.

Much of the criticism of clinical teaching deals with teacher-learner interactions. For example, Gjerde and Coble (1982) list resident trainee perceptions of ineffective clinical teaching. That list is: negative attitudes toward learners, inaccessibility, poor feedback, intimidating questioning, and poor two-way communications. All of them are interactive behaviors. It is important to note that inadequate subject knowledge, poor diagnostic skill, and improper use of technology are not on the list even though these are the content of most clinical teaching interactions. Clinical teachers need a guide to help them with the great variety of teaching-learning interactions they encounter every day.

The Purpose

The purpose of this study was to develop and test a model of situational teaching in actual clinical training settings. The primary research question was, is the situational teaching model a plausible description of

clinical teaching-learning interactions as currently seen in the service setting?

Nuthall and Snook (1973) define a model as a symbolic representation of variable relationships, condensing into a single picture those elements of observation and research considered to be important, that is used to describe, explain, guide, and coordinate. A teaching-learning situation is made up of four dimensions; teaching behaviors, learning behaviors, the environment, and a purpose (Dewey, 1938).

Using these broad definitions as a basic framework, the first goal of this study was to 'sketch' a model of situational teaching. Theoretical tenets and reported research findings from adult education, situational leadership, interaction analysis, conceptual systems theory, and style literature were synthesized into a conceptual scheme for the model. The first objective was to define the teaching dimension from a perspective of teaching styles. Next, the learning dimension was characterized from the viewpoint of learning styles. The third objective was to briefly describe the critical elements of the clinical learning environment. A fourth objective was to incorporate the aims of clinical teaching and learning into a model of interactive styles. And the final objective was to apply the concept of situational teaching to make the model dynamic.

The second goal of this study was to validate the model by a "constant comparative" analysis of it with actual clinical teaching-learning interactions in naturalistic settings (Bogdan and Biklin, 1982). The preliminary situational teacher model or 'sketch', presented later in this chapter, was translated into observational categories, behavioral indicants of styles were determined by field observations, interactive possibilities were compared to actual practices in the field, and through a series of approximations the construct was refined into a more representative model of interactions.

The Significance Of The Problem

"The Dehumanizing Grind of Residency" was a recent subcaption in a popular news journal article about the contemporary revolution in health care (Easterbrook, 1987). A sobering picture of the dilemmas of modern practice was painted for medicine in the eighties and nineties. The new practitioner about to practice will be faced with highly sophisticated technology, increasing demands for cost containment, complex social expectations, mounting consumer control of health care services, and confusing ethical problems that have no answers. The professional of the future will have to think clearly and make very difficult decisions. These issues come to bear on the training of

tomorrow's professional. Medical educators are beginning to examine clinical teaching with renewed vigor, thinking that better preparation will give these new professionals the skills they will need.

In the post-world-war era clinical teaching first came under careful scrutiny in some of the pioneering works of George Miller (1956; Miller et al., 1962), Hillard Jason (1962), and Harold Becker et al. (1961). Their findings were discouraging. Miller's classic article, "Adventure In Pedagogy" (1956, pg 1448), best expressed the sentiment of those early investigators. He said, "Perhaps the time has come to face up to the fact that many of us do not know what we are doing as teachers, that those of us who do learned it accidentally and cannot readily communicate it to others."

Comments like Miller's stirred a number of serious evaluative studies of clinical teaching that seemed to peak in the late seventies. The works of Irby (1978), Foley, Smilansky, and Yonke (1979), Stritter, Hain, and Grimes (1975), and Yonke (1979) stand out as benchmarks of that decade. Mostly descriptive studies of clinical teaching, those reports detail the desirable characteristics of effective clinical teachers. Perhaps Stritter's summary is most encompassing. He outlined 66 teacher behaviors that contributed to perceived effectiveness and grouped them into six categories: promotion of active student participation, a positive attitude toward teaching, emphasis on applied

problem-solving, student centeredness, humanistic orientation, and an emphasis on active inquiry and research. Unfortunately, few clinical instructors live up to these ideal characteristics as Daggett, Cassie, and Collins (1979) pointed out in their review of the research on clinical teaching a few years later.

Stritter's characteristics, however, correspond to desirable teaching strategies listed in almost any text on adult education. His articles contributed to the increasing influence of adult education theory and practice in medical education circles. The evidence of this trend is spotty, but growing. Fabb, Heffernan, Phillips, and Stone (1976) were early users of the terms 'adult learning' in family medicine education. Byrne and Long (1973) challenged the British pedagogical establishment with a plea for humanistic treatment of medical students. Glassman (1980) and Bibace et al. (1981) advocate teaching styles with distinct adult orientations. Barrows and Tamblyn (1980) propose adult problem-based teaching strategies for medical school faculty. Houle (1980) addresses issues in continuing professional education. Pratt and McGill (1983) champion the use of learning contracts in resident education. Jarvis (1983) offered philosophical arguments in favor of adult education for all the professions. And Knowles and associates (1985) catalog many andragogical practices in professional continuing education.

The implication of this trend is that adult teaching and learning strategies can help the professionals of tomorrow face the mounting expectations and difficult decisions of future medical practice. Past and present clinical teaching has been seen as deficient in many respects, and the implicit assumption of medical educators is that teacher training will help and is needed to improve practitioner preparation. Finally, teaching medical knowledge and new advances in technology does not seem to trouble clinical teachers even though it occupies most of their teaching efforts. The primary concern for most critics of current practice is with interactions. This is the area of greatest need in clinical teaching.

The significance of this study came from addressing that need by developing a model of interactions in clinical teaching. It also sustained the trend of seeking new applications of adult learning principles in clinical teaching activities.

Definition Of Key Terms

Teaching: For the purposes of this study teaching is defined as the application of specialized knowledge, skills, and attitudes to the creation of environments in which learning may take place (Gagne, 1974, pg. VIII; Joyce and Weil, 1972, pg. 13).

Learning: Learning is an adaptive process whereby knowledge and meaning are created through the transformation of experience (Kolb, 1985, pg. 38).

Experience: An experience is the transaction between an individual and what, at that time, constitutes his or her environment (Dewey, 1938, pg. 43).

Teaching-learning Situation: A teaching-learning situation is the totality of events in a learning experience which involves learning behaviors, teaching behaviors, environmental forces, and usually a purpose.

Clinical Teaching: Clinical teaching is defined as the interaction between an instructor/practitioner and a learner which normally occurs in the proximity of a patient (client) encounter, focusing either on the patient or a clinical problem associated with the patient (Stritter, Baker, Shahady, 1986, pg. 98).

Situational Teaching: Situational teaching is the matching of teaching styles to learning situations based on: assessments of learner characteristics, needs, readiness, and motivation to learn at that time; appraisals of those environmental forces that impact that particular situation; and consideration of specific purposes for that interaction (Hersey, 1984; Blanchard, Zigarmi, and Zigarmi, 1985).

Teaching Styles: The characteristic set of behaviors a teacher demonstrates during interactions with learners (Eble, 1980, 1981).

Learning Style: Learning style is defined as characteristic ways a learner processes information, feelings, and behaviors in learning situations (Smith, 1982, pg. 24).

Model of Teaching: A model of teaching is a frame of reference that guides curriculum planning, teaching-learning interactions, selection of teaching methods and materials, and evaluation (Joyce and Weil, 1972, pg 7). Andragogy is a set of assumptions about adult teaching and learning that forms such a frame of reference (Knowles, 1984).

Principle Assumptions

The primary assumption for this study was that teaching and learning styles are not constant on the situational level. A paradox exists with this position because the literature on style speaks in more global terms, defining styles as characteristic behaviors applied across a variety of situations or interactions (Keefe, 1979; Curry, 1983). Research has validated these stylistic constructs. However, it is also evident that teachers behave differently toward various learners and individuals learn in different ways depending on circumstances. It is no contradiction that both positions can be assumed. Styles emerge from a series of teaching-learning situations and tend to become reinforced.

A style may be used in a general way at the outset of a learning situation, but specific learning or teaching behaviors are highly variable under situational influences. This variability of circumstantial behaviors formed the basis of the situational teacher model.

The second assumption was that the teacher, with greater experience, is more responsible for adjusting teaching styles and controlling environmental conditions than the learner. This is the traditional role of the teacher in our society as well as being the expectation of most learners (Eble, 1981). Whereas clinical teachers are not trained professional teachers in general, they assume this role and its attendant duties and responsibilities.

Perhaps the most important objective of professional training is the creation of an autonomous practitioner capable of sustaining specialized learning after formal education. The third assumption of this study was that situationally matching teaching styles to learner circumstances within the context of the professional training environment will be compatible with the accomplishment of this goal. Matching teaching and learning styles has been shown to be generally conducive to favorable learning outcomes, or at least to be effective in promoting positive attitudes in learners toward the teacher or the subject under consideration. However, the research findings have been inconsistent (Cronbach and Snow, 1977). More

importantly, matching makes sense, as well as being a general truism of education.

Delimitation Of Theory

The number of medical education research studies on clinical teaching interactions is small. While significant reports from the medical education literature were used in this study, translations and extrapolations of findings from the general educational literature were performed to formulate the situational model for clinical instructional interactions.

Five areas of theory seem related to the stated purpose of this study: First, is situationality. The seeds of the concept of situational teaching may be found in Dewey (1916, 1938, 1959), but they have come to maturity in contemporary literature on management and leadership. Second, learning and teaching styles have emerged as important concepts, especially in adult education. Some of the first work in this area was done by Jung (1921) and has been carried on into education by Kolb (1984), Gregorc (1982), and others. Third, is the area of models of teaching (Joyce and Weil, 1972) and the closely related conceptual systems theory of Harvey, Hunt, and Schroder (1961). Fourth, are the principles and practices of interaction analysis (Flanders, 1970), and aptitude-treatment interaction (Snow and

Peterson, 1980). Fifth, is the literature on adult education, especially in the areas of facilitation (Brookfield, 1986), style (Smith, 1982), and andragogy (Knowles, 1984).

Delimitation Of Population

The participants in this study were composed of clinical teachers and learners engaged in patient care services in Midland Hospital Center, a 300-bed community-based teaching hospital for the Mid-Michigan area. The practitioners were physicians, nurses, and other allied health professionals involved in clinical training at the undergraduate, graduate, post-graduate, and post-doctoral levels.

Preliminary Model: Background

The idea for the situational teacher originated in a discussion (Levine, 1985) of dimensions used to illustrate teaching orientations and cognitive levels of learning. Teaching orientations were placed on one dimension, the poles of which were pedagogy and andragogy. Bloom's (1956) taxonomy of the cognitive domain was placed on another dimension. Manipulating the dimensions, changing terminology, and broadening ideas eventually led to a

concept paper that was submitted to an advisor for review and critique (Grandstaff, 1986). A series of discussions about the concept were also held with clinical faculty members of the Family Practice Residency Training Program at Midland Hospital Center. The first sketch of the situational teacher model was also presented to a small group of medical school teachers during a faculty development workshop at the Upper Peninsula Medical Education Program in Escanaba, Michigan late in the Fall of 1986. Simultaneously, an intensive search of the related literature was under way.

The Situational Teacher: Preliminary Model

The situational teacher model describes an educational situation as a three-dimensional event comprised of teaching, learning, and the environment. The teaching dimension is made up of teacher behaviors, skills, and attitudes. Any number of specific behaviors and attitudes may be arrayed along the dimension and expressed in opposing terms for ease of conceptualization. Thus, lecturing versus discussion, didactic versus experiential methods, or teacher written tests versus self-evaluation techniques are examples. However, a more abstract concept is needed to characterize the teaching dimension that can encompass a number of specific behaviors, attitudes, or skills.

Teacher- and learner-centeredness is such a concept, but is ambiguous, associated with negative connotations in various educational circles, and lacks dynamic qualities. The degree of control exercised by the teacher over the educational situation is easier to understand and coveys a sense of dynamism. High-control situations are teacher-centered. The teacher determines the who's, what's, where's, why's, when's, and how's of the learning situation. Low-control situations are learner-centered. The teacher exercises less control, while learners participate in designing, planning, conducting, and evaluating educational situations. This dimension is represented in Figure 1 along with several component elements. Extremes are used merely to highlight the polarity of the continuum.

HIGH-CONTROL <---------- TEACHING ----------> LOW-CONTROL

Teacher ---------- Locus of control ---------- Learner
Low value ---------- Learner experience -------- High value
Dependent ---------- Learner role -------- Self-directing
Authoritarian -------- Teacher role --------- Collaborative
Transmittal -------- Communication mode ---------- Dialogic
Low personal ---------- Feedback ---------- High personal
Didactic ---------- Subject Matter --------- Problematic
One ---------- Learning style ---------- Many
Pedagogic ---------- Teaching style ---------- Andragogic

Figure 1. Degree-of-control teaching dimension with samples of dichotomous descriptive elements.

Teachers, depending on their frame of reference and personal characteristics, develop teaching styles. These styles may be placed somewhere on the teaching continuum depending on how much control is characteristic of that teaching style. The situational teacher model proposes that teachers should develop a repertory of styles ranging in degrees of control, each to be used as the interactions in the educational situation demand. Thus, four styles are recommended that are composed of varying degrees of teacher control; directive, suggestive, collaborative, and facilitative. The directive style is very high-control teaching. The suggestive style is moderately high-control teaching. The collaborative style is moderately low-control teaching. And the facilitative style is very low-control teaching. It is important to note that these are not distinctly separate styles, but gradations on a continuum of control over learning situations. Figure 2 illustrates the relationship of the styles to the degree of control.

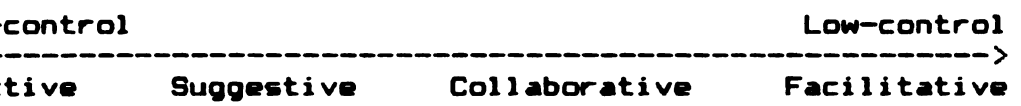


Figure 2. Direct relationship between style and degree of control. As control increases, teaching becomes more directive. As control decreases, teaching moves toward facilitation.

The second dimension of the situational teacher model is learning. Learner attitudes, behaviors, and skills may also be placed along a continuum. This has been done with learning styles, attributes, aptitudes, and degrees of maturity. Like the concept of centeredness, maturity has appeal, but suffers from ambiguity, wide varieties of interpretation, and the risk of being considered as a stable or fixed state. Conceptual systems theory provides a dimension of learning that is called conceptual level. This concept explains cognitive development as well as delimiting degrees of maturation, but is too encompassing to be operationalized in a working model of teaching-learning interactions. Within conceptual level theory is the dependence/structure continuum. Learners display varying levels of dependence on teachers and need for externally imposed structure in learning situations. Low-dependence or self-directing learners with low need for externally imposed structure are generally at a high conceptual level of function. Dependent learners, needing high-structure are at a lower level of conceptual functioning. Dependence and structure are always considered hand-in-hand, but for ease of expression just the terms for dependence will be used in the remainder of this section.

The important point to remember is that levels of dependence vary with each learning experience. Dependence is not a fixed state. A learner might be highly dependent in

one situation, but totally self-directing in another. General learning style, conceptual level, attributes, and previous experience impact the learner on the macro-level, but learners vary considerably in their demonstrations of dependence on the micro-level, or the situational level. This relativistic display of dependence is the key element in the matching of teaching styles to learner dependence in the situational teacher model, and is the pivotal assumption of the model.

The learning dimension is illustrated in Figure 3 along with several component elements.

Dependent <---------- Learning ----------> Self-directing

High ---------- Structure needs ---------- Low
Low ---------- Conceptual level ---------- High
Concrete ---------- Conceptualization ---------- Abstract
Few ---------- Skills ---------- Many
Low ---------- Knowledge level ---------- High
Small ---------- Abilities ---------- Large
Reactive ---------- Activity ---------- Proactive
Other ---------- Locus of control ---------- Self
Narrow ---------- Interests ---------- Broad
Particulars ---------- Knowledge ---------- Principles
Facts ---------- Subject matter ---------- Problems
Imitation ---------- Creativity ---------- Originality
Knowledge ---------- Cognitive domain ---------- Evaluation

Figure 3. Degree-of-dependence learning dimension with samples of dichotomous descriptive elements.

The situational teacher model proposes that the teacher assess the learner's level of dependence in each learning

situation and match that level with the appropriate teaching style. The teacher assesses how 'ready, willing, and able' the learner is in that situation. The readiness of a person to learn is a function of the perception of a need to learn, previous experiences, developmental level, and current emotional state. The willingness to learn arises from motivation, goals, and commitment. The ability to learn depends on prerequisite knowledge, and the physical, emotional, and intellectual skills necessary to learn. In other words, is it the "teachable moment", is the learner motivated to learn, and are the prerequisites in order? Single terms that might be used to label these three evaluations are needs, commitment, and competence.

Learners, depending on the situation, will display a temporary learning style that may be characterized by varying degrees of dependence. The degree of dependence can be conceived as various combinations of commitment and competence. Thus a highly committed and highly competent learner may operate at a low level of dependence, or be very self-directing. A relatively uncommitted and incompetent learner may display high levels of dependence. Four combinations of high or low commitment and competence are possible. The other two are: a learner who is highly competent, but uncommitted; and a learner who is highly committed, but incompetent. No convenient labels are available to name these four levels of dependence in

learners, so a terminology will be invented. Table 1 shows the four levels, or dependency stages of learners for the situational teacher model.

Table 1
Stages of Learner Dependence as Functions of Combinations of Competence and Commitment

- D Stage 4 - high competence, high commitment
- D Stage 3 - high competence, low commitment
- D Stage 2 - low competence, high commitment
- D Stage 1 - low competence, low commitment

The third dimension of any teaching-learning situation is the environment. The environment in the situational teacher model is conceived of as all other physical, temporal, and social factors that are not directly part of the teaching or learning dimensions. Facilities, social forces, professional concerns, time of the day, location, the client, political agencies, and legislative mandates are samples of those things that make up the environment. The situational teacher model recognizes the fundamental importance of the environment in shaping the teaching-learning interaction, but proposes that the situational teacher has only one decision to make about the environment in any given teaching-learning interaction. That is, is the current environment conducive or inhibitory to an interaction? If it is conducive, the interaction proceeds.

If it is not, the interaction must take place in another environment, be recreated at another time, recalled, or simulated in some other way.

The best way to conceive of situational teaching is by considering the diagram in Figure 4 that presents the complete model of the situational teacher.

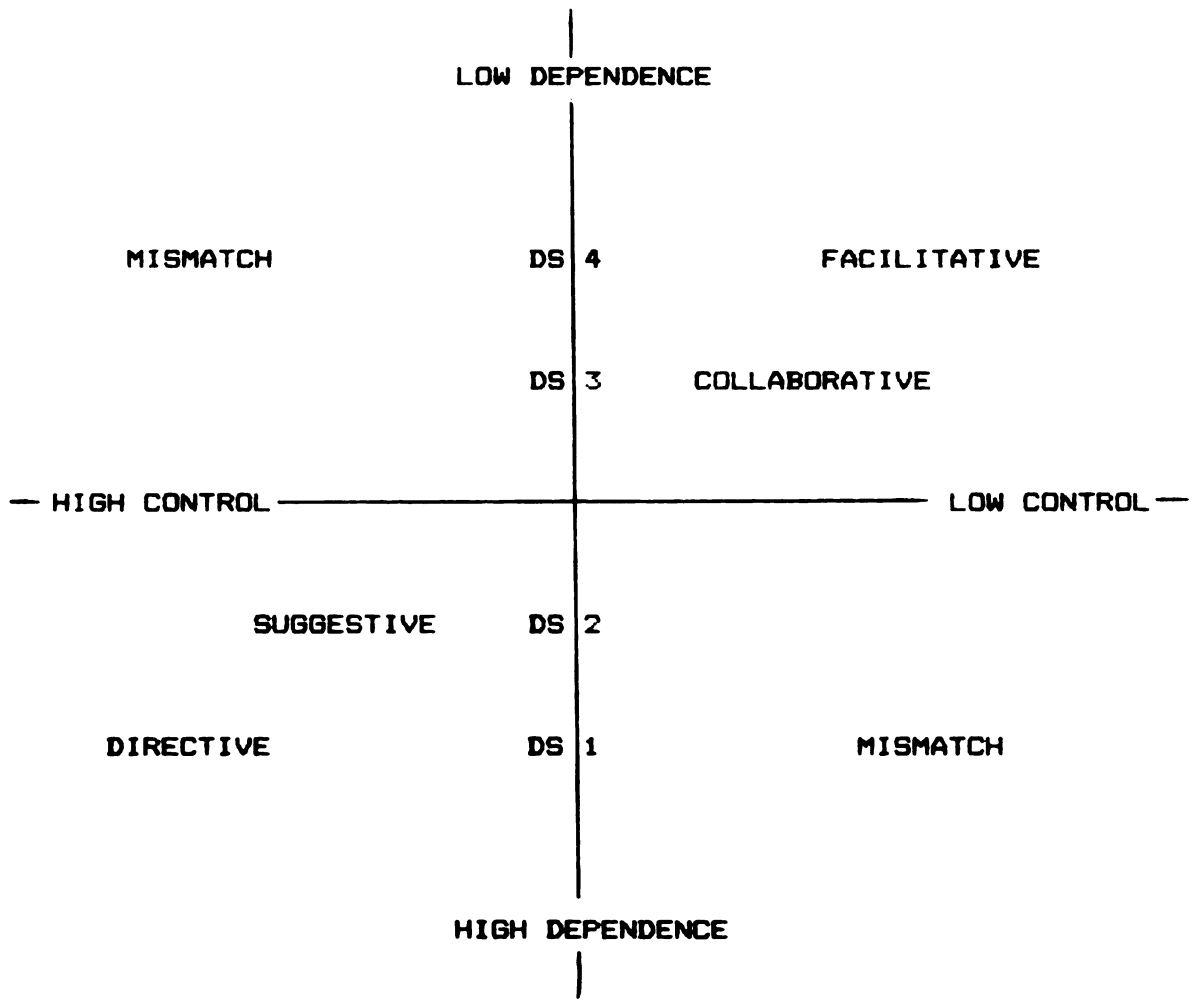


Figure 4. The situational teacher model showing teaching and learning dimensions, matched dependence stages with teaching styles, and areas of mismatch.

The learning dimension is on the vertical axis and is represented by the learner dependence continuum. The top of the dimension is the low dependence on teacher, low need for imposed structure end. The bottom is the high dependence, high need for structure end. The four dependency stages representing combinations of competence and commitment are arrayed along the continuum.

The teaching dimension is on the horizontal axis and is represented by the teacher control continuum. The left side is the high teacher control end, and the right is the low control end. The four teaching styles differ in degrees of teacher control over the conditions of learning and the environment. They are arrayed in the model at points where the level of teacher control and learner dependence theoretically should intersect.

In this diagram two quadrants represent areas of appropriate matching of teaching styles and learner dependence. Highly dependent learners need high control teaching styles, and low dependence learners need low control teaching. For example, a learner who is highly competent and committed would be assessed to be at dependency stage 4 and would best function with a facilitative teacher. On the other hand, a learner who is highly committed but incompetent (dependency stage 2) may best function within a suggestive interaction.

Most style literature treats a style as a trait. Unfortunately, as the situational teacher model shows, the consistent exercise of one teaching style across all learners increases a teacher's chances of mismatching teaching-learning interactions due to learner variability across learners as well as from situation to situation within one learner. Mismatches are represented by two quadrants in the situational teacher model. High control teaching of learners who have low dependence levels and low control teaching of learners who are highly dependent leads to interactive mismatches. Several studies cited in the review of clinical teaching literature point to the idea of mismatched styles as a possible explanation of ineffective clinical teaching.

Implicit in the model is a more general goal of medical education. It would be safe to assume that an aim of medical education is to help young professionals move toward greater self-direction in their learning. The situational teacher model proposes that through a series of interactions movement to the right and up on the teaching-learning dimensions is consistent with this aim. However, the location of the teaching-learning interaction at any given time or under any given set of circumstances is relative to the learning task at hand. It is completely possible to exercise all four teaching styles with the same learner from

day-to-day depending on varying circumstantial dependency levels.

The flow of the situational teaching process is outlined in Figure 5.

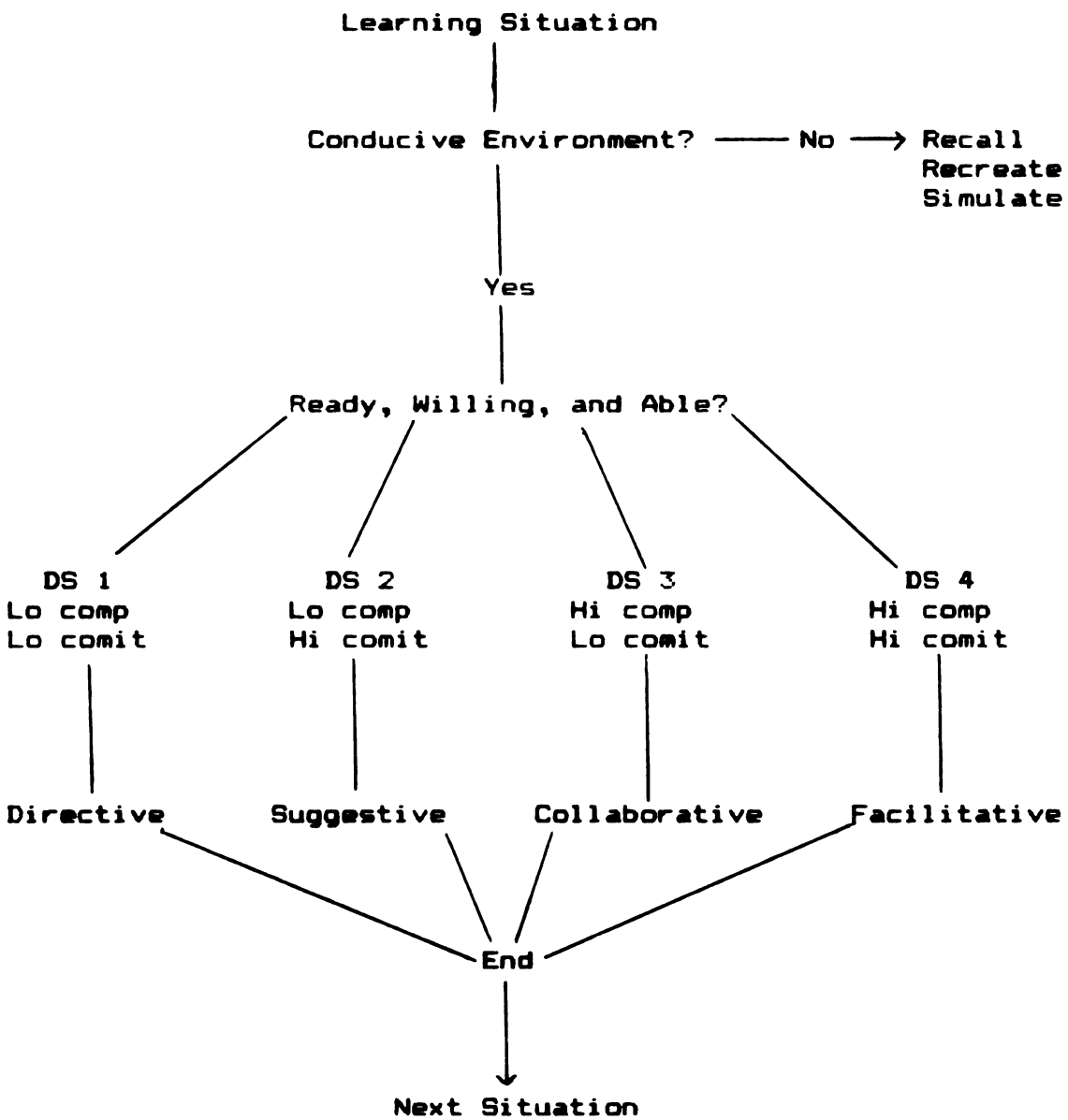


Figure 5. Flow diagram of the situational teaching process.

Summary

Clinical teaching interactions are important components of professional medical training, but most clinical teachers lack preparation to conduct such interactions with adult learners. Clinical instructors need to better understand teaching-learning interactions in order to help new professionals meet the increasingly complex demands of the health care system. A model of situational teaching for clinical interactions was formulated and tested in this study. Findings or recommendations from adult education, situational leadership, interaction analysis, models of teaching, and literature on teaching and learning styles contributed to the theoretical base. The model was then compared to actual practices in naturalistic settings with clinical teachers and learners.

Preview

The following four chapters will describe the methods and procedures for the continued formulation and field testing of the situational teaching model. Chapter 2 will survey significant literature from various fields of educational and leadership theory. These findings provided the conceptual base for the model design. Chapter 3 will contain the design of the study for building the model and

the methods for analyzing it in the field. Triangulated naturalistic or multiple qualitative methods will be emphasized. Chapter 4 will present the results of the model development process. Finally, chapter 5 will contain a summary of the findings and recommendations for the final form and use of the model.

Chapter 2

REVIEW OF RELATED LITERATURE

Clinical Teaching

Serious research on clinical teaching has been sporadic. Substantive surveys of the literature (Daggett, Cassie, Collins, 1979; Leninson-Rose and Menges, 1981; Meleca, Schimpfhauser, Witteman, Sachs, 1983) conclude that most research on clinical teaching may be characterized as anecdotal at best. Other than a few notable exceptions, studies on clinical instruction usually reflect the opinions or normative values of the authors and not the findings of rigorous research (Daggett et al., 1979).

Research on clinical teaching often looks like a patchwork of a wide variety of interests. For example, Byrne and Cohen (1973) observed the learning behaviors of medical students while on clinical clerkship. Their objective was to classify modes of learning into various categories like observing, modeling, trial-and-error, case study, question and answer, and inquiry. Sadler, Plovnick, and Snope (1978) explored the implications of resident learning styles on clinical teaching. Bibace et al. (1981) identified teaching styles of clinical instructors, designating them as assertive, suggestive, collaborative, and facilitative. Tremonti and Biddle (1982) looked at teaching behaviors of residents who were simultaneously learners. And Slatt,

Egelhoff, and Sloane (1984) examined teaching motivations of volunteer physician preceptors.

Only a handful of investigators have made contributions that were relevant to this study despite over fifty-year's worth of published medical education literature currently available. Irby (1978, 1983, 1986) and coauthors (Morgan and Irby, 1978; Irby and Rakestraw, 1981) have been interested in identifying attitudes and behaviors of effective clinical teachers. In general they have found that students think the most effective teachers are those who show enthusiasm, have strong interpersonal skills, involve the students, give direction and feedback, demonstrate skills, speak with clarity, seem accessible, and know the subject matter.

In a similar vein, Yonke (1979) summarized expert opinion, student perceptions, and research findings about clinical teacher characteristics. She concluded that an effective teacher emphasizes problem solving, is patient centered, is aware of teaching style, carefully supervises students, is friendly, integrates basic sciences into patient care, stimulates students to learn about themselves, and shares their own interests in technical matters.

Yonke along with Foley and others (Smilansky, Foley, Runkle, Solomon, 1978; Bazuin, Yonke, 1978; Foley, Smilansky, Yonke, 1979; Foley, Smilansky, 1980) have carried out a series of studies investigating verbal interaction behaviors in clinical teaching encounters. They found that

clinical teachers tend to dominate discussion by speaking up to 75% of the time in a typical interaction, give authoritative directions, and ask questions that require either regurgitation of memorized facts or low-level cognitive responses. They concentrated on questioning techniques and found that in some cases up to 85% of all questions asked by the clinical teachers elicited a simple fact or a yes-or-no answer from the clinical student. Subsequently, they devised a classification system of question types and instructional modules for improving questioning techniques (Foley and Smilansky, 1980). Closed questions ask for recall of information or a predictable convergent response. Open questions ask for a description of a cognitive process or an explanation of a value judgment. These four subtypes of questions are related to Bloom's (1956) taxonomy of the cognitive domain and should be important to any clinical teaching model.

Other types of interaction studies are rare in the clinical teaching literature, but their impact has been significant as evidenced by the number of times they are cited in other reports. Hilliard Jason (1962) devised cumbersome rating scales for his famous Medical Instruction Observation Record. These seven scales were: attitude toward difference, sensitivity to physical settings, attitude toward students, use of instructional materials, reaction to student needs, use of teaching methods, and use of

challenge. One important finding is that part-time instructors differed from full-time in several ways. Part-time teachers were less accepting of student differences, less favorably disposed toward students, less effective in their use of instructional materials, less responsive to student needs, and less active in their use of challenge. This is significant if it is recalled that of the 185,838 faculty members, 124,466 are part-time (AMA, 1986).

Adams et al. (1964) examined teacher emphases during teaching-learning interactions. Their findings suggest that clinical teachers emphasize content and problem solving, but were less effective in emphasizing attitudes and dealing with recognized weaknesses of the student.

Reichsman, Browning, and Hinshaw (1964) were perhaps the most critical of clinical teaching practices. They point out that much of clinical teaching is haphazard and mediocre, and does not meet the objectives of clinical training. Their explanation for this state of affairs is most relevant to this study. They state that the central difficulty with bedside teaching is "... having to teach without ad hoc preparation in breadth and depth in a field where much new information is being added to a substantial body of old knowledge." Faculty members expressed the view that other professional commitments seriously limited teaching, that teaching gave little tangible recognition, that part-time faculty status was second class, that

objectives were not clear, and enthusiasm for teaching was low.

Byrne and Cohen (1973) carried out an observational study of clinical clerkship activities. This study was performed from the learner's point of view and highlights some relevant insights. The findings suggest that the person often most influential in a student's learning is a more senior learner, not the faculty members. The clerks also preferred more active participation in patient care problems, but frequently got didactic presentations or passive observation. Finally, the authors point out that learners learn in different ways, "Yet there were few attempts by teachers to identify learning preferences and to adjust their training to match these preferences."

Stritter (1983) and his associates (Stritter, Hain, Grimes, 1975; Stritter, Flair, 1980; Stritter, Baker, 1982; Stritter, Baker, Shahady, 1986) have done significant research in clinical teaching and made important contributions to theory. They identified over sixty teaching behaviors of clinical instructors, and devised six dimensions of effective clinical teaching: active student participation, positive attitude toward teaching, emphasis on problem-solving, student-centered instruction, humanistic orientation, and emphasis on research. Their series of reports confirm that perceived effectiveness as a clinical teacher correlates with these dimensions.

Stritter's (1986) concept of the "learning vector" figured importantly in the model of the situational teacher because it addresses clinical teaching objectives and learner development. Essentially, the learning vector represents the net outcome of development of the learner on two continua: dependence-independence and professional maturity. Moving along this vector the young professional grows from dependence to independence and from novice stature to full professionalism. Three stages demarcate the vector - exposure, acquisition, and integration. This model stresses the developmental aspects of clinical trainees as well as showing the purposes of clinical instruction. These purposes are to promote independence and professional maturity. Another important side of Stritter's vector is its recognition of professional trainees as adult learners. He has incorporated the characteristics and developmental tasks of adult learners into the model, pointing out the practical implications for clinical teachers.

In summary, clinical teaching research has been highly diverse, erratic, anecdotal, and non-systematic. Rigorous studies that have been conducted reveal that clinical teaching is a low priority item for the instructors, is often performed in a mediocre fashion, and does not promote higher-order thinking. Interaction research shows that the clinical teacher often dominates the discussion, and asks questions requiring simple recall or yes-and-no answers.

These findings further detail and explain the problem underlying the purpose of this study.

The most important contributions to the situational teacher concept from this survey of the medical education literature were: clinical teaching styles (Bibace et al., 1981), questioning techniques (Foley and Smilansky, 1980), and the learning vector (Stritter, Baker, Shahady, 1986). Naturalistic studies in the field also provided samples of techniques employed in this study.

Situational Leadership

The central idea for the situational teacher model came from the works of Paul Hersey on situational leadership (Hersey and Blanchard, 1977; Hersey, 1984). He explained that any interaction between a leader and a follower involves task behaviors and relationship behaviors (1984, pg. 125). Task behaviors are those when a leader defines roles; tells what, how, when, and where to do something; and becomes involved in goal setting, organizing, setting timetables, directing, or controlling. Relationship behaviors are those when a leader engages in two-way communication, listening, facilitating, and giving feedback. Creating two continua from each of these types of behaviors, and indicating that a leader may exercise either one along a range from low to high, Hersey designed a four-celled model

of leadership style. High task - low relationship style, he labeled as "Telling"; high task - high relationship was "Selling"; low task - high relationship was "Participating"; and low task - low relationship was "Delegating". Determining what style to use in a particular situation depended on the follower's readiness, willingness, and ability to perform the tasks involved. Readiness is determined by the level of willingness and ability the follower brings to the situation (1984, pg. 70). Willingness is the necessary confidence, commitment, and motivation to do the task. Ability is the level of knowledge, experience, and skill to perform the task. Combinations of levels of these two characteristics determined readiness and then the leader's style that must be matched. Thus a follower who was unable, unwilling, and unmotivated needed "Telling". In other words, that follower needed specific instructions, close supervision of performance, and high task orientation. On the other hand, a follower who was ready, willing, and able needed "Delegating". That follower could be given decision making power, responsibility, and implementation authority.

Some important assumptions behind the situational leader model were identified in an earlier work on organizational behavior (Hersey and Blanchard, 1977). The level of maturity, ability, readiness, motivation, knowledge, or skill of a follower cannot be viewed as a

'trait' in any general sense of that term, but as situationally relative, depending on the specific task involved (1977, pg. 88). The second major assumption of their work is that there is a continuum of organizational value systems labeled as "bureaucratic/pyramidal" to "humanistic/democratic" (1977, pg. 60). The situational leader model allows for behaviors that encompass either pole of the system, but certainly seems to be rooted in the humanistic/democratic end because of its relativistic and flexible viewpoint. The third assumption is that job performance outcomes would be effective if leadership styles were matched to follower readiness. They called this "high probability matching" and the "effectiveness dimension" (1977, pg. 104).

Blanchard, Zigarmi, and Zigarmi (1985) have refined the ideas of situational leadership, changed some labels, and combined them with concepts of 'one minute management'. Despite the almost pop-cult stature that one minute goal settings, praisings, and reprimands have attained, these authors have improved the situational leadership model. Their four leadership styles are directing, coaching, supporting, and delegating (1985, pg. 30). They have changed the task and relationship behaviors to directing and supporting behaviors, and have changed follower readiness to developmental level (1985, pg. 50). Follower developmental level is determined by combinations of levels of competence

and commitment. The 'one minute' concepts have been incorporated into a flow diagram of situational leadership and one minute management. The sequence of events is: set goals, diagnose developmental level, match appropriate leadership style, praise or reprimand performance, then recycle changing leadership style as follower developmental level changes (1985, pg. 94-95).

The concepts of situational leadership and one minute management have been applied to business (Blanchard and Johnson, 1982; Blanchard and Lorber, 1984), organizational change (Hersey, Blanchard, Guest, 1977), child rearing (Johnson, 1983), family relations (Blanchard and Hersey, 1979), and teaching (Johnson, 1986). Besides gripping concepts, common sense, and several practical strategies for improving interactions, the importance of these works to this study lies in their style of presentation and concern for brevity. Busy clinical teachers would well receive a concept if it is common sensical, easy to grasp, brief, and applicable to their day-to-day activities.

To summarize, situational leadership theory advocates changing leadership style depending on the level of readiness of the follower to perform a task. Four basic styles have been identified to match various combinations of willingness and ability: telling, selling, participating, and delegating. These styles mix task behaviors with relationship behaviors to try to achieve a high probability

match for the effective performance outcomes. The central assumption of situational leadership is that the follower's readiness is relative to the task to be performed. Evolution of this theory has resulted in newer terms and concepts being applied to a more dynamic model.

The most important contributions to the situational teacher concept from this survey of the situational leadership literature were: trait versus situational style (Hersey and Blanchard, 1977), the situational leader model (Hersey, 1984), and the situational leadership process (Blanchard, Zigarmi, Zigarmi, 1985). 'One minute' simplicity and brevity also have provided samples of presentations used in components of this study.

Interaction Analysis

There is a vast amount of literature on teacher - learner interactions. However, being concerned with non-classroom interactions significantly narrows the scope of this survey of the literature. Good and Brophy (1971, pg. 40) state, "Traditional interaction analysis studies treat the classroom as a group as the unit of analysis." Thus, the interactions being studied are between the teacher and the class as a group, and the assumption is that the teacher's behavior is consistent across students. In a series of studies Good and Brophy (1970, 1971, 1974) have shown that a

class-as-a-whole is not an appropriate unit of analysis nor do teachers behave consistently across all student-teacher interactions. They favor "dyadic" interaction analysis. Dyadic, one-to-one, interactions are the type that occur most frequently in clinical teaching in the professions.

Research dealing with non-classroom, dyadic interactions between adult educators and learners is virtually non-existent. Clinical teaching studies such as Hillard Jason's (1962) have been outlined in a preceding section. Thus, only two major aspects of interaction analysis literature had a bearing on this study: the general interaction analysis technique, and the overall trend of research findings that were extrapolated into guidelines for this study.

The Flanders' (1963, 1970) System of Interaction Analysis is the most widely used technique to examine teacher-student verbal interactions. The system is very easy to learn and to use, and reliability is consistently high. Essentially, an observer determines one of ten separate types of verbal behavior taking place every three seconds and records them on a running list. The categories of behaviors include: accepts feelings, praises, accepts ideas, asks questions, lectures, gives directions, criticizes, pupil responds, pupil initiates, and silence or confusion. The list of numbers are then cast into a matrix of pairs to show profiles of interactions taking place during the

observation period. Amidon and Hough (1967) collected several classic studies by Flanders and others and present a complete set of principles and practical suggestions for application. They clarify Flanders' concept of the matrix and show several examples of its application in actual settings.

The Flanders' system may be easily adapted to observations of dyadic interactions in clinical teaching and should be easier to use than in classroom settings. Simon and Boyer (1974) not only give several samples of adaptations of the Flanders' system to a variety of settings, but generally outline the steps in the analytic technique that may be applied across circumstances. They propose that events should be observed in a time-linear fashion, coded into a taxonomy of categories, transformed into data, and then graphically displayed for use in evaluation processes.

Relative to major findings of interaction analysis research, Flanders (1970, pg. 13-14) proposed some generalizations that still seem to be upheld in more recent reviews of teaching-learning interaction studies. His "rule of two-thirds" states that teacher talk occupies two-thirds of all teacher-learner interactions, and that two-thirds of all that teacher talk is in the form of lecturing or asking questions which stimulate an expected line of narrow responses. He also indicates that most of the structure of

an interaction is established by the teacher, that most of student talk is asking for clarification of directions, and that there is very little teacher consideration of student ideas. Finally, he thinks that more consideration of learner ideas, stimulation of more student initiation, and more flexible teaching behaviors leads to better attitudes toward the teacher and subject matter, as well as better learning outcomes.

Flanders' view of better outcomes resulting from the teacher behaviors he recommends is the central theme of controversy in interaction research. The argument that there is one best teaching style enjoys a long heritage of contention and shows no contemporary sign of being resolved. In a review of the first half of the twentieth century's research on authoritarian versus democratic leadership or teaching styles, Anderson (1959) concludes that, "The evidence available fails to demonstrate that either authoritarian or democratic style is consistently associated with higher productivity." This view is echoed by Sperry (1972) in an examination of a multitude of teaching-learning interaction characteristics. In authoritarian versus democratic, teacher-centered versus student-centered, direct versus indirect, dominative versus integrative, planned versus unplanned, and structured versus unstructured teaching styles, no consistent finding favors one side or another in relation to learning outcomes.

Certain researchers (Solomon, Bezdek, Rosenberg, 1963, pg. 1) state, "Possibly the teacher's behavior is simply not very important to the student's learning. Or perhaps, in spite of the large number of studies, the proper variables of teacher behavior have not been studied in relation to the proper measures of learning."

Subsequently, more rigorous research on interactions became known as aptitude-treatment interaction research. Cronbach and Snow (1977) and Snow and Peterson (1980) conclude that even after renewed vigor and improved methods of aptitude-treatment interaction research, no consistent improvement of learning can be demonstrated by the application of any one style of teaching. Cronbach and Snow (1977, pg. 492-493) sum up the crux of the problem most completely, "Aptitude-treatment interactions exist. To assert the opposite is to assert that whichever educational procedure is best for a particular learner is best for everyone else in the same circumstances." But, "We cannot hope to establish generalizations that will hold up under similar settings. When a person variable and a treatment variable are paired speculatively, the interaction effect is likely to be negligible."

In the most recent review of educational research on aptitude-treatment or "attribute-treatment" interaction studies, Miller (1981) not only substantiates Cronbach and Snow's view, but details the significant design and analytic

difficulties researchers face when investigating interaction events. Miller points out that the conceptual and design problems are only surpassed by the practical and logistical problems faced in trying to carry out experimental studies in classrooms. One promising trend concerns learner affect. Students may not show consistent improvement of learning outcomes, but their attitude seems to be favorably disposed toward teachers who attempt to adjust style to their needs or characteristics as learners. Miller (1981) indicates that this trend seems to be emerging in studies related to conceptual systems theory which will be reviewed in a later section of this survey.

To summarize, interaction analysis research shows that no one teaching style can predictably improve learning outcomes. Research findings have been surprisingly inconsistent in face of the logic of the idea that certain teaching behaviors or styles should produce predictable responses. The concept of matching style with learner attributes is viewed as a worthy concept that has yet to be fully studied.

The most important contributions to the situational teacher concept from this survey of the interaction analysis literature were: "dyadic" interaction analysis (Good and Brophy, 1970, 1971, 1974); the "rule of two-thirds" (Flanders, 1963,1970); inconsistency of interaction effects (Cronbach and Snow, 1977); experimental design problems in

interaction research (Miller, 1981). Interaction analysis methods provide useful observational techniques (Flanders, 1970; Amidon and Hough, 1967; Simon and Boyer, 1974) that were used as components of this qualitative study.

Learning And Teaching Styles

The ease of focusing the review of the literature on learning and teaching styles is similar to the survey of interaction analysis because the greatest majority of research on style has been conducted on classroom teaching and learning. Non-classroom, non-trait, dyadic, situational style research has not been conducted. Therefore, translation or extrapolation of studies that have more general applications was necessary to fill in the concept of the situational clinical teacher, and these are few in number.

Keefe (1979, pg. 8) defines learning styles as "characteristic cognitive, affective, and physiological behaviors that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment." Axelrod (1973) and Eble (1980) define teaching style as the set of attitudes, values, and behaviors that reflect a characteristic manner of interacting with students in teaching-learning situations. These broad definitions encompass a wide variety of

theories, constructs, and instruments that delimit style. These definitions are consistent with many others available in the literature (Eble, 1980; Smith, 1982; Price, 1983). Keefe (1979) goes on to point out that style constructs come in many different forms, and he outlines at least twenty major theories. However, there is no unified theory of style to bind them together, and the field is in disarray and confusion as a result. Jacobs and Fuhrmann (1984, pg. 99) confirm this finding and state an even more important implication. Not only is the field diverse and confusing, but educators have not been very successful in applying the concept. They say, "... the literature indicates the significance of learning style and reveals that little has been accomplished in providing teachers with information that could impact practice and achievement."

Curry (1983) highlights the problems. How is learning style to be related to other learning theories? How can learning styles be grounded in observable behavior? What level of theory is needed to explain learning style? And, how can definitions and concepts be clarified? She has proposed an organizational scheme that appears to unify concepts as well as answer much of the confusion arising from these questions. She constructs a diagram of three concentric circles in which consecutive layers represent learning style theories that have greater degrees of connection with personality structures the closer you

approach the center of the model. Thus, theories on the surface are loosely connected to personality structures and more closely represent "learning preferences". For example the works of Dunn and Dunn (1979), Riechmann and Grasha (1978), and Canfield's (1972, 1975) learning and instructional styles inventories explore issues such as preferred peer relationships in learning, interaction with teachers, organization of classes, levels of independence, and attitudes toward reading, lecturing, and other instructional methods. These preferences are the least stable over time and the most susceptible to external influence and developmental change.

The next layer down is the psychological level representing "information processing" abilities. Residing at this level are theories such as Kolb's (1984) model of experiential learning, Hunt's (1979) conceptual level theory, Kagan's (1966) reflection-impulsivity dimension, and Gregorc's (1982) mediation delineator theory. These style concepts deal with more basic psychological abilities. Therefore, they tend to be stable over time, less susceptible to external influence and developmental change. Gregorc explains these constructs as representative of two basic mediation processes between the person and the environment: the way information is perceived and how information is expressed. His mediators are abstraction, concreteness, randomness, and sequencing. Kolb's mediators

are experiencing, observing, abstracting, and experimenting. Hunt's are need for structure and expression of responsibility. And Kagan's deal with conceptual tempo. These theorists have each developed instruments to measure these stylistic characteristics.

The inner most layer is best designated as "cognitive style". Cognitive styles are deep-seated in personality and seem to be intimately related to basic functional processes. Samples include Jung's (1921) theory of psychological type and its application in the Briggs Myers' (1980) type indicator, and Witkin and Goodnough's (1981) concept of field-dependence and field-independence. These elements of style are stable, often throughout a person's lifetime, and seem almost unaffected by external influences or other developmental changes.

The importance of Curry's (1983) scheme to the situational teacher model is that different styles vary in relative stability and susceptibility to external influence. If this were not the case, in other words, if teaching styles were trait-like, then to recommend that teachers develop a repertory of styles to be applied situationally would make no sense.

The existent descriptions or formulations of teaching styles clearly fall in the outer most layer of Curry's scheme. Adelson (1961) likens teachers to shamans, priests, and mystic healers. Axelrod (1973) described two teaching

style types, didactic or evocative craftsmanship. Canfield (1975) examines teacher preferences for conditions, content, mode of presentation, and performance expectancy. Gregorc (1979) proposes that teachers have the same learning style as learners and these affect their teaching behaviors. Thus teachers may be concrete sequential, concrete random, abstract sequential, or abstract random. And Glassman (1980) advocates the teacher as leader.

Moving to a more general set of classifications, a number of authors have looked at teaching styles as a range of behaviors falling along a dimension with contrasting poles. Brostrom's (1979) teaching style inventory classifies teachers as behaviorist, structuralist, functionalist, and humanist. These styles seem to fall along a dimension that is mechanical on one end to humane on the other extreme. Other continua have been presented in a previous section of the review of literature. Flanders' (1963) concept of dominative versus integrative teaching is a prime example. The authoritarian versus democratic was also a widely used dimension (Anderson, 1959) in older literature. The more contemporary usage (Knowles, 1984) of teacher-centered versus learner-centered styles is descriptive of the general characteristics at either end of these dimensions.

Style concepts have become particularly important in adult education and in leadership literature. Situational leadership styles have already been detailed. Perhaps, Smith

(1982) is the leading proponent of style theory in adult education, but it also seems that accommodation for individual styles in learning is an intrinsic concept in all of adult education theory. The influence of these adult education precepts on medical education is clear in the work of Byrne and Long (1973). They developed a dimension of teaching style extending from low personal feedback to high personal feedback. Bibace, Catlin, Quirk, Beattie, and Slabaugh (1981) took this dimension, expanded it, and created a model of four styles labeled assertive, suggestive, collaborative, and facilitative. They emphasize that these styles are on a continuum that is teacher-centered to learner-centered and that the clinical teacher should move along this dimension taking up differing styles as circumstances demand. It is interesting that in a workshop the authors designed, videotapes are shown of the four different teaching styles with the same learner presenting his learning problem in the same way. The learner's idiosyncratic needs are almost forgotten.

This one-sided application of teaching style points to the major paradox of learning and teaching style theory. While style concepts emphasize individual difference, there is a tendency to generalize stylistic considerations across all situations. Style becomes general ability, or trait, and not truly situational. The situational leadership styles outlined in a previous section address this potential

shortcoming. The learner's conceptual level, need for structure, locus of control, knowledge, skills, and attitudes are relative to the learning task at hand. They are influenced by previous experience, a repertory of preferred skills, and psychological abilities, otherwise conceived as learning styles, but each situation is unique.

Implied in style literature is the fact that learning and teaching are interactions, even if a person is learning by teaching himself (Tough, 1967). The full impact of this fact is not stressed. Teaching style is often conceived in isolation from learners, and learning is viewed in the same way. The situational model emphasizes the transactional nature of teaching-learning interactions. This matching of teaching and learning styles is really only possible in dyadic interactions. The problem of trying to teach to a variety of individuals with different learning styles does not apply (McCarthy, 1980).

To summarize, learning and teaching style concepts are perhaps the most theoretically challenging background components of the situational teacher model. There are at least twenty major paradigms of learning style and the connections between these paradigms and other learning theories is sometimes difficult to see. Practical application problems, conceptual confusion, and a tendency to generalize styles across time and setting add further difficulties. Curry's (1983) three-layered model clarifies

many of these issues and contributes an important insight into the relative susceptibility of styles to outside influences. Current descriptions of teaching styles indicate that they may very susceptible to influence and developmental change, teaching is a learned craft (Eble, 1981). The situational teacher model proposes a repertory of teaching styles to be applied to meet individual learner needs in clinical teaching-learning interactions.

The most important contributions to the situational teacher concept from this review of the teaching and learning style literature were: concentric circles scheme (Curry, 1983); information processing styles (Kolb, 1984; Gregorc, 1982; Hunt, 1979); teacher-centered to learner-centered styles dimension (Knowles, 1984); and style labels such as assertive, suggestive, collaborative, and facilitative (Bibace et al., 1981).

Conceptual Level And Models Of Teaching

Since earlier works in the conceptual systems theory of personality organization (Harvey, Hunt, Schroder, 1961), Hunt and associates have been involved in a series of studies that have defined the concept of conceptual level (Hunt and Joyce, 1967; Hunt, 1976a, 1976b, 1977, 1979; Hunt, Butler, Noy, Rosser, 1977). Conceptual systems theory is essentially a cognitive theory of personality development.

Hunt proposes that cognitive growth proceeds along a continuum from concrete to abstract abilities, and this growth is facilitated by the processes of cognitive differentiation and integration. The total personality is composed of various conceptual systems, each passing through or fixed at various levels of development.

Conceptual level is conceived as a point on the concrete-abstract continuum, and Hunt has indicated that there are three levels for practical educational purposes: low, medium, and high. On the low end the learner is concrete; thinks in terms of absolutes, categories, and stereotypes; seems to be inflexible, narrow, and ritualistic; and tends to be resistent to suggestion. Hunt (1979, pg. 29) has labeled this level as "unsocialized". The medium level is called "dependent" and is typified by a learner who is concerned with rules, is dependent on authority, thinks categorically, is concerned with self-image, has an increased tolerance for frustration and ambiguity, and accepts a diversity of opinion. The high abstract level learner is complex, abstract, cooperative, relativistic in thinking, dialectical, and very flexible. The Paragraph Completion Method (Hunt et al., 1977) is used to assess conceptual level.

Hunt (1979) has applied the conceptual level concept to learning style theory, and describes learning style in terms of student need for structure. Thus, low conceptual level

learners need highly structured learning experiences and high conceptual level learners need much less externally imposed structure. Hunt (1976a) uses the terms "reading" and "flexing" to describe the process of assessing the students' conceptual level and matching the appropriate structuring to their need. He defines teaching style then in terms of teaching activities that provide little, some, and much structure for the learning situation.

Murphy and Brown (1970) have described specific studies of matching conceptual systems to teaching style in addition to their own investigation that hypothesized the teacher's conceptual level would influence the way information was processed in the classroom. Their findings showed a relationship between conceptual level and information processing behaviors. The ideas of matching teacher characteristics and learner characteristics, or teaching styles and learning styles has been explored extensively (Sperry, 1972). Other studies have been outlined in previous sections of this review. While the evidence is still inconclusive (Hunt, 1977), Brophy and Good (1974, pg. 269) conclude that, "Of the variables studied, conceptual level seems the most promising as a basis for optimizing matching teachers and students."

Unfortunately, conceptual level is subject to the same problems encountered in other style research. Conceptual level is treated as if it were fixed in an individual at a

specific time, and most research studies treat classes of students as the unit of analysis. True accommodation of individuals is rare as is the consideration of situational factors in learning events and one-on-one interactions.

Joyce and Weil (1972) view conceptual level as an umbrella concept under which they outline their theory of models of teaching. A model of teaching is a frame of reference that guides curriculum planning, teacher-student interactions, methods and materials selection, and evaluation procedures. They discuss sixteen separate models and classify each according to the amount of structure needed and the appropriate conceptual level required. In a later work (Hunt, Joyce, Noy, Reid, Weil, 1974), they theoretically coordinate conceptual level, models of teaching, and desired learning outcomes. They (Joyce, Weil, Wald, 1973) have also proposed an innovative teacher preparation program using the models of teaching concept.

The important point of the models of teaching system is that a teaching style may be conceived as a frame of reference or value system that guides behaviors, and that these models can be placed in a taxonomy of conceptual level and need for structure. For example, Knowles (1975) dichotomized andragogy and pedagogy along teacher role, learner role, content, and climate dimensions. Each may be viewed as a model of teaching with its own frame of reference, values, subject matter orientation, set of

techniques, structure goals, and desired levels of learning outcomes. A second point is that a teacher can develop a repertory of models of teaching assuming that the characteristics of each model are not widely divergent from each other. Joyce, Weil, and Wald (1973) have shown this to be feasible in their teacher preparation program at Teachers College, Columbia University.

In summary, conceptual level is a way to think about differences in learners, how they learn, and under what conditions they learn best. Conceptual level describes students as being cognitively concrete or abstract, as exercising various degrees of dependence or autonomy in learning tasks, and as requiring differing degrees of imposed structure in learning situations (Hunt, 1979). The higher the conceptual level the higher the need for self-direction and the lower the need for structure. Models of teaching are described as frames of reference that guide all aspects of the teaching process (Joyce and Weil, 1972). Conceptual level theory is a way to classify or categorize various models of teaching.

The most important contributions to the situational teacher concept from this review of conceptual level and models of teaching theories were: unsocialized, dependent, and independent conceptual levels or learning styles (Hunt, 1979); and a model of teaching as an identifiable frame of reference (Joyce and Weil, 1972).

Facilitation And Adult Education

The tenets of adult education form the underlying set of teaching and learning assumptions guiding the formulation and operationalization of the situational teacher model for professional clinical training. No attempt will be made here to review the vast body of adult education knowledge, but a few particularly salient works that directly pertain to the model will be addressed in this final section of the review of related literature.

Roueche (1984) outlined "30 things we know for sure about adult learning", but these items do not expand upon the key elements outlined by such authors as Knowles (1970, 1975, 1984, 1985), Smith (1982), Brookfield (1986) ,and Knox (1986). To paraphrase Smith (1982, pg. 33-59), adults have multiple roles, tasks, and responsibilities that affect their learning. Adult experience is diverse and may have positive or negative effects on learning. Adults have developmental tasks that place special demands on their learning. And adults have anxiety in learning situations that arise from paradoxes such as dependence versus independence, autonomy versus control, stability versus change, and self-confidence versus self-doubt. Adult learning conditions should provide for learner input into the learning process; the utilization of experience as a resource for learning; relating developmental tasks to what

is to be learned; as much autonomy as the method allows; a climate that minimizes anxiety and maximizes freedom to experiment; and consideration of adult learning styles in the planning, implementation, and evaluation of the learning experience. The aims of adult education should be to promote inquiry and critical thinking, transference ability, subject matter mastery, self-understanding, and learning process awareness.

These aims are all encompassing. Knox (1986) echoes these goals and states that the aims of adult teachers should be to provide well planned adult instruction, promote inquiry, and facilitate better performance. Relative to professional training, Schon (1987, pg. 40) proposes that the aim should be "the construction of new knowing-in-action through reflection-in-action undertaken in the indeterminate zones of practice." The outstanding point about adult education aims as outlined by these authors is their greater concern for process than for content. This area of contention between process and content has been mentioned in other sections of this review. Content mastery is a critical component of medical training, but the controversy will not be resolved here. The situational teacher model is process oriented.

The concept of facilitation has become the important teaching-learning process orientation in adult education. Gordon (1974) has pointed out that teaching and learning are

distinctly separate processes. What is most important, however, is not the teaching nor the learning, but the communication that links them. While he does not label it facilitation, Gordon proposes that effective teachers accurately identify ownership of problems, use the language of acceptance rather than unacceptance, listen actively, send 'I messages' instead of 'you messages', and provide reflective feedback. This is, in fact, facilitation. The principles of teacher effectiveness training have an impact on the operationalization of the situational teacher concept.

Carl Rogers (1969, pg. 157-163) was one of the first adult educators to outline steps in facilitating learning. Starting from the assumption that teaching is a vastly over-rated activity, he proposes that to facilitate learning the teacher must set a climate, clarify goals, rely on personal motivations of the learner, accept learner ideas and feelings, involve the learner in the learning activities, share himself as a teacher, be alert to the emotional climate of the learning group, and recognize his own limitations. These steps formed the basis of those later explained by Knowles (1975) in his guide to self-directed learning.

Wittmer and Myrick (1980, pg. 63-87) think facilitative teaching promotes learning that is meaningful, voluntary, self-initiated, self-evaluated, and feeling oriented. They

have identified a series of teacher responses to learners that range from the least to the most facilitative: advising -evaluating, analyzing-interpreting, reassuring-supporting, questioning, clarifying-summarizing, and reflecting-understanding feelings. Facilitative teachers are effective listeners, genuine, understanding, respectful, and have strong interpersonal communication skills.

The most comprehensive presentation of facilitation skills and concepts in contemporary adult education literature is by Brookfield (1986, pg. 11-19). He characterizes effective facilitation of adult learning as those activities that promote voluntary participation, mutual respect, a collaborative spirit, praxis, critical reflection, and self-direction. By implication, effectively facilitated learning should be characterized by high motivation, participatory learning activities, experiential grounding, reflection on action, inquiry, critical consciousness, and transactional dialogue.

Finally, Knowles (1970) addresses facilitation of learner maturation in his classic work on modern adult education, and this concept of learner maturity is particularly applicable to the situational teacher model. Knowles believes that facilitation of a learner's maturation process is the proper aim of adult education and continued lifelong learning. Knowles points out that an individual has three central objectives motivating his continued learning:

to prevent obsolescence, to achieve self-identity, and to mature into the fullest potential as an individual. These goals are also especially relevant to the professional trainee. Several specific maturation processes presented by Knowles included: dependence to autonomy, passivity to activity, subjectivity to objectivity, small to large abilities, narrow to broad interests, few to many responsibilities, amorphous to integrated self-identity, superficial to deep concerns, imitation to originality, and impulsiveness to rationality. Knowles' thoughts on maturity along with those of Hersey and Blanchard (1977) in leadership, Hunt (1979) in conceptual systems theory, and Stritter, Baker, and Shahady (1986) in professional development were used to formulate the learner dimension of the situational teaching model.

To summarize, the principles of adult education serve as a frame of reference for the situational teacher model. A central concept in adult education literature is facilitation. Teaching behaviors might be viewed as more or less facilitative and this provided a base for describing the teaching dimension in the situational teacher model. The facilitation of learner maturation is a key aim of adult education and is compatible with concepts of professional development in medical training programs.

The most important contributions to the situational teacher concept from this review of adult education and

facilitation literature were: essential elements of adult education (Smith, 1982); dimensions of maturity (Knowles, 1970); and facilitation theory and practice (Rogers, 1969; Knowles, 1975; Gordon, 1974; Wittmer and Myrick, 1980; Brookfield, 1986).

Chapter 3

METHODOLOGY AND PROCEDURES

Conceptual Framework

The theoretical perspectives of situational leadership, individual difference in teaching and learning performance, and adult education have been combined to form the general educational and conceptual basis for the situational teacher model outlined in the introduction and presented in greater detail in the review of related literature.

The conceptual framework for the research design and analytical procedures used in this study were derived from the theoretical and methodological perspectives of qualitative research (Bogdan and Biklen, 1982; Glaser and Strauss, 1979; Hammersley and Atkinson, 1983; Merriam and Simpson, 1984).

Ironically, the empiricist-oriented Baker and Schutz (1971, 1972) supply three assumptions important to the theoretical departure of the design of this study: educational research couched in terms of independent and dependent variables is too simplistic to explain teaching-learning interactions and outcomes; education's greatest need is for the application of an already substantial body of theory to the solution of problems; and the aim of instructional research is to reduce uncertainty regarding the nature of teaching and learning (1972, pg. XIX-XXI).

Baker and Schutz (1972, pg. XIX) explain the reasons behind these assumptions in the following statement:

> Educational researchers had traditionally viewed defined pupil performance (consequent variable) as a direct function of defined instruction (antecedent variable). And educational practice was similarly viewed - as directly influenced by research.
>
> Though neat and tidy, these relationships proved spuriously simple. Despite fifty years of educational research, it was still impossible to identify any reliable relationships between pupil performance and conditions of instruction or to show any observable improvement in educational practice based upon research. This is not to say that pupil performance is immune to conditions of instruction or that educational practice is impervious to change... It suggests that our simplistic paradigms must be complexified before our operational practice can be simplified. And it suggests that our concern with research must be accompanied by a concern with development in education.

While this statement borders on the extreme, several issues raised are important to this study of clinical teaching. Professional teaching-learning interactions in a clinical setting are highly complex, and attempts to severely reduce that complexity endangers the research through excessive over-simplification. Guba and Lincoln (1981, pg. 81) affirm this position by pointing out that "discrete variables and their relationships do not seem to be sufficient to deal with the complex interactions and patterns of human behavior".

The possibility that no cause-and-effect relationship between teaching and learning can be adequately elucidated

has been raised by other authors (Rogers, 1969; Solomon et al., 1963; Gordon, 1974) cited in the review of related literature. Pratt (1981, pg. 112), in speaking about adult education research concludes that there is a need , "... to break from the heavy dependence on the process-product paradigm... to a more comprehensive examination of the complex set of factors that influence teacher effectiveness."

Consistent with the law of parsimony, generation of new theory was not the intent of this study since the theoretical constructs already presented seem to be adequate to serve as the basis for the situational teacher model. And the need for clearer understanding of clinical teaching-learning interactions is evident from the review of clinical instruction literature.

Qualitative research theory and methods are intimately compatible with these assumptions. Bogdan and Biklen (1982, pg. 27-30) succinctly summarize the characteristics of qualitative research: it uses the natural setting as the source of data and the researcher as the key instrument; it is usually descriptive; it is concerned with processes more than outcomes; it analyzes data inductively; and it is centered on 'meaning' from an interactionist perspective. It is virtually self-evident that any description of interactions in education must be grounded in actual practice. Participant observation and constant comparative

techniques allow for taking on the perspective of the teachers and learners in day-to-day events in medical education.

Denzin (1978) advocates the use of a number of investigatory methods in conducting qualitative research, and he labels this multiple strategy technique 'triangulation'. Used alone, no one method of inquiry can account for the variety of "rival causal factors" in a behavioral event. Multivariate, analytic induction must be used to understand these events and relationships. Finally, Kuzel (1986) highlights the need for naturalistic inquiry in medicine, stating that the philosophical basis of medicine is consistent with that of naturalistic inquiry. These observations are consonant with the accomplishment of the intent of this study.

Research Design

The research design for this study was a modification of Glaser and Strauss's (1967) constant comparative analysis procedure (Merriam and Simpson, 1984, pg. 89-104), and analytic induction methods outlined by Bogdan and Biklen (1982, pg. 55-72).

The major steps of the design were:

1. Early in the research a preliminary explanation of the phenomenon under study was created. This 'sketch' or model was completed through a synthesis and integration of theory and research reported in the review of literature, and was outlined in chapter 1.

2. Categories of data were identified. In this case the categories of data were tentatively pre-identified from key issues associated with the elements of the model discovered in preliminary observations of clinical teaching and the review of related literature.

3. Data were collected and the model was held up to the data for comparison and contrast.

4. The model was modified as cases were found that did not fit the model. This process was repeated to a point of "theoretical saturation" (Glaser and Strauss, 1979, pg. 62-71). Non-fit or negative cases were specifically sought in this reformulation process.

5. The model was redefined until consistent patterns and relationships were discovered, and then was presented in fullest form.

Subjects

The subjects for this study were medical and allied health professionals involved in clinical teaching and learning in clinical settings. The teachers were physicians, nurses, and other allied health professionals. Nineteen clinical teachers participated in the study. The learners were undergraduate allied health students, medical students, and post-doctoral trainees. Forty-five of them agreed to participate. Other professionals interested in patient

teaching (3) as well as adult educators (30) were asked to contribute opinions and analyses of the model. A total of 97 teachers and learners contributed to the study. Most were physicians, but 2 clinical psychologists, 3 physician assistants, 9 nurses, and 30 adult education graduate students also were observed or gave insightful opinions.

The study took place primarily in Midland Hospital Center, a 300 bed community teaching hospital in Midland, Michigan; a rural branch of Michigan State University, College of Human Medicine, the Upper Peninsula Medical Education Program in Escanaba, Michigan; and at the Saginaw Regional Center of Michigan State University. Nursing faculty and students from Saginaw Valley State College using Midland Hospital facilities were also included. Permission to conduct the study was granted by directors of each program at the medical sites, and volunteer participants were solicited.

Each participant was given an information form disclosing the nature of the research, insuring anonymity and confidentiality, and an estimate of their time involvement. Participants signed the agreement having been informed that they could choose not to participate or could withdraw from the study at any time without penalty. No individual who was approached declined to participate.

Validity

The term 'validity' must be defined carefully within the context of research assumptions employed in any study, but this is of critical importance in qualitative studies. Standard empirical definitions (Kerlinger, 1973, pg. 456-476) concerned with internal and external validity, generalizability, and reliability are significantly changed or do not apply to most ethnographic efforts. Validity as conceived in this study is more concerned with credibility, fittingness, plausibility, and representativeness (Guba and Lincoln, 1981) of the model.

The model had face appeal to the clinical teachers who were exposed to it during formative stages. The review of related literature pointed out the need for such a concept as well as highlighting the theoretical basis for it.

The role of the researcher is a significant factor in the validity of a study in qualitative research. The duties of the researcher assumed in this study were to try to reach a plausible explanation of the phenomenon under study, and to be intellectually honest (Cusick, 1986). This honesty demands that competing ideas should be excluded, primary sources should be reported, data should be reported as objectively as possible, and the limitations or biases recognized.

The search for competing ideas was conducted early in the formative phases of the model building process. No competing idea was found in leadership, educational, or medical education literatures. Knowles (1984, pg. 54) created a diagram using maturation from infancy to adulthood as one axis and degree of dependency as the other. Stritter, Baker, and Shahady (1986, pg. 102) invented the concept of the 'learning vector' which is net movement along two axes, dependence and professional maturation. Hersey (1984, pg. 63) uses a dimension of task behaviors and a dimension of relationship behaviors, matches follower readiness with leadership styles, and creates four styles called telling, selling, participating, and delegating. Blanchard, Zigarmi, and Zigarmi (1985, pg. 68) modify Hersey's ideas and deal with supportive and directive behaviors, follower developmental levels, and directing, coaching, supporting, and delegating styles. These works were drawn on heavily for the situational teacher model, but none of them specifically deals with teaching, they do not quite show matched interactions, and none of them points out mismatching possibilities. The situational teacher model synthesizes, integrates, and expands upon ideas from these primary sources and applies them to clinical teaching.

The problems with objectivity of data reporting and personal biases will be presented in the next chapter.

Procedures, Data Collection, and Analysis

Hammersley and Atkinson (1983, pg. 174-206) clarify the fact that data, data collection, and analysis are "reflexively" related and that proper ethnomethodology should be "funnel" shaped. In other words, the effects of the researcher, the data, and the analysis cannot be separated from the phenomenon under study (pg. 14); and data collection and analysis are not separate stages of qualitative research, but an ongoing process of "progressive focusing" of collection and analysis. Data are collected in an open-ended manner at the outset of the study, and then progressively narrowed to fully explain the unit of analysis. Bogdan and Biklen (1982) might suggest that the research structure of modified analytic induction is actually "hour-glass" shaped. Research begins in an open-ended fashion, focuses, then attempts to spread out to more inclusive relationships by intentionally seeking negative cases. The hour-glass image guided the sequence of procedures for this work.

This study was conducted in three main phases. The first phase was model formulation. This phase was complete at the proposal stage of this study and the preliminary model has already been presented at the end of the first chapter. The data for this phase were ideas, concepts, constructs, theories, and research findings gathered from

the literature, personal experience, and discussions with adult and clinical educators. Analysis took place through a series of dialogues with teachers, learners, and experts at which times, concepts, assessments, ideas, reactions, and suggestions were recorded in field notes, drawings or sketches, concept papers, or recorded on cassette tape. Representative samples of field notes, discussion ideas, drawings, transcripts, various model forms, reflections, summaries, and other types of documentation collected or generated for this phase of the study are included in Appendicies A and B.

The second phase of this study was performed in the field in three stages or 'rounds'. In Round 1, observations were conducted as a participant observer. This presented no problems associated with the "stranger effect" (Agar, 1980) because the researcher had already established this role in several clinical settings within the institution. No recording or observing devices were used at this point. The data included observations of teaching-learning interactions, field notes, and summaries of interviews. There was an emphasis on multiple, single-case observations (Kazden, 1982). In other words, one teacher was observed in a series of teaching interactions, then another teacher, and so on. There were approximately 15-20 clinical teaching-learning interactions each day in the Family Practice Center and in the hospital. These ranged from brief 1-2 minute

encounters to protracted dialogues lasting up to 45 minutes. Physicians, nurses, and allied health professionals were observed in ambulatory as well as in-patient settings. Put another way, a series of participant observations were conducted in open-ended form at the beginning of this phase to sensitize the researcher to the data categories. Behavioral indicants of the teaching and learning dimensions were outlined. Observations, ideas, reports, reflections and reactions were recorded in field notes. Approximately 3 months were devoted to this stage of data collection and analysis.

Round 2 was carried out seeking more specific interaction data. Combining the conceptual contents of the situational teacher model with data categories and behavioral indicants delimited in the first round of observations, the model components were translated into observational instruments to further facilitate understanding of clinical teaching-learning interactions. For example, a range of behavioral indicants of teacher-control and learner expression of dependence were arrayed along the continua in the model, and interactions then rated for match or mismatch in model parameters (Appendix C). Cassette recordings, verbal interaction observations, group meeting reports, and interviews were gathered during this round. This round required another 3 months to complete and was the most intensive data collecting step.

Round 3 was conducted to seek very specific data regarding model components. Specifically structured interviews, questionnaires, and recording sessions were used at this point for specific examples of interaction types. Examples of interactions from each section of the situational teacher model were sought in actual teaching-learning encounters. Round 3 required an additional 2 months of observations.

Due to the nature of qualitative research methods each phase of this study became more focused, thus observations provided increasingly fewer revelations and information sought became more and more specific. Each succeeding round of observations, interviews, and questioning was guided by the outcomes of preceding rounds. Examples of interview questions, observation forms, specific instruments, and experimental data manipulations from Rounds 2 and 3 are provided in Appendix C. These "instruments", however, must be viewed within the context of the search for very specific information in the evolving model development activities.

Simultaneously, throughout all of these phases, a series of short, open-ended, process-recall interviews were conducted with the teachers and learners to elicit their feelings and reactions to observed interactions. Interviews continued throughout the field study and gradually evolved from open-ended to structured dialogues. Interviews were

structured according to guidelines from Backstrom and Hursh-Cesar (1981).

Brief questionnaires were administered later in this phase as data that was sought became more specific. Questionnaire construction followed the principles of design as outlined by Sudman and Bradburn (1983).

Analysis of data was ongoing and constantly incorporated into the model. The model was discussed with adult and clinical educators alone and in groups for analysis and feedback. The data analysis was accomplished by the constant comparative technique already outlined in the research design section. Essentially, the model was compared and contrasted to observed interactions and modified to explain instances including cases not explained by the preliminary model. The analysis was based on the researcher's inductive processes as well as feedback from participants and experts.

The third phase of this study was the completion and presentation of the model. A final analysis, synthesis, and integration of the data was conducted. The model was formulated into a completed form and written up in presentable form for use by clinical teachers (Appendix D).

Research Sequence

Table 2 displays the general sequence of steps that were taken in all phases of this study.

Table 2
Study Procedures and Data Table

Steps	Methods	Data
Phase I		
Primary Model	Design	Concepts Literature
Phase II		
Round 1	Open-ended observation	Field notes
Teacher 1...n	Open-ended interviews	Field notes
Round 2	Data specific observation	Data forms
Teacher 1...n	Data specific interviews	Recordings
Round 3	Refinement observations	Videotape
Teacher 1...n	Structured interviews	Schedules
	Questionnaires	Responses
Phase III		
Final Model	Integration	Summaries
	Presentation	User's form

Chapter 4

FINDINGS AND MODEL DEVELOPMENT

The Situational Teacher: Preliminary Model

The first phase of this study, preliminary model development, and some background information was presented in Chapter 1. Figure 6 is a reproduction of the model in graphic form.

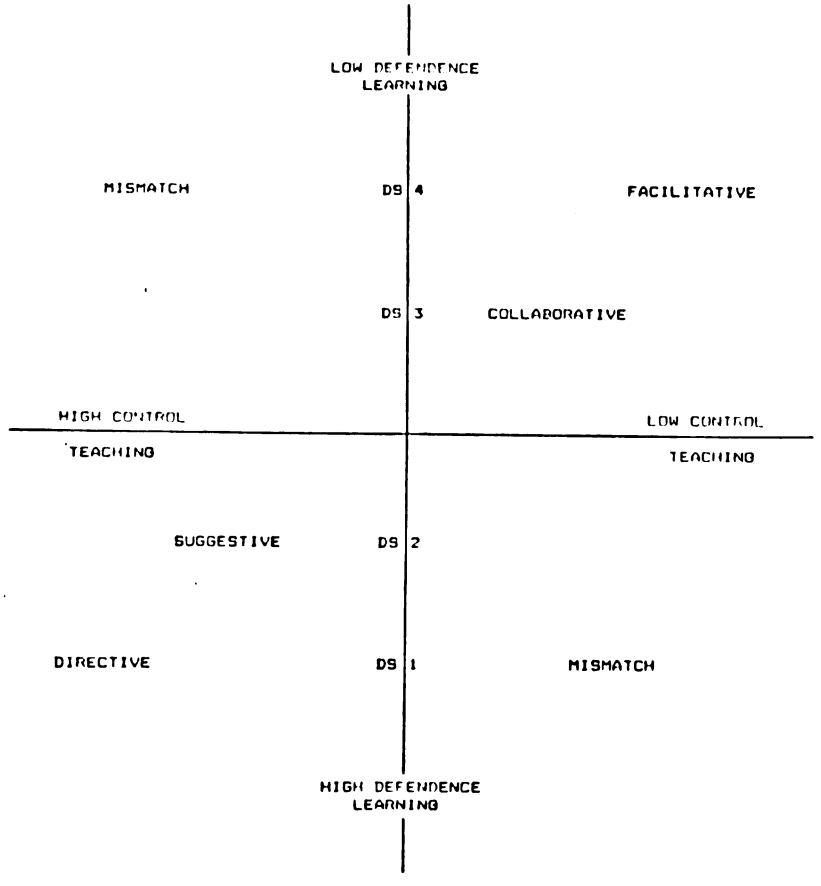


Figure 6. The preliminary situational teacher model.

To review, the vertical axis of the model represents learner need for direction and externally imposed structure in learning situations. Four arbitrary levels of dependency were demarcated as combinations of learner manifestations of competency and commitment. The horizontal axis reflects teacher control of the learning situation as represented in four teaching styles ranging from the high-control directive style to the low-control facilitative style. The fundamental assumption of the model is that teacher control should be matched with learner dependency in each learning situation. Thus, high-control is matched with high-dependency and low-control is matched with low-dependency. Mismatching occurs when a high-control teaching style is used with low-dependency learners or low-control with high-dependency.

In this chapter the results of phases 2 and 3, the field-based and development components of the study will be reported. The research question guiding the field work was, is the situational teaching model a plausible description of clinical teaching-learning interactions as currently seen in professional education?

Clinical teachers and learners were observed and interviewed in a patient care service setting. Findings were compared to the model, and the model was revised to more fully explain clinical teaching-learning interactions.

The Clinical Teaching Setting

This study primarily took place in Midland Hospital Center and its adjacent Professional Office Building in Midland, Michigan. The hospital is a modern 300-bed referral center for a seven county area in Mid-Michigan. The Professional Office Building houses the offices and teaching facilities of the Midland Family Practice Residency Program, the Family Practice Center, outpatient offices of area medical and surgical subspecialists, and the Department of Medical Education. Just over 150 physicians, dentists, and podiatrists belong to the medical staff, and the hospital employs in excess of 1500 employees. Full medical and surgical services are offered in addition to emergency room care, emergency medical services for the community, neurodiagnostics, laboratory and x-ray testing, and community education services to mention just a few.

Observations took place in hallways, offices, and nursing stations, away from patients in wardrooms or examining rooms, on the hospital wards and in the Family Practice Center, the clinical offices of the Residency Training Program. Patients had generally just been seen or were about to be seen by the clinical learner. Patient encounters most often involved an interview to obtain a medical history and an explanation of the current complaint, and then a physical examination. Clinician-patient

interactions were not observed during this study. Physicians, nurses, and physician assistants collected similar patient information and then devised diagnostic, treatment, or nursing care plans. The learner reviewed his or her findings and plans with an instructor.

The clinical settings in the hospital were often very busy places, with frequent distractions and interruptions. Physicians, technicians, patients, visitors, nurses, nurses' aides, orderlies, and volunteers walked by in the halls and nursing stations. Patients were being transported to the laboratory or x-ray department for tests. Food service personnel pushed large carts filled with patient food trays into the ward area to be distributed by aides and volunteers. The overhead paging system had a constant flow of calls and brief announcements, and doctors' pocket beepers often went off in the middle of discussions. Teaching-learning interactions frequently took place in the corners of the nursing stations, crowded offices, and most often in hallways with teacher and student leaning up against the wall to let traffic go by.

The Family Practice Center is an outpatient clinic housing the clinical offices of 18 family practice residents, 5 faculty physicians, 2 physician assistants, a clinical psychologist, and 3 teams of nurses and medical assistants. There are 21 patient examining rooms, 3 surgical and procedure rooms, offices, a business office, a small

quick reference library, and 3 nursing stations. The Family Practice Center was less busy than the hospital, and offered greater privacy for teaching-learning interactions. Patients however, were ambulatory and waiting to leave the clinic when the clinician was finished with them. Other patients were waiting to be seen for their appointments. Time pressures were always a consideration in clinical teaching-learning interactions.

Interviews were also conducted in private offices in the Department of Medical Education, and group meetings of faculty and residents were held in a large conference room in the lower level of the Professional Office Building.

Clinical Teaching Conventions

The case presentation is a time-honored and commonly accepted format of clinical teaching in professional medical education. In this study, teaching-learning encounters were observed to be centered around the case presentation, and generally contained the following events:

1. Case presentation. The clinical learner had interviewed and examined a patient. He or she then verbally presented a brief summary of findings. These included the patient's chief complaint, a history of the problem, physical examination findings, and any results of laboratory tests already performed.

2. Preceptor questions. The clinical teacher, or preceptor, then usually asked two types of questions; questions that ask for clarification of facts from the case and/or facts that were not presented, or questions that test the learner's knowledge of diseases that may explain the patient's problem. Other types of questions were asked less often. Occasionally, a preceptor asked a question that prompted the learner to explain how he or she went about problem solving, or the preceptor may have asked the learner to defend a judgement or decision made in the case.

3. Diagnosis and care planning. The preceptor either asked the learner what he or she thought the diagnosis was and what were the next steps, or the learner asked the preceptor the same questions.

4. Patient examination. The clinical teacher often would then go into the examination room and visit for a brief while with the patient. He or she would ask the patient some questions or perhaps check a physical examination finding. The learner accompanied the preceptor. They would then step out of the room for further discussion.

5. Discussion. Most of the actual dialogue between the teacher and learner took place in this phase of the interaction. The preceptor at times asked more questions, gave suggestions, agreed or disagreed with plans, shared experiences, or gave specific directions. The learner shared concerns, thought out loud, asked for further clarification, and also asked questions.

Clinical teaching-learning interactions are obviously quite variable and not all contained these major components. However, many did, and they also followed the sequence as listed.

The roles of the clinical teacher and learner have been addressed to some degree in the review of the literature on clinical teaching. In general, it was observed throughout this study that clinical teachers were treated by the

learners as content experts, experienced clinicians, authorities, readily available sources for references, resources of up-to-date information, and guides who were trusted and respected for their knowledge and advice. These perceptions, however, did not necessarily agree with how learners felt about their teachers on a personal basis, but the roles were maintained. Clinical learners were almost always treated by teachers as junior peers, capable of decision making and trusted to solve problems in an acceptable manner, but limited in knowledge and skills. Again, personal attributions about the learners were separated from respective role functions. This is not to say that personal perceptions and feelings did not play a part in clinical teaching-learning interactions. Quite the opposite was true as will be shown later. But, conventional roles were consistently maintained during the interactions observed in this study.

The clinical teaching conventions of the case presentation and the clinical teacher and learner roles provide a frame of reference around which the interactions observed in this study took place. To a large extent these conventions contribute to the specific sequence of events, the format, as well as the overall tone of the interactions. Behaviors between individuals and their underlying meanings varied widely, but these conventions influenced the consistencies in day-to-day interactions.

The Clinical Teachers

The clinical teachers observed in this study were physicians, nurses, physician assistants, and clinical psychologists. They were males and females ranging from 32 to 41 years of age. Most were married, had two children, and lived in a single-family home within 3-5 miles of the clinical facility.

The physicians had attended American medical schools, completed residency training programs, were active in a limited private practice in family medicine, were all board certified in family practice, and had been involved in teaching physician assistants, nurses, medical students and resident trainees for 4-10 years.

The nurses, physician assistants, and psychologists had all graduated from formal training programs, were licensed in their professions, had all completed at least a masters degree in their specialty or related field, and had practiced as clinicians for 10-15 years.

The disparity in years of practice can be accounted for by the difference in years in training required for specialist physicians as opposed to the allied health professionals. And this particular group of clinical teachers would be considered to be young, and to have a narrow age range.

The Clinical Learners

The clinical learners observed in this study were medical students, family medicine residents, physician assistant students, and nursing students. They were males and females ranging from 20 to 31 years of age. Almost half of them were married, but only a third had children. The family medicine residents lived near the clinical facility, and all other students either commuted long distances to the clinical site or temporarily resided in student quarters in the hospital during their training period.

The nursing students were undergraduate students in a bachelor of science in nursing degree program. The physician assistant students were completing a two-year bachelor of science training program, but all of them had another baccalaureate degree in some other field. The medical students were in their third or fourth year of medical school and they attended one of the four Michigan medical schools. The family medicine residents were in their first through third year of post-doctoral specialty training.

Round I: Participant Observations

The objectives of Round I observations were to sensitize the researcher to the general process of teaching and learning at the clinical site, determine categories of

data, and to identify preliminary indicants of various teaching and learning styles. The researcher was able to act as both clinical teacher, being a certified physician assistant, and as a clinical learner who needed to call upon preceptors to review patient management decisions. Clinical teaching-learning interactions were observed as they occurred, and interviews were conducted with both teacher and learner some time shortly after the interaction took place. The findings of the observations and interviews were recorded in field notes.

During this period of time, 63 teaching-learning interactions were observed, 12 learner and 11 teacher interviews were conducted, and 1 faculty group discussion was held. These events involved 24 physicians, 5 nurses, 3 physician assistants, and 1 psychologist.

In addition to these observation-related interviews, 2 presentations followed by discussion and feedback were carried out with groups of 13 and 17 adult education graduate students respectively, each group attending seminars at Michigan State University at both the central campus and at the Saginaw Regional Center. Three intensive interviews were also conducted with clinical instructors in geriatric nursing, medical social work, and medical technology.

An average teaching-learning encounter took 11 minutes, and ranged from 30 seconds to just over 45 minutes in

length. Post-encounter interviews were much more time consuming. Learner interviews took 5-10 minutes, and interviews with teachers, who seemed to be more interested in talking about interactions, took from 20 minutes to slightly over 2 hours. Three group discussions were each completed within 2 hours.

The following is a typical interaction observed in a teaching-learning situation in the outpatient clinic during Round I. LS is a first-year family medicine resident and DK a faculty preceptor.

> LS. I have Sharon XXXXX in to see me today. She is a 23 year-old who developed a slight fever over 24 hours ago, some posterior nodes (swollen lymph nodes in the back of the neck and head), and a rash on her shoulder. The rash is very itchy and painful when she tries to scratch it. She denies any prior illness. She feels fatigued today, but has no other symptoms. On physical exam she has one tender lymph node in the left posterior chain, and the rash is about 4 by 6 centimeters near the base of the neck. Its oval shaped, it has an erythematous (red and inflamed) base, and there are many small vesicles (blisters) scattered within its margins.

This was the case presentation phase of the teaching-learning interaction. The resident had presented the facts of the case in a concise manner, but in such a leading way that any other clinician would conclude that the patient had only one condition that most likely explained her signs and symptoms, that is "shingles" or herpes zoster. The faculty member then proceeded to ask questions. This phase of an interaction is preceptor questioning.

DK. Any fever now?

LS. (Looks at chart) 98

DK. Has she had any previous rashes of similar nature?

LS. No. She hasn't had any significant skin problems and nothing like this one before.

DK. You painted a pretty good picture for zoster. She seems young though. What do you think?

LS. I'm fairly sure that is what she has. I just wanted to be certain. I know it can happen in all ages, but mostly you see it older folks.

DK. Let's take a look.

The preceptor and the resident returned to the patient examination room for the patient examination phase. The resident introduced the faculty member as her teacher, and that he would confirm the diagnosis, and discuss with her the latest treatment for it. The preceptor asked the patient if she had any other symptoms, and then carried on some small talk with her while he examined the rash. He explained to the patient what he and the resident thought the problem was. It was a classic presentation of herpes zoster. They stepped back out into the hallway after excusing themselves from the patient to initiate the discussion phase of the interaction.

DK. I agree with your diagnosis. What do you want to do about it?

LS. Well, that's what I wanted to ask you. Do we give steroids to someone this young?

DK. Steroids are used mostly to prevent post-herpetic neuralgia (nerve pain that sometimes follows a bout of herpes zoster). That seems to be related to age, and probably wouldn't be indicated in somebody this age. What do you know about Acyclovir?

LS. Not much, for zoster. I know you can use it for genital herpes... Oh, let see, it comes in ointment form for zoster, doesn't it?

DK. Yes, but the newest research has shown that the ointment is not that effective. Its now recommended in oral form. It speeds viral shedding and may also prevent post-herpetic neuralgia. The first edition of Gorroll, May, and Mulley (a textbook in primary care medicine) recommended 200 mg five times a day, but I think the new edition conforms to the latest research findings and recommends 400 mg five times a day for 5 to 7 days. I read one study that was using 800 mg.

LS. How about symptomatic treatment?

DK. Oh, some Domeboro compresses (drying agent), maybe some Benadryl (antihistamine) for itching if she needs it, and Tylenol for pain. I'd see her back in 7 to 10 days. Anything else?

LS. No

DK. Good. Nice job. Interesting case.

LS. Thanks.

This interaction illustrates several minor themes discovered during preliminary observations. The dialogue was informal and relaxed, which is difficult to discern from the typed narrative. The questioning done by the teacher was limited in amount, and focused on factual or recall types of questions. The learner answered questions in a cautious manner, another climatic element not reflected in the transcript. No real exploration of what the learner knew

about the patient's condition was performed. The preceptor examined the patient to check the learner's diagnosis. The learner wanted specific treatment information from the preceptor rather than looking up the information in available references. The teacher gave specific information and directions for care of the patient. The preceptor dominated most of the discussion phase of the encounter, and included a pedantic comment about editions of a reference text. Issues, alternative diagnoses, or learner thought processes were not raised nor explored. And limited personal feedback was given to the learner.

These themes were common to many of the interactions observed as well as frequent topics of post-encounter interviews. They will be categorized under the following headings: cautious mutual respect, closed questioning, teacher talk, 'spot check' assessments, and the habit of inference. These issues will be developed by providing more detailed examples of interactions gathered in observations, and further explained through insights collected from the interviews.

Following this development of minor themes, additional and perhaps more important issues that arose from trends in interactions or critical incidents observed will then be presented.

Dialogues were informal and relaxed, but the tone of almost all interactions could be characterized as <u>cautious</u>

mutual respect. Learners frequently mentioned in post-encounter interviews that they did not want to "look stupid" or "to be humiliated". Therefore, they tried to make a thorough case presentation, to answer only the questions asked, and to appear confident in what they knew. Seldom did they voluntarily acknowledge some deficiency in their knowledge or skills, and they had many ways to answer questions to gloss over gaps in their understanding. For example, a preceptor would ask a question about one possible diagnosis that a learner had not included in his list for a patient. The learner's reply would go something like, "Oh yes, I thought of that, but...", and then would go on to explain why that diagnosis did not fit in this case. Most of the time their response was true, but at others, they shaded the truth a bit. Fortunately, almost always, the proposed diagnosis really did not fit the case, and this may be related to intuitive diagnostic problem solving processes rather than learner thoroughness (see Barrows and Tamblyn, 1980, for more detailed discussion of this phenomenon). Newble and Entwistle (1986) describe medical learners as "strategic learners", and this was certainly evident in the teaching-learning interactions observed in this study.

On the other hand, the teachers respected these conditions. They phrased questions carefully, contributed information if there was a hesitation on part of the learner, or asked leading questions in such a way that the

answer was obvious. The teacher often began interactions with chit-chat, small-talk, or an attempt at humor to try to set the tone of the upcoming dialogue. This tone setting prefaced a lead-in to the case presentation such as, "Ok, what you got?" When learners had to be contradicted, preceptors often resorted to a story about "how I was burned in a similar situation" or they would point out that the learner's knowledge used to be correct, but "the latest research..." showed something better or newer. When there was a direct request for information, the clinical teacher frequently dispensed the information in great detail. Personal feedback was limited, but always positive. If some deficiency in a learner was spotted, specific information about the care of the patient was given, followed by a carefully phrased suggestion that some corrective action be taken or some particular resource be consulted.

While learners feared humiliation, teachers were concerned with "being used" as "quick references" or as surrogates for learner problem solving. They also wanted to act as a "role model", an "advisor", a "mentor", or a "guide". They appreciated the opportunity to share information and their personal experiences, which they gave in great amounts when asked, but wanted to be respected for their qualities as clinicians and their judgments. This is somewhat of a paradoxical situation requiring a balance between acting as "a walking dictionary" and reflecting "the

wisdom of a mature practitioner". The learners appeared to use and respect the teachers as quick sources of information as well as guides to weighed judgment. Many questions asked for specific information such as "What is the dose of .... for ...?", "How do you arrange for an admission to ... ?", or "Where do you record this medicine...?". However, learners also asked for judgment and experience with questions like, "Have you ever seen ... before?", "What would you do in this situation?", and "What would the best thing to do in ...?".

Closed questioning has been identified as a type of questioning that requires either a yes/no response, a statement of some type of information recalled from memory, or a statement of fact, a definition, or simple explanation (Foley and Smilansky, 1980). This is opposed to open questions that request a learner to analyze, synthesize, evaluate, and judge. The questioning observed during this phase of the study were predominately closed questions. Closed questioning is closely related to the concept of teacher talk, an idea popular in interaction analysis circles (Flanders, 1970). This concept means that teachers do most of the talking during teaching-learning situations. This was also found to be essentially correct during the observations made in this study.

One clinical teacher was observed in 10 interactions in which the types of questions he asked were tallied and the

total amount of time he talked was measured. In general, 80% of the questions he asked were of the closed type, and after the learner's case presentation, he spent approximately 75% of the interaction time talking. Other teachers followed this pattern.

The clinical teachers observed in this study did not perform systematic assessments of learner needs for the situations they encountered. The assessments of learner needs that were done could be thought of as spot checks, or indirect assessments at best. In other words, teachers did not attempt to find out what the learner knew about a particular topic under discussion nor what the learner wanted from the precepting interaction. The assessments that were done involved closed questioning about facts or definitions associated with the subject at hand. This is similar to content or recall testing in much of school-based pedagogy. The amount of knowledge displayed by the learner is supposed to be an indirect indication of their knowledge. For example, a clinical learner outlined her treatment plan for a patient with high blood pressure. The preceptor said something like, "You didn't mention electrolytes (sodium, potassium, and chloride) in your plan. Would you want to monitor them?". The learner was expected to respond by saying that these elements should be checked periodically because some diuretics used in treating hypertension often lower potassium levels while others may increase it. Several

such 'spot checks' lead the teacher to assume a certain level of knowledge in the learner, and therefore, a certain level of competence in caring for the patient.

Interestingly, one learner was consistently mentioned as being someone with which many of the teachers liked to interact. This family practice resident was then observed during several interactions with faculty members. The consistent thing the resident did was to inform the preceptor what her problem was and what kind of input she wanted from the teacher, and in almost every case this was done right up front in the beginning of the interaction. At times, her expectations were also repeated some time during the interchange. One teacher was also picked out as the learners' favorite. This teacher was also observed through several interactions. He consistently set a friendly tone, asked few predominately clarification questions, examined the patient briefly, and almost always asked the learner what he could do for them. When giving information it was first presented as personal experience, then compared or contrasted to the latest research findings or recommendations from his experience with subspecialists.

The ability to focus on specific learning needs by either the learner or the teacher seemed to be a distinguishing characteristic of these particular individuals.

Related to spot checks is the concept of the habit of inference. Dewey (1933, pg. 1-15) described most of human thinking as the habit of sloppy inference. The teachers' opinions of their learners' performance around a patient care problem was often predominately inferential. Spot checks were very fragmentary. Patients were seen most of the time, but most often only to check a physical exam finding. And, a learner's performance on one case influenced the teacher's opinion on subsequent performances.

Cumulative analysis of observational and interview data resulted in the identification of three major findings that hold significant implications for the situational teacher model.

Each instructor was a situational teacher, but was not intentionally situational. In other words, it was found that each teacher did change his or her style from learner to learner, and at times from situation to situation with the same learner, but they did not do so with conscious intent. Most teachers observed showed a narrow range of stylistic change from learner to learner, and an even narrower change with one learner across situations. For example, a teacher was observed interacting with nursing students A, B, C, and D. Throughout the day she spent more time with A and C, was more controlling, asked more closed questions, and watched these students more closely than the other two. For nurses B and D, the instructor was more suggestive, tended to control

less, and watched them less often. Her feedback was more supportive for B and D, and she seemed to convey a sense of greater trust in their abilities. All four nurses were at the same level of training, and they were all caring for cancer patients with complex problems. The differences were subtle, and the instructor's movement from directive to suggestive styles was not great.

This finding does no harm to the explanatory power of the situational teaching model, but it does contain an important implication for clinical teaching practice or instructor training.

The second major finding has to do with the contextuality of clinical teaching-learning interactions. In the preliminary model, the components of a teaching-learning situation were stated to be teaching behaviors, learning behaviors, the environment, and a purpose. Through observations it was seen that the environmental and historical elements of an interaction were grossly under-represented in the first sketch of the model. The historical and environmental context in which interactions took place had powerful influences on those interactions. The 'spot check' phenomenon can be explained because of the contextuality of specific teaching-learning interactions. Learner assessment was a cumulative series of events. Teachers and learners get to know each other over long periods of time. For nurse and physician assistant

relationships, their relationships could be measured in terms of months, and for physicians in specialty training programs, it is years. Personal attributions about learners were created from repeated interactions, reputations, personal understandings and sympathies, hearsay, a "track record", the quality of presentations, speaking ability, organization of thought, problem solving, personal conflict, gossip, mannerisms, "private languages", and the epitome of inference, the "halo effect".

Time pressures also exercised a heavy impact on interaction. Preceptors needed to try to see other learners, and the learners had patients waiting to see them while they talked over care plans with preceptors. All of the teachers and learners observed also had many other responsibilities to attend to at various times. Heavy work loads, interruptions, distractions, and extra demands all influenced teaching-learning interactions.

Another critical incident arose when a teacher was observed interacting with two learners consecutively in two very different ways. His teaching styles from one to the other were dramatically different, perhaps the greatest changes in style witnessed in Round I, and are perfect illustrations of this concept of contextuality. The first learner was a new resident, less than one month in the training program. His patient was a child in for a routine well-child examination. The preceptor's approach was very

directive, almost to the point of being disruptive to the orderly review of the case that the new resident was attempting to make. The preceptor asked many closed questions, offered a lot of information that was not asked for, and gave many specific directions about what to do in well-child examinations. Within five minutes of that first encounter, the preceptor had an interaction with a third-year resident who had a question about prescribing birth control pills. He virtually asked no questions, gave one specific bit of information that was asked for, and then initiated a discussion with the resident with a facilitative question such as, "What concerns you most about this patient taking birth control pills?" All three participants were interviewed after this critical incident. The new resident was very frustrated by the interaction because he felt he had done a good job with the well-child examination and wanted to discuss the case in order to refine his technique or to gather some "pearls" - bits of very useful information in the care of specific types of conditions or patients from the experienced preceptor. He never was given the chance. The encounter was a pure mismatch of learner need and teacher style. The third-year resident ended the encounter somewhat disappointed because she felt unsure about what to do in that particular case and she was not given adequate direction from the preceptor. She was still puzzled about the case during the interview. The preceptor

explained that he did not know the new resident and that he was trying to get an idea about her capabilities. He felt confident about the third-year resident's abilities and he was hoping she would want to discuss an important issue related to family practice.

This incident virtually summarizes all the themes discovered in observations made during this phase of the study, but it really highlights how much the context of teaching-learning situations influences the interactions. These kinds of changes in teaching style were seen frequently as teachers passed from one context to another.

The third major finding is termed <u>the assumption of agency</u>. The term 'agency' is defined as, "to act for", or "to represent". In this study it is related to the fourth component of a teaching-learning situation, a purpose, and underscores teacher agendas in teaching-learning interactions. When asked about specific behaviors following interactions, teachers frequently explained or justified their actions with phrases such as "I'm concerned with the quality of care...", "A good professional...", "Family practice...", "Professional nursing...", or "That's just caring...". In other words, the teachers in this study felt that their actions with learners served some set of values, concepts, constructs, perspectives, or some personal criteria of proper action. These criteria may have involved concepts of what it means to be a professional, what is

quality of care, what it is to be a specific kind of professional, or any other wide range of internal value perspectives. Acting as an agent for these constructs had very powerful impact on situational teaching.

One critical incident illustrates how assumption of agency influenced a radical change in teaching style within one teaching-learning encounter. A family practice resident and a faculty member were discussing the outcomes of a case they had talked about earlier in the morning. The hospitalized patient was doing much better and they were pleased with what they had done for the patient. The resident then went on to present another case. This was a 17 year old patient who was pregnant for the second time, living on welfare, with her boyfriend, the father of both children. She did not plan to marry the boyfriend because she would lose her welfare status as a single mother with dependent children. The resident presented the case with a tone of voice, body language, and comments that clearly displayed his moral indignation about this patient. The faculty member had strong feelings about the socio-economically deprived in this country and the type of medical care they receive. The resident stepped on the ideological toes of the faculty member, and the tone of the encounter changed almost in melodramatic fashion. The faculty member suddenly became very directive with the resident, asking closed type questions in rapid-fire

succession, giving commands about the proper care of this patient, and finally confronting the resident with his judgmental attitudes. In post-encounter interviews, both resident and faculty member were so defensive about their behavior that no rational explanation of the interaction was possible. The faculty member's sensitivities were transgressed, and he responded by becoming highly controlling and directive in further teaching during that encounter.

Throughout this round of observations, it was noted that changes in teaching styles frequently followed the teacher's perception of a learner's behavior and its adherence to some internal value system held by the teacher. This, of course, is no great revelation, but is important to understanding situational teaching.

In summary, then, several issues were identified during participant observations of clinical teaching-learning situations that contribute to a better understanding of clinical teaching and have important implications to the situational teaching model. Interactions tend to be organized around medical teaching conventions such as the case presentation and traditional medical teacher and learner roles. Clinical teachers change teaching styles, but do not seem to make these changes intentionally. They change styles because of the contextuality of teaching-learning situations and because of factors related to personal value

systems. The type of questions asked by a teacher contribute to teaching styles, and the questions asked frequently serve as 'spot checks' on learner competence. Learner competence in any particular situation is often inferred, and as a matter of fact, assessment of learner competence seems to be a cumulative set of inferences gathered over time. A great deal of the time in teaching-learning encounters is spent in 'teacher talk', and exploration of particular learner needs in a situation seems to be a lower priority clinical teaching task. The overall tone of interactions was pleasant, relaxed, and respectful, but cautious or careful. Both teachers and learners seemed to be generally satisfied with the teaching-learning interactions that occurred.

Finally, there were no significant teaching or learning behaviors observed nor clinical teaching issues raised in interviews during Round I of this study that could not be explained by the situational teaching model. Practice did not adhere to the ideal, but incidents could be better understood in light of the theory. In the next section, details of the operationalization of the model will be presented, and that will be followed by the major model modifications made during this study.

The Situational Teacher: Model Operationalization

Recall that the original situational teacher model proposed four distinct teaching styles and four levels of learner dependency. In this section, actual behaviors seen during observations in clinical settings will be outlined to more fully describe these teaching styles and conceptual levels.

During a post-encounter interview, one clinical teacher pointed out that clinical teaching is a 'complete behavior'. He meant that clinical teaching is a verbal, emotional, and physical activity (similar to a 'total behavior' described by Glasser, 1984, pg. 38-44). He pointed out that most teaching is verbal, but the emotional tone he set, plus whether or not he also examined the patient, and the amount of intervention in the patient's care he imposed on the learner determined his clinical teaching style. Therefore, clinical teaching behaviors were grouped into types of directions given, questions asked, amount of teacher talk, number of spot checks, how much intervention is done, and the tone set in order to operationalize each of the four styles proposed in the model.

A further word about questioning techniques is needed. Foley and Smilansky (1980, pg. 15-26) classify question types into two main categories, closed and open. Among closed questions there are two types, recall and convergent.

Recall questions ask for yes/no answers, recall of information from memory, or the statement of simple facts. Convergent questions ask for definitions, explanations, and descriptions of processes or theories. The other category is open questions, also with two types of questions, one concerned with processes such as problem solving, and the other with evaluation or judgment. In the former, the respondent is asked to explain a thought or decision making process. In the later, the respondent is asked to defend or justify an action or a position. It was observed that the type of questioning done correlates with teaching style. The more controlling the style, the more closed are the questions asked. The less controlling the teaching style, the more open are the questions.

The directive teaching style was readily evident. Directions were given as commands in a form in which the subject of a sentence, you, is implied. For example, specific directives were, "Order a chest x-ray", "Give 10cc of...", "Prescribe...", "Work up...", or "Find out...". Questions were both recall and convergent, and these types of questions were asked in directive teaching in greater abundance than any other style. More convergent questions - seeking definitions and explanations - were asked. Teacher talk predominated the interactions, as much as 75-80%. Spot checks were frequent, and at times disrupted the flow of dialogue and learner thinking. Interventions tended to

involve directly changing a diagnostic or treatment plan, demonstrating a procedure rather than letting the learner try it, or openly labelling information or proposed plans as being wrong. The tone was authoritarian, and the teacher acted as a content expert, an experienced clinician, and a decision maker. Learners acted the most cautious in encounters with this style, and teachers seemed to act the least cautious toward learners when being directive. In other words, the learners were most careful about avoiding humiliation, and teachers the least thoughtful about this. The directive style was seen most frequently when teachers and learners had not had the opportunity to get to know each other, or in the early phases of a relationship.

The suggestive style is what could be termed the 'might-could-should' style. Directions came in the form of, "You might want to order...", "You could perform a....", or "You should do a...". Questions tended to be recall types, and convergent questioning was much rarer. Questions became a bit more clarifying in nature, seeking better understanding of the facts of the case. Teacher talk took over half of the time in the interaction. Spot checks were few, and very fragmentary. Teacher intervention was through the presentation of a set number of diagnostic or treatment alternatives to the learner who could then choose between them. Or, a teacher would directly take over a procedure or make a decision when the learner hesitated, got stuck, or

made a blatant error in judgment or choice. The tone of the interaction was cautious mutual respect in which the teacher acted as a mentor outlining acceptable alternatives, trusting the learner to pick one that seemed best in that case. The suggestive style was the one teaching style seen most often during the observations made in this study, and seemed to be the preferred style of most of the teachers.

The collaborative style was very much like the suggestive style, but the dividing line between them had to do with "I messages" versus "You messages" (an idea from teacher effectiveness training by Gordon, 1974). The collaborative style is slightly suggestive in nature, but uses "I messages" instead of "You messages", and emphasizes shared experiences. For example, directives were stated as, "I might want to order...", "I would perform a...", or "I should want to...". Fewer closed questions were asked, and any of them tended to be recall questions for the sake of clarification only, not as spot checks. Process and evaluation questions were asked more frequently. These questions were most often formed as alternative hypothesis or 'what if' questions. They asked learners to transfer the facts of a particular case into some other or future scenario, and then speculate on various outcomes. They highlighted thinking processes and professional values. Teacher talk occupied just under half of the time in an interaction, with much more time in dialogue rather than

monologue. Spot checks as assessments were almost nonexistent in this style. Teacher intervention was almost totally non-interventionist. Teachers switched to sharing experience about similar cases, presented a wide variety of alternatives, but rarely suggested specific actions to take. Much of the time the teacher merely confirmed a choice of diagnostic or treatment alternatives suggested by the learner. The interaction tone was relaxed and peer-like. The preceptor acted like a senior partner who shared his experience, and then said, "That's what I would do, but you need to do what you think is best." Both teacher and learner did not seem to be reluctant to share their deficiencies, misgivings, or mistakes. Concepts specific to a case were often generalized to similar situations or identified as professionally relevant issues. Comments like, "When you go into practice...", frequently preceded a statement about issues, or value-laden concerns in professional practice. The focus shifted from specific facts about a particular patient to more abstract issues related to classes of patients. The collaborative style was the second most frequent style seen in interactions, and seemed to become more frequent as relationships matured.

The concept of facilitation was fully developed in the review of related literature. Several authors' ideas were presented (Gordon, 1974; Rogers, 1969; Wittmer & Myrick, 1980; Brookfield, 1986) as well as specific techniques

of facilitation. However, truly facilitative techniques were rarely seen during this stage of the study, and were not seen as a separate stylistic entity. Any distinctive elements of facilitation such as active listening, reflective questioning, or exploration of personal meaning arose momentarily out of a collaborative style, became facilitative briefly, then returned to collaboration. There was no prolonged instance in a teaching-learning interaction that could be designated as a facilitative interaction. There were only a few instances in which a teacher asked reflective questions such as, "I hear you saying...", "I feel you are concerned with...", or "I understand that you feel...". Exploring personal meaning systems was not run-of-the-day fare, as most problems discussed had a pragmatic concern that dealt with solving patient problems, technical information, professional protocols, but not highly personal feelings, values, or individual paradigms. Facilitative interactions did take place, but these occurred during personal crisis or following extremely negative outcomes in patient care situations. They were removed in time, place, and normal content from the day-to-day teaching-learning interactions, and might more properly be classified as psychotherapy rather than clinical teaching and learning. This is not intended to diminish the importance of growth-oriented psychotherapy in professional education, it certainly is critical to anyone confronted with life-and-

death issues in professional medical practice. But, facilitative teaching as a separate and distinct style was just not seen in the teaching-learning interactions among the teachers and learners observed in this study.

It is important to emphasize at this point that these teaching styles are arbitrary designations along a continuum of teaching behaviors. While the most pronounced display of a style was easily recognized, the boundaries between styles was hazy at best. Teachers moved between styles or used elements from differing styles quite easily and frequently. Various markers have been proposed to set off distinctive styles. Conversations between a teacher and learner contained directives that may have begun with an implied you, a 'you', or an 'I'. Open and closed questions comprised by recall, convergent, process, or evaluation questions tended to relate to teaching styles also, in that, asking closed questions predominated in directive and suggestive teaching, and open questions tended to be asked more often in collaborative teaching. Teacher talk decreased to about 50% of the time as a teacher became less controlling, and spot check assessments of learners became fewer and more fragmentary. Intervention may have been direct and contradictory or merely confirmatory. The tone of interactions ranged from authoritarian, through mentor-like, to peer-like. Cautious mutual respect between teacher and learner was most frequently seen in interactions, but

learners were more cautious in their interactions with directive teaching, and much less so with collaborative teaching.

Table 3 summarizes the characteristics of the three distinctive teaching styles observed in Round I.

Table 3
Characteristics of Directive, Suggestive, and Collaborative Teaching Styles

Marker	Styles		
	Directive	Suggestive	Collaborative
Directives	Implied you commands	You could, should	I would
Questions	Recall Convergent	Recall Clarifying	Process Evaluation
Teacher Talk	75-80%	50-75%	<=50%
Spot Checks	Many	Fragmentary	Rare
Interventions	Direct	Delayed	Alternatives
Tone	Authority	Mentor	Peer

Conceptual level theory (Hunt, 1977) provided the basis for examining learner behaviors as representations of learner dependency and structure needs in teaching-learning interactions. In the preliminary model, four levels of dependency were arbitrarily designated and explained as various combinations of competence and commitment, ie., low competence and low commitment, high competence and low commitment, etc.. This arbitrary four-tiered system did not

hold up when compared to actual observed behaviors. The first breakdown was in the area of commitment. It was very difficult in observations and in post-encounter interviews to assess fine degrees of commitment in a group of already highly committed learners such as the professionals observed in this study. The second problem arose in trying to demarcate four levels of dependence. Three patterns of learner dependence and need for externally imposed structure emerged from the observations.

Like teaching, learning is a total behavior that includes verbal action, feelings, behavior, and thought. A learner's dependency level could be assessed by what he or she said, how it was said, and how the learner felt and behaved.

High dependence learners' often said things like, "I'm lost", "I'm confused", "I'm stumped", "Where do I go from here?", or "What do I do ...?". The quality, organization, consistency, thoroughness, and completeness of case presentations was poor. There were gaps in their data gathering, limited consideration of alternatives, and incomplete treatment plans. They often became fixed on one issue, documented the problem in a sketchy fashion, and wanted to deal with concrete actions not issues. They seemed fearful, uncertain, anxietous, and lacked self-confidence. They became frustrated easily. They wanted teachers to tell them what, where, and how to do things. They sought specific

information and directions. When questioned, they were very cautious or evasive in answering. New learners in training programs displayed this behavior more often than learners who had been in training for a much longer time. Urgent or emergency situations tended to stimulate this pattern of behavior, especially if the learner had not encountered that type of emergency before.

Low dependency learners were just the opposite. They often began a teaching-learning interaction with comments such as, "I have an interesting issue I want to discuss with you.", "I want you to listen to this patient's chest. She has a fascinating murmur.", "What else could I do?", "What would you do?", or "What has been your experience with a case such as this?". The quality, organization, consistency, completeness, and thoroughness of their case presentations was outstanding. They often told the teacher exactly what they wanted from them. Their manner was self-confident. Their knowledge was comprehensive, but they did not hesitate to point out where there are gaps in their knowledge and skills. Their plans were complete, they had considered a wide range of alternatives, and their judgements were weighed and often informed by latest issues or findings from professional practice. They seemed self-confident, at ease with themselves, and less vulnerable. They did not want to be told what to do, but would like to hear about experience, and wanted to deal with issue-oriented questions. They often

had made diagnostic and treatment decisions by the time they talked with a preceptor. Learners with greater experience more than newer learners, or a learner with particular expertise in specific topic areas acted this way most often.

The third category of learner dependency is a mixture of the other two styles. The key word here is inconsistency. Frequently, learners displayed characteristics of both low and high dependency during a single interaction. For example, in one incident a learner appeared self-confident, gave a well-organized case presentation about a patient with back pain, but appeared to be confused about physical examination findings. The preceptor eventually performed a complete back-pain examination for the learner. The learner then outlined a very good treatment plan for the patient. The gap in this learner's knowledge and skill was in the examination portion only. This gap manifested itself through inconsistency in thought and presentation. Interestingly, the learner never actually asked the teacher to demonstrate the examination, but was grateful for the demonstration as expressed in a post-encounter interview.

It is obvious that learner dependence and the need for externally imposed structure should decrease as the learner gains experience over the duration of a training program. But, a question crucial to the situational teacher model is, do learners' dependency and structural needs change from situation to situation. The answer is yes, and this was

confirmed in observations made during this study. One learner was observed over several days of interactions with various teachers. This was a second-year family practice resident who was well respected by all the faculty members. He displayed a wide range of competencies, but also some significant gaps in knowledge. On one day in particular he saw a male patient who feared he had a venereal disease. The patient was concerned, but did not have any classic pattern of symptoms and previous work-ups had revealed nothing. The resident then pursued a course of further and complex testing, prescribed an empirical trial of medications that would work in almost all cases of VD, and reassured the patient. He discussed this case with the preceptor in a very low dependency fashion. The next patient he saw had a complaint of blood in his sperm. This was a problem the resident had never seen before. He called the preceptor in even before considering what tests to order or what treatment might be appropriate. He asked for specific directions for the rest of his actions with this patient. These events transpired within an hour of each other and were dramatic evidence of a learner's movement along the dependency/structure continuum as learning situations changed.

Two issues already discussed in previous sections impact phenomena relative to awareness of changes in learner dependency needs. One, learners are 'strategic learners' and

have often developed generic skills in learning situations that carry them through from one circumstance to another. Two, the teacher's opinion about a learner is often influenced by the historical contextuality of teaching-learning relationships. These factors along with many others contribute to the fact that learner dependency from situation to situation changes in subtle ways that are difficult to detect or not assessed in any meaningful way.

Table 4 summarizes the characteristics of the three learner dependency/structure needs levels observed during Round I.

Table 4
Characteristics of High, Mixed, and Low Dependency Levels in Learners

Marker	Dependency Level High	Mixed	Low
Expressions	What do I do?	What do I do next?	What would you do?
Presentation Quality	Confused	Inconsistent	Complete
Anxiety Level	High	Moderate	Low
Self-Confidence	Low	Variable	High
Knowledge Base	Limited	Has gaps	Extensive
Frustration Potential	High	Moderate	Low
Information Wanted	Specific	Specific To issues	Issues to Preceptor's Experience
Teaching Style Preferred	Direct	Suggest	Collaborate

The Situational Teacher: Model Modifications

Analysis of the data from Round I observations resulted in the reduction of the number of teaching styles to three - directive, suggestive, and collaborative - each of these being a stylistic way to exercise control in the teaching-learning situation. The number of levels of learner dependency and need for structure were also reduced to three; high, mixed, and low. The influence of factors such as historical and environmental context, the assumption of agency, and the development of learner competence through an accumulation of experience figured much more importantly in observed interactions than the emphasis they were given in the original model. However, the basic components of the model were still viable, and the aspects of control, dependency, and the potential for mismatching were maintained.

In order to devise a model that could better account for all these issues, the four-quadrant model displayed in Figure 6 had to be abandoned. The new model had to retain the representational, simplistic, and explanatory characteristics of a model, yet encompass the complexities of the situational teaching-learning interaction. This model had to account for the variables of teacher control, learner dependence, matched and mismatched interactions, situationality, contextuality, agency, and development.

Figure 7 illustrates the new model for the situational teacher.

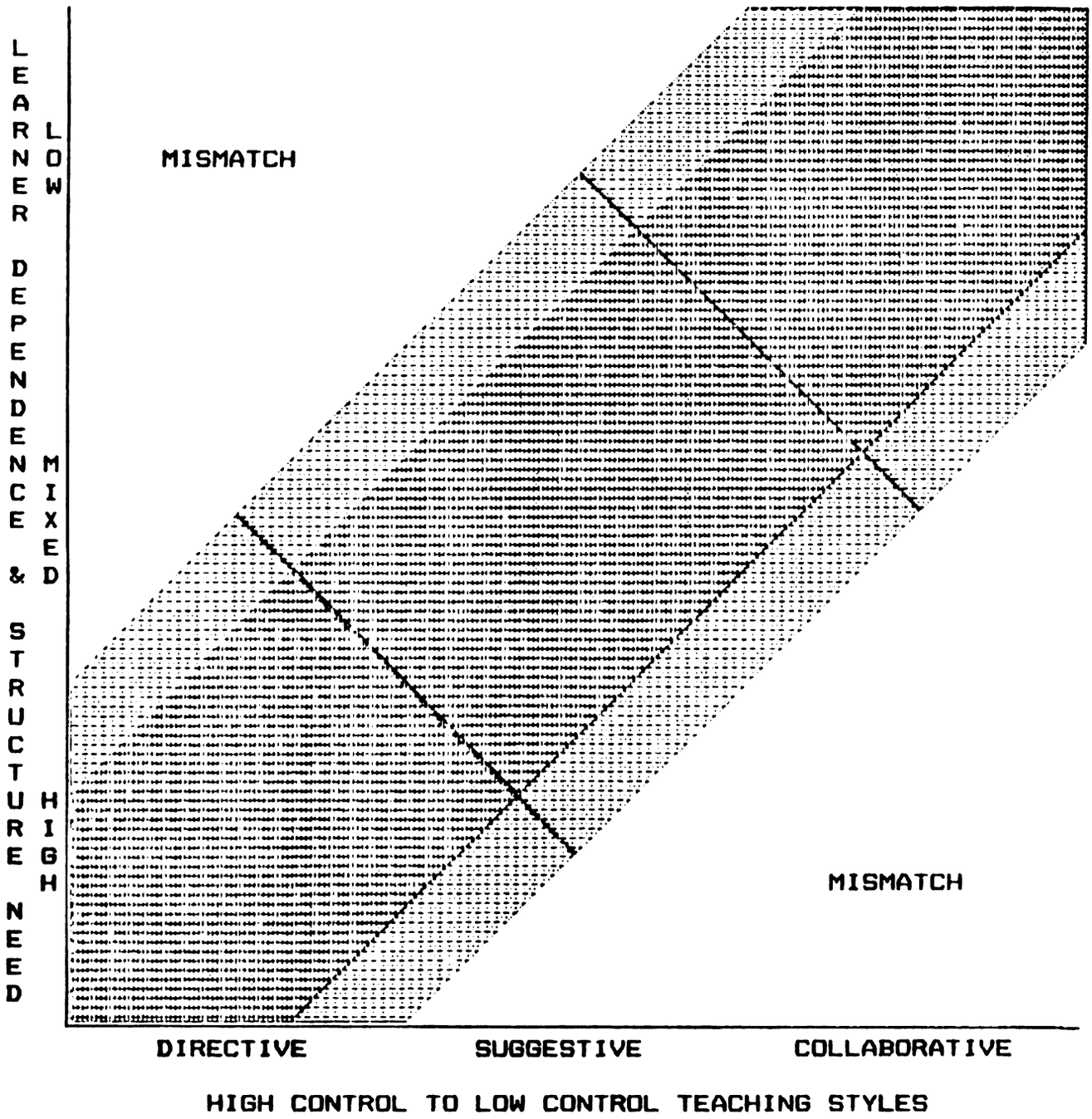


Figure 7. The new situational teacher model.

This model is cast on X and Y axes and can be conceptualized almost mathematically. The vertical axis is learner dependence and need for structure. At the top is the low need region in which self-directed learners would be found. The middle section is for mixed dependency learners as described in the previous section. And the bottom portion of the scale is where highly dependent learners would be located. The horizontal axis represents increasing degrees of teacher control ranging from high-control directive teaching through a suggestive style to low-control collaborative teaching. The resultant 'vector' is divided into three areas of respective teaching style and learner dependency match - the dark band - and is also resentative of growth or progression in interactions. The lighter shaded band represents a zone of probable effectiveness. In other words, this area is an overlap, the grey zone, or the border area between match and mismatch. The area outside the vector is the zone of mismatch.

As in an algebraic equation with two variables, the functional relationship between variables changes as one or both of the variables change. The prime forces that act on teacher control and learner dependency situationally are agency, contextuality, and experiential development. These forces could account for either a match or a mismatch interaction depending on which are in operation in the teacher and learner at that time, place, and circumstance.

This is best illustrated in Figure 8 showing the multi-vectored forces and how they may impact teaching and learning in the situational model.

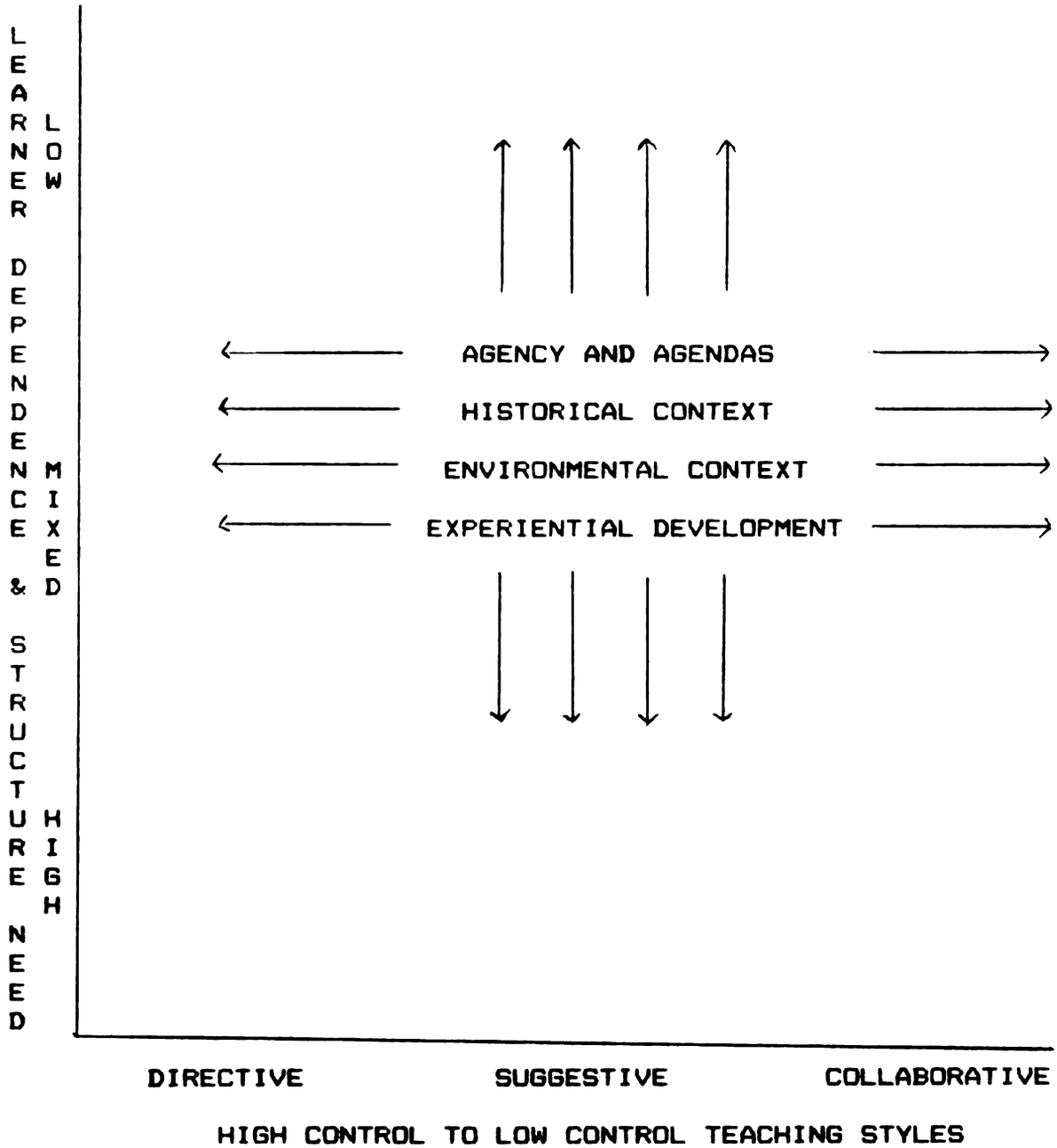


Figure 8. Forces affecting situational teaching-learning interactions.

Round 2: Model Specifications

The objectives of Round 2 observations were to investigate clinical teaching-learning interactions using the data categories discovered in the preceding round, to transform sets of stylistic behaviors into observation guides, and to further test specific aspects of the modified model against actual interactions. The researcher acted strictly as an observer during this round. Clinical teaching-learning interactions were observed as they occurred. The emphasis on immediate post-encounter interviewing changed slightly by conducting interviews at times in which fewer extraneous demands were made on the clinician so that issues could be explored in greater depth. Observations were potentially more intrusive since the researcher began using a tape recorder, a clipboard, and a stop watch. Participants adjusted to this in a very short time and interactions soon returned to a spontaneous state. All interactions during this round were recorded. Observation forms were used for comments, quoted statements, brief interviews, and reflections instead of subsequently recalled field notes.

During this round, an additional 84 teaching-learning interactions were observed; 15 learner and 23 teacher interviews were conducted; 1 faculty group discussion and 1 resident and faculty group discussion each was held. These

events involved 23 physicians, 7 nurses, 2 physician assistants, 1 psychologist, and 1 medical student.

According to the modified situational teaching model a matched collaborative interaction should take place when a learner displays low dependence on a teacher and low need for externally imposed structure. Typical learner behaviors would reflect higher quality case presentations, low anxiety levels, high self-confidence, and a request for teacher experience via a question such as "What would you do?" The teacher, in turn, would be expected to respond with comments that begin with "I would", to ask questions searching for thought and judgment processes, would pose alternatives, make very few spot checks on basic knowledge, and would spend less time talking than the learner. The following is a transcript of a matched collaborative interaction recorded during this round of the study. FY is a senior family practice resident, and CH is the preceptor. The words and phrases enclosed in parentheses are editorial comments and definitions of terms.

> FY. This lady is 31. For the past few months has noticed some decreased hearing bilaterally, and also has noticed a fullness sensation in both ears. Sometimes its like a throbbing feeling. No vertigo, no dizziness. When she turns her head to the side it seems to get better, the throbbing, but her ears seem to be plugged most of the time. (Pulls out some lab report form).
>
> CH. Ah, it looks like we have some numbers here. Go ahead.

FY. When she stoops over the throbbing gets worse.

(Resident beeper goes off and asks him to make phone call to Medical Education Dept.)

FY. (Resumes) Otherwise, no sore throat, hoarseness, odynophagia, referred ear pain, none of that stuff.

CH. What is odynophagia?

FY. That's pain with swallowing. You mean that you didn't know, and you want me to tell you? (humorous tone of voice). This woman's pressures are ok, landmarks are normal, drums move with pneumotoscopy (changing air pressure in an otoscope to watch eardrum movement). So I did tympanograms (measurement of eardrum movement) and they look OK to me. I don't think this is eustachian tube dysfunction. I mean the peak (curve on tympanogram graph) isn't real high, but the pattern, the spread seems to be within normal range. So, I am wondering if I have to worry about something more internal such as a vascular problem there, because of this throbbing sensation, an aneurysm. I don't know how an acoustic neuroma (tumor of auditory nerve) presents, so I don't know if I should be thinking about that or not. The other thing I need to do yet is a Weber and Rinne test (tuning fork test of hearing) to see if it lateralized, and if she has a neurosensory or conductive loss. That's about what I had in mind.

CH. Ok, but you're intending to do it?

FY. Yes. So is there anything else?

CH. Ah, any history of allergies, upper respiratory allergies?

FY. In her family there is.

CH. Personally, she's not a hay fever type of person, or an atopic (atypical immune response) type person?

FY. I don't know. I didn't ask her that.

CH. Ok. Well, you told me, but I forgot the onset.

FY. Several months. That's also when the hearing started to decrease. She has to have someone

repeat things twice. She has never had that before.

CH. Any occupational exposure?

FY. (hesitation)

CH. I can't believe me asking about occupational exposure! A real family doc in the 80's.

FY. Hey, if she worked in the assembly plant with all that banging - bam, bam (sound effects).

CH. Sure. Right

FY. I don't know if she had that. She's a student nurse, full time. Maybe she did that before.

CH. So she is a student nurse. I am sure this affects how she functions. So, that's something that's concerning her. Ah, I don't know what else it might be either. I think you have covered all the bases. Once you have done the Weber and Rinne, you might want to get a formal hearing evaluation is the other thing, even if she has a normal Weber and Rinne. Ah, I would try to get some sort of estimation of her ability to hear grossly. You could do the ticking watch thing or the rubbing or whispering. Whatever you would like to do. I probably would get a hearing evaluation on her. And, different people have different approaches. Some people treat folks symptomatically, some decongestants at this point even though there is no hard evidence for a problem. Other people refer them directly to ear, nose, and throat docs. I don't think, he'll do all that much, except say 'Let's see how you'll do on a decongestant', unless he sees something on the hearing evaluation. Acoustic neuroma tends to be unilateral, and it tends to be associated with people who have recurrent serous otitis or recurrent otitis media. And, ah, its unlikely that she has that, and she's not the right age group for that either. Its unlikely that she has that. What else she might have, I really don't know. Nothing really rings a bell. I'm as dumb as you are about this. But, I would probably schedule her for a formal hearing evaluation, and if she were my patient, I would personally put her on a month of decongestants to see if that would make a difference for her. And tell her that we are not really sure what we are treating here, but that

this is the approach of a lot of ear, nose, and throat docs, and if she doesn't get better at the end of that time, I would go ahead and refer her. FY. Any preference on a decongestant. Like something that is easy to take, like twice a day.

CH. Yea, they make Sudafed in a long-acting, 12 hour prep too. So, I don't have any. I know that XXXXX likes Entex-LA. I hate both of those things, because they make me feel bad. They interfere with my sleep, and you might wonder about the possibility of that. They're both about the same in terms of side effects.

FY. All right. I'll give it a try. Thank you.

CH. Yea.

END

The tone of this interaction was very peer-like, but this is hard to tell from text alone. The tone of voice and the body language in the observed interaction presented this much more clearly than does the transcript. The learner even joked about the preceptor not knowing what odynophagia meant. The preceptor asking what that term meant in the first place, sets the interaction off as somewhat more collaborative. There were very few clarification questions, no spot checks on basic knowledge, and the preceptor shared much in the way of his own experience. He also phrased possible actions to be taken as alternative approaches, and when the resident hesitated over a question the preceptor jumped in with a joke about being a real family doctor of the eighties.

The next area of matched teacher control and learner need for structure is the suggestive style used with mixed learner dependence. In this situation the learner would be expected to ask "What do I do next?", present a case inconsistently, show moderate levels of anxiety and frustration, have gaps in knowledge, and would seek specific suggestions for actions to be taken. In this circumstance the learner would prefer a suggestive teaching style. The teacher would phrase suggestions in terms of "could, should, would". He might make a few spot checks on basic knowledge, suggest specific interventions, talk more than half the time, and take on the tone of a mentor. The following interaction took place between SS, a senior family practice resident, and LP, the preceptor.

> SS. I got a gal who has failed a hearing test. She was in for a physical. She is in foster care, has a history of seizures, and mental retardation. Otherwise, in pretty good health. She has had serous otitis (a form of middle ear infection) before, and I saw her on the 6th of the month. I put her on amoxicillin (antibiotic) and Entex LA (decongestant), and saw her back the next week. That time she had developed a draining ear. I took a look in her ear, and felt that it was a perforated TM (eardrum, tympanic membrane). I changed her from amoxicillin to Ceclor (another antibiotic). She is back again today. Her ears are still draining. They're not supposed to be doing that. I wanted you to take a look at it. As far as it looks she may have an otitis externa (infection of the ear canal). I would sure hate to put her on any eardrops while she has a perforated eardrum. She has lots of junk in the ears and I really can't see the TM's. I'd just like you to take a look to see if you would agree that there is a perforation there. To see if you had any other

suggestions as far as treatment goes. She has been on at least a week and a half of the Ceclor without any success. They're not supposed to do that.

LP. What's her age again?

SS. Oh, she's about 50 years old.

LP. OK. Lets go take a look at them.

(Patient is examined)

LP. So one of your questions is, is this externa versus interna (canal versus middle ear, each separated by eardrum)?

SS. She definitely has an externa along with it, but is there a perforation there too, as purulent (pus) as the drainage looks?

LP. How can you tell the difference between externa and interna with perforation?

SS. How can you tell the difference? Ah, I not sure what you're...

LP. Is there anything you can do?

SS. Well, you can do a tympanogram (a test of eardrum integrity), but I don't think it will show much.

LP. It might. If you see a real large ear canal volume, you know you're into the middle compartment. So it might be helpful.

SS. If it is not. are willing to say go ahead an put eardrops in the ear as a next step?

LP. What else can you do?

(Pause)

LP. OK, lets go back a step. Why are you afraid of ear drops?

SS. Well, in general they say that if you have a perforation, not to put drops in the ears so you don't wash them back into the ears in regards to infection. I don't know if something like cortisporin (antibiotic eardrops) is the...

LP. What's your fear with cortisporin? You got neosporin (a component of cortisporin) which is ototoxic (toxic to the ear), and you could get it right into the nerve area. So cortisporin, you're right, is not a good choice. What other choices are there?

SS. There's Velocef (an oral antibiotic, error).

LP. Velocef? Volsol HC (an ear cleaning substance with hydrocortisone in it), which is just acetic acid. It changes the environment. What can you tell me when you see a bunch of purulent material there?

SS. That generally tends to go along with a perforated ear drum. It tends to be....

LP. I'm not trying to make you think what I'm thinking. If you got purulent material then you have something culturable (grow bacteria from specimens to determine type and sensitivity to antibiotics) there.

SS. Yes.

LP. Stick a little culturette in that ear and get some. Lets culture it and find out what's going on. See if it is pseudomonas (an organism often resistent to usual antibiotics used in ear infections).

SS. OK

LP. You don't get too much pseudomonas otitis media, but you do in externa. She had a little bit of tenderness as in an externa component. I think whether she started with an otitis media then perforated and drained, and that drainage has now set up an otitis externa in addition, I don't know. But, I do know that your coverage (antibiotics) has not been adequate systemically. She is getting worse, so that you may need to put some wicks in with Volsol HC so that the wicks will suck it up down in there, and it won't just traverse through the perforation, and allow the purulent material to come back out too. And I don't think that, just my personal view is that if you just use drops, its not as good as wicking.

SS. Right, that's what I usually do use.

LP. So one, I think, in terms of deciding whether there is a perforation or not, you could, if you have a large ear canal volume, decide that there is a perforation by doing a tympanogram. Her left canal is purulent, but the right canal has more of a cerumen (ear wax) appearance.

SS. Yea.

LP. It wasn't really purulent. So you might be able to use a blunt curette to remove some of that, or irrigate that ear. To see what that eardrum looks like. So you have that option. I would get a tympanogram, I would get a culture of it before you stick anything into it. And lets get it cultured, and then maybe put in an ear wick. I have the same concerns about cortisporin and irrigating out an ear that might be perforated. I don't think I would irrigate to get that out. I think I would wick it. And you would probably have to change wicks in 24 hours, maybe at 48 hours. Change, and see her back on Friday. Change the wick, and use some Volsol, and I'd use the hydrocortisone. Regular Volsol can be irritating. So that's how I would try to differentiate media from externa. I'd try to get more information to resolve the reaction. Then use the Ceclor too. You have her on a pretty good dose?

SS. She's on 250 tid (three times a day). We pushed the dose a little bit.

LP. With Augmentin (another antibiotic) you could go to 500. Did I answer your questions? Do you know how to use the tympanometer?

SS. Oh yea.

LP. I'd do it two or three times, because with that fluid you're going to have a difficult time with blockage of that ear canal. So use one of those great big tips so you stay out of the canal actually.

SS. Now if it shows that there is a perforation in there? Would you not use the eardrops?

LP. I would not use them without a wick. I think I would put the drop on the wick and let the wick do...

SS. It sure would be nice to know if the drum is perforated with those drops and all.

LP. You may know by Friday, if you wick that stuff out. What would be your other choices?

SS. I don't know.

LP. You got the broadest spectrum antibiotic.

SS. Yea.

LP. You might be able to increase the dose. Superficial externa is not going to respond to that.

SS. Yea, that's why I gave you a call.

LP. You do risk some nerve damage. I would guess that if we looked up Volsol they would have some concerns about using that, but I don't know if you have much other... (looks up drug in physician's desk reference) options at this time except for a specialist. (reads section from reference)... Remove some debris under some visualization. If you had some small curette, you could remove some of that debris.

SS. We'll check the culture out. I'll get the tympanogram. I'm just not that versed in this.

LP. You just have to avoid getting it in the middle ear cavity and I think you could avoid that with a wick. (Reads more from reference) You go ahead and get started. I don't want to slow you up. And if you have any problems with the tympanogram, give me a howler. I have one ENT book (ear, nose, and throat) and look into externa too.

END

In this example the resident was somewhat inconsistent in her case presentation, and wanted specific direction on how to proceed with a question of possible eardrum perforation. The preceptor asked several questions, checked the resident's knowledge in the area, examined the patient,

and made many suggestions about techniques. Even though she used the phrase "I would..." many times, her statements were actually suggestions and not attempts to share personal experience or her own thinking processes. The resident had a treatment strategy in mind, but the preceptor detected some gaps in her approach, and moved the encounter into other areas by making suggestions for culturing, tympanograms, wicks, and other medications. The tone of the encounter was demarcated by the clear authority of the preceptor acting as a mentor.

The third area of teaching style and learner dependency match is when a learner displays a greater need for structure and the teacher becomes more directive. In this situation the learner is likely to ask "what do I do?", show higher anxiety, have a lower threshold for frustration, want specific direction, have lower self-confidence, and to want the teacher to give concrete information. The teacher is likely to respond by talking most of the time, giving commands, asking more recall questions, checking on the learner's basic knowledge, and exercising more authority. In the following example, JS, a fourth year medical student, is precepted by WH, a family practice faculty preceptor.

> WH. This is Mrs XXXXX who is coming in today because she thinks she has a yeast infection. I'll introduce you and get permission from her for you to see her. You take the history and perform the exam. In each room is a call light switch. Here let me show you. (Goes into unoccupied room and

demonstrates use of light). You'll need to do a visual inspection, and you'll have to get specimens for wet mount and KOH prep (vaginal mucous in saline and potassium hydroxide to look for infectious agents). Any other specimens that you may need will be dictated by her history. I'll come in when you are ready.

(Student is introduced and examines the patient. In a short while she comes out of patient room. She has specimen slides.)

WH. So, did you get slides, or didn't she have a discharge?

JS. Actually she didn't have any discharge now because she douched just before coming to the office. Isn't that convenient? Her history sounds like yeast infection, and she has a typical discharge. No pain, no dysuria, and a lot of itching. No odor. Even if I don't see anything. I would suspect that's what she has.

WH. (Preceptor takes slides and goes to microscope.) This is the saline? This scope has its idiosyncracies. The lens goes all the way over here (demonstrates). I'll warn you. Don't expect to look cool on this microscope. (Looks at slide) What do you want to look at first? I look at the wet mount first. Either I make a diagnosis of trich (Trichimoniais, a mobile, one-celled organism) or I see something else that allows me to call it something else. (Lets student sit at scope.) Do you see anything?

JS. I see a lot of epithelial cells (normal cells that line vagina. Student has trouble with scope).

WH. (Looks in scope. Adjusts lens and slide). There that's highpower right there. Do you see cells?

JS. Yea.

WH. OK, so we know that you got it. My only problem with this technique (wet mount exam specimen in tube) is that it is all right if you have copious discharge, and it is easy to transport, and its not that messy. But, if there is not that much discharge, what I'll do is smear them directly on the slide and put a little drop directly on them. Here take a peek for a second.

(Student looks in scope). I wonder if you would add to my education? How would you describe a clue cell? (A cell seen in infectious vaginitis caused by Hemophilus Vaginalis)

JS. It would be an epithelial cell with little granule type things on the outside, well they look like it, like granules.

WH. Granules. And you say they would be around the periphery of the cell? On the inside or the outside?

JS. On the outside. No.

WH. Are you saying no because they are not on the outside or no because you didn't see any?

JS. No, because I didn't notice any, but I can't say there aren't any.

WH. It seems that the way I've read clue cells described is that I've seen them on almost every slide. That's why I said I wanted you to help with my education because if I'm seeing them all the time then they are really not that helpful to me. And so, I don't use clue cells to help me look for things. Do you find them useful?

JS. No. I just usually wait to see the trich.

WH. Or the Hemophilus, or whatever. Or Gardnerella that we're calling it now. (Looks in scope again.) Ok, I don't see any hyphae or buds (yeast), or anything else. So I think we should go ahead with your plan. What do you like to use to treat what you suspect it to be?

JS. Monostat.

WH. Ok. How do you prescribe it?

JS. Usually, the dual-packs that have the cream and the suppository in them.

WH. Good

JS. A week

WH. Actually they are not for that long.

JS. Three days of the suppositories.

WH. Correct. And the little tube of cream and the directions are all there. Its a quick and dirty way to treat this. (Student laughs) Also, Monostat's competitor came out with a dual-pack and they will tell you that their's is superior to Monostat. They maybe right, but there probably isn't a nickel-worth's difference. But it is a real nice formulation. Go ahead and write for that.

(Both go back to examine room to see patient.)

WH. Why don't we go to see if we can find something on Monilial Vaginitis (yeast infection) on our computer patient ed thing (computer database of patient education handouts), Ok?

(Preceptor runs computer printout off and then shows student how to fill out the patient encounter and bill form as he fills it out).

WH. Do you feel comfortable about talking to her about this stuff?

JS. Yes.

WH. Good. I'll leave this for you to dictate.

JS. OK.

End

Note that the preceptor asked many questions, several dealing with basic knowledge. He physically demonstrated how to use a call light, the microscope, and the computer. And, the patient was examined by both the student and the preceptor. The preceptor set the tone, essentially authoritarian, and spent most of the encounter time talking. Again, it is difficult to tell the student's anxiety level, self-confidence, and dependence from this transcript. Since the patient had douched before the exam, thus threatening

the validity of normal exam procedures, the student's tone of voice and body language displayed a need for specific direction.

The final example in this section is that of a mismatch between teacher and learner styles. In this transcript, DA, a freshman family practice resident, is precepted by a family physician, HZ. The mismatch occurs after the resident presents her case, which is well done. She is concerned about how to convince a demented patient to have a mammogram (a breast X-ray used to detect early cancer), but the preceptor goes off into several other areas that are evidently not a problem for the resident. The preceptor is much too directive in this interaction. He asks many questions, checks on basic knowledge, and several times does not even let the resident answer the questions before supplying the answer himself. It becomes obvious that the resident has all of the information, feels confident about her management of the case, and really wanted to discuss some issues around screening in mentally incompetent patients. At one point she begins answering probing questions with both correct and incorrect answers at the same time. The preceptor talks through most of the encounter, puts the resident on guard, and does not let the resident explore the issue or even frame questions by herself.

DA. I have this lady in who is from a foster care facility in the area. She is 61 and has a history of organic brain syndrome, gouty arthritis, obesity, hypercholesterolemia, has had a thoracic aneurysm repair, and had some recurrent laryngeal nerve damage during surgery. She is coming in today for a medicine check. Her current meds, lets see, she's on...

HZ. Its sort of a routine thing? (the reason for the visit). A every three months, six months thing? You say she is foster care?

DA. Every six months as I look through her chart. She's currently on Lanoxin (digitalis), Thorazine (tranquilizer), Dyazide (diuretic), Slow-K (potassium), and she has been prescribed Questran (cholesterol lowering agent) for her cholesterol. She doesn't like it, and hasn't been taking it. She has also been prescribed Xyloprim for her gout, and says she hasn't taken that for a couple of years. She doesn't give a specific reason why not. On exam, HEENT (head, eyes, ears, nose, and throat) is all within normal limits, heart is regular, no unusual lung sounds, no other findings. Now looking at the chart, it was noted that there were some firm densities (mass-like tissue) in the lower medial quadrants in both breasts for over a couple years. She has been scheduled to have mammograms done, but the patient hasn't followed-up. She says that as long as it doesn't hurt, she doesn't think anything needs to be done. On my exam today, I again feel symmetrical firm densities in the inferio-medial areas of both breasts. There is, when she lays down, there is some tugging on the right side of the nipple, the skin is depressed. When she is sitting up there is no dimpling. No nipple discharge. So my plan for her - I would like you to feel her breasts too. I think I would like her to get a mammogram, but I'm not sure, I'm pretty sure she won't follow-up on it. And I'd like to check some blood levels on her, and see what her cholesterol is doing, since she is not being compliant with the Questran. And I'll check her potassium, check her lytes (electrolytes), and see how she is doing with that.

HZ. Are you suspicious of the breast nodules? Do you think something is there?

DA. Yea, the fact that it has been there for two years, and that it doesn't seem to have changed a whole lot, and that there are no nodes there. Probably not.

HZ. Was that skin retraction described too?

DA. Yes, that was described too.

HZ. And so you're saying that the fullness isn't all that bothersome to you?

DA. Well it is, just because of the fact that it is a pretty prominent fullness. I would feel more comfortable having the mammograms.

HZ. Or, maybe you could not find something, but something was really there. A lot of the times these things are less likely to be cancer, but it helps you. It is difficult to pick up something real small. So mammograms are good. You didn't mention how long it has been since she had a lot of her labs before. About, like Lanoxin levels, about that kind of stuff?

DA. Let me check. (Looks through chart). She had lytes done in April of this year...

HZ. So, do you think you need lytes every six months?

DA. On this patient, with questionable compliance, I would like to see them.

HZ. All right, that seems reasonable. Normally, if it is somebody just going along and they have been pretty well, just once a year is ok. I think with diuretics, you got to watch them, so once a year is what to do. But, here she is in a foster care home. Why is she in a foster care?

DA. She has organic brain syndrome.

HZ. So, just for no other particular reason? No tumor? It wasn't from alcoholism? From any other thing? One more thing, how old is she?

DA. She's 61

HZ. And what is her function like? Does she function pretty well? Is she pretty much with it, or does she need like a court order to get the

mammograms done? Do you think she understands what is going on?

DA. I didn't do a full mental status on her.

HZ. Are you familiar with that short mental status type of thing? You know its that little card they have made up. Basically, what I end up doing is asking them questions. People who have organic brain can really fool you because they stick to things they know. So I have been impressed with people who have developed Alzheimer's in my practice. You can be talking to them and then say, I'm, just going to ask you a few questions. Then ask, where are you? - San Diego. You know, totally off the wall. So in somebody like this, if you are trying to get an idea about how reliable this patient is, you might, it would be a good idea to do your short portable mental status exam. So, who are you, what day is it, who is the president, what is your birthday, and what is your mother's name, all of those type of things. And obviously in her, you wont have all the answers because she wont know. Maybe something like that would be good to do, and record it so you could follow it. So I would check that. And then, the other thing you have to do is make your... I hate to say you got to make a judgment, a moral judgment, not a moral judgment, an ethical judgment whatever, about how much you do for which people. Mammograms, probably if she is functioning, she is doing ok, then yea, I would probably get them. I would find out, because even if you find out that the state is paying for it, it costs a heck of a lot more money to treat a cancer than it is to get it early and just get a lumpectomy and that kind of stuff. But, it also gives you an idea that, if this gal needs mammograms, and she doesn't know who the president is, you need to get a guardianship, and you need to have someone else say 'you are going for mammograms, period'. Or tell the foster care worker she needs to go for mammograms. Just write an order for the foster care worker, and they arrange for it. That way you have done your duty. So the rest of health maintenance also needs to be covered. It sounds like you have looked things over well, but how about guaiacs (test for occult blood)? How about flex sig (sigmoidoscopic examination of the bowel)? She has hypertension, so how about, when was her last chest x-ray and ekg? I would get those every 2-3 years if she is stable. I do agree with the cholesterol and the

lytes. Flu shot? Does she need that? At least consider it. Pneumovax? Again consider it. Anything else?

DA. (Shakes head no)

HZ. Ok, lets take a look at her.

END

These dialogues were typical of the interactions observed throughout this study. The modifications made in the preliminary model improved observational ability and held up more consistently under comparison to interactions in the field. One unanticipated finding was that the majority of interactions observed fell within the collaborative area of the model. The impression arrived at in the first round of observations, that most interactions were suggestive in nature, did not bear up under closer examination using an observation guide. During this round of observations, 36 (43%) of the encounters were judged to be collaborative, 24 (29%) were suggestive, 11 (13%) fell within overlap or marginal areas, 7 (8%) were clearly mismatched, and 6 (7%) were directive.

No further modifications of the model were needed as a result of this round of observations. The model structure, its major components, and the three styles of teaching along with the three levels of learner dependence as reformulated in Round I remained sufficient to describe and explain all of the 84 encounters observed. No trend of negative or contradictory cases were discovered.

Further emphasis was placed during this round on attempting to clarify the major categories of data and characteristics of teaching and learning styles encountered in the clinical setting (listed in Tables 3 and 4). These characteristics, or markers, remained evident during observations. Much difficulty exists however, in observing them in behavior alone, and especially in creating observation instruments to assess them. Verbal expressions, question types, directions, the amount of talk time, and various interventions, while being challenging to observe, are somewhat easier to see than concepts such as case presentation quality, the type of information wanted, and the extent of a learner's knowledge base surrounding a patient care problem. Anxiety levels, self-confidence, frustration potential, personal preferences, and tone are much more difficult, if not, at times, impossible to observe. A gestalt of verbal exchange, body language, followed by probing interviews were necessary to try to assess these more elusive constructs.

Model Process Modifications

A flow diagram of the situational teaching process was proposed in the preliminary model. A revised flow chart of the situational teaching process is displayed in Figure 9.

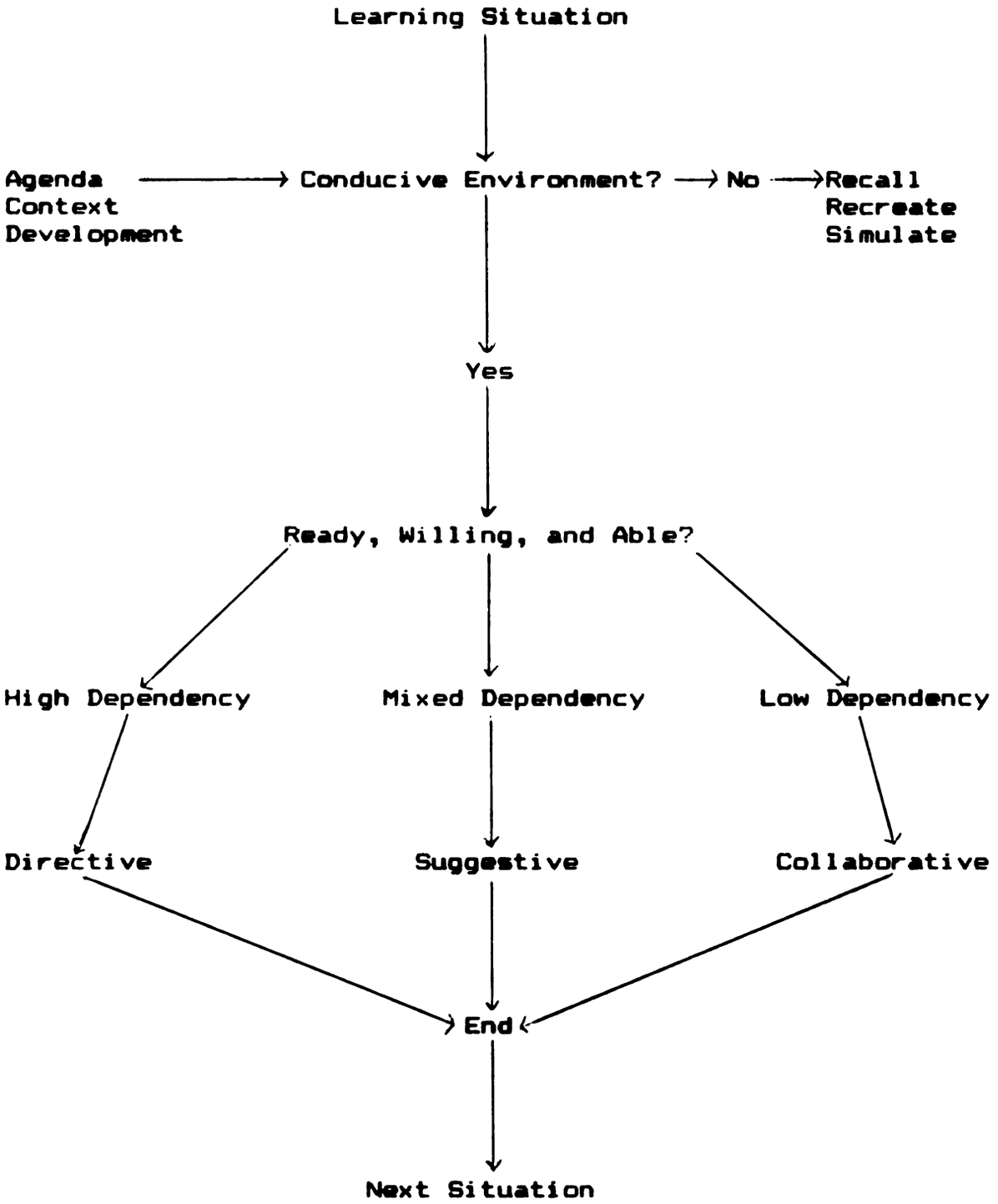


Figure 9. Modified flow diagram of the situational teaching process.

The only significant modification of the flow process is the inclusion of factors affecting the environmental context in which teaching-learning interactions take place. As indicated, intrinsic and extrinsic factors impact the overall conduciveness of the environment. In other words, these forces may push any particular interaction into a condition that is either favorable or not favorable for matching teaching and learning behaviors.

Round 3: Refinement Observations

The purpose of Round 3 observations was to further refine components of the model in as great a specificity as possible. To accomplish this, in addition to ongoing observations of teaching-learning interactions in the clinical setting, a series of six in-depth interviews were conducted with clinical teachers responsible for physicians in training. This part of the study focused on those elements of the model identified as being the most difficult conditions to observe or assess in teaching-learning interactions. Namely, these were, the quality of case presentations, the level of learner anxiety, the degree of learner self-confidence, the extent of a learner's knowledge base surrounding a patient problem, and a learner's frustration level. Admittedly, each of these topics is worthy of a number of studies by its self, but a bit more

clarification was needed to more fully describe the model of the situational teacher.

During this round, an additional 35 interactions were observed. All of these interactions involved four faculty and eighteen resident physicians in the Family Practice Center. These observations revealed no new findings, and essentially served as confirmations of the final model structure. Table 5 represents a summary of data collected during these interactions. In the top half of the table, each figure is an average number of times a behavior was observed per interaction. At the bottom of the table is the number of times a particular teaching style occurred.

Table 5
Summary of 35 Clinical Teaching Interactions

Preceptor	A	B	C	D
Average Number of:				
Commands	2	0	1	3
Suggestions	3.2	2	1.5	4
Personal Experiences	3.3	3	1	1.9
Recall Questions	3.1	1.3	5	3.2
Clarifying Questions	2.7	1.3	2	2.3
Open Questions	1.5	0	1	1
Spot Checks	4	3	2	1
Number of Times Used:				
Directive Style	2	0	2	1
Suggestive Style	3	4	2	8
Collaborative Style	3	6	1	3

It is evident from these data that no one quantitative marker could be found among those identified in this study that was consistently indicative of a particular style. For example, Preceptor A was a junior faculty member at the residency training program. He was 37 years old at this time, a father of two, one of the physicians performing obstetrics on the faculty staff, very active in his church, and almost has the most experience in private practice outside of an educational setting. He was very personable, friendly, outgoing, and tended to talk a lot about personal experiences. He was the preceptor described in one of the critical incident interactions observed early in the study when a resident transgressed his value system. Being new to the faculty he was concerned about doing a good job of precepting. He is also one of the two faculty physicians to have done fellowship training in clinical teaching. He asked the most questions, gave the most suggestions, performed the greatest number of spot checks, and used the greatest variety of teaching styles. Preceptor D, on the other hand, is a senior faculty member of the program, 40 years old, a father of two, the one of the faculty members with the longest tenure, and also had received postgraduate training in clinical teaching. The number of his questions, suggestions, and shared experiences are similar to those of Preceptor A, but he predominately uses a suggestive style when interacting with residents.

Many more elements go into a teaching style than can be isolated through measurement of individual factors.

The most interesting finding arising from the 6 interviews was that the clinical teachers cannot readily describe how they go about assessing a learner's expression of dependency. Some learner behaviors are more obvious than others, and there is a tremendous variance of outward expression among learners. The terms "gut-level", "gestalt", and "intuition" came up very often during these interviews. Teachers read body language, facial expressions, speech patterns, factual content, mannerisms, eye movements, posture, pace of speech, and "aura". Then they integrate this "somehow" into a "personal feeling" they have about the learner, and a "gut feel" about the severity of the patient's problem, and combine this with several other extraneous factors (agenda) outlined in preceding pages, and form an assessment of the situation. It is evident that this process is very ill defined and fuzzy even for the individual behaving in such a way.

The second finding of interest was that these teachers had a very difficult time talking about anxiety, self-confidence, frustration, case presentation quality, and knowledge as separate entities. There is so much overlap perceived among these issues that several times during an interview the teacher would revert to another category to describe it. For example, when one teacher was talking about

self-confidence he continually reused terms he had already used to describe anxiety levels.

Criteria used by clinical teachers to judge the quality of a case presentation include logical and sequential organization, chronology, completeness of data, inclusion of relevant data, exclusion of irrelevant data, and an attainable and reasonable plan of care.

Observed behaviors used by clinical teachers to assess a learner's level of anxiety include pace of speech, body language, eye contact, response time, mannerisms, respiration rate, and verbal expressions.

Self-confidence is evaluated in relation to verbal expressions of control, the number of "I statements", the number of questions asked, self-assessments, anxiety level, aggressiveness, and decision making actions.

A learner's knowledge is inferred from his or her ability to cite references, the quality of the case presentation, to point out conflicting opinions about treatment or diagnosis, and as one teacher pointed out, the ability to "split hairs".

Teachers had a difficult time separating manifestations of frustration from anxiety, and there is a lot of overlap. Body language, pace, and eye contact may be much the same. The concept of "tuning out" came up during these interviews. Learners tune out the teacher if frustration levels get too high. They resort to ploys that have worked before, and

"their eyes tell the story, they get that glazed, far-away look".

Final Model

The third phase of this study was the final review, refinement, and integration of the model. This was conducted via the compilation of a brief "Clinical Instructor's Guide to Situational Teaching" included in Appendix D.

This model is a synthesis of the theoretical model proposed early in this study with the results of the research findings and developmental modifications. It is written generically for clinical teachers in the professions. It is brief, succinct, and tries to avoid educational jargon as much as possible. Only the essential elements of the situational teacher model are included.

This draft was submitted to representative clinical teachers for their feedback, and editorial changes were made where appropriate.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to develop and test a model of situational teaching in a professional, clinical service setting. The primary research question was, is the situational teaching model a plausible description of clinical teaching-learning interactions observed in professional practice?

Five areas of educational theory and research were explored to create a preliminary model of situational teaching. Tenets and findings from situational leadership theory, teaching and learning style research, models of teaching literature, interaction analysis documents, and facilitation of adult learning theory were integrated into this model. The model served as the conceptual starting point as well as the focus for the study.

The critical assumption of the situational teacher model was that teaching and learning styles are not fixed characteristics of teachers and learners, and that these styles change from situation to situation. As important, it was also assumed that matching teaching behaviors with the advanced student's learning needs is compatible with the stated goals of professional education. A third assumption was that the teacher should bear the responsibility for

matching teaching style with learner needs since this is a traditional role in our culture.

The research design and methods were drawn from the principles of qualitative research, specifically modified 'constant comparative' analysis techniques. The major steps were: the creation of a preliminary explanation of the interaction under study, the identification of categories of data represented in the model, the comparison of the model to interactions in the field, the modification of the model to fit all cases, and the repetition of these steps until the model was fully developed. Professionals, teachers and learners in training, from medicine, nursing, and allied health served as subjects for observations. Clinical teaching-learning interactions were observed as they occurred in a 300-bed teaching hospital. Observations were conducted in both in-patient and out-patient facilities. Graduate students in adult education as well as expert advisors reviewed materials, concepts, and early versions of the model, and gave written and verbal feedback during its formulation and refinement.

The study was conducted in three main phases. The first phase was preliminary model formulation. The second phase was devoted to gathering data. This was accomplished in three "rounds" of observations, interviews, audio-video taping, and structured interviews. A single teacher was followed and observed during interactions with various learners. Then

another teacher was observed in the same manner. This was repeated with each teacher participating in the study. Observation instruments were designed and tested in the field. Special attempts at analyzing data through interaction analysis techniques were performed. A few specific learners were also followed to observe interactions from the learner's perspective. Process-recall interviews were conducted throughout the entire study. The model was analyzed and modified during each round of data collecting, then the single-case observations were repeated for the next round. The third phase was a final synthesis of the model through the creation of a brief user's guide.

Conclusions

The central conclusion of this study addresses the primary research question, is the situational teacher model a plausible description of clinical teaching and learning in a professional training setting? The answer is a qualified yes. The essential assumptions and elements of the preliminary model were maintained after modified constant comparative analysis of actual clinical teaching-learning interactions and model components. The answer is qualified because the model only describes the interactions observed with the sample subjects in the research setting at the time of the study.

The clinical teachers observed displayed various combinations of teaching behaviors that could be grouped into the construct called a teaching style. These teaching styles also fit on the continuum of control described in the model. Teachers customarily exercised one style from interaction to interaction, but subtle changes took place from encounter to encounter, from learner to learner, and with the same learner from occasion to occasion. Less frequently, some event happened to stimulate a teacher to make a dramatic change in teaching style, but it appears that clinical teachers do not change teaching styles with any forethought. Teaching style changes seem to be reactive to learner and environmental elements, and teachers intuitively act in a situational way.

The clinical learners observed also behaved in characteristic ways that could be construed as learning styles. These styles changed in subtle ways along the continuum of dependency and need for structure. They changed with different teachers and from problem to problem. Learner dependency changed in interactions most dramatically with the degree of novelty of the problem they faced. Styles were different from learner to learner, from learner-teacher relationship to relationship, and from problem to problem.

The clinical teaching-learning environment by definition includes all other elements of the teaching-learning interaction other than specific teaching and learning behaviors. The environmental factors that impacted

interactions most seemed to be the agency of the teacher, personal agendas, prior performance of individuals, developmental aspects of relationships, the pressures of the physical environment, and the level of the experiential development of the individual. These factors influenced teaching-learning interactions in major ways. They were frequently significant contributors to large swings in teaching or learning styles, and they played a large part in most mismatched interactions.

Most of the clinical teachers observed accurately read the learner's level of need and matched that need with an appropriate teaching style. The learners studied in this research most often displayed learning behaviors that were categorized as low dependency styles, and subsequently, the most frequent teaching style was collaborative. Mismatches also occurred, and in almost all cases the teacher moved into a more controlling posture than indicated by learner behaviors alone. This move toward greater control resulted from some environmental factor (time pressures, the most frequently cited) or a transgression against some principles of agency (quality of care, the most common).

Another important conclusion is that the styles identified both in teaching and learning do occur on a continuum. Separating behavior constellations into arbitrary constructs tends to misrepresent how difficult it often is to locate behaviors along those continua with any accuracy. The

tripartite classifications were general enough to facilitate easy comprehension and observation. Teaching-learning interactions are phenomenologically very complex and the situational teacher model is only meant to be a guide to better understanding of them.

The teaching style termed 'facilitative' was removed from the model because facilitation techniques as defined early in the study were not seen in day-to-day teaching and learning interactions in the clinical settings. This does not mean that the concept is not valid. The original model was thought to be a representation of the possible. It just turns out that a distinctive facilitative style was not seen during the observations made of ordinary clinical practice during this study. It is possible that the original scheme of the model could be retained in settings where facilitative behaviors are more regular components of teachers' styles.

Learner dependency was preliminarily designated as combinations of high or low commitment and competence. These constructs could not be readily observed in the way they were built into the model with the particular learners observed in this study. They were replaced with categories of behaviors seen during interactions. One difficulty remaining with the final model is the abstract, intuitively perceived categories currently used to describe learner behaviors such as 'anxiety levels', 'self-confidence', and 'frustration potential'.

One concept encompasses both the strengths and weaknesses of this study, that is, "reductionism". Reductionism is a process or procedure by which complex phenomena are described or explained in simple terms. Teaching-learning interactions are obviously very complex phenomena. A qualitative methodology was used in this study, to retain a sense of this complexity and to avoid undue over-simplification that obscures the explanatory power of the model. The situational teacher model reduces interactions to simple terms, but still points to the very complex nature of these interactions. On the other hand, the situational teacher model does not reduce interactions to quantifiable units for empirical research purposes. Thus, generalizability of the findings in this study is not even a question.

Recommendations

Further research is needed. The medical profession served as a data source in this study, but the model could be tested in any number of other professional fields that contain large components of clinical training. Law, teacher education, dentistry, accounting, business, and agriculture are a few major examples. In addition, research could be conducted in any form of dyadic instruction that tends to be problem-based. The model needs to be tested in situations in which there is a one-on-one interaction between a teacher and

a learner concerning a client's problem in a service setting. The model should also be tested in different settings within the same field if it is to have any widespread explanatory power.

The situational teacher model needs to be studied further in order to operationalize, quantitate, or better measure the components of the model. Easily observed, rated, or measured constructs could be used to develop instruments that would facilitate the empirical testing of the model. Perhaps, a style instrument could be developed to quickly locate a teacher's or learner's behavior along a dimension or continuum so that the interaction between them could be placed on a grid indicating the type of match represented by the interaction. These instruments would then need a variety of validity and reliability assessments.

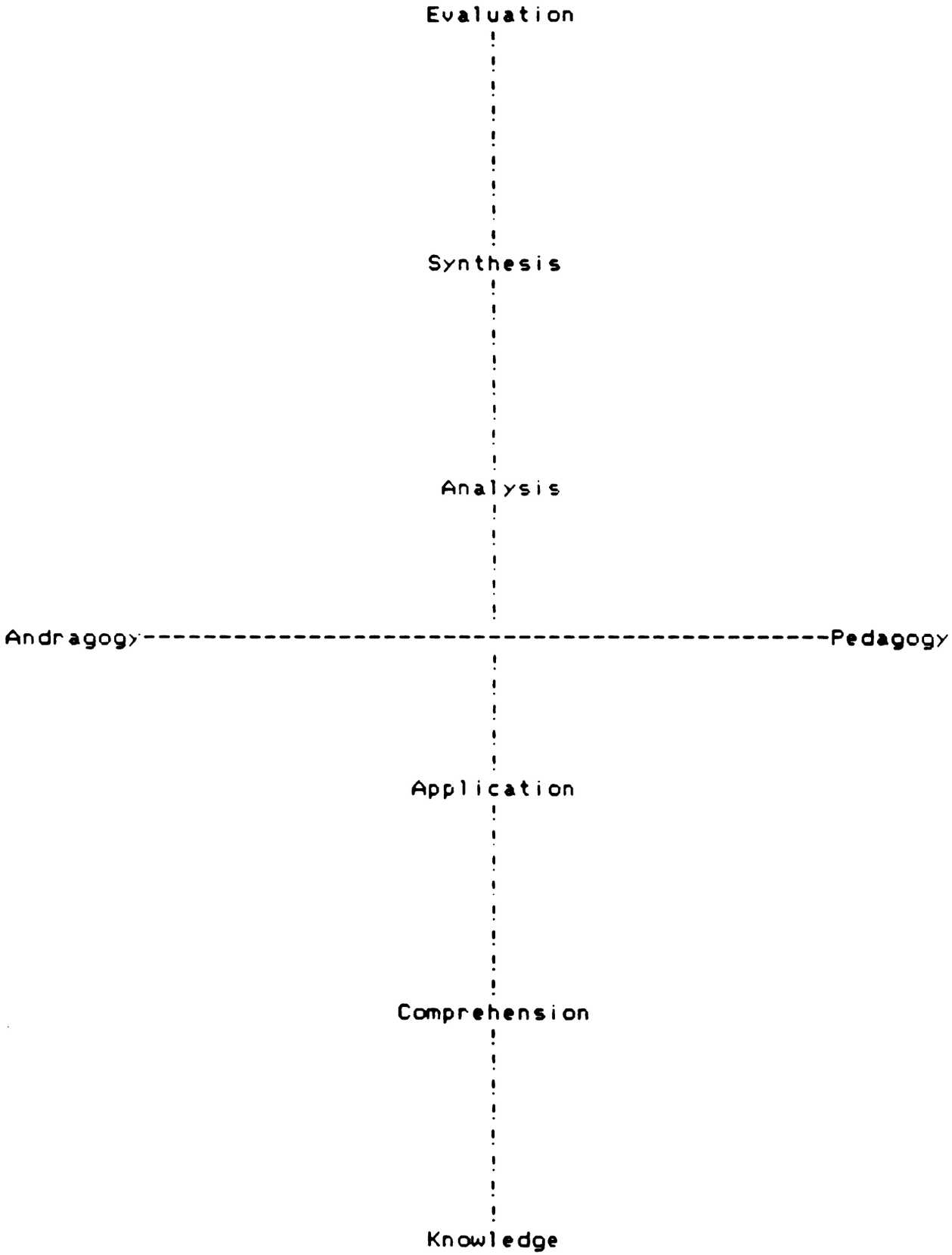
Of course, the general assumption that matching teaching styles with learner needs makes any difference in the overall effectiveness of interactions or in learning still needs further verification. The effectiveness of interactions specifically proposed in the situational teacher model also needs this validation.

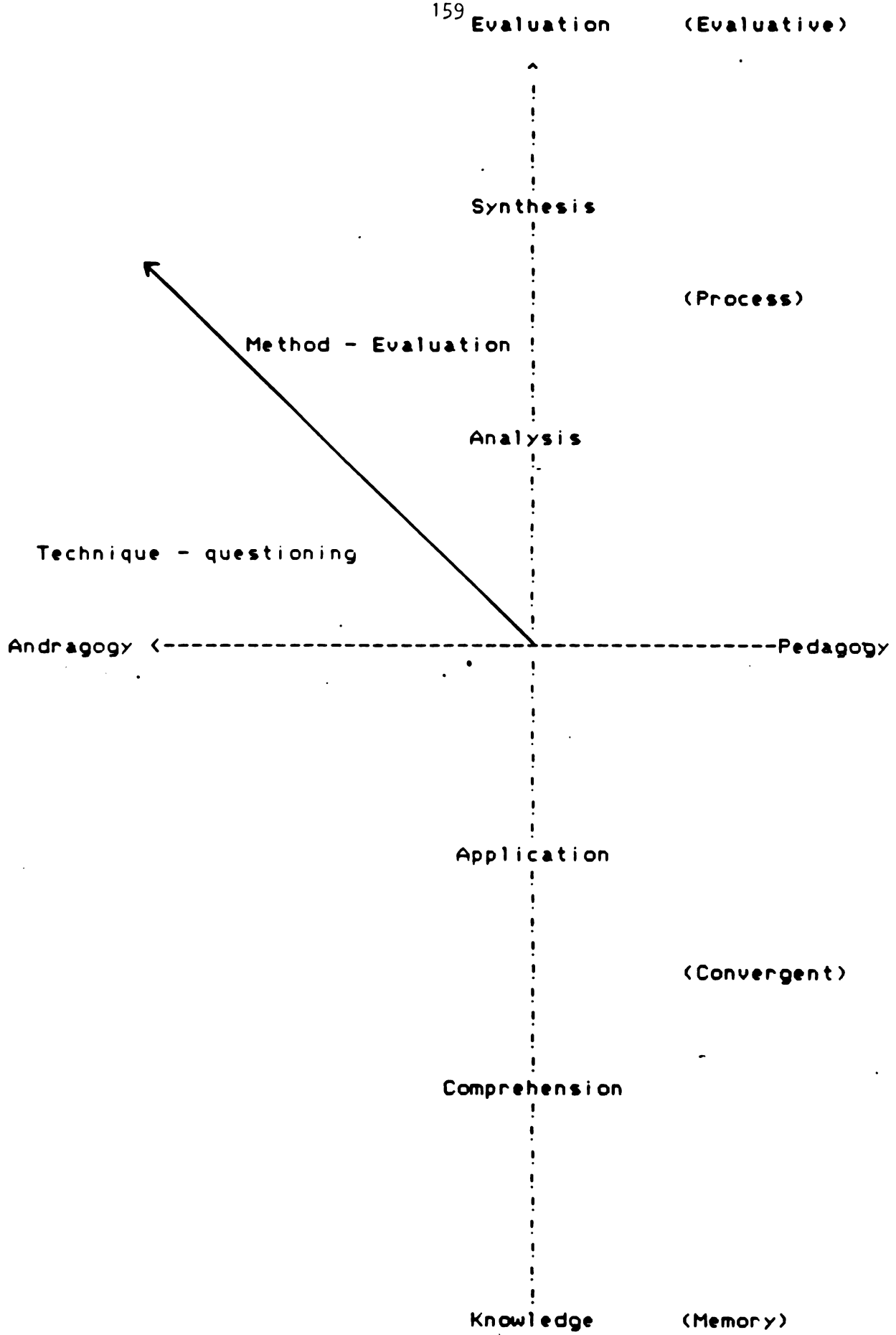
Diagnostic and teacher training uses of the model are implied in the foregoing discussion. The model could be used as a diagnostic instrument to assess teaching-learning interactions in the clinical training setting if measurement instruments were to be developed. The model could also be

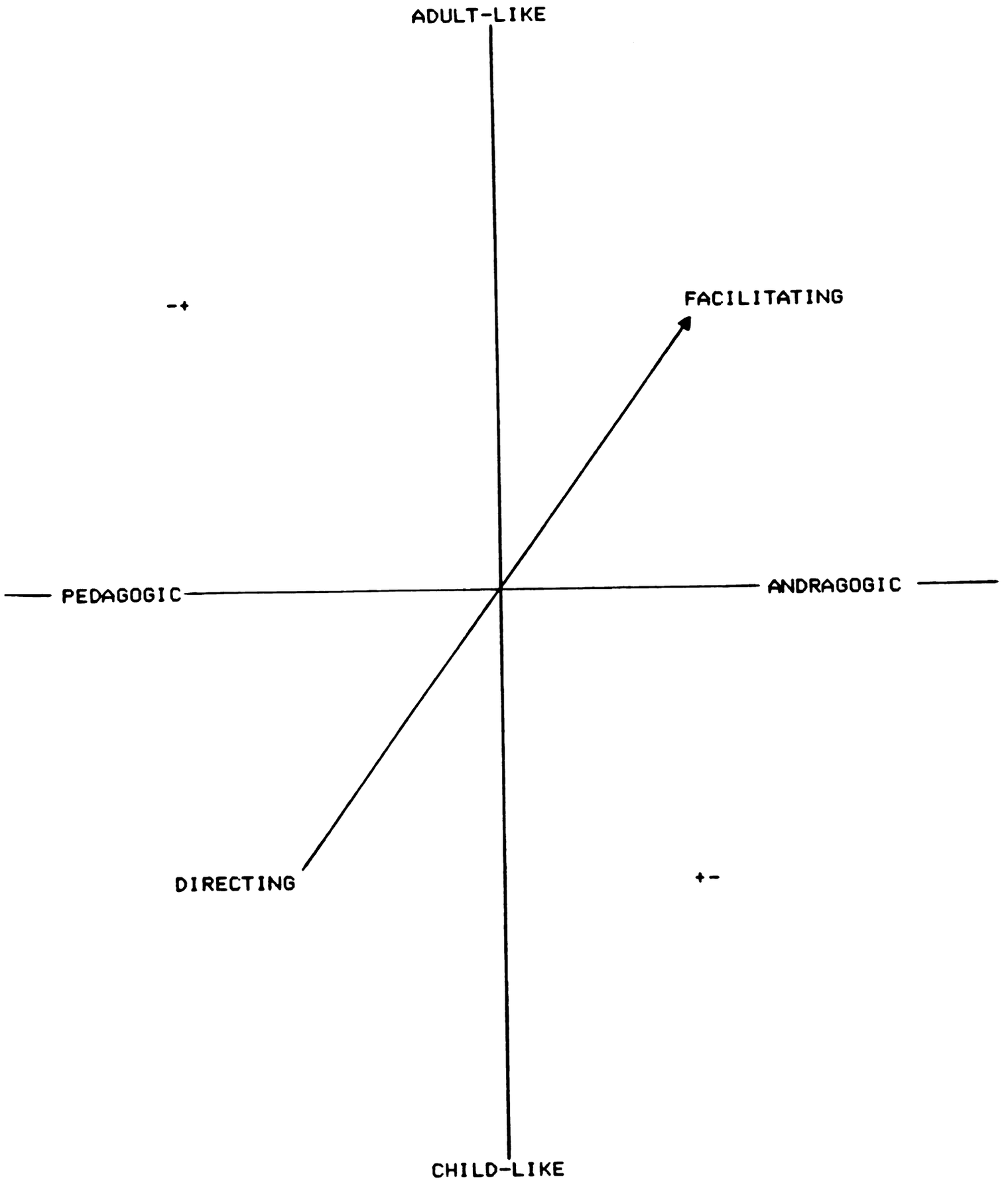
used to help clinical teachers understand teaching-learning interactions, and to take a more active role in changing their teaching styles as needed.

APPENDIX A
SAMPLE MODEL FORMS

The following group of figures, drawings, and graphics represents an evolution of the situational teaching model from early conception to the preliminary model that served as a focal point for data gathering, analysis, and further model development during this study.

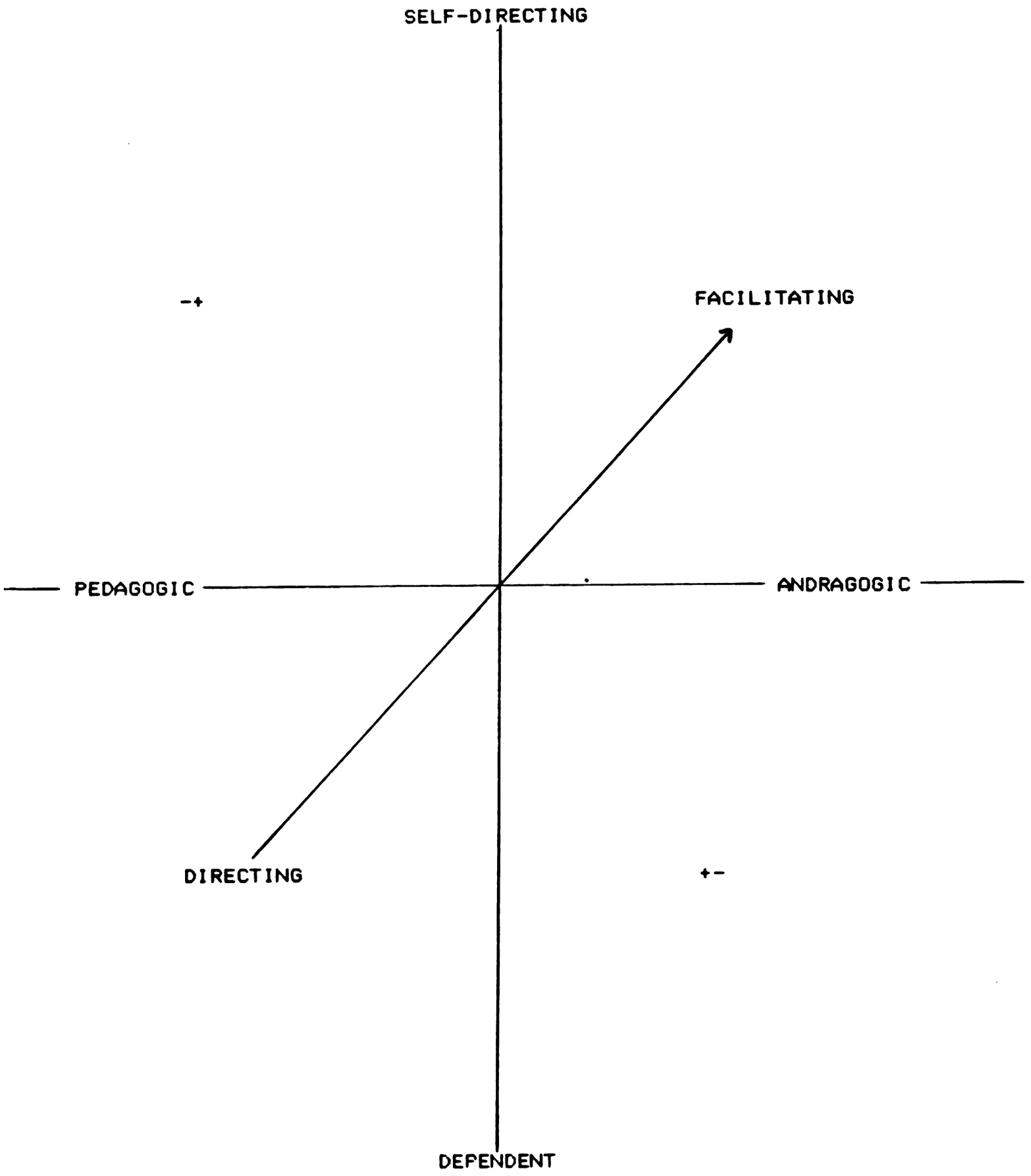

Evaluation
Synthesis
Analysis
Andragogy
Pedagogy
Application
Comprehension
Knowledge


Evaluation
(Evaluative)
Synthesis
(Process)
Method - Evaluation
Analysis
Technique - questioning
Andragogy
Pedagogy
Application
(Convergent)
Comprehension
Knowledge
(Memory)

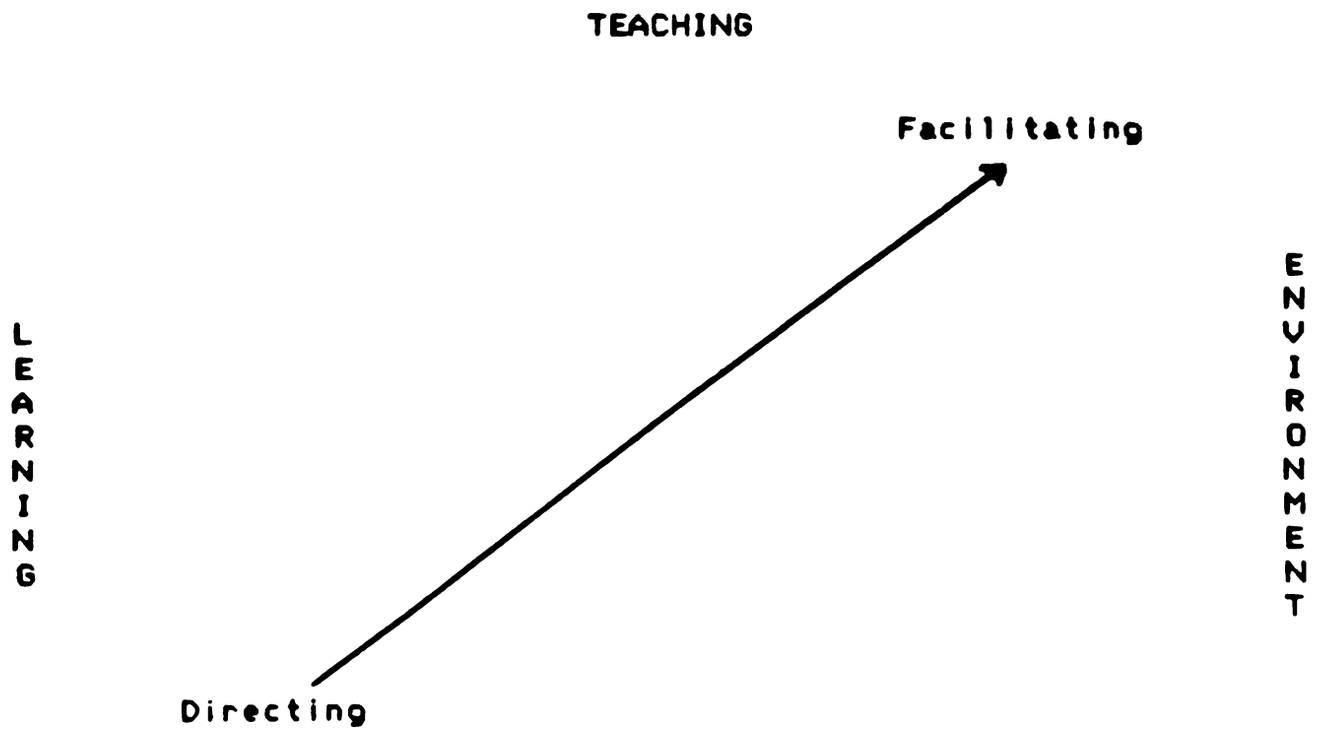

ADULT-LIKE
-+
FACILITATING
PEDAGOGIC
ANDRAGOGIC
DIRECTING
+-
CHILD-LIKE

TEACHING-LEARNING INTERACTIONS

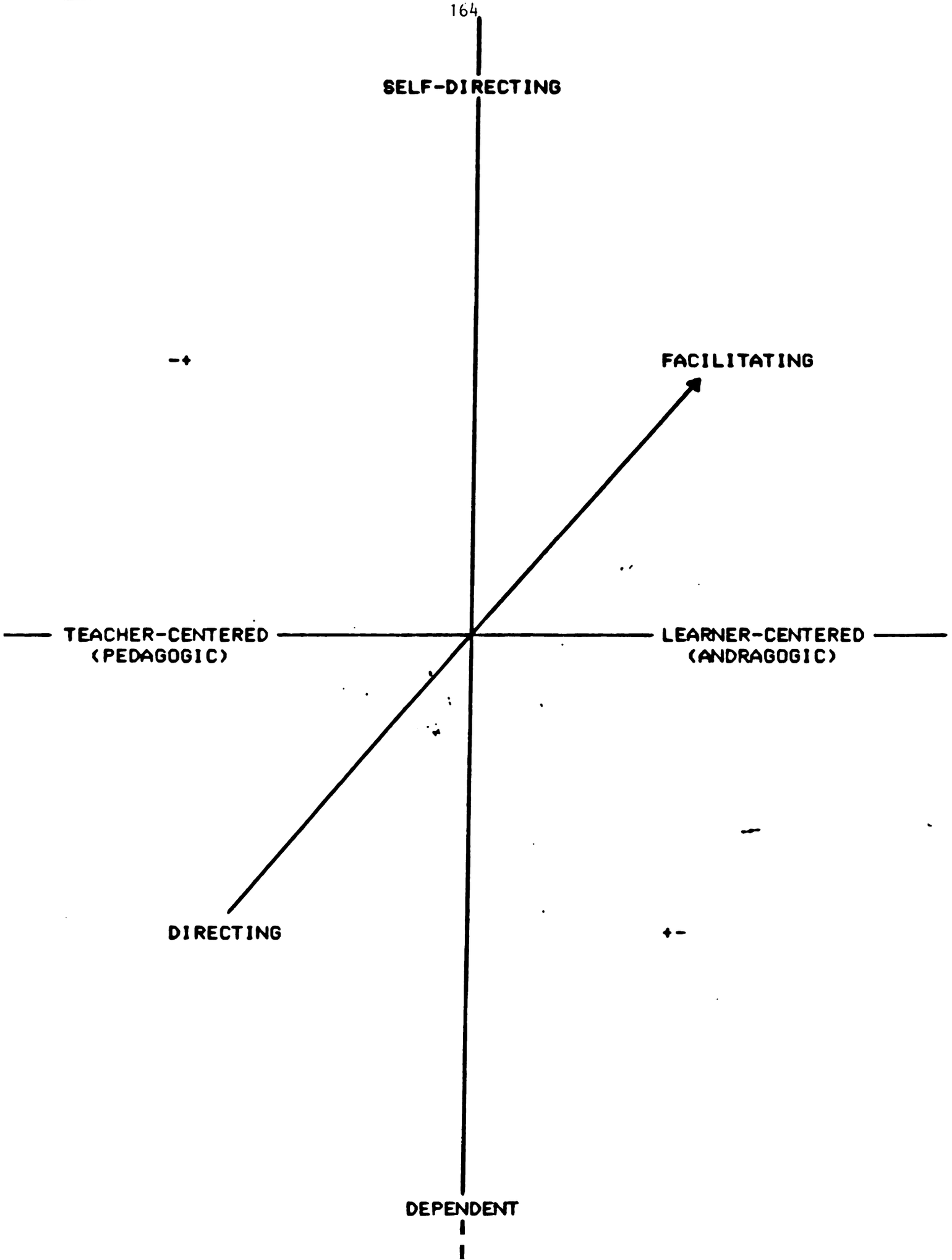
	Pedagogic	Andragogic
Self-Directing	+-	Facilitating
Dependent	Directing	-+


SELF-DIRECTING
-+
FACILITATING
PEDAGOGIC
ANDRAGOGIC
DIRECTING
+-
DEPENDENT

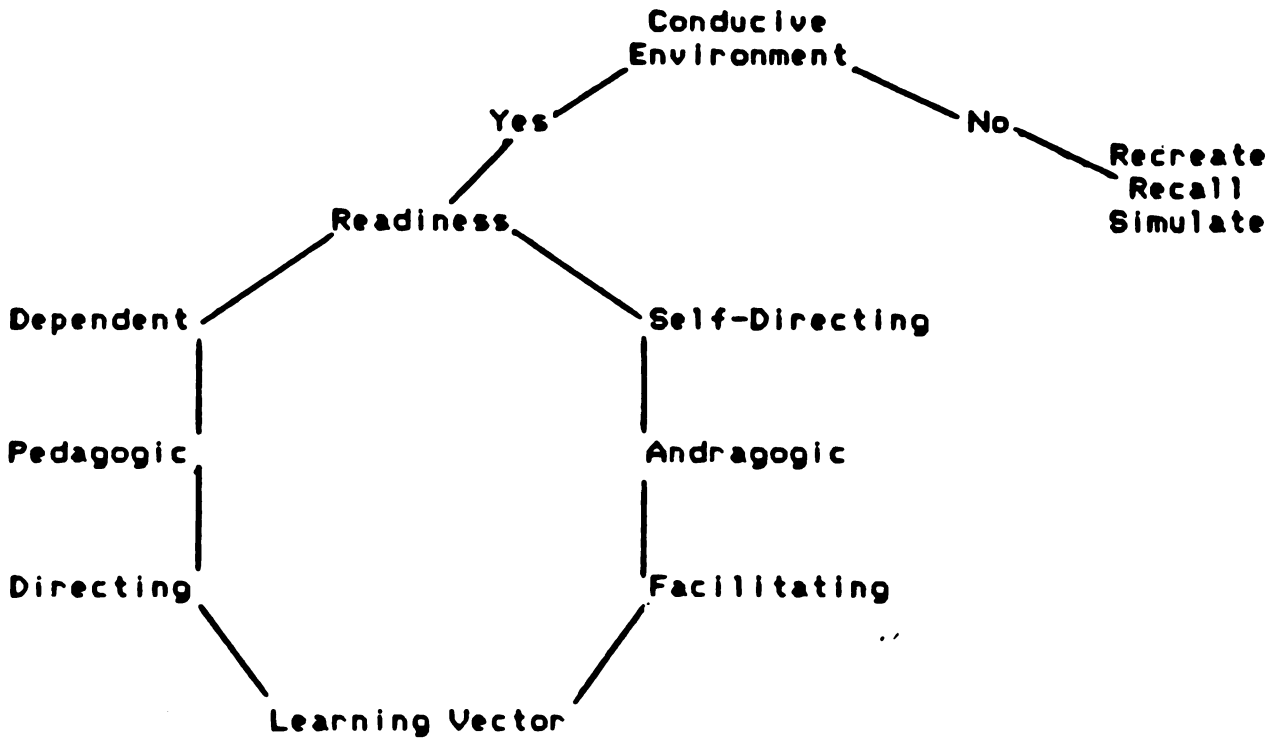
THE LEARNING VECTOR



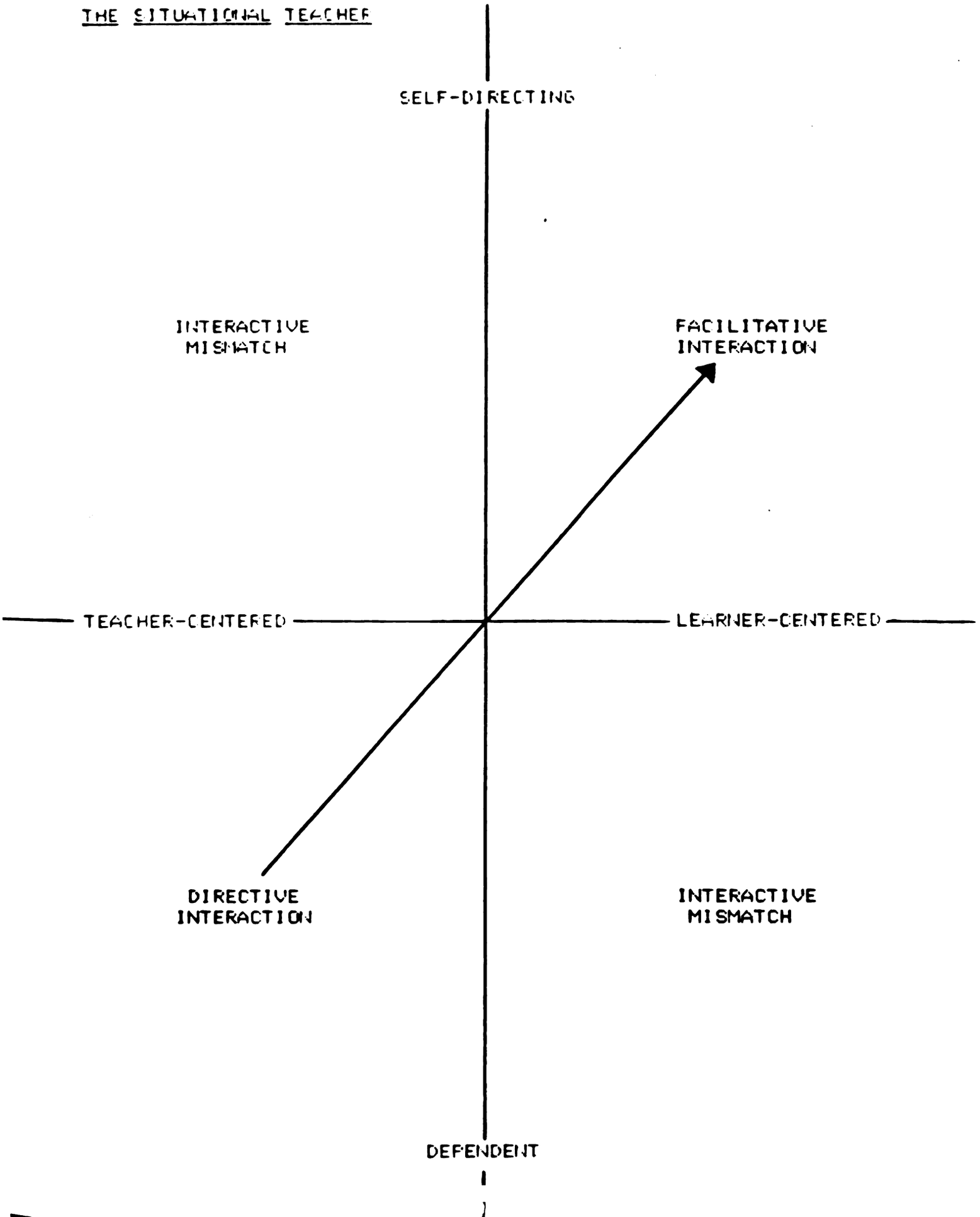
THE SITUATIONAL TEACHER



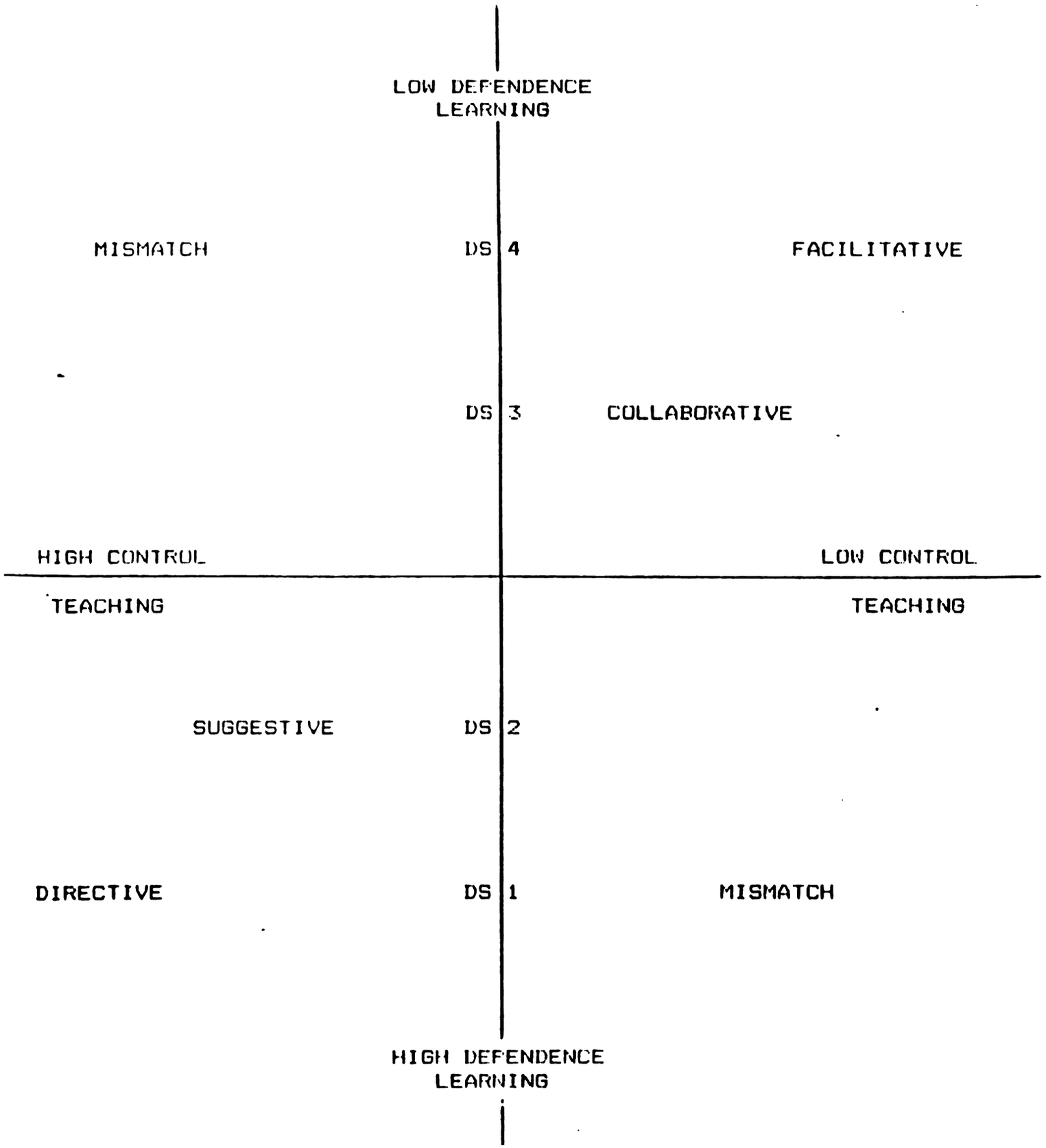
THE SITUATIONAL TEACHING DECISION TREE



THE SITUATIONAL TEACHER



THE SITUATIONAL TEACHER MODEL



APPENDIX B
SAMPLE FIELD NOTES AND DOCUMENTATION

The following appendix is a chronological arrangement of post-observation field notes, post-encounter interviews, reflections, interviews, reports of group meetings, and summaries compiled during data collection phases of this study.

FIELD NOTES
8-18-87
PM

6 ENCOUNTERS
(2),

First observation of precepting done for dissertation. Followed
sround, plus he precepted me with a patient who had a subcutaneous mass on the arm. All other encounters were with 2nd and 3d year residents.

made me feel very comfortable during my encounter with him. I outlined my concern (lipoma or muscle mass) and asked to whom I should refer. He examined mass and suggested referral to surgeon for evaluation. Complimented me on pick-up and was approving of plan.

listened carefully then asked what they wanted to do regarding management. Then added suggestions to their plans or posed alternative considerations. I was impressed that he asked very few closed questions, mostly only for his own clarification.

In discussion afterward mentioned that "some residents were fun to precept" - the ones that explore issues or alternatives. Precepting that is not fun is when the resident is pinched for time and just wants an answer. He uses the preceptor as a repository of information. stated that he thinks learning takes place in the relationship. I think he meant that significant learning about the judgement side of professional practice takes place in the teacher-learner relationship.

I watched for overt behavior changes from precepting encounter to encounter, but did not see any. This may be do to the fact that the residents were advanced or I am not sensitized to subtle differences.

I don't know what to look at at this early stage, and perhaps, I should not try to look to hard for model components.

FIELD NOTES
8-21-87
PM

4 ENCOUNTERS

Observed encounters with 1 first yr, 1 second yr, and 2 third yrs. It was a Friday afternoon and my observations were curtailed to see some work-in patients on team B.

was very directive this afternoon. He was called to help on flex sig and took over the procedure until he got the instrument past the point where Bruce was having difficulty. Little discussion, left the room when past the difficult spot.

had a rash patient and asked for second opinion. jumped in and did skin scraping at least suggestion. He did the scraping, the microscopic exam, and told what medicine to use.

Encounter with was confrontational. had patient who was 17 and pregnant with second child, living on wellfare and in foster care. expressed feelings and thoughts about this situation that reflected disagreement with this lifestyle, his own biases, and perhaps, prejudices. This behavior by the resident sparked own sensitivities about the poor, the down-trodden, and the human condition. He confronted about prejudicial behavior that may be perceived by the patient. assured him that that wasn't the case. predominated discussion, became very directive, asked recall questions, and gave specific advice about how to proceed. There was also another resident waiting to be precepted so he was under some time pressure.

behavior all afternoon seemed more directive today.

FIELD NOTES
8-24-87
PM

3 ENCOUNTERS

I have observed on many occasions. He has a pleasant style. He asks a few clarification questions in a non-threatening manner, asks what the resident wants to do, then may make a few suggestions. At times he jokes around, but the amount of this varies from resident to resident.

Today he precepted in a calm and relaxed fashion after a preliminary discussion about playing some tennis. stated he was confused about the OB intake form, and I don't think ever addressed that confusion, but got right into the case. He did raise the question of the patient's social setting or circumstances (she was unwed and did not want to get married because she would lose her medicaid benefits. She planned to marry after the baby was born), since father's support would be needed after the baby arrived.

had a very joking session with . Not much substance there.

precepted me on a patient with a shoulder injury. He asked me what I had, what I wanted to do, examined the patient, and only suggested the addition of a sling. I felt comfortable, not contradicted, like a peer giving a second opinion.

On a previous occasion I observed precepting and counted question and statement quantities. As expected he asked predominately memory questions and made declarative statements. It seemed that he jumped right into solving the patient's problem rather than considering the residents' needs. Very few questions or statements were of the process, evaluative or faciltative type.

FIELD NOTES
8-31-87
PM

2 ENCOUNTERS

Watched 2 encounters with , 8:16 and 18:16 minutes each. First case was a well child check and the second was an erythema nodosa. asked several clarifying questions during both encounters, made several specific suggestions, and gave the resident positive feedback. The tone felt positive and helpful.

Structure of many preceptings follows this sequence: resident starts off giving case presentation (CC, HPI, and ROS); preceptor asks a few clarifying questions; then asks some knowledge-base testing questions; preceptor asks what the resident wants to do; the resident either outlines a plan or asks what to do; and the preceptor agrees/disagrees and makes some other specific suggestions for further testing and/or treatment; end.

FIELD NOTES
9-4-87
AM
:
3 ENCOUNTERS

First observation of precepting. being a PA has a different style than the MD's on faculty. He is much more willing to give great amounts and detailed informtion about clinical topics. His precepts seem to get into the clinical details much more than the physicians. He stresses differential diagnosis, more basic science, physical examination, and diagnostic testing.

just wanted a confirmation on a skin rash. He said, "Take a look at a rash for me, I think its Herpes Zoster." went right into the room and said, "Yep, Thats it." They stepped out into the hall and said, "There's a new dose recommendation for Acyclovir, 400mg five times a day." showed him a script already written for that. said, "Good." said, "Thanks." The precept was over.

wanted to look at a urine under the microscope. It was clear, and gave a brief history of the patient's complaint and said he just wanted to confirm that the urine was free of any findings. He said he was pinched for time and had to run.

Both precepts took under 2 minutes, but the hidden assumptions, prior knowledge of the residents, and inferences underlying these encounters is something to explore. Both residents were 2nd yrs.

had a chronic back pain patient in which he thought he found a neurological deficit. In the discussion asked several questions, then asked, "Do you want me to examine the patient and go over a cpmplete back exam the way I do it?" said yes, and did the entire exam. He found no problems. This precept was 30 minutes and very involved about all the ins-and-outs of chronic back pain, a very complex subject. concentrated on basic exam techniques, and was directive about next steps with this first yr.

FIELD NOTES
9-18-87
PM

3 ENCOUNTERS
(4:00, 2:00, 0:30)

Three short precepts between . and started first by saying, "I'm lost". He then proceeded to outline what he had done in a case up to this point, and wanted to know what else to do. tends to share his experience with cases of similar nature, get references for a resident, points out what specialists have said to him in the past, asks few questions, and gives a lot of information in a suggestive style. One frequent question he asks is "Okay doctor, what do you want to do?" But, he asks it in a humorous ways so that it is not perceived in a negative way. The second was a OB chart review in which pointed out only that a urine c&s was missing, but complimented resident on good record keeping. The third was a bit of additional discussion on an upcoming procedure and got a relevant article for the resident.

is a popular preceptor who gets beeped often, so many precepts seem hurried, and does them in rapid fire sequence. He tends to give many personal experiences, references to the literature, and recommendations from "authority" other than himself.

FIELD NOTES
9-25-87
PM

5 ENCOUNTERS

Self-observation with residents.

approaches and says, "Who's precepting today?" and me. She said, "I have a lady in acute respiratory distress, and need help." Her manner was such that the urgency of the case was evident. She told me what she had done up to that time and wanted what to do next. I saw the patient who was in acute asthma attack and could not get her breath. I was directive and said to send her to ER stat, order gases, chest x ray and possibly soft tissue films of the neck since she was passing little air into the lungs. We then discussed how she would handle the ER admission and the other patient in the office who was waiting for a complete H&P.

had patient with venereal warts and opened with "I want to run something by you." He summarized past treatment and then asked, "How often do you put on Podophyllin?" I thought it was about once a week, then saw patient and questioned the diagnosis, suggesting a biopsy first, then treatment if necessary.

. had patient with SOB, CHF, and chest pain. He presented case in uncertain fashion that seemed that he was lost at crucial decision point. His first question was if he should use a stronger diuretic. I though that from his presentation that the real question should have been, did the patient need hospitalization? I saw the patient and thought that is would have been safer to admit, which he did.

and were just check out of their plans for minor things.

and . were 3d yrs, a 2nd, and . and 1st yrs.

I was trying to simultaneously deal with the content and think about what the resident wanted or needed. I thought about asking them up front but I see this would be cumbersome in our "precepting culture" or "precepting environment". In other words, precepting has an accepted format that almost all residents follow and this begins with a long case presentation summarizing as many facts as possible in a short time, pointing out some salient problems, proposed plans, and then a question and answer plan, and then the preceptor offering experience or advice. The though that I had that each preceptor explore up front what the resident needs or wants may not be possible as a regular part of situational teaching.

Important concepts:

1. Resident need assessment via;
   - body language
   - inflection
   - quality of case presentation
   - track record
   - personal attributions
   - history with preceptor
   - direct questioning

FIELD NOTES
9-28-87
AM

3 ENCOUNTERS
-- . (2ND YR, 3:20), (1ST YR, PHONE, 13:46), (3D YR, 17:12)

The encounter was a simple checkout that started out with, "Let me check something out with you?" asked a few clarifying questions and gave some specific suggestions.

encounter was over the phone and took 13 minutes with a case that I was familiar. was pretty directive. He asked many clarification questions, several convergent questions about effects of drugs, gave several specific suggestions in the 'you should' category, and gave one positive feedback comment on management of the case.

Within a minute of the encounter, sat down with and had one of the best facilitative encounters I have seen to date. It was a complete dialogue between two peers. gave several I messages and the only question he asked was, "What were the good and bad asoects of this weekend's experiences for you?" This was after related events of the weekend which included many complex and life-or-death decisions.

It occurred to me that the concept of agency that has been in my mind is another characteristic of the teacher dimension that increases toward the pedagogic end and decreases toward the andragogic end. acted more agent-like with and more student-centered with

FIELD NOTES
10-13-87
AM

20 ENCOUNTERS
STUDENT NURSES:

Last set of observations of Round I done on F100 with and 4 student nurses. My first actual observations of nurses in clinical training. The clinical teaching took place on a busy oncology ward from 7AM to 12 noon and was virtually ongoing from one encounter to the next. The interactions ranged from 1 minute 37 seconds to just over 28 minutes. There were 20 interactions in all, one right after the other. The students did a nursing assessment on an assigned patient the day before. Over night they wrote up a nursing care plan to be carried out the next day. The nurse instructor then worked very close with them doing their plans. She had good knowledge of the patients and she assigned them to the students.

There were no significant differences in teaching learning behaviors seen in nursing clinical teaching than those seen in physician teaching learning. There were no divergences from the ST model. There are differences however. The instruction was highly pragmatic, over-the-shoulder, centered on a number of forms (med sheets, medical orders, nursing care plans, signout sheets in med cabinets, order forms, etc), a relatively continuous interaction, and very directive in general with the instructor mainly using suggestive language with the students. Students were in second semester of a 5 semester BSN program, equivalent to juniors.

Instructor gave much information and suggestions in the the form of "You might... could... should... may..." etc,etc. She demonstrated drawing up medications, how to fill out forms, log med dispensing, and watched everything students did.

Students were quite willing to ask questions. The instructor answered with specific information, advice, and suggestions, or directions. On one occasion, a student said, "Mrs . asked me what a TIA was. I told her it was like a blockage of a vessel to the brain that didn't last long. I didn't tell her that a third of them go on to full strokes. How much information about diseases should I tell a patient? What do doctors want us to tell them?" This was clearly a question about role delineation, but the teacher gave her specific instructions about what to tell that specific patient. This was the best example of an opportunity to move into a facilitative mode, but the teacher remined directive. This incident did not ruin their further exchanges, but the teacher failed to move into an important area of professional role identity. The student did not really get a satisfactory answer. One of the teacher's early questions was "Do you know what transient means?" The student did not answer. This clearly demonstrated her hesitation to give a wrong answer or be embarrased by being wrong. The teacher quickly said, "Well, what does the statement 'Americans live in a transient society' mean?" The student was completely stumpted by this one, and the teacher

finally defined the term. The student was obviously focused on an issue of professional role that was and is important, but the teacher stuck in the directive mode was looking for recall or convergent responses and missed the opportunity to facilitate a question that deals with evaluative and judgemental issues related to and important to the role of the nurse.

I saw very little movement along the teaching style dimension. She was very consistent in her treatment of all students. This was due to the fact that the students were new to her, and they were in their first course with clinical content, and that interactions were strung one after the other. Instructor was constantly on the run.

No followup interviews were conducted. The precepting was very different from that of physicians, but still explained in totality by the ST model.

FIELD NOTES
8-19-87
PM
POST-ENCOUNTER INTERVIEWS

Question: What is your impression of as a preceptor based on yesterday's precepting with him?

reaction: like him, thorough, organized and organizing, good knowledge base, doesn't make you feel like an idiot.

reaction: "Oh, I like him. He's good." "...there are no sudden humiliations like some preceptors. You know what I mean?"

reaction: "I like him. He listens. Doesn't ask questions in a threatening manner. He explores issues in a way that stimulates you to think. He never makes you feel like 'oh you dummy, what do you forget to do now?' He compliments you on your actions"

FIELD NOTES
8-21-87
PM
POST-ENCOUNTER INTERVIEWS

Question to : How do you feel about ?

I don't care for him. I don't think those kind of values should be expressed to patients nor in a precepting situation. Its inappropriate in either place. Why, did it show?

What followed was a response attempting to justify attack on resident because of value judgments. Plus, an admission that he doesn't care for this resident because of big-mouth behaviors and behaviors that he perceives as rude.

Question to : How do you feel about today's encounter with ?

Long response, essentailly defensive about letting value judgments about patients show to them. He may hold them, but thinks he does not show them in public.

This was a mismatch situation because preceptor got put off by resident's behavior, made some assumptions that may not be true, and barged into a confrontation. The learners need was forgotten in order to show teacher's own values. It is true also that the resident needs to learn normative values of the profession, but how could it be done without confrontation?

Three sets of values in this encounter; teacher's personal value system, learner's personal value system, and normative values of the profession.

FIELD NOTES
8-31-87
PM

POST-ENCOUNTER INTERVIEW

. said she liked the precepting encounters with because he cave just enough input that she felt that his precept was like a confirmation of her diagnosis, not his. She felt that trusted her with information gathering and physical examination. There was no 3d degree.

pointed out an important fact about a precept. Each one is a complete behavior, each involves not only verbal interchange, but actions, thinking (reflected in verbal exchange), feelings, and physiology. He stated that his degree of control in a teaching situation is indicated by his language and his degree of "intervention" in the learner's case. Thus, if he asks memory or recall questions, and if he examines the patient, or takes over a procedure, or makes changes in diagnostic or treatment plans, then this is high control. If he asks for treatment plans after a resident presents the case, does not examine the patient, and makes no changes in dx or tx, then this is low control behavior. Trusting the resident is an important factor behind low control.

In observing encounter with , I thought it was a high control situation based on the specific nature of his suggestions and questioning. pointed out that he thought it was a low control situation because he did not see the patient nor change any of her plans.

FIELD NOTES
9-2-87
AM
POST-ENCOUNTER INTERVIEWS

Talked with after precepting with . She felt that the encounter suited her perfectly. She felt comfortable and was assited with what she needed. I said that the encounter seemed quite pleasant, and she said, "Yes, but it wasn't always like that." In exploring this, said that their relationship had changed over the past year and that most encounters now were typified by today's precepting. She indicated that used to be much more into questions and answers, seeking things that she hadn't though of, and getting into parallel issues that were not directly related to the problem at hand. I asked her how she accounted for this and she said, "I guess we just got used to each other's style, and I have figured out how to get him back on track or anticipate the type of questions he will ask."

said that was easy to precept, a real pleasure, because she accepted suggestions. She was ready to explore alternatives and take advice, as opposed to some other residents (like , , and) who are set with a plan and only want a sanction from the preceptor. They are defensive from the start. "Why do they even want a preceptor, if they are not going to discuss options, seek experience, or check out their thinking processes?"

then went off into a long tirade about the poor quality of a work-up done by over the past weekend. He was disappointed by the fact that the resident treated the case as if it were a 'dump' instead of the interesting educational experience that perceived it to be. When I tried to explore the issue from the resident's perspective, did not pick up on my lead, but continued with the prespective of the 'teacher' who haa assumed the responsibility for the learner's learning.

I must specifically watch for precepting between and , and

FIELD NOTES
9-4-87
AM

POST-ENCOUNTER INTERVIEW

Long interview with . about precepts, 45 minutes, he talks about events in great detail. Discussed encounter with . I asked how he sensed that wanted him to review the back exam. He said that "the case findings didn't make any anatomical sense" to him, plus just left a pathology program to start in family practice and he probably needed a review of basic physical exam procedures.

The facts about a case then may impact the preceptors approach to teaching style. He detected facts in the case that didn't make sense to him from an anatomical point of view, and since the resident didn't point out the disparity he assumed the resident hadn't seen the conflicting aspects of the findings. He assumed a directive role and demonstrated the proper technique of the exam them discussed with his findings and how they differed with the residents. He discounted the resident's finding because from his experience that finding is notoriously variable (ankle jerks), and since there was no other findings he could discount the finding with an explanation based on his experience and a rational anatomic explanation. The resident took all this very well. approach was not humiliating, and was a very helpful demonstration.

FIELD NOTES
9-14-87
PM

POST-ENCOUNTER INTERVIEWS

Had a rather long and extensive interview with and about precepting issues.

Learner Assessment: how do they determine a resident's learning status/needs in each precepting encounter.

1. The quality of a resident's case presentation leads them to assume a certain level of ability.

2. The resident's body language and tone or inflection of voice fit into the gestalt.

3. The "halo effect" - positive and negative.

4. The past history of encounters with the resident - "Track record".

5. The resident's reputation from others - "Baggage".

All these lead to the development over time to a "private language" between resident and preceptor. The habit of inference or these assumptions makes precepting efficient. Assessments for each precepting would not be possible. This has pitfalls.

Agency: the issue of assuming the role as agent for the _____ (hospital, profession of medicine, family practice, quality of care, etc.) came up. Who are we the agent for? The learner or these "entities", or for all of them. Where should the priority lie? The patient, the resident, or an institution?

Suggestive Style: you messages coupled with "could, should, would."

FIELD NOTES
9-24-87
PM

1 ENCOUNTER, POST-ENCOUNTER INTERVIEW
(2:30)

Observed interaction between and after being away for a week at CME conference. Interaction was a simple check out with very little imput from Bob.

Conducted short interview with about "the assumption of agency" - a preceptor attempting to "teach" something because that which is being tought is perceived to be the imperative of the organization, entity, abstract notion, or profession which the precepor thinks he as a teacher represents. felt this also included individual prejudices, agendas, pet peeves, etc.. This concept of agency is an important factor affecting all preceptor encounters with residents in addition to the concept of "private attributions" about the particular resident. I have observed that each preceptor makes the biggest swings in his normal style when a resident transgresses or trespasses or brings into consideration the preceptor's agenda, agency, or territory.

The dictionary defines an agent as one: "who acts or has the power or authority to act; who acts for or as the representative of another; who acts as an instrument; who acts as a force that causes some change."

Two important concepts:

1. Private attributions (Schon)
2. Agent/agency

FIELD NOTES
9-28-87
AM

POST-ENCOUNTER INTERVIEWS

Talked with briefly about two encounters with and and their great difference. He explained that his behavior with was more assessment of his knowledge than anything else. He wanted to know what he knew. These could be called "SPOT CHECKS" on a resident's knowledge and often these form the basis of a preceptor's impression of a resident. We know they are theoretically inadequate to assess knowledge and subject to many errors from extraneous factors.

Talked with about four preceptors helping him with one case over a 48 hour period. I was first preceptor in encounter noted in 9-25-87 field notes about decision to admit. helped in hospital on admission, helped over weekend, helped at end of weekend. I asked how each helped or hindered him and he just explained what each did. I helped him to make the decision which he did and in retrospect was the right one. explored treatment and diagnostic plans asking what he wanted to do and giving specific suggestions. and were similar to We didn't have time to explore the question about how each helped or hindered. Whether each met his needs or not?

FIELD NOTES
8-26-87
PM
INTERVIEW

Had lunch with (2nd yr) and (3d yr). We talked about various preceptors and their styles. We started talking about precepting encounter with the day before. said he appreciated s style talked most of the encounter about the condition, its diagnosis, and its treatment).

The main point of the discussion was that these residents want the preceptor to be a resource of informaton and personal experience. The first year obligatory precepts often explore the resident's knwoledge base and thinking processes, but by the second year the resident wants direction, know-how, and guidence. They propose that they are asking for a precept because they do not know something and want help from the preceptor with specific suggestions, prior experience, and exploration of alternatives.

They specifically objected to a "do what you want to" style, or a "what do you think it is and what do you want to do about it" approach, because hey asked for the precept becase they don't know and don't have time to go look it up.

I suggested that preceptors cannot read minds, and said that was true and the way she deals with the situation is to just say "I don't know" to the questions. This turns the table on the preceptor pressuring him to supply information.

This is interesting because a preceptor just the other day said he didn't like being only a souce of information. Another conflict of perceived roles, expectations, and professional norms.

FIELD NOTES
8-27-87
PM

INTERVIEW

Short interview with residents at lunch about the forces impacting the precepting situation. Preceptor's agenda, residents' agenda, and professional norms, and all the other factors in the environment.

Residents stated that a brief comment about what they want at the beginning of a preceptor encopunter would help guide the interaction. Statements could include topics such as: second opinion, confirmation, information, exploration of issues, exploration of alternatives, seeking experience, explore thought processes.

FIELD NOTES
9-30-87
AM
GROUP INTERVIEW
PRESENT:

First group discussion on precepting issues. Main problem centered around giving feedback in an environment that is not perceived as supportive. Any person takes as personal any negative feedback, almost regardless of environment. This really brings into consideration all the major issues in teaching-learning interactions. Several thoughts stick out from a very complex and often heated discussion:

Primacy of the learner almost always ignored.

Systematic miscommunication - precepting.

Arranging the conditions in which learning may take place -

Feedback must be given in a relationship of trust -

Contradictory perceptions of an action (HOD solution from resident and faculty perceptions). Faculty preceived solution as adult, resident as rejection. The andragogical paradox as soon as roles of teacher and learner are assumed.

No intrinsic educational value to any thing, person, event, or content. If you do 3 endometrial biopsies, the first and second are educational, the third is scut work. -

Meaningful exchange on a person-to-person level is difficult to acheive, its very much harder through other means of communication. Problems in communication are difficult in increasing order in: precepting, note reviews, chart reviews, minutes from meetings, etc. Each method gets less and less represetative of reality.

FIELD NOTES
9-1-87
PM
KAMMER
REFLECTIONS

Just finished reading Schon, D., Educating The Reflective Practitioner, Jossey-Bass, 1987. It contained many ideas that are directly applicable to my study. Several summarized below:

Knowing-In-Action: The spontaneous, skillful execution of performance revealing intelligent action, or know-how, that is very difficult to make verbally explicit. Descriptions of KIA are always constructions. p 25

Reflection-In-Action: Thinking that serves to reshape what we are doing while we are doing it. p 29

Educating the professional practitioner could be viewed as the creation of competence and artistry in the indeterminate zones of practice. (p 18) The educational process, or precepting, is the creating of parallelisms in the practice of the teacher and the student (p 20), a convergence of meaning (p 118), through a career of dialogue (p 168). Or, the construction of new knowing-in-action through reflection-in-action undertaken in the indeterminate zones of practice (p 40). Or, talk with a student in the context of the student's doing.

Processional development process: KIA encounters variation, problem, or surprise in practice; RIA leads to on-the-spot experimenting; new KIA is constructed leading to adaptation.

Students and teachers possess a "stand" toward teaching/learning, but students need to have a "willing suspension of disbelief" (p 126) in order to not get in a "learning bind" (p 126) or a "process of systematic miscommunication".

Model Of Interpersonal Relationships:

Model I: 1. Unilateral control, 2. Win/lose strategies of mystery and mastery, 3. Withholding negative feelings, 4. Surface rationality, 5. Negative attributions about another are never tested in public. (p 135)

Model II: 1. Surfacing private attributions for public testing, 2. Giving directly observable data as basis for judgments, 3. Reveal private dilemmas, 4. Actively explore another's meaning, 5. Invite another's confrontation to one's own meaning

Learning outcomes fall along 4 continua: 1. Closed system vocabulary vs substantive understanding of the subject matter, 2. Unitary procedures vs holistic grasp of concepts, 3. narrow and superficial vs broad and deep understanding, 4. Overlearning vs multiple representations. (p 168)

Possible phases of precepting: 1. problem presentation, 2. preceptor reframes problem in own terms (preceptor and student meaning divergent), 3. demonstrates possible solutions (refflective conversation with the situation), 4. reflection on the solution (movement toward convergence of meaning), 5. sets out next steps, 6. reflection of the whole process.

Two types of reflection needed in teaching/learning: RIA as part of the creation of new KIA, and reflection on the communication process. Professional language about the problem and a meta-language about the profession per se.

FIELD NOTES
9-1-87
PM
KAMMER
REFLECTIONS

You/I messages may be a good dividing line on the continua of precepting teaching styles between Suggestive and Collaborative styles. TET

Least to most facilitative: 1. advising & evaluating, 2. analyzing & interpreting, 3. reassuring & supporting, 4. questioning, 5. clarifying & summarizing, 6. reflecting & understanding feelings. Whitmer

Directive: (you - implied in commands)

Specific directions: Order..., Give..., Prescribe..., Find out, Work up..., (Talks most of encounter)

Closed questions: recall/memory questions, and convergent questions (explain, define, etc).

Direct interventions: demonstrating procedures, taking over procedures, changing diagnostics or treatments.

Authoritarian tone: teacher expert and experienced

Suggestive: (you might/could/should preceeds directions)

Specific directions: You might want to order..., etc

Semi-open questions: More convergent types asked

Alternative interventions: Fixed set of alternatives

Mentor tone: Experienced expert outlining oK alternatives, trusting student to pick one that seems best

Collaborative: (I might/could/should statements)

Alternative experiences: I ...

Clarifying questions: few in number

Non-interventionist: confirms or shares experience with tx, dx, procedures

Peer tone: Here's my experience, do what you think best

Facilitative: (I hear you saying...explores meaning)

Clarifying
Summarizing
Reflecting
Active listening
Understanding feelings
Exploring meanings

Sharing experiences (personal mistakes and triumphs)
Exploring issues

FIELD NOTES
9-29-87
PM
REFLECTIONS/SUMMARY

I went through my field notes which is coming to a close at this time. A summary of issues and events to date is:

TIME FACTORS

43 teaching-learning encounters observed
12 resident interviews conducted
10 faculty interviews conducted

11 minutes is an average encounter
30 seconds to 45 minutes is the range of times

5 to 10 minutes for resident interviews
20 minutes up to 2 hours for faculty interviews

THEMES

Humiliation and its avoidence is an important theme to residents. This includes not only direct comments that are actually rare, but being made to look stupid because something was left out, not explored, or not thought of.

Preceptor as "quick reference". Many times this is all that a resident wants from an encounter, but this bothers some preceptors who feel at time that they are "being used".

Preceptor as "mentor". The role of mentor, guide, expert, problem solver is what faculty see themselves. These qualities are what the resident should capitalize upon.

Preceptor as "agent". The preceptor takes action for _____ (fill in the blank). This may be for a personal agenda, an organization, the profession, an abstract concept, or an ideal.

"Mindreading" often typifies some assessments of learner needs.

Each precepting encounter is situational, but not intentionally situational. "Unintentionally situational." Each one is different, because of many personal and extraneous factors.

Precepting is a "complete behavior". Preceptors and residents say, do, and feel things during the interactions. All of these must be taken into consideration is looking at the interactions. Precepting styles cannot be determined by verbal action only.

Personal agendas, agency, resident reputation, body language, quality of presentation, "halo effect", history of previous relations, mannerisms, private attributions, assumptions, "track record", a "private language" between preceptor and learner, and

personal frames of reference all drive a preceptors action during teaching learning interactions.

There is a "precepting culture", or "precepting socialization", or milieu. An accepted sequence of events and respective roles that occur with regular consistency in teaching-learning interactions. The general sequence was outlined in notes from 8-31-87.

Conflicts between resident needs and other needs (preceptor's and normative). However, it is very difficult to ask what the resident needs up front in our "precepting culture". Some residents who say what they want up front, seem to get better responses from preceptors.

Several encounters include "spot checks" in the interaction as means of assessing what the resident knows and doesn't know. These generally take the form of convergent questions.

CRITICAL INCIDENTS

- The confrontation
- The encounters

LEARNER DEPENDENCY

HIGH DEPENDENCY
- poor quality case presentation
- expressions of confusion, blockage, being lost
- signs of high anxiety, frustration, fear
- gaps in plans, failure to consider alternatives, fixation on one issue, poor documentation
- Say, "I'm lost", "stumped", "confused", "What do I do next?", "Where do I go from here".

LOW DEPENDENCY
- high quality case presentation
- expressions of confidence, certainty, forthrightness
- signs of self-assurance, determination
- thorough plans, specific measures, well documented,
- consideration of alternatives, inclusive of parellel issues, broad based
- Say, what else could I do, any alternatives I have not considered, what do you think, what would you do?

APPENDIX C
SAMPLE OBSERVATION FORMS AND INSTRUMENTS

The following items in this appendix represent various observation and interview forms used during data collection rounds in this study. The observation forms are evolutionary and begin with a simple structure, but progress to more detailed forms as data categories became more clearly defined.

Also included are forms representing attempts to rate teaching-learning interactions and an interaction analysis score sheet and grid. These efforts were not significantly contributory to any aspect of data collection or model development.

Samples of a few interview questions and the schedule for the final phase of interviews conducted in Round 3 are also attached.

PRECEPTING OBSERVATION FORM

DATE_____ PRECEPTOR_____ TIME_____

RESIDENTS_____

DIRECTIVE	SUGGESTIVE	COLLABORATIVE	FACILITATIVE

COMMENT:_____

PRECEPTING OBSERVATION FORM

DATE_____ PRECEPTOR_____ TIME_____

RESIDENTS_____

MEMORY (YES/NO,RECALL)	_____	_____	_____	_____
CONVERGENT (EXPLAIN)	_____	_____	_____	_____
PROCESS (PROBLEM SOLVING)	_____	_____	_____	_____
EVALUATION (JUDGEMENT)	_____	_____	_____	_____
FACILITATIVE	_____	_____	_____	_____
DECLARATIVE	_____	_____	_____	_____
FEEDBACK	_____	_____	_____	_____
TOTAL TIME	_____	_____	_____	_____
TIME RATIO (T/L)	____/___	___/___	___/____	___/____

DIRECTIVE	SUGGESTIVE	COLLABORATIVE	FACILITATIVE

COMMENT:_____

_____

_____

_____

_____

_____

LEARNER _____ DATE_____

START TIME_____ STOP TIME_____ TOTAL TIME_____

TEACHER_____ TALK TIME_____

EXPRESSIONS:	WHAT_____	WHAT NEXT_____	WHAT YOU_____
INFO WANTED:	SPECIFIC_____	ISSUES_____	EXPERIENCE____
LEARNER TALK:	>75%	50-75%	<=50%
OVERALL LEVEL:	HIGH DEPEND LO HI	MIXED DEPEND LO HI	LOW DEPEND LO HI

DIRECTIVES:	COMMANDS_____	YOU COULD_____	I WOULD_____
QUESTIONS:	CONVERG_____	RECALL_____	OPEN_____
TEACHER TALK:	>75%	50-75%	<=50%
OVERALL STYLE:	DIRECTIVE LO HI	SUGGESTIVE LO HI	COLLABORATIVE LO HI

OBSERVATIONS/COMMENTS/REFLECTIONS_____

TEACHER _____ DATE_____ TIME_____

DIRECTIVES:	COMMANDS_____	YOU COULD_____	I WOULD_____
QUESTIONS:	RECALL_____	CLARIFY_____	CLOSED_____
TEACHER TALK:	>75% _____	50-75%_____	<=50%_____
SPOT CHECKS:	MANY	FRAGMENTARY	RARE
INTERVENTIONS:	DIRECT	DELAYED	ALTERNATIVES
TONE:	AUTHORITY	MENTOR	PEER
OVERALL STYLE:	DIRECTIVE LO HI	SUGGESTIVE LO HI	COLLABORATIVE LO HI

LEARNER_____

EXPRESSIONS:	WHAT_____	WHAT NEXT_____	WHAT YOU_____
CASE:	CONFUSED	INCONSISTENT	COMPLETE
ANXIETY:	HIGH	MODERATE	LOW
SELF-CONFIDENCE:	LOW	VARIABLE	HIGH
KNOWLEDGE BASE:	LIMITED	GAPS	EXTENSIVE
FRUSTRATION:	HIGH	MODERATE	LOW
INFO WANTED:	SPECIFIC	SPEC-ISSUES	ISSUES-EXPER
OVERALL LEVEL:	HIGH LO HI	MIXED LO HI	LOW LO HI

OBSERVATIONS/COMMENTS/REFLECTIONS_____

_____

_____

_____

_____

_____

_____

_____

OBSERVATION #_____

LEARNER_____ DATE_____

START TIME _____ STOP TIME _____ MINUS _____ TOTAL _____

TEACHER _____ TALK TIME _____

HIGH DEPENDENCY
WHAT DO I DO?
CASE QUALITY POOR
ANXIETY LEVEL HIGH
SELF-CONFIDENCE LOW
LIMITED KNOWLEDGE
INFO WANTED - SPECIFIC

LOW HIGH

MIXED DEPENDENCY
WHAT DO I DO NEXT?
CASE QUALITY INCONSISTENT
ANXIETY LEVEL MODERATE
SELF-CONFIDENCE MODERATE
GAPS IN KNOWLEDGE
INFO WANTED - SPECIFIC/ISSUE

LOW HIGH

LOW DEPENDENCY
WHAT WOULD YOU DO?
CASE QUALITY HIGH
ANXIETY LEVEL LOW
SELF-CONFIDENCE HIGH
COMPLETE KNOWLEDGE
INFO WANTED - ISSUE/EXPERIENCE

LOW HIGH

DIRECTIVE
IMPLIED YOU COMMANDS
CONVERGENT/RECALL_____
TEACHER TALK >75%
SPOT CHECKS ON KNOWLEDGE
DIRECT INTERVENTIONS
AUTHORITARIAN

LOW HIGH

SUGGESTIVE
YOU COULD, WOULD, SHOULD
RECALL/CLARIFYING_____
TEACHER TALK 50-75%
SPOT CHECKS RARE
DELAYED INTERVENTIONS
MENTOR

LOW HIGH

COLLABORATIVE
I WOULD
CLARIFYING/OPEN_____
TEACHER TALK <50%
NO SPOT CHECKS
NO INTERVENTION
PEER

LOW HIGH

OBSERVATIONS/COMMENTS/REFLECTIONS_____

INTERVIEW #: TEACHER/LEARNER_____

---------- -------

OBSERVATION #____

LEARNER _____ DATE _____

TEACHER _____ START_____ STOP_____

WHAT DO I DO			WHAT TO DO NEXT			WHAT WOULD YOU DO
CASE PRESENTATION: POOR		INCONSISTENT				GOOD
ANXIETY: HIGH			MODERATE			LOW
SELF-CONFIDENCE: LOW			MODERATE			HIGH
KNOWLEDGE: LIMITED			GAPS			EXTENSIVE
INFO WANTED: SPECIFIC			SPECIFIC/ISSUES			ISSUES/EXPERIENCE
DEPENDENCY: HIGH			MIXED			LOW
COMMANDS: IMPLIED YOU			COULD/WOULD/SHOULD			I WOULD
QUESTIONS: RECALL			CLARIFY			OPEN
TEACHER TALK: >75%			75-50%			<50%
SPOT CHECKS: SOME			RARE			NONE
INTERVENTION: DIRECT			DELAYED			NONE
TONE: AUTHORITARIAN			MENTOR			PEER
DIRECTIVE			SUGGESTIVE			COLLABORATIVE

INTERACTION ANALYSIS CODE

TEACHER	LEARNER
1. GIVES INFORMATION	9. GIVES INFORMATION
2. GIVES DIRECTIVE	10. GIVES RESPONSE
3. GIVES SUGGESTION	11. ASKS FOR SPECIFIC INFO
4. SHARES EXPERIENCE	12. ASKS FOR EXPERIENCE
5. GIVES FEEDBACK	13. ASKS ABOUT ISSUE
6. ASKS RECALL QUESTION	
7. ASKS CONVERGENT QUESTION	
8. ASKS OPEN QUESTION	14. SILENCE

START->

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

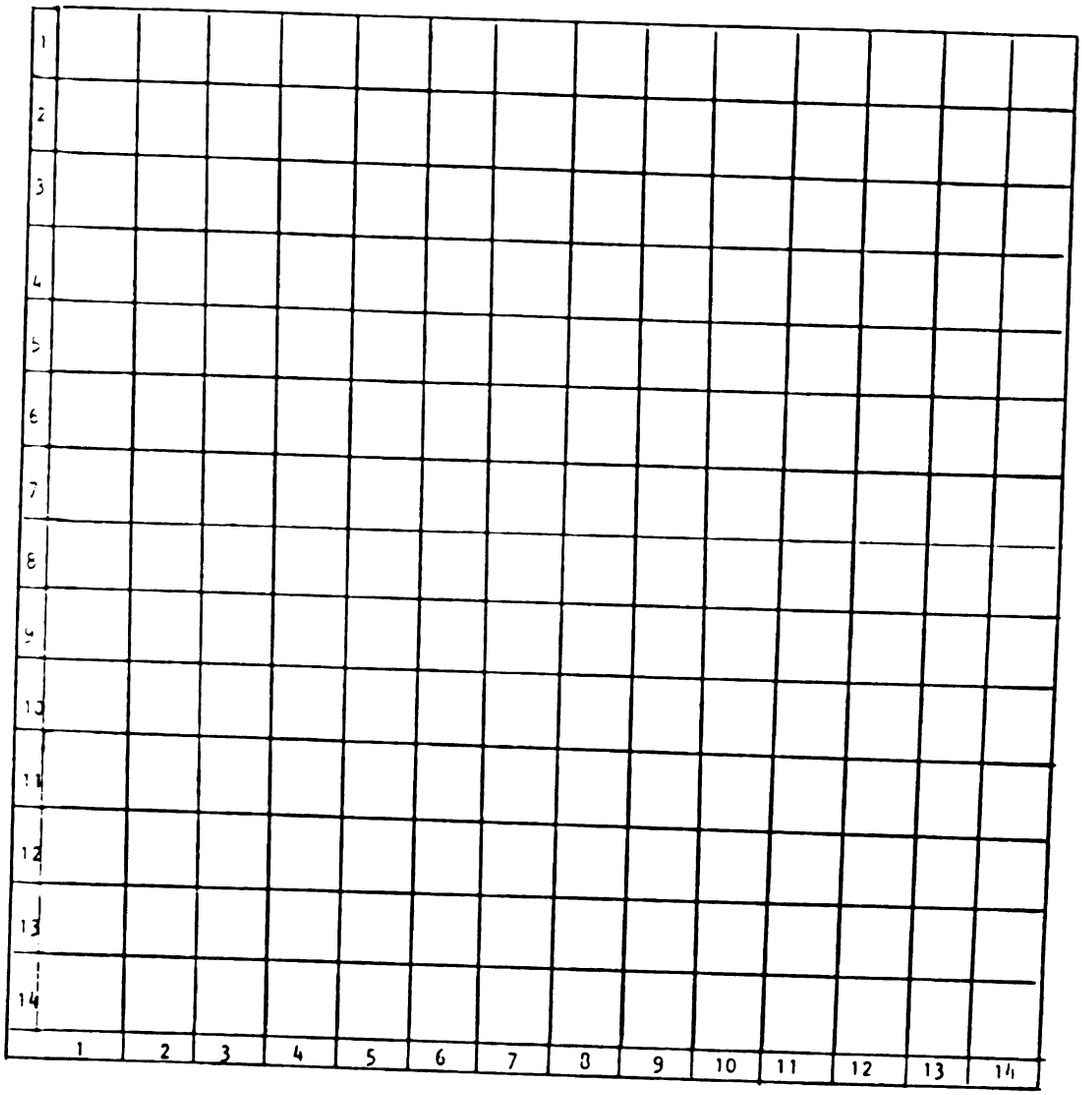
--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ---

--- --- --- --- --- --- --- --- --- --- --- ->END


1
2
3
4
5
6
7
8
9
10
11
12
13
14
1 2 3 4 5 6 7 8 9 10 11 12 13 14

Learners often change the way they act in interactions with different preceptors. If you change the way you behave from preceptor to preceptor, what do you think are the factors that influence these changes?

If you change the way you act as a learner from preceptor to preceptor, what are the factors you think influence these changes?

SITUATIONAL TEACHING SURVEY

DIRECTIONS: The following series of questions ask you to describe in single words or short phrases some characteristics or behaviors you see in learners during clinical teaching. Each question seeks answers on three levels; low, moderate, and high; or poor, average, and good. Please take a few minutes to jot down some of your ideas.

1. In most clinical teaching interactions a learner (resident or medical student) starts off the encounter by giving to the teacher a summary of a patient's complaint, a natural history of the problem, and the results of the learner's investigation or a plan of treatment. What criteria do you use to judge whether this case presentation is of:

   Good quality?

   Average quality?

   Poor quality?

   ---

2. Most learners admit that they experience a certain degree of anxiety during an interaction with a clinical teacher. What behaviors or actions help determine whether a learner is:

Highly anxious?

Moderately anxious?

Or not very anxious at all?

---

3. Learners display varying degrees of self-confidence when relating to clinical teachers during teaching-learning encounters. How would you describe a learner who is:

Highly self-confident?

Moderately self-confident?

Not very self-confident?

---

3. Learners display varying degrees of self-confidence when relating to clinical teachers during teaching-learning encounters. How would you describe a learner who is:

Highly self-confident?

Moderately self-confident?

Not very self-confident?

---

4. Learners possess varying amounts of knowledge about specific patient problems. What factors help you determine whether a learner's knowledge is:

High?

Moderate?

Low?

---

5. Learners indicate that they sometimes get frustrated during an encounter with a clinical teacher. What behaviors or statements would you use to assess whether a learner is:

Highly frustrated?

Moderately frustrated?

Not very frustarted at all?

APPENDIX D
CLINICAL INSTRUCTOR'S GUIDE TO SITUATIONAL TEACHING

CLINICAL INSTRUCTOR'S GUIDE TO SITUATIONAL TEACHING

INTRODUCTION

Clinical instruction might be defined as teaching and learning that takes place in a service setting where certified practitioners model behavior, thinking, and judgment of the mature professional providing specialized service to clients. (1) Advanced students of the profession are responsible for varying degrees of the service provided, are subject to the demands and the unpredictability of the clinical setting, engage in problem-centered learning, and encounter the indeterminate aspects of professional practice, problem-solving, decision making, and judgment. (2)

Most clinical instruction is a highly pragmatic interaction between a clinical teacher and a clinical learner which normally occurs in the vicinity of a client and focuses on some problem which concerns that client. (3) For clinical learners this on-the-job experience approximates many of the rewards of professional practice as well as some of the real risks. Clinical instructors perform their teaching tasks in the context of actual practice with all of its attendant functions, concerns, responsibilities, benefits, and liabilities.

Frequently clinical teachers are certified or licensed practitioners providing full-time client services. They have spent many years preparing for clinical practice, and they

are often asked to teach clients, fellow professionals, and learners of the profession. Unfortunately, many of them have not had the time to gain specific skills in teaching as a part of that professional role, especially those skills required for one-to-one, on-the-job, clinical teaching. Even fewer clinical instructors have had the opportunity to reflect on the fact that the learners they teach are adults, and what the impact of this fact should be on their teaching behaviors.

Reviews of research on clinical teaching in the professions have found that clinical teachers tend to over-emphasize content learning, stress didactic approaches to teaching, dominate discussions with learners, fail to respond to learner needs, and are highly directive when giving instructions. (4,5) This flies in the face of often stated purposes of professional clinical training, ie., professional clinical training should be aimed at facilitating the development of cognitive strategies, problem-solving abilities, interpersonal skills, and values in the provision of client services. (6)

The purpose of this paper is to present a model of situational teaching to the busy practitioner so that he or she may use it as a guide to matching teaching behaviors to a wide variety of adult learners in many different clinical settings.

CLINICAL TEACHING

The situational teacher model describes any educational situation as a three-dimensional event comprised of teaching, learning, and the environment.

On the practical level the teaching dimension is made up of teacher behaviors, skills, and attitudes. These come in as great a variety of individual permutations as there are different clinical teachers. However, teachers, depending on their frame of reference, educational orientation, value system, work experiences, biases, attitudes, preferences, training, and personal qualities, develop teaching styles. A teaching style is a customary or characteristic set of behaviors a teacher demonstrates during interactions with learners. (7) Teachers behave in customary ways, but research also shows that they may change the way they act from learner to learner and from one circumstance to another. (8) This all implies a bewildering array of teaching behaviors and styles.

To better conceptualize the process of clinical instruction, teaching may be defined as controlling the conditions and environments in which learning may take place. (9) The important word here is control. The degree of control a clinical teacher exercises over learners and service environments allows for classification of teaching styles along a continuum from high-control to low-control. A high-control style of clinical teaching is teacher-centered. The teacher determines the who's, what's, where's, when's, why's,

and how's of the learning situation. A low-control style of clinical teaching tends to be learner-centered. The teacher exercises less control, encouraging learners to participate in designing, planning, conducting, and evaluating learning situations. Figure 1 represents further delineation of this continuum listing several component elements. Extremes are used to highlight the polarity of the dimension.

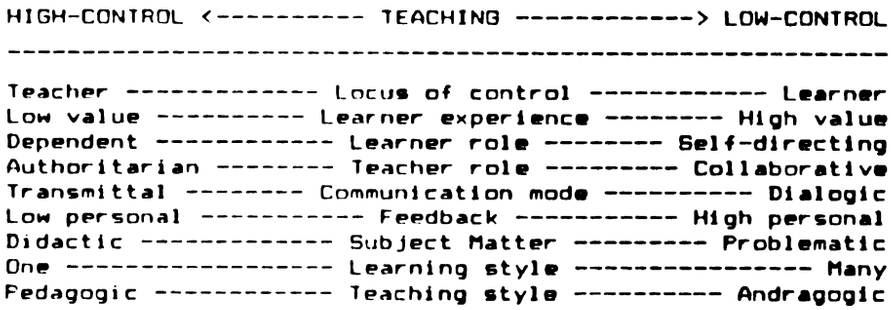


Figure 1. Teaching as degrees of control.

The situational teacher model proposes that clinical teachers develop a repertory of styles ranging in degrees of control from high to low. Three styles are recommended: directive, suggestive, and collaborative clinical teaching. (10)

Directive clinical teaching is a high-control style. The teacher controls, tends to place slight value on learner experience, provides information in a didactic manner, acts as an expert, and gives little personal feedback to the learner. During interactions the teacher gives specific directives, and asks questions seeking to test a learner's recall and basic understanding of the problem. The directive teacher will spend as much as 80% of the encounter time talking. Specific procedures on how to handle the client's problem are outlined by the teacher. The tone of the interaction is authoritarian.

Suggestive clinical teaching is a moderate-control style. The teacher exercises some control, places more value on the learner's experience, provides some information and shares some personal experiences, acts as a mentor, gives some personal feedback to the learner. In interactions the teacher phrases directives in the form of suggestions, tends to ask questions for clarification purposes, will talk about half the time, and encourages the learner to outline procedures to manage the clients problem, but reserves the right to change any of these if inappropriate. The tone of the interaction is that of a mentoring relationship.

Collaborative clinical teaching is a low-control style. The teacher exercises very little control, places a great deal of value on the learner's experience, predominately shares personal experiences with similar cases, acts as a

peer, and gives personal feedback. During interactions the teacher phrases suggestions in terms of what he or she would do in the case, tends to ask questions that stimulate the learner to think about problem-solving and judgment processes, talks less than half the time, and most often confirms the learner's plans on how to handle the client's problem. The tone of the relationship is like that between peers.

CLINICAL LEARNING

The second dimension of a clinical educational situation is learning. For the purposes of the situational teaching model, learning is defined as the creation of new knowledge, attitudes, skills, and meaning through the transformation of experience. (11)

Learners also have styles, or characteristic ways in which they go about learning. These particular combinations of attitudes, behaviors, and skills may be placed along a continuum of dependency and need for structure. (12) Clinical learners display varying degrees of dependence on teachers and need for externally imposed structure on their learning experiences. The learner's dependency hinges on his or her previous experience, stage of development, level of conceptual functioning, and the circumstance at hand. A clinical learner who has had little service experience, is at a lower phase of professional development, and functions at a

lower level of problem-solving and judgment would be much more dependent on a teacher than a learner who functions at higher levels, or is predominately self-directed. However, any learner may change his or her level of dependence depending on the situation.

Figure 2 illustrates several component characteristics of learners arrayed along a continuum of dependency and need for structure.

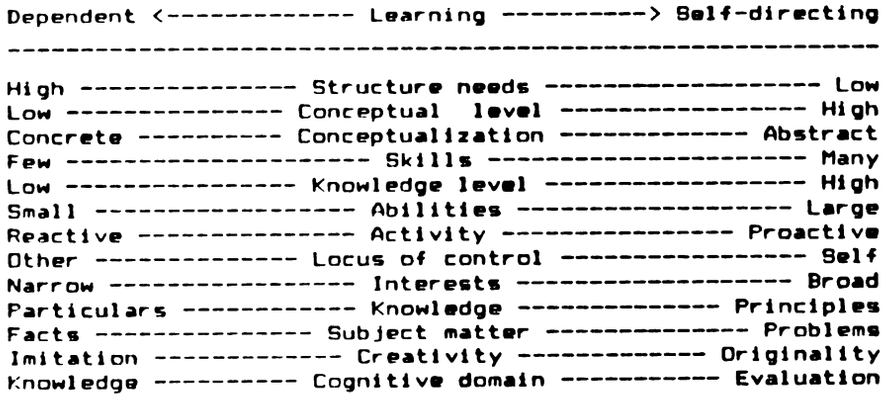


Figure 2. Learning as degrees of dependency.

The situational teacher model proposes that the levels of learner dependence vary with each learning experience. Dependence is not a fixed state. A clinical learner might be highly dependent in one situation, but totally self-directing in another. There are three styles of dependency: high, mixed, and low.

The highly dependent learner tends to have limited service experience, fewer skills, lower knowledge levels, a focus on particulars, and functions at lower conceptual levels. During interactions this learner asks for specific direction, may present the client's problem in a confused manner, tends to lack self-confidence, might be highly anxious, and tends to become easily frustrated. This learner feels comfortable with specific advise from an expert.

The mixed dependency learner is in the middle ground between high and low dependency. In other words, this learner displays characteristics of both a highly dependent and a self-directing learner. The key concept is inconsistency. The learner's experience level may vary from little to extensive. Knowledge and skills may be extensive in one area and limited in another. The learner's focus is most often on particulars, but may shift on to professional issues beyond a specific client's case. Conceptual functioning is generally on a moderate to high level. During interactions with a clinical teacher, this learner may present the client's problem in a complete manner, his or her knowledge of the problem may contain a few gaps, self-confidence and anxiety levels will be moderate, and the learner will be seeking direction on what to do next. This learner would feel most comfortable with guidance from a mentor.

The low dependency learner is at a high level of functioning. This learner generally has extensive knowledge

and skills, operates at a high level of conceptualization, and has had a wide variety of service experience. During interactions, this learner presents the client's problem in a thorough and complete manner, shows high self-confidence and low anxiety, and seeks to explore issues, alternatives, and a teacher's experiences. This learner tends to be most self-directing and seeks relationships with a clinical teacher that are peer-like.

It is entirely possible that one person could be all three of these types of learners from time to time, depending on the situation. For example, a learner has dealt with a particular type of client problem a number of times. He or she is knowledgeable, skilled, and self-confident. The dependence on a teacher is low. This same learner then encounters a client problem that is entirely new. His or her knowledge is severely limited, anxiety levels may go up, and there is a need for more specific directions from some clinical teacher with more experience. (13)

THE SITUATIONAL TEACHING MODEL

The situational teacher model proposes that the clinical teacher should try to match his or her teaching style with the learner's level of dependency and need for structure in each learning situation, remembering that the learner's dependency level may change from situation to situation.

Figure 3 is a graphic representation of the model.

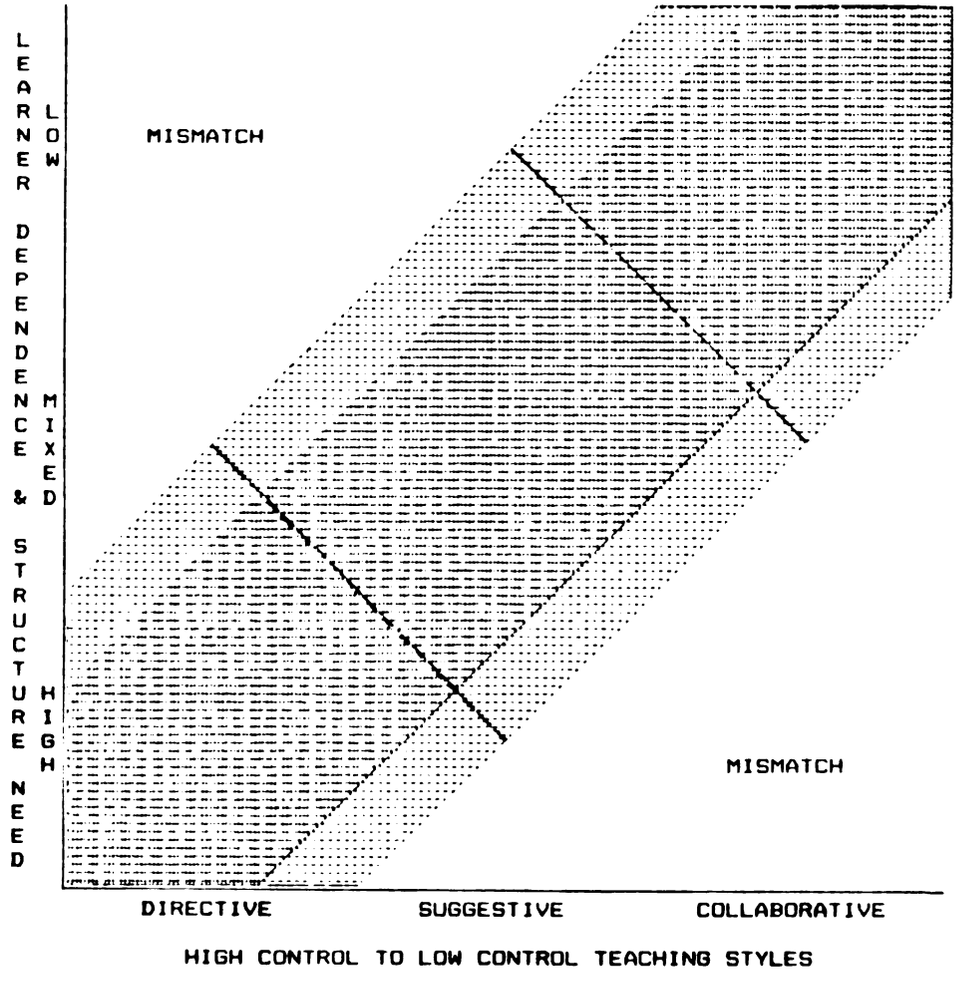


Figure 3. The situational teacher model.

The vertical axis is the learning dimension with three levels of dependency and need for structure demarcated. The horizontal axis is the teaching dimension indicating the

three teaching styles. The resultant vector (14) is divided into three areas, each representing an area of matched teaching and learning styles. The lighter shaded areas represent a grey zone or overlap where a casual observer would perceive an interaction as matched. Outside the vector are areas of mismatch.

THE CLINICAL LEARNING ENVIRONMENT

The third dimension of any teaching-learning situation is the environment. The environment includes anything that impacts the teaching-learning interaction other than specific teaching and learning behaviors. This, of course, is quite a large variety of things, but four factors or categories of things seem to have particularly strong influences on teaching-learning interactions; the physical environment, agency and agendas, the historical context, and experiential development.

The physical environment includes all the places where professional service is rendered and where learning may take place. Teaching-learning interactions are subject to time pressures, work loads, interruptions, distractions, and all of the other realities of the work place.

The clinical teacher is an agent. He or she acts for the profession, the public, the client, a value system, political bodies, an ideal, the institution, and any other number of entities. The clinical teacher also follows dictates from

personal agendas, philosophies, orientations, and feelings, and so do clinical learners.

Clinical teachers generally have an ongoing contact with the same clinical learners from weeks to months, or even years. Each person has a history as a teacher or learner, or both, and each relationship develops a history over time. Past history impacts current relationships.

Clinical teachers and learners almost always grow and develop as they gain service experience. They grow as teachers, learners, professionals, and persons. This growth changes teaching-learning interactions.

Figure 4 represents this influence.

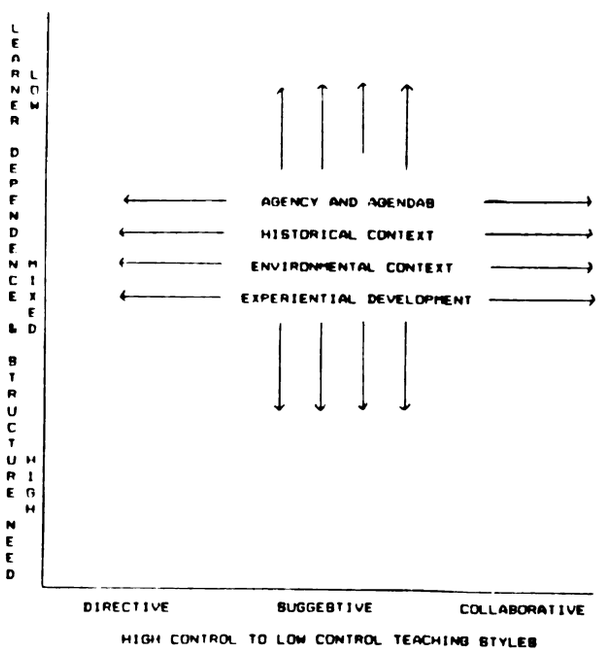


Figure 4. Factors influencing situational teaching.

The situational teacher model proposes that the physical environment, agency, historical context, and experiential development impact the matching of teaching and learning styles.

THE SITUATIONAL TEACHING PROCESS

A clinical teaching-learning situation has been described as a three-dimensional event comprised of teaching activities and learning activities taking place in a professional service environment. All three contribute to the interactive process between the clinical teacher, learner, and setting. Clinical teaching has been conceptualized as control of learning conditions and environments. Clinical learners have been described as displaying degrees of dependency on clinical teachers and manifesting varying amounts of needs for imposed structure on their learning experiences. The physical environment, agency, the historical context, and experiential development have been identified as four important factors in the clinical teaching-learning environment that influence interactions between teachers and learners.

The situational teacher model proposes that the situational teaching process contain the following sequence of steps: an educational situation, an assessment of the environment, an assessment of the learner, a selection of a teaching style, and a teaching-learning interaction.

Figure 5 is a flow diagram of the situational teaching process.

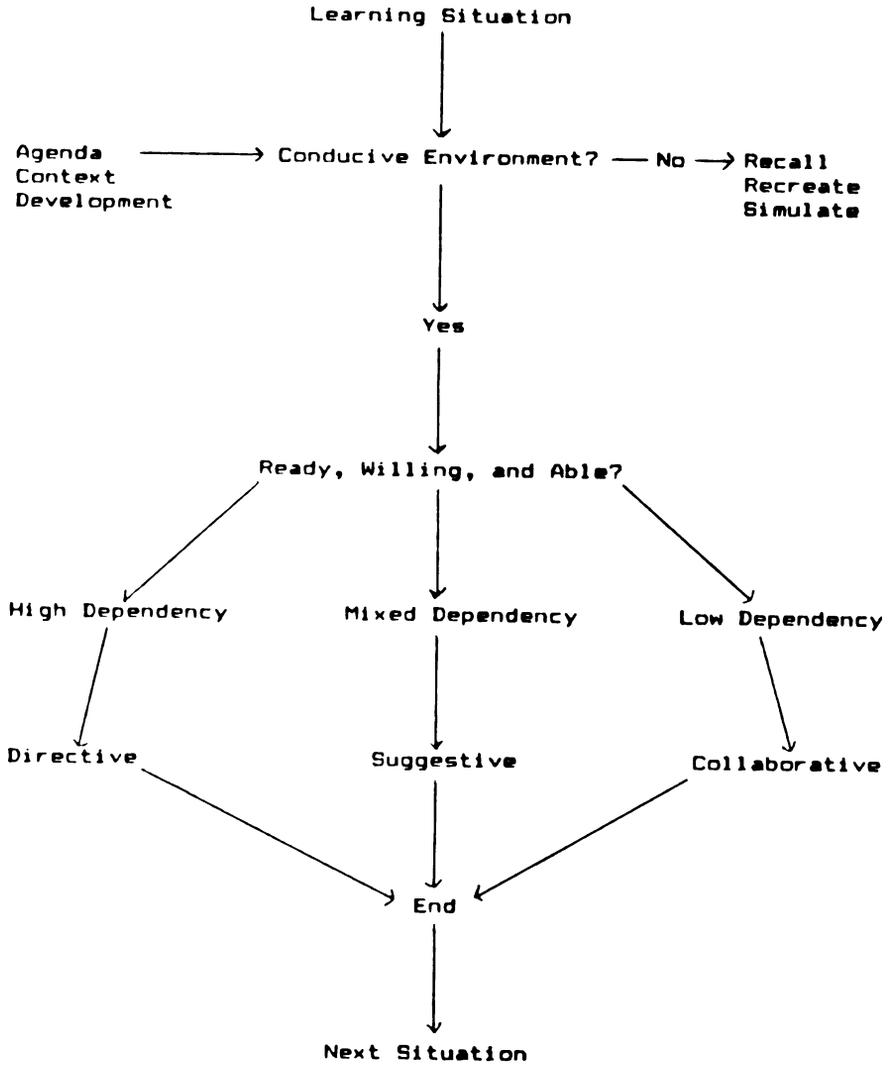


Figure 5. The situational teaching process.

The first step of the situational teaching process after entering a teaching-learning situation is to assess the environment. The primary question the teacher should ask is, "Is the environment conducive to a matched interaction?" If the physical environment is not, then the interaction must be recalled, recreated, or simulated at some other time. Agendas, historical contexts, and experiential development factors influence this assessment as well as the subsequent steps.

If the environment is conducive, the next task is to assess the learner to determine if he or she is "Ready, willing, and able." (15) Is the learner ready to learn? In other words, is it the "teachable moment?" Is the learner willing to learn? Is the learner motivated, does he or she "want to learn?" Is the learner able to learn? Does the learner have "the prerequisites?" This assessment allows the clinical teacher to evaluate the learner's dependency on the teacher and estimate his or her need for structure. The teacher determines if the learner is low, mixed, or high on the dependency continuum for that particular situation.

The final step is to choose a matching teaching style to exercise during the remainder of the interaction, a particular combination of behaviors that are either directive, suggestive, or collaborative in effect. As the interaction ends with that learner, remember that the next situation may be totally different.

REFERENCES

1. West, D., & Kaufman, A. Instructional strategies in the classroom and the clinic. In Knope, H., & Diekelmann, N. (Eds). Approaches to teaching primary health care. St. Louis: Mosby Company, 1981, 210-228.

2. Schon, D. Educating the reflective practitioner. San Francisco: Jossey Bass, 1987, 1-25.

3. Stritter, F., & Flair, M. Effective clinical teaching. (Report No. NLM-NMAC-81-02). Bethesda, MD: National Library of Medicine, National Medical Audiovisual Center, 1980.

4. Daggett, C., Cassie, J., & Collins, G. Research on clinical teaching. Review of Educational Research, Winter, 1979, 49, 151-169.

5. Leninson-Rose, J., & Menges, R. Improving college teaching: a critical review of the research. Review of Educational Research, 1981, 15, 403-434.

6. Schein, E. Professional education: some new directions. Berkeley, CA.: The Carneige Foundation For The Advancement of Teaching, 1972.

7. Eble, K. The craft of teaching. San Francisco: Jossey Bass, 1981, 1-15.

8. Good, T., & Brophy, J. Analyzing classroom interaction: a more powerful alternative. Educational Technology October 1971, 36-41.

9. Gagne, R. Essentials of learning for instruction. Hinsdale, IL.: Dryden Press, 1974, viii.

10. Biface, R., Catlin, R., Quirk, M., Beattie, K., & Slabaugh, R. Teaching styles in the faculty resident relationship. Journal of Family Practice. 1981, 13, 895-900.

11. Kolb, D. Experiential learning: experience as the source of learning and development. Englewood Cliffs: Prentice Hall, 1984, 38.

12. Hunt, D. Conceptual level theory and research as guides to educational practice. Interchange, 1977, 8, 78-90.

13. Hersey, P., & Blanchard, K. Management of organizational behavior: utilizing human resources, third edition. Englewood Cliffs: Prentice Hall, 1977, 149-175.

14. Stritter, F., Baker, R., & Shahady, E. Clinical instruction. In McGaghie, W., & Frey, J., (Eds). Handbook for the academic physician. New York: Springer Verlag, 1986, 99-124.

15. Hersey, P. The situational leader. New York: Warner Books, 1984.

BIBLIOGRAPHY

BIBLIOGRAPHY

Adams, W., Ham, T., Mawardi, B., Scali, H., & Weisman, R. A naturalistic study of teaching in a clinical clerkship. Journal of Medical Education, 1964, 39, 164-174.

Adelson, J. The teacher as model. American Scholar, 1961, 30, 395-401.

Agar, M. The professional stranger. New York: Academic Press, 1980.

American Medical Association. 89th annual report on medical education in the United States. Journal of the American Medical Association, 1986, 39, 164-174.

Amidon, E. & Hough, J., (Eds). Interaction analysis: theory, research, and application. Menlo Park, CA: Addison-Wesley, 1967.

Anderson, R. Learning in discussions: a resume of authoritarian - democratic studies. Harvard Educational Review, 1959, 29, 201-215.

Axelrod, J. The university teacher as artist. San Francisco: Jossey Bass, 1973.

Backstrom, C., & Hursh-Cesar, G. Survey research, 2nd Ed. New york: John Wiley & Sons, 1981.

Baker, R., & Schutz, R., (Eds). Instructional product development. New York: Van Nostrand Reinhold Co., 1971.

Baker, R., & Schutz, R., (Eds). Instructional product research. New York: American Book Co., 1972.

Barrows, H., & Tamblyn, R. Problem-based learning: an approach to medical education. New York: Springer Pub. Co., 1980

Bazuin, C., & Yonke, A. Improvement of teaching skills in a clinical setting. Journal of Medical Education, 1978, 53, 377-382.

Becker, H., Geer, B., Hughes, E., & Strauss, A. Boys in white: student culture in medical school. Chicago: University of Chicago Press, 1961.

Bibace, R., Catlin, R., Quirk, M., Beattie, K., & Slabaugh, R. Teaching styles in the faculty resident relationship. Journal of Family Practice. 1981, 13, 895-900.

Blanchard, K., & Hersey, P. The family game: a situational approach to effective parenting. Englewood Cliffs: Prentice Hall, Inc., 1979.

Blanchard, K., & Johnson, S. The one minute manager. New York: William Morrow & Co., 1982.

Blanchard, K., & Lorber, R. Putting the one minute manager to work. New York: William Morrow & Co., 1984.

Blanchard, K., Zigarmi, P., & Zigarmi, D. Leadership and the one minute manager: increasing effectiveness through situational leadership. New York: William Morrow & Co., 1985.

Bland, C. A study of federally funded faculty development programs in family medicine from 1978 to 1981. Unpublished manuscript, 1984 (available from author at Department of Family Medicine, University of Minnesota, 6-240 P&W Building, PO Box 381 Mayo, Minneapolis, MN, 55455.

Bloom, B., (Ed). Taxonomy of educational objectives: cognitive domain. New York: David McKay Co., 1956.

Bogdan, R., & Biklin, S. Qualitative research for education: an introduction to theory and methods. Boston: Allyn and Bacon Pub. Co., 1982.

Briggs-Myers, I. Introduction to type. Palo Alto, CA: Consulting Psychologist Press, 1980.

Brookfield, S. Understanding and facilitating adult learning. San Francisco: Jossey Bass, 1986

Brostrom, R. Training style inventory. In Jones, J., & Pfeiffer, J., (Eds). The 1979 annual handbook for group facilitators. La Jolla, CA: University Associates, 1979, 92-96.

Byrne, N., & Cohen, R. Observational study of clinical clerkship activities. Journal of Medical Education, 1973, 48, 919-927.

Byrne, P., & Long, B. Learning to care person to person. London: Churchill Livingston, 1973.

Canfield, A. Learning styles inventory. La Crecenta, CA: Humanics Media, Inc., 1972.

Canfield, A. Instructional styles inventory. La Crecenta, CA: Humanics Media, Inc., 1975.

Cox, K., & Ewan, C. The medical teacher. London: Churchill Livingston, 1982.

Cronbach, L., & Snow, R. Aptitudes and instructional methods A handbook for research on interactions. New York: Irvington Publishers, 1977.

Curry, L. The organization of learning style theory and constructs. In Curry, L., (Ed). Learning style in continuing medical education. Ottawa, Ontario: Canadian Medical Association, 1983, 115-131

Cusick, P. Personal communication. Fall, 1986.

Daggett, C., Cassie, J., & Collins, G. Research on clinical teaching. Review of Educational Research, Winter 1979, 49, 151-169.

Denzin, N. The research act: a theoretical introduction to sociological methods. Englewood Cliffs: Prentice Hall, 1978.

Dewey, J. Democracy and education. New York: Free Press, 1916.

Dewey, J. Experience and education. New York: Collier Books, 1938, 33-50.

Dewey, J. My pedagogic creed. In Dworkin, M., (Ed). Dewey on education: selections. New York: Teachers College, Columbia University, 1959.

Dewey, J. How we think. Boston: D. C. Heath and Co., 1933.

Dunn, R., Dunn, K. Identifying individual learning styles. In NASSP Student learning styles: diagnosing and prescribing programs. Reston, VA: NASSP, 1979, 39-54.

Easterbrook, G. The revolution in medicine. Newsweek, January 26, 1987, 40-74.

Eble, K., (Ed). Improving teaching styles. San Francisco: Joseey Bass, 1980.

Eble, K. The craft of teaching. San Francisco: Jossey Bass, 1981.

Fabb, W., Heffernan, M., Phillips, W., & Stone, P. Focus on learning in family medicine. Melbourne: Royal Australian College of General Practitioners, 1976, 35-46.

Flanders, N. Intent, action, and feedback: a preparation for teaching. Journal of Teacher Education, 1963, 14, 251-260.

Flanders, N. Analyzing teaching behavior. Reading, MA: Addison Wesley, 1970.

Foley, R., Smilansky, J., & Yonke, A. Teacher-student interaction in a medical clerkship. Journal of Medical Education, 1979, 54, 622-626.

Foley, R., & Smilansky, J. Teaching techniques: a handbook for health professional, New York: McGraw Hill, 1980.

Gagne, R. Essentials of learning for instruction. Hinsdale, IL: Dryden Press, 1974.

Gjerde, C., & Coble, R. Resident and faculty perceptions of effective clinical teaching in family practice. Journal of Family Practice, 1982, 14, 323-327.

Glaser, B., & Strauss, A. The discovery of grounded theory: strategies for qualitative research. Chicago: Aldine Publishing Company, 1967.

Glasser, W. Control theory. New York: Harper & Row, Publishers, 1984.

Glassman, E. The teacher as leader. In Eble, K., (Ed). Improving teaching styles. San Francisco: Jossey Bass, 1980, 31-40.

Good, T., & Brophy, J. Teacher-child dyadic interactions: a new method of classroom observation. Journal of School Psychology, 1970, 8, 131-137.

Good, T., & Brophy, J. Analyzing classroom interaction: a more powerful alternative. Educational Technology, Oct 1971, 36-41.

Good, T., & Brophy, J. Teacher-student relationships: causes and consequences. New York: Holt, Rinehart, & Winston, 1974.

Gordon, T. T.E.T. Teacher effectiveness training. New York: Peter Wyden Pub. Co., 1974.

Grandstaff, M. Personal communication, Fall 1986.

Gregorc, A. Learning - teaching styles: their nature and effects. In National Association of Secondary School Principals. Student learning styles: diagnosing and prescribing programs. Reston, VA: NASSP, 1979, 19-26.

Gregorc, A. An adult's guide to style. Maynard, MA: Gabriel Systems, Inc., 1982

Guba, E., & Lincoln, Y. Effective evaluation. San Francisco: Jossey Bass, 1981.

Hammersley, M., & Atkinson, P. Ethnography: principles in practice. New York: Tavistock Publications, 1983.

Harvey, O., Hunt, D., Schroder, H. Conceptual systems and personality organization. New York: John Wiley and Sons, 1961.

Hersey, P. The situational leader. New York: Warner Books, 1984.

Hersey, P., & Blanchard, K. Management of organizational behavior: utilizing human resources, third edition. Englewood Cliffs: Prentice Hall, Inc., 1977.

Hersey, P., Blanchard, K., Guest, R. Organizational change through effective leadership. Englewood Cliffs: Prentice Hall, Inc., 1977.

Houle, C. Continuing learning in the professions. San Francisco: Jossey Bass, 1980.

Hunt, D. Teachers' adaptation: reading and flexing to students. Journal of Teacher Education, 1976a, 27, 268-275.

Hunt, D. Teachers are psychologists, too: on the application of psychology to education. Canadian Psychological Review, 1976b, 17, 210-218.

Hunt, D. Conceptual level theory and research as guides to educational practice. Interchange, 1977, 8, 78-90.

Hunt, D. Learning style and student needs: an introduction to conceptual level. In National Association of Secondary School Principals. Student learning styles: diagnosing and prescribing programs. Reston, VA: NASSP, 1979, 1-17.

Hunt, D., Butler, L., Noy, J., & Rosser, M. Assessing conceptual level by the paragraph completion method. Toronto: OISE, 1977.

Hunt, D. & Joyce, B. Teacher trainee personality and initial teaching style. American Educational Research Journal, 1967, 4, 253-259.

Hunt, D., Joyce, B., Noy, J., Reid, R., & Weil, M. Student conceptual level and models of teaching: theoretical and empirical coordination of two models. Interchange, 1974, 5, 19-30.

Irby, D. Clinical teacher effectiveness in medicine. Journal of Medical Education, 1978, 53, 808-815.

Irby, D. Evaluating instruction in medical education. Journal of Medical Education, 1983, 58, 844-849.

Irby, D. Clinical teaching and the clinical teacher. Journal of Medical Education, 1986, 61, 35-45.

Irby, D., & Rakestraw, P. Evaluating clinical teaching in medicine. Journal of Medical Education, 1981, 56, 181-186.

Jacobs, R., & Fuhrmann, B. The concept of learning style. University Associates 1984 Annual: Developing Human Resources, 1984, 99-104.

Jarvis, P. Professional education. London: Groom Helm, 1983.

Jason, H. A study of teaching practices. Journal of Medical Education, 1962, 37, 1258-1284.

Johnson, S. The one minute father. New York: William Morrow & Co., 1983.

Johnson, S. The one minute teacher. New York: William Morrow & Co., 1986

Joyce, B., & Weil, M. Models of teaching. Englewood Cliffs: Prentice Hall, 1972.

Joyce, B., Weil, M., & Wald, R. The teacher - innovator: models of teaching as the core of teacher education. Interchange, 1973, 4, 47-60.

Jung, C. Psychological types. New York: Harcourt, Brace, and Co., 1921.

Kagan, J. Reflection - impulsivity: the generality and dynamics of conceptual tempo. Journal of Abnormal Psychology, 1966, 71, 17-24.

Kazden, A. Single-Case research designs. New York: Oxford University Press, 1982.

Keefe, J. Learning style: an overview. In National Association of Secondary School Principals. Student learning styles: diagnosing and prescribing programs. Reston, VA: NASSP, 1979, 1-17.

Kerlinger, F. Foundations of behavioral research, 2nd Ed. New York: Holt, Rinehart, and Winston, Inc., 1973.

Knowles, M. The modern practice of adult education: Andragogy versus pedagogy. New York: Association Press, 1970.

Knowles, M. Self-directed learning. New York: Association Press, 1975.

Knowles, M. The adult learner: a neglected species, third edition. Houston: Gulf Pub. Co., 1984.

Knowles, M., and Associates. Andragogy in action. San Francisco: Jossey Bass, 1985.

Knox, A. Helping adults learn. San Francisco: Jossey Bass, 1986.

Kolb, D. Experiential learning: experience as the source of learning and development. Englewood Cliffs: Prentice Hall, 1984.

Kuzel, A. Naturalistic inquiry: an appropriate model for family medicine. Family Medicine, 1986, 18, 369-374.

Leninson-Rose, J., & Menges, R. Improving college teaching: a critical review of the research. Review of Educational Research, 1981, 15, 403-434.

Levine, S. Personal communication, July 1985.

McCarthy, B. The 4mat system: teaching and learning styles with right/left mode techniques. Oak Brook, IL: Excel, Inc., 1980.

Meleca, C., Schimpfhauser, F., Witteman, J., & Sachs, L. Clinical instruction in medicine: a national survey. Journal of Medical Education, 1983, 58, 395-403.

Merriam, S., & Simpson, E. A guide to research for educators and trainers of adults. Malabar, Fl: Robert Krieger Publishing Company, 1984.

Miller, A. Conceptual matching and interaction research in education. Review of Educational Research, 1981, 51, 33-84.

Miller, G. Adventure in pedagogy. Journal of the American Medical Association, 1956, 162, 1448-1450.

Miller, G., Abrahamson, S., Cohen, I., Graser, H., Harnack, R., & Land, A. Teaching and learning in medical school. Cambridge, MA: Harvard University Press, 1962

Morgan, M., & Irby, D. Evaluating clinical competence in the health professions. St Louis: Mosby, Inc., 1978.

Murphy, P., & Brown, M. Conceptual systems and teaching styles. American Educational Research Journal, 1970, 7, 529-540.

Newble, D., & Entwistle, N. Learning styles and approaches: Implications for medical education. Medical Education, 20:162-175, 1986.

Nuthall, G., & Snook, I. Contemporary models of teaching. In Travers, R. (Ed), Second handbook of research on teaching, Chicago: Rand McNally and Co., 1973, 47-57.

Pratt, D. Teacher effectiveness - future directions for adult education. Studies in Adult Education, 1981, 13, 112-119.

Pratt, D., & McGill, M. Educational contracts: a basis for effective clinical teaching. Journal of Medical Education, 1983, 58, 462-467.

Price, G. Diagnosing learning styles. In Smith, R., (Ed). Helping adults learn how to learn, NDCE #19. San Francisco: Jossey Bass, 1983, 49-55.

Reichsman, F., Browning, F., & Hinshaw, J. Observations of undergraduate clinical teaching in action. Journal of Medical Education, 1964, 39, 147-163.

Reichsman, S., & Grasha, A. The student learning styles questionnaire. In Kozma, R., Belle, L., & Williams, G. Instructional techniques in higher education. Englewood Cliffs: Educational Technology Publications, 1978, 82-95.

Rogers, C. Freedon to learn. Columbus, OH: Charles Merril Pub. Co., 1969.

Roueche, S., (Ed). 30 things we know for sure about adult learning. Innovation Abstracts, 1984, 6, number 8.

Sadler, G., Plovnick, M., & Snope, F. Learning styles and teaching implications. Journal of Medical Education, 1978, 53, 847-849.

Schein, E. Professional education: some new directions. Berkeley, CA.: The Carneige Foundation for the Advancement of Teaching, 1972.

Schon, D. Educating the reflective practitioner, San Francisco: Jossey Bass, 1987.

Simon, A. & Boyer, E., (Eds). Mirrors for behavior III: an anthology of observation instruments. Wyncote, PA: Communications Materials Center, 1974.

Simpson, M. Medical education: a critical approach. London: Butterworths, 1972.

Slatt, L., Egelhoff, C., & Sloane, P. Why do Preceptors teach? Family Medicine, 1984, 16, 189-190.

Smilansky, J., Foley, R., Runkle, N., & Solomon, L. Instructor plays patient. Journal of Family Practice, 1978, 6, 1037-1040.

Smith, R. Learning how to learn: applied theory for adults. New York: Cambridge Press, 1982.

Snow, R., & Peterson, P. Recognizing differences in student aptitudes. In McKeachie, W., (Ed). Learning, cognition, and college teaching. San Francisco: Jossey Bass, 1980, 1-24.

Solomon, D., Bezdek, W., & Rosenberg, L. Teaching styles and learning. Chicago: Center for the Study of Liberal Education for Adults, 1963.

Sperry, L., (Ed). Learning performance and individual differences. Glenview, Il: Scott, Foresman, and Co., 1972.

Stritter, F. The learning vector: a developmental approach to clinical instruction. Unpublished manuscript, (Available from the author at 322 MacNider Hall, 202-H, University of North Carolina at Chapel Hill, Chapel Hill, NC 27514).

Stritter, F., & Baker, R. Resident preferences for clinical teaching of ambulatory care. Journal of Medical Education, 1982, 57, 33-41.

Stritter, F., Baker, R., & Shahady, E. Clinical instruction. In McGaghie, W., & Frey, J., (Eds). Handbook for the Academic physician. New York: Springer Verlag, 1986, 99-124.

Stritter, F., & Flair, M. Effective clinical teaching (Report No. NLM-NMAC-81-02). Bethesda, Md.: National Library OF Medicine, National Medical Audiovisual Center, 1980.

Stritter, F., Hain, J., & Grimes, D. Clinical teaching reexamined Journal of Medical Education, 1975, 50, 876-882.

Sudman, S., & Bradburn, N. Asking questions. San Francisco: Jossey-Bass Publishers, 1983.

Tough, A. Learning without a teacher: a study of tasks and assistance during adult self-teaching projects. Toronto: OISE, 1967.

Tremonti, L., & Biddle, W. Teaching behaviors of residents and faculty members. Journal of Medical Education, 1982, 57, 854-859.

West, D., & Kaufman, A. Instructional strategies in the classroom and the clinic. In Knopke, H., & Diekelmann, N. (Eds). Approaches to teaching primary health care. St. Louis: Mosby Company, 1981, 210-228.

Witkin, H., & Goodenough, D. Cognitive styles: essence and origins. New York: International Universities Press, 1981.

Wittmer, J., & Myrick, R. Facilitative Teaching: theory and practice, second edition. Minneapolis, MN: Educational Media Corporation, 1980.

Yonke, A. The art and science of clinical teaching. Medical Education, 1979, 13, 86-90.