What do Master Clinical (Experiential) Teachers do When Teaching Clinically?

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Doctor of Philosophy
in
Human Development
(Adult Learning)

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March 20, 2002
Falls Church, Virginia, United States of America

Keywords: master teacher, experiential teaching, clinical teaching, teachable moment

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ABSTRACT

An urgent need exists for balance between students learning the theory of clinical practice and becoming an expert. While theory is taught in the didactic setting, it is the experiential setting where the mastery of the clinical teacher is demonstrated. What does the master clinical teacher do that makes the student's learning experience so significant? One must recognize the moment, capture the learning opportunity, and draw the student in so that learning can occur. Effective clinical teaching is paramount in creating empowered students and practitioners.

This qualitative case study of a doctoral pharmacy program identified two master clinical preceptors and shadowed one in a hospital and the other in a retail pharmacy. Interactions between clinical preceptors and students were captured through direct observation, audio-tape, and complemented with in-depth interviews. Content analysis identified emerging themes yielding an emerging model of master clinical teaching, illuminating teachable moments between student and clinical preceptor, and the manner in which they interacted with each other and the clinical environment.

The model highlights an approach for making the critical time on clinical rotations as effective as possible and offers a practical means to study interactions between students and preceptors, discerning those that lead to teachable moments. Features of the teachable moments are identified. Although expertise cannot be taught, current and future clinical teachers can use this study to improve their teaching and effectiveness in clinical teaching practice. The methodology of this study can be applied to future studies in the same discipline, other rotations, or other disciplines.

This study augmented the literature in qualitative research in pharmacy education for clinical practice by 1) utilizing a methodology that could be used in future studies 2) identifying features of teachable moments in the interactions of clinical preceptors and students 3) exploring how the clinical preceptors dealt with the changing environment of their clinical teaching 4) offering an emerging model to guide clinical preceptors for making the critical clinical teaching time as effective as possible.

Future studies could utilize this emerging model to gain further insight on clinical teaching practices thus increasing the expertise of clinical teaching.

Dedication

This study is dedicated to my father, Harold L. Kennedy, and my mother, Helen Hancock Kennedy, two of the greatest teachers in my life and in the lives of many other people.

This study is also dedicated to the master teachers from The Sidwell Friends School, Washington, D.C. and to Dr. David Holmes at The College of William and Mary, Williamsburg, Virginia. These noble women and men played an essential part in my early growth.

I dedicate this study to my children, Katherine Kennedy Schultz and Benjamin Kennedy Schultz who always give perspective of what is important.

Author's Acknowledgements

Dr. Marcie Boucouvalas, my dissertation chairperson, and my research professor, Dr. Gerald Cline gave insight, humor, patience, and wisdom which made this study possible.

My colleagues and friends at Shenandoah University gave constant guidance and encouragement. In particular, I acknowledge and thank Dr. Daris Small, Professor Emeritus and Dr. Joel Stegall, Vice President of Academic Programs, and Dr. Otto Wachsmann, Director of Experiential Education. Indispensable help came from reference librarians Rosemary Green, David McKinney, and Naomi Tuttle. Rich Hours gave technical and audio support and encouragement.

Michel Eldredge at Northern Virginia Campus, Virginia Polytechnic Institute, Department of Adult Learning and Human Resources, kept me on track and focused through the entire process of this study.

My study group of Sue Adams, Dave Corderman, Tom Christenberry, Michael Ferrence were vital in keeping focus and energy.

The richness of the study data is a tribute to the focus and dedication of the clinical preceptors and pharmacy students who unselfishly gave of their time and insight. It was these individuals who illuminated the critical practice of clinical teaching and teachable moments.

Lastly, I acknowledge my family whose support and guidance were never-ending.

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Chapter 1
Introduction

General Description of the Area of Concern

As highlighted by James J. Duderstadt (1999), the next decade will be a period of vast transformation for colleges and universities as they respond to a changing society and rapidly changing world. It is not a question of whether health care education will change or not, but, rather how and by whom. "Not since 1910 when Abraham Flexner published his report on medical education and initiated a drastic reform in the nation's medical schools has there been as much and as great an opportunity for improving professional education" (Gandy, 1993, p. xix) (see Note 1). Although more is known about medical education, adult learners, and the development of expertise than ever before, standards and criteria for teaching are less well developed in United States medical and health profession programs than for research and medical care. Teaching medical and health profession students is central to the mission of medical and health profession schools but the basic teaching and educational skills of many faculty has not kept pace with new knowledge of how adults learn and gain expertise (Mennin, 1999, p. 54).

All medical and health profession programs have clinical or experiential courses that allow the student to be in the field yet still be under the protective guidance of a credentialed professional. It is this essential experience that allows the student to put the theory learned in the classroom into practice. Clinical or experiential education occurs throughout the student's course of study or can be among last stages of professional training prior to receiving a degree, certificate, or license. This one-on-one learning is

used extensively in medical and health profession schools. It is critical that teaching in the clinical area continue to improve and be held to high standards of scholarly study (see Note 2).

One of the essential criteria differentiating the clinical setting from the didactic setting is that in the clinical setting, a learning opportunity is often unique and cannot be repeated nor can it always be anticipated and planned (Windsor, 1987). It is here that the mastery of the clinical teacher is demonstrated. He or she must recognize the moment, capture the learning opportunity, and draw the student into the situation so that learning can occur.

Teaching in experiential or clinical sites is separated by time and distance from other colleagues. It is difficult to collaborate with other teaching professionals. Documentation and analysis is lacking so the pedagogical literature is bare (Shulman, 1999). Master teachers in the clinical or experiential areas should be observed and studied in order to advance the scholarship of teaching and to transmit the master teacher's knowledge for increased student learning and understanding.

A good model to examine for scholarly study of master teaching in the experiential or clinical area is a Doctor of Pharmacy Program in the mid-Atlantic region of the United States (see Note 3). Within this school, hereafter referred to as The Pharmacy School, there is a select group of teachers who have been identified as excellent or master teachers in the experiential education. This group was recognized and identified by students, by faculty, by peers within their professional field, and may have received a teaching excellence award. Examination of what they do while teaching clinically would provide insight into the phenomenon of master teaching.

Background to the Problem

There are 162,996 medical occupational therapy, physical therapy, respiratory care, and pharmacy students currently studying in the United States (see Note 4). Each of these schools has a component of clinical practice under the tutelage of experiential or clinical teachers. The quantity of teaching encounters within the clinic setting is staggering yet the scholarly literature through which higher educators study exemplars of teaching and can build upon that work is lacking (Shulman, 1999, p. 16). There is a rich source of information that can be gathered and analyzed to pursue and extend the scholarship of clinical teaching. Specifically, to the author's knowledge, no case study of experiential teaching within the schools of pharmacy exists in published literature (see Note 5).

Stemmler (1988) states that the most urgent reform required in contemporary medical education is:

> …a more appropriate balance between the student's need to learn the theoretical basis of medicine and also to become expert at the practice of medicine. Better balance is needed in the solution to the problems which exist in the setting of science education and in the setting of clinical education….medical education requires time for study and learning in the process of the master of medical practice. [italics added] (Stemmler, 1988, pp. 82-83)

This study addressed this very concern of how and what master teachers do in the clinic area to facilitate students in their own mastery of clinical and professional practice.

Hutchins and Shulman (1999) state that faculty in most fields do not have the training for, nor the habit of framing questions about their teaching and students' learning. The scholarship of teaching and learning should open a wide set of inquiries that leads to ongoing investigation of determining what ways a teacher can know what the student needs and how the learning experience can best be framed. This inductive study will elucidate practices of the master teacher in the clinic area. The exploration and discovery of masterful clinical teaching will serve as a useful guide to critique future and current practices.

What does the master teacher do in the clinic area that makes the student's learning experience so significant? Specifically, what is it that a master clinical teacher does in the interaction with the student and the environment of the clinical setting? What does the master clinical teacher do in recognizing and capturing the moment of learning opportunity, drawing the student into the situation so learning can occur?

Purpose of the Proposed Research Project

Significant time in the health sciences curriculum is spent in clinical practice under the direction of clinical faculty. Theory learned in the classroom is put into practice with real patients, often in life-and-death situations. The interaction between clinical teacher and student can determine the level of expertise achievable by the student to function as a capable, safe, and independent thinking practitioner. The primary purpose of this study is to determine what master clinical teachers do in the course of teaching in the clinical area using the clinic setting of a Doctor of Pharmacy Program in the mid-Atlantic region of the United States. The secondary purpose of this study is to describe the interactions between the master teacher, student, and client or patient during

clinical teaching by using content analysis. The possible model building will augment the literature that is lacking in a qualitative case study of masterful teaching of doctoral level experiential education for a school of pharmacy. This will be done by offering a scholarly study that is "public" in that its "…vision, design, enactment, outcomes, and analysis…" are open to critical review of the health and medical education community as well as the larger education community (Shulman, 1999, p. 13). This study can be built upon with encouragement for further inquiry, exploration, and a deepening of understanding between theory and practice.

Major Research Question

What do master clinical (experiential) teachers do when teaching clinically?

Significance of the Question and the Justification for Investigating it

Two audiences will benefit by the research of this question. First, there is the researcher and those associated with the project. Second, there is the wider world unassociated directly with the project (Behling, 1984, p. 36).

The School of Pharmacy in this study is committed to continuing to provide excellence in clinical education for its doctoral pharmacy students. The school was started in 1995. Out of the four new pharmacy schools across the nation that started during that time, the School of Pharmacy in this study was the only school to receive full accreditation. The faculty is eager to continue to improve and maintain its excellence. When I proposed studying the phenomenon of master teaching in the clinic area, the Dean as well as the Director of Experiential Education offered full access to students and faculty in their school. The clinical faculty are also supportive of the study. The

Advisory Committee for Experiential Education for the School of Pharmacy knows of the proposed study and fully supports it. Only those pharmacy students who were willing to be a part of the study will be included. This study does not assume or imply that the experiential instruction at this school is unsatisfactory. The committee and the Director of Experiential Education are eager for further insight and perhaps the development of new theory that would assist faculty in their teaching endeavors and support and instruct current faculty.

I am an associate professor within the School of Health Professions and have been on the faculty for twenty-one years. I was very supportive of the creation of the School of Pharmacy and have been tangentially involved with the classroom and laboratory teaching of the second year students since its inception, teaching in the Respiratory Care section. I have been fascinated with the excellence in the school's national and international reputation as well the as the wide variety of clinical experiences offered by the school. The experiential rotations are a potentially rich source of information for insight to teaching in the clinical area. Prior to this time, only quantitative surveys of the clinical experiences completed by the clinical instructors and students have been collected.

Having taught in the clinical area for seventeen years, I realize the importance of practical experience and the vital nature of the clinical teacher. I am committed to do an in-depth study on excellence in teaching in the clinic area because of the lack of this type of study in the literature, the richness of potential data in the experiential rotations at the School of Pharmacy, and my passion for improving experiential learning and teaching.

The success of health professions programs is dependent upon effective clinical educators. One of the main gaps in the literature is that research studies fail to clearly distinguish between clinical and didactic faculty when describing roles, promotion criteria, expectations, and attributes. The criteria are ambiguous in that they can be applied to both clinical and didactic faculty. Chapter 2 describes this ambiguity and states a workable definition of clinical faculty.

The second main gap in the literature is the lack of case studies in pharmacy describing master clinical (experiential) teaching in a particular clinical setting where good teaching occurs. There is no recording of what happens and what that clinical pharmacy teacher does. Literature describing clinical teaching exists in other health professions (Bellet, 1992; Gandy, 1993; Stritter & Flair, 1980: Thomasson et al. 1994). The literature from other health professions is insightful and helpful in identifying good teaching in its descriptions of student, patient, clinical teacher interactions and communications. This proposed study provided a case study for the field of mastery teaching in experiential pharmacy education.

Of the 32,000 pharmacy students who are studying in the United States and Puerto Rico, all of them have a component of clinical or experiential learning. Much of the time the experiential education occurs in a one-on-one situation with student and instructor. The sheer volume of students in the clinical arena make studies of good teaching, of effective teaching, of master teaching critical.

"[T]heory and research are generated from the practical world – that is from the practices of the experts in the field. Only from the assumptions and expectations embedded in expert clinical practice are questions generated for scientific testing and

theory building" (Benner, 1984, pp. 36-37). This study of master teachers who are embedded in teaching and in practice will generate questions for testing and theory building. The experts in the field must not go unnoticed or undocumented for theory building can be generated by such a study.

In this study, I did not want to simply list procedural descriptions but want to take into account the variability and thoughtful adaptations demonstrated by master teaching. Descriptive interpretive accounts will attempt to show the artistry and wisdom in master teaching.

Feasibility

The only factor that was a concern for feasibility was identifying master clinical teachers in the School of Pharmacy and students who were willing to be a part of the study. Appropriate clinical teachers and situations to study within the School of Pharmacy emerged.

Fourth year doctoral pharmacy students began their clinical rotations June 30, 2001 and continued with their six to twelve week rotations through August 12, 2001 which comprised the summer term. Clinical faculty and fourth year students indicated a willingness to be a part of the study including participation in interviews, clinical observation, review of transcripts, and review of appropriate notes of the researcher. Reliable criteria for determination of master teachers was applicable to the population of teachers within the sites of study.

Chapter 2
Review of Literature

Introduction

This chapter first traces the historical background of the term, "master teacher" leading to its current use. Second, it examines the literature that attempts to differentiate clinical and didactic teaching in health care. This examination leads to the critical criterion differentiating clinical and didactic teaching. Third, it explores the master teacher descriptive model in health care education. Fourth, it describes three studies that guide my inquiry. Fifth, it presents the pertinent literature supporting the use of a qualitative approach to this study. Sixth, it describes Schon's Model of Reflective Practice in expert clinical teaching and highlights one of the tenets of learning that knowledge is created and made meaningful by the context in which it is acquired. Lastly, it describes the use of term "teachable moment(s)" which emerged as a concept central to my study.

Historical Background of the Term "Master Teacher" Leading to Current Use

The literature indicates that the term "master teacher" has had varied meanings throughout history. Parker J. Palmer, in his book, The Courage to Teach (1998), says that master teachers stimulate and evoke the community of truth by creating a sense of openness and space in one's teaching. Palmer encourages a connectedness with one's students and urges all to teach from the heart with hope, integrity, and passion. How did the term evolve to its present day use? What is its story?

"Master" is derived from the Latin term *magister* and *magisterium* (Glare, 1984, p. 1062). In old Latin, the term is *magester* (Murray, Bradley, Craigie & Onions, 1961,

p. 211). It is also akin to the Latin term *magnus* meaning *great* (Woolf, 1975). According to Piasek and Piasek (1999) the term appears in various common titles throughout the past, particularly in Croatia. As early as the Roman Empire and until the Middle Ages, the title "magister" designated various functions and duties, generally denoting authority, high rank, or a responsible position. Ever since the Middle Ages, the title has specifically denoted various health care professions. The term was used in Latin since it was the official language in Croatia at the time. For example, "m. chirugiae (master of surgery), m. obstetritiae (master of obstetrics), m. artis occularis (master of eye-related skills), m. hospitalis (master of the hospice), m. sanitatis (health care master)" (Piasek & Piasek, 1999, p. 327). Over the years the title evolved to its present day use of commonly denoting an academic degree between the bachelor and the doctorate in a particular field.

The authoritativeness of publicly recognized teaching is a commonly accepted meaning of the term "master" such as "master musician" or "master in her field." This comes from the meaning of "master" that denotes an artist, performer, or player of consummate skill or a great figure of the past whose work serves as a model or ideal. It also denotes "one who [has] authority over another" or "one that conquers or masters" (Woolf, 1975, p. 707).

The current descriptor for "master teacher" by the education data base ERIC defines the term as the following:

> Elementary or secondary school teachers who, because of advanced professional preparation and teaching experience, are qualified to assist in the preparation of student teachers or teacher interns, to give

guidance to inexperienced teachers, or to coordinate and lead teams of teachers.

(http://gateway.ovid.com/re141/server/ovidweb.cgi) (see Note 6)

The term "master teacher" in the literature for health care education currently does not appear often as a descriptor nor is it a term that is applied to professional designations in the fields of nursing, respiratory care, occupational therapy, pharmacy, or physical therapy. Although the term "master teacher" appears in "The Report of the Executive Vice President, American Association of Colleges of Pharmacy, 1998-99", it refers to teaching excellence as opposed to a professional title or level associated with a different pay scale from other education professionals (see Note 7). The field of physical therapy education uses the term master clinician to denote a physical therapist who has been practicing in the field for a substantial time but it is not a formal term denoting a specific level of expertise. This study refers to an expanded concept of master teaching beyond the ERIC definition of master teaching at the secondary and elementary levels.

Since the term "master teacher" does not appear often in health care education literature, why is the term being proposed and pursued in this study in clinical teaching? If master teaching is not usually recognized in college or university level contracts, does that mean that mastery in teaching does not exist and should not be studied? Consummate skill and serving as a model or ideal that are implicit in the definition for masters certainly exist in clinical teaching. But beyond this definition is the professional artistry which exhibits the capability of, "making sense of unique and uncertain situations…understood in terms of reflection-in-action…This kind of reflection-in-action is central to the artistry with which practitioners sometimes make new sense of uncertain,

unique, or conflicted situations" (Schon, 1987, p. 35). Indeed, teaching in the clinical setting occurs throughout health care education but master teachers recognize the teachable moments, capture the learning situation, and draw the student into the learning.

The term master teacher and the establishment of the position of master teacher were a direct result of national reports that indicated the quality of education in the United States (Irvine, 1985, p. 123). A Nation at Risk (U.S. Department of Education, 1983) and the Twentieth Century Fund Task Force (Wood, 1983) questioned the quality of teachers admitted to and retained in the profession. Secretary of Education Terrell Bell states,

> We're not attracting the desired numbers of bright and talented people into the teaching profession. We don't have anything in our system beyond the single salary schedule, and we don't have a method of rewarding our truly outstanding teachers. (1983, p. 518) (see Note 8)

Bell's point of not having a method in place to reward our truly outstanding teachers remains a concern today. In an effort to address this concern, Sachdeva et al. (1999) propose a method or reward for faculty in the medical and health profession education as well as stating criteria for defining master teacher.

Bell proposed in the same report that master teachers serve as mentors to less experienced teachers. In this definition, master teachers were experienced teachers who took on greater responsibility such as designing teacher preparation programs and curriculum, teaching gifted students in the summer, and conducting research projects. An intuitive problem was that experience is not the same thing as mastery and this objection

was made by some master teachers that were so designated in Bell's proposal (Irvine, 1985, p. 128). What is interesting in the literature that follows in 1985 is the demand for differentiating mastery from nonmastery and, if that is possible to do, how can it be defendable to the public and educators to have less than masterful teachers with some students while other students interact with master (Griffin, 1985, p. 12)? Walter Doyle (1985, p. 27) questions further the wisdom of designating master teachers:

> Mastery in any endeavor is an ambiguous label that represents some combination of skill, local customs, and tastes, personal magnetism, and political savvy. Who are the best physicians, lawyers, architects, athletes, counselors, clergy? Are the best known necessarily [as] the best? How many are there? Where does one draw the line between master and novice? This ambiguity is especially severe when an endeavor lacks clear outcomes or commonly accepted forms and procedures…It is not surprising that considerable controversy can be generated by a scheme to designate a finite number of teachers as "masters."

Doyle states that the easiest way to define a master teacher is with the traditional criteria of education and experience. A master teacher is one who has earned a master's degree and has five years of experience. But the trend in the mid-1980's "rejected this simple model in favor of a more direct assessment of a teacher's classroom performance. A master teacher must be an effective classroom practitioner" (Doyle, 1985, p. 28). Herein lies the challenge of determining the concept of "effectiveness." He states that this can be accomplished using a process-product paradigm. The study of effectiveness relates measures of classroom performance (equated with process) to objective measures of

outcomes. Outcomes in this paradigm design are products. The researcher must take into consideration differences of student entering ability so that the real measurement is truly of the teaching process.

Review of the Literature Differentiating Clinical and Didactic Teaching in Health Care Education

The review of the health care education literature differentiating clinical and didactic teaching sharpens the definition of "clinical" teaching for this study. Some researchers have identified basic components or dimensions of health care teaching that claim to be exclusive to clinical teaching but, in fact, are applicable to both didactic and clinical practices (see Appendix A). Fifteen studies in medical or health care education make clear distinctions of clinical teaching in comparison to didactic teaching (see Appendix B). These distinctions can be grouped into five categories:

1. Purpose or goal of teaching
2. Learning context
3. Requirements and demands from the learning setting
4. Role modeling
5. Concept of service

1. Purpose or goal of clinical teaching.

Ende (1983, p. 778) states that the goal of clinical teaching and training is expertise in the care of patients. Students are in the clinical environment interacting with patients with the goal of learning how to care for those patients in the most skillful manner possible. This is distinctive from didactic teaching where cognitive learning prevails and learning experiences are based on course specific objectives that are less frequently correlated to clinical experience (Karuhije, 1997, p. 97).

2. Learning Context.

"Clinical instruction is the teaching/learning interaction between clinical teacher and student which normally occurs in the intellectual vicinity of patient and focuses on either the patient or some clinical phenomenon which concerns a patient or class of patients" (Stritter, 1980, p. 1). Clinical teaching occurs "at the bedside" which can refer to the literal sense of an acute care hospital setting at the beside of a patient, or with the client/patient in an examining room at an ambulatory setting, or an out-patient clinic with walk-in clients. Irby (1994) states that clinical education occurs at the bedside. Didactic teaching most often occurs in a classroom environment, away from the intellectual vicinity of a patient. Didactic teaching may emphasize theoretical concepts whereas clinical teaching utilizes psychomotor skills involving patient care.

3. Requirements and demands from the learning setting.

Key distinctions for clinical teaching versus didactic teaching are the requirements and demands that arise in the learning setting. According to Wong and Wong (1987), these include the element of risk for safety and well-being of the patients with whom the students are interacting. There is limited control over outside factors that occur in the clinical setting such as the interaction with unanticipated personnel, patient procedures, or a change in the status of the patient. The learning situation experienced in a clinical situation may be unique and cannot be repeated (Windsor, 1987). Diversity of facilities is a factor in the distinction of clinical teaching (Bergman & Gaitskill, 1990; Skeff, 1997, p. 252). Within the teaching time frame within the day, many rooms, units, or bedsides become the location for teaching within the institution, unit, or facility. The

clinical teacher must be able to function within the diverse settings as learning opportunities arise and as the needs of the patient change.

In contrast, didactic teaching utilizes lecture primarily with the transmission of new knowledge and reinforcement of previous knowledge infrequently correlated to clinical experience. The didactic teacher has full authority over a classroom environment. Learning experiences are planned for a full term or at least a semester (Karuhije, 1997, p. 8) whereas in clinical teaching, experiences planned for a day can be changed by others and are dictated by case loads and patient conditions.

In the clinical teaching encounter the clinical instructor must address the patient's concerns and identify the learner's goals (Thomasson, 1994 et al.; Whitman, 1993, pp. 306-307). This emphasizes the dual role of the clinical instructor of needing to assess concomitantly the needs of the patient and the student. The didactic teaching encounter is focused only with the learner's needs.

4. Professional role modeling.

The clinical teacher acts as a role model for the profession (Bergman & Gaitskill, 1990; Chapnick & Chapnick, 1999; Irby, 1978; Mogan & Knox, 1987; Pugh, 1983; Rauen, 1974). Mogan and Knox (1987) demonstrate that both faculty and students rank being a good role model of the profession as the highest-rated characteristic of the best instructors as well as being the lowest-rated characteristic for the worst clinical instructors. Clinical teaching takes place within the context of the professional environment. Since teaching takes place "at the bedside," the clinical instructor is in his or her role both as instructor as well as the medical or health care professional role.

During clinical teaching, the students participate in a teaching/learning process while observing the clinical teacher as a role model for the profession. Brown's study (1990, p. 41) states "[I]t is difficult to underestimate the importance of the clinical teacher as role model for the student." Rauen's study (1974) identified the role model as being ranked significantly more important than person or teacher role characteristics. Struebbe (1980) found that students ranked the professional role of their instructor higher than person or teacher role characteristics. Irby (1978) also identifies the modeling of professional characteristics as one of the factors that is distinct to clinical teaching.

The didactic teacher is primarily concerned with transmitting knowledge and is not necessarily acting in the professional role of his or her discipline while teaching. The didactic teacher does need professional knowledge of his or her field but is not actively engaged in such actions during the teaching encounter.

5. Concept of service.

Within the clinical setting, not only is there an educational component for the clinical instructor but there is also a service to patients (Stemmler, 1988, p. 85). The instructor not only has an obligation for providing competent, thorough and up-to-date instruction to students, but good patient care must co-exist within the same encounter. Whitman (1993) makes the point that medical clinical instructors are members of two service professions. "[T]hey are clinicians whose goal it is to help patients. Second, they are teachers whose goal it is to help students" (Whitman, 1993, pp 306-307). In this helping or service role, the clinical teacher not only assesses the needs of the patient but he or she also must assess the learner's needs.

The didactic instructor provides educational learning experiences only to the student with no other immediate service obligations to others.

Master Teacher Descriptive Model

There is one arena in the current medical literature that does use the term "master teacher" and that is in a descriptive model for recognizing and rewarding educational accomplishments of medical faculty (Sachdeva et al., 1999; Sherertz, 2000). Although this descriptive model is for both clinical and didactic faculty, it offers clear, measurable criteria for defining excellence in teaching in the arena of medicine and health education. Sachdeva has a concern that the central mission of medical schools should be education but teaching has traditionally been accorded less importance and status as research and clinical activities (Sachdeva et al., 1999, p. 1278). In an effort to recognize faculty members more adequately for their educational endeavors, a task force developed a model explicitly stating the criteria for placement as well as the demonstration and documentation for level attainment. The criterion for master teacher in both the clinical and didactic setting is:

To be recognized as an excellent teacher, evidenced in part by having received one or more institutional and departmental teaching awards and/or national or regional teaching awards;

1) Participating in significant amounts of effective teaching, including teaching at the bedside (inpatient and outpatient), in the operating room, in seminars, and in conferences;
2) Serving as a mentor or adviser for at least one student, resident, or fellow each year;
3) Participating in at least one national educational meeting each year; and
4) Serving on departmental or institutional education committees.

Here are the demonstration and documentation criteria:

1) Demonstrating excellence in teaching and gaining recognition as a superb teacher;
2) Receiving one or more teaching awards from a national or regional society;
3) Receiving one or more teaching awards from the institution or the department;
4) Receiving feedback from students, residents, and peers attesting to ability as an excellent teacher;
5) Being observed by peers in teaching sessions, or having peers review videotaped presentations; and
6) Documenting contributions to teaching in the educator's portfolio or the educator's curriculum vitae (Sachdeva et al.,1999).

These guidelines are coupled with the statement that a faculty member does not have to fulfill all criteria to reach the designated level although most of the criteria should be met. This flexibility was built within the model in order to allow local philosophies and local control within different institutions.

Sachdeva et al. (1999) highlight the concern that insufficient recognition is given to clinical teaching and that financial rewards and tenure tracks are more prominent clinical care and research than to teaching. The educator's pyramid, which contains the master teacher at one of its levels, provides a comprehensive structure to place faculty members engaged in education within recognized and respected ranks. Sachdeva et al. (1999) intend for this model to be utilized for excellence in clinical teaching faculty as well as didactic faculty. He and his task force did not create a separate model for clinical teaching faculty in order to create a simple, understandable model adaptable for all departments in health care and medical education (A.K. Sachdeva personal communication, December 4, 2000).

These guidelines are used in my study to assist in identifying master teachers for observation in the clinic area, with one exception: "[T]he requirement of a regional or

national reputation should be eliminated. Demanding that clinician-educators have a regional or national reputation will inevitably diminish their ability to concentrate on their principal purpose at the institution -- the pursuit of excellence in patient care and teaching. Instead, the opinions of coworkers should be sought and given more weight…" (Levinson & Rubenstein, 1999, p. 5). Preparing to present at national and state level meetings and spending time at those meetings often takes away from valuable time for day-to-day clinical teaching. Teaching awards can also be political in nature, given to instructors from large departments or from areas that bring in money to the institution.

Studies Guiding my Inquiry

Mastery of teaching in the clinical area has been studied primarily with two methodologies. The first methodology consists of interviews with educators and/or students reflecting on their experiences and preferred teaching philosophies and styles. The second methodology consists of quantitative surveys of students and/or faculty ranking teaching behaviors. Both methodologies contain some studies with antidotal teaching stories. These studies reveal much about the knowledge and skills that teachers and students say they value but they are not solely based on actual observation in the clinic area by the researcher.

The knowledge that is embedded in the actual practice of the master teacher, in his or her dialogue with the student has gone largely unstudied in health care education. No such study exists in pharmacy education literature. There is a richness in the practice of master teaching in the clinic area and those actual words and exchanges have not been recorded extensively in published literature. There are three studies that have observed the actual practice of the master teacher in his or her clinical practice and recorded the

conversations – Irby (1994), Schon (1987), and Stritter & Flair (1980). Although all of them are qualitative, only Irby (1994) describes his use of codes, categories, and the manner in which his final coding categories emerged.

Stritter & Flair (1980) produced a monograph with the purpose of its being used as a "tool" for clinical instructors who teach an experiential portion of an instructional program" (Stritter & Flair, 1980, p. iv). It is a practical guide for clinical teaching. Since the authors have a background in educational psychology and higher education, they apply concepts from those disciplines in teaching health professionals (Stritter & Flair, 1980, p. 1). This study is cited throughout later literature as providing the definition of experiential or clinical teaching as well as recognizing this type of teaching as being difficult and having extremely individualistic characteristics compared to classroom teaching. This study includes comments by clinical teachers addressed to four different health professional students and categorizes the statements to illustrate the author's main text points. The study is oriented to utilizing direct examples from teaching sequences as opposed to simply being the opinion of the authors without concrete student examples. The dialogue between student and clinical teacher is not recorded. The richness of the communication is not captured nor is there any indication of full exploration of the interactions during the teaching sequence.

The data of Irby's study of 1991, "were derived from in-depth semi-structured interviews, a structured task involving a think-aloud exercise, observations of the ward team, and transcriptions of teaching rounds" (Irby, 1994, p. 334). Irby's qualitative case study research identified the components of knowledge that effective clinical teacher of medicine need. He used preliminary codes based on theoretical models of teacher's and

physicians' knowledge. He used two doctoral students of education for intercoder agreement. Codes changed as categories were collapsed. Irby states that the codes emerged from the data with final intercoder agreement being 95%. The results were checked against observations of teaching rounds and transcripts of rounds (Irby, 1994). He used six distinguished clinical teachers in general internal medicine. He chose these teachers to illustrate "the wisdom of practice" among the best (Irby, 1994, p. 334). They had received excellent ratings from students, residents, independent nominations from department chairpersons and program directors. He also chose those who had distinctly different teaching styles although the selection method for this is not fully explained (Irby, 1994, p. 334). My study was guided by Irby's use of audiotaping, partially by his method of selection for distinguished teachers, and for his method of coding and categorizing .

My study's methodology of using the actual dialogue between teacher and student is similar to Donald A. Schon's 1987 description of the artistry of professional practice in teaching. He analyzes three practice or studio settings utilizing actual coaching dialogue and interactions between master teacher and student. From these observations, Schon develops his central idea of the reflective practice. Schon uses the actual words and actions of the master teacher and his or her students to describe the artistry that is embedded in skillful practice and terms it "reflection-in-action." He describes it as, "thinking what they are doing while they are doing it…[That is what] practitioners sometimes bring to situations of uncertainty, uniqueness, and conflict" (Schon, 1987, p. xi).

These three studies record and analyze the specific interchange between teacher and student and use those actual words to form conclusions in the study.

The monograph of Stritter and Flair (1980) on effective clinical teaching contains an appendix of comments from four disciplines of medical or health care teachers to their students. Although this format lacks the rich exchange of dialogue that can take place between teacher and student and when that dialogue takes place in relation to what is being done in the clinic area, the recording of the words are actual examples of teaching. By using this method, Stritter and Flair avoid relying on what a clinical instructor reports as happening in the clinic area. The insights that Stritter and Flair (1980) offer are based on actual observation, recording of the dialogue, and experience teaching within the clinic area. The study includes four types of clinical instructors. They are a physician, dentist, physical therapist, and a nurse. The students are medical, dental, senior physical therapy, and nursing.

Irby (1994) also bases his study on actual recording of conversations and actions of medical educators interacting with students and patients in the clinic area. The qualitative study of six distinguished clinical teachers in general internal medicine consisted of, "using data from interviews, a structured task, and observations of each ward team" (Irby, 1994, p. 333). Irby used a case study design selecting outstanding clinical teachers using the ratings of students, residents, and independent nominations by department chairs and program directors of the department's residency. Irby also used his own judgment in selecting, "those who had distinctly different teaching styles…"(Irby, 1994, p. 334). All teaching rounds were audiotaped. The observations and transcripts were used to corroborate the interviews. Although these recorded

conversations are not printed in the study itself, his conclusions are based directly on observations and dialogue between instructor and student, rather than being based on what an instructor says he or she has done in the clinic area. This is an important part of his study's methodology that I will utilize in my study.

Donald A. Schon (1987) discovered and described the artistry of professional practice in teaching by analyzing three practice or studio settings. Schon observed and recorded the conversations between master teacher and student. By recording the actual coaching dialogue and interactions that transpired between master teacher and student, Schon developed his central idea of the reflective practice. Schon uses the actual words and actions of the master teacher and his or her students to describe the artistry that is embedded in skillful practice and terms it "reflection-in-action." He describes it as, "thinking what they are doing while they are doing it…[That is what] practitioners sometimes bring to situations of uncertainty, uniqueness, and conflict" (Schon, 1987, p. xi). He sees reflection in practice dilemmas as an absolute essential for gaining wisdom. The artistry and mastery of teachers, coaches, and educators is embedded in this ability to teach "reflection-in-action."

Since my study is a qualitative case study, I remain open to what I observe and record while in the clinic setting. I am not be bound by any theories of previous studies. However, the studies of Irby (1978), Stritter and Flair (1980), and Schon (1987) provide a useful methodology of actual recording of conversations and actions of master teacher and student with subsequent interpretations of the actions of master teaching that will guide my study.

Pertinent Literature Supporting the Use of a Qualitative Approach

The proposed research is designed as a non-hypothetical inductive study. It is a qualitative case study. I will look for underlying order in the phenomenon of master teaching in the clinical area and will suggest hypotheses that support and explain the phenomenon (Merriam & Simpson, 1995, p. 27).

Anslem Strauss and Juliet Corbin define qualitative research as, "any type of research that produces findings not arrived at by statistical procedures or other means of quantification" (Strauss & Corbin, 1998, p. 10-11). According to Burns and Grove (1993, p. 61), qualitative research aids the researcher to explore the depth, richness, and complexity of the research question. Max van Manen's Human Science Research model sees this type of research as a dynamic interplay among the following six research activities:

1) Turning to the phenomenon which seriously interests us and commits us to the world;
2) Investigating experience as we live it rather than as we conceptualize it;
3) Reflecting on the essential themes which characterize the phenomenon;
4) Describing the phenomenon through the art of writing and rewriting;
5) Maintaining a strong and oriented pedagogical relation to the phenomenon; and
6) Balancing the research context by considering parts and whole. (van Manen, 1990, pp. 30-31)

I am interested in exploring this subject with a depth and richness, interviewing and observing at least two people who are identified as "great teachers" in the clinical arena. My desire to use this approach surprises me somewhat. In my role as Chair of the Respiratory Care program for Shenandoah University, my faculty and I have had to rely on quantitative studies for what to teach for pharmacological therapies, equipment, ventilator management, invasive procedures, hemodynamics, and other subject areas. I

am very comfortable and familiar in using such studies. The scientific approach for justification of such therapies is excellent. However, such studies do not present the whole picture. Teaching that a particular drug has certain efficacies and side effects does not instruct the educator or student about issues such as the struggle of patient compliance if the drug does not taste good or how the patient copes with the undesirable or painful side effects.

The same is true with the phenomenon of masterful teaching in the clinic area. There are lists of characteristics of a "good teacher" and techniques that the teacher may use but a quantitative study with Likert scales will not produce the richness and "dense" data which will be collected with the qualitative approach.

Strauss and Corbin state four valid reasons for doing qualitative research. They are:

1) Preferences and/or experience of the researchers;
2) Nature of the research problem;
3) Exploration of substantive areas about which little is known or about which much is known to gain novel understandings; and
4) Obtainment of the intricate details about phenomena such as feelings, thought processes, and emotions that are difficult to extract or learn about through more conventional research methods.

(Strauss & Corbin, 1998, p. 11)

In addressing the above valid reasons for doing qualitative research, here are my responses:

1) In conducting a pilot study with two master teachers, I thoroughly enjoyed the process of in depth exploration of their perceptions, personal stories, and metaphors of great teaching. One of my strengths is establishing inter-personal connections with faculty members and students. Their insights which they feel safe in sharing are essential to understand more fully the phenomenon of masterful teaching.

2) The nature of the research problem is one that lends itself to a qualitative approach. It is true that a survey tool could be designed and sent to several hundred clinical preceptors and clinical faculty. Teaching techniques, teaching styles, interactions with students and patients could be quantified, manipulated, and analyzed. However, as stated by Janice Morse, qualitative data analysis, "requires astute questioning, a relentless search for answers, active observation, and accurate recall. It is a process of piecing together data, of making the invisible obvious, of recognizing the significant from the insignificant, of linking seemingly unrelated facts logically, of fitting categories one with another, and of attributing consequences to antecedents" (Morse, 1994, p. 25). The nature of masterful clinical teaching lends itself to this type of inquiry.

3) As is indicated in the literature search, there are numerous articles on the subject on evaluating clinical teaching effectiveness, "how-to-teach" tips, articles with lists of characteristics of teachers that students find helpful, and articles that claim to give techniques for improving communication between clinical and didactic faculty. I did not find a qualitative study of the nature of masterful clinical teaching in the health education literature. Although there is a plethora of work on concepts of teaching, more research needs to be done in the qualitative domain. It is with eagerness that I explore this topic in the qualitative domain.

4) Responses to the request, "Tell me about a wonderful teacher in your life" invariably led to reflective stories of individuals who have had influences in the lives and memories of the respondents. The elements of humor, passion, caring, and knowledge of the field of teaching are present in the stories. Responses from educators to the request, "Tell me about some of your most meaningful teaching experiences" yield rich,

insightful, reflective stories on interactions with their students. I have also had the response, "Well, no one ever asked me that question." A long description follows with an eagerness to share experiences and memories of the educational arena. A qualitative approach to this research question will yield insights that heretofore have not appeared in published literature for pharmacy education.

Schon's Model of Reflective Practice in Expert Clinical Teaching

A seminal research study by Crandall (1993) described how expert clinical educators teach what they know by utilizing Schon's Model of Reflective Practice emphasizing learning from experience. Exploring the question, "How do good teachers transmit to learners the knowing-in-action that is embedded in experience?", Crandall verified that expert clinical educators incorporate Schon's stages of his model of knowing-in-action, reflection-in-action, and reflection-on-action. Schon's model of reflective practice explores the core of artistry displayed in the practice of professionals. Schon states:

In the terrain of professional practice, applied science and research-based technique occupy a critically important though limited territory, bounded on several sides by artistry. There are an art of problem framing, an art of implementation, and an art of improvisation – all necessary to mediate the use in practice of applied science and technique (Schon, 1987, p. 13).

The professional artistry refers, " to the kinds of competence that practitioners sometimes display in unique, uncertain and conflicted situations of practice" (Schon, 1987, p. 22). This is not just style grafted onto technical expertise. "Reflection-in-action" is central to the artistry with which practitioners sometimes make new sense of

uncertain, unique, or conflicted situations (Schon, 1987, p. 35)." This is a distinctive and critical point in clarifying the didactic and clinical teaching.

One of the tenets of learning is that knowledge is created and made meaningful by the context in which it is acquired (Cervero, 1992, p. 95). This is what is meant by situated knowledge. Cervero states that the popular wisdom among practicing professionals is that the knowledge they acquire from practice is far more useful than what they acquire from the more formal modalities of education, such as in a classroom or lecture (Cervero, 1992, p. 91). Why and for what? Learning from practice is where one acquires the knowledge actually used in practice. Cevero goes so far to say that, "without the knowledge acquired from practice, wise action is not possible" (Cervero, 1992, p. 95). These concepts are at the crux of the need to explore the practice of mastery teaching in the clinic or practice area. If wise action is not possible without the knowledge acquired from practice as espoused by Cervero, mastery teaching in the clinical area is vital to nurture students to become competent, knowledgeable, and safe medical and health care professionals. Studying this mastery teaching in the clinical area will elucidate the practices of master teachers and contribute to the ongoing scholarly inquiry and investigation of master teachers.

Teachable Moment(s)

During the observations, interviews, and data analysis of this study, the concept of "teachable moments" emerges. There are times in which the clinical preceptors and students engage in the teachable moment independently of one another and in interaction with one another. The teachable moment is a vital element in studying the actions of the clinical preceptor.

The term "teachable moment(s)" appears in the literature as a natural language or popular term. It is not an official subject heading, descriptor, or controlled vocabulary in the preeminent databases of ERIC, MEDLINE, Psychinfo, or Expanded Academic Index ASAP. Education encyclopedias do not include it as an official term. Education and medical journals tend to use the term within four contexts. The four contexts of the teachable moment(s) are developmental tasks, tumultuous or cataclysmic events, every day life seminal events, critical moments with life-shaping decisions and choices.

1) Developmental Tasks Context

Havighurst (1972) uses the developmental task concept in relation to the teachable moment.

> A developmental task is a task which arises at or about a certain period in the life of the individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by the society, and difficulty with later tasks. (Havighurst, 1972, p. 2)

These tasks can be "located at the ages of special sensitivity for learning them" (Havighurst, 1972, p.7). These are times in which he terms "teachable moments" where the potential for learning is increased. McCoy (1977) embraces this same approach to teachable moment by describing seven developmental stages beginning at age eighteen. As the individual moves through these stages of adulthood, there is a central developmental task. It is the challenge to the educator to provide the learning necessary for the adult to handle these developmental tasks successfully. These developmental tasks signal "the teachable moment" (McCoy, 1977).

2) Tumultuous or cataclysmic events context

Tysiachney (1999) states that tumultuous or cataclysmic events can create the teachable moment. Events such as the Holocaust or the terrorist attacks of September 11, 2001 in the United States capture attention and provide the platform for discussion. The outrage that people often feel in relation to these events hold the possibility for being transformed into a teachable moment (Tysciachney, 1999, p. 15). These events capture their attention and interest which could transform the situation into a teachable moment by stimulating discussion and interaction.

3) Every day life seminal events

Experiences of everyday life such as inter-personal conflicts or seminal events can be turned into positive learning experiences as they can present themselves as teachable moments (Branch et al. 2001, Briggs, 1996, Ellis & Llewellyn, 1997, McAloon, 1992). In the medical literature, Branch et al. (2001) hypothesizes that the teachable moments involve active learning methods and active learning exercises using role modeling and seminal events in the clinical practice setting. The active learning exercises include, "…creating moments for discussion and reflection immediately after the event [which] can promote understanding of the observed behavior and help solidify learning" (Branch et al., 2001, p. 1071).

Briggs (1996) states that moments in a students life that involve conflicts can be transformed into learning experiences. She equates these with the teachable moment which is the opportunity for a student to learn, grow, and be engaged. Ellis & Llewellyn (1996) support this same idea that conflicts have the potential for creating teachable moments. In their study of class, race, gender and disability, they found that students who confront these issues experience opportunities to explore attitudes. They are

awakened to the complexity of these issues. They become engaged in constructive changes in their thinking and attitudes.

McAloon (1992) states that students find their own teachable moments in everyday experiences when they find their own motivation or purpose in pursuing an interest. In such a pursuit, the student is ripe for learning. It us up to the teacher to recognize the captivation of interest in a student and encourage interaction. According to McAloon, this creates further excitement on the part of the learner, further absorption into the teachable moment, and a responsibility on the part of the student for learning.

Bhattacharya & Chatterjee (2000) associate the teachable moment with the student obtaining new knowledge in conjunction with the use of computer information if it is meaningful to the student. The computer information must be manipulative and can be a conduit to being a facilitator of learning. Madhumita and Bhattacharya go so far as to state that entering this teachable moment could lead to cognitive development. (2000, p. 9).

4) Critical moments with life-shaping decisions and choices

Teachable moments are equated with critical moments of shaping careers and life choices (Montecel, 1998). Montecel equates teachable moments to any teaching encounter that has the potential to effect changes in a student's life. These include choices of career, attendance or non-attendance of school, and the student's subsequent choice of achieving high standards. For a teachable moment to occur is must have the teacher must do the following;

1) Consciously grant access to the student to the teacher him or herself, to educational opportunities, and to potential associations with other people,

2) Take a personal interest in students and their achievement to high standards,
3) Intervene for the student when necessary, by exposing or creating opportunities for the student to expand horizons,
4) Ensure solid, meaningful content in all student/teacher encounters,
5) Take the time to understand each individual to a sufficient depth so that teachable moments can be identified that are meaningful to that individual,
6) Be aware of own behavior to ensure student treatment as fair and unconditionally positive.

(Montecel, 1998, p. 10)

The Pew Higher Education Roundtable Policy Perspectives (Zemsky,1998) uses this term in a in a slightly different light. Although the term teachable moment is associated with a critical moment of decision, it applies to an entity rather than an individual student. The essay, "A Teachable Moment", describes what the Roundtable considers a critical situation in the quality of science education and offers a six-point agenda for change. Here, a "teachable moment" refers to an identifiable time in which change is needed to embrace a new focus which results in a different thrust and direction. In this context, the teachable moment can be applied to institutions as opposed to individual students and teachers.

Some education and medical literature attributes the creation of teachable moments to individual teachers where the student may be in the passive role. "They [teachable moments] are defining moments leading to student success that any teacher can create" (Montecel, 1998, p. 10). Montecel also states that teachable moments involve the intervention of single dedicated teacher who takes a personal interest in students

achieving high standards (Montecel, 1998, p. 10). In the medical literature, Branch et. al. identify teachable moments as involving role modeling by the physician while in the teaching role in conjunction with seminal events. The learners were passive observers (Branch et al, 2001, p. 7). This perception of teachable moments puts the responsibility of involving the students in a teachable moment on the teacher.

In contrast to the above concept of the teachable moment being the responsibility of the teacher, Bowling (1993) defines the teachable moment in context of the student or learner. "The teachable moment is the time when a learner is ready to accept new information for use conceptually or in practice" (Bowling, 1993, p. 237). My data supports Bowling to the extent that a student must be "ready" but unless there is engagement and follow through with the teachable moment, it does not come to culmination. Michael Rich, MD at Children's Hospital, Boston, and Harvard Medical School takes this one step further stating, "Every moment for a child is a teachable moment and we have to decide what to teach them" (Rich, 2001, p. 27).

Ward (2001) also promotes the idea of the teachable moment being centered on the student in absence of a teacher. Ward, in The British Medical Journal, Lancet, refers to "teachable moment" when interfacing medical students with information management skills as a pivotal component of evidence-based medicine. The teachable moment can be achieved when the student:

1) competently interacts with the computer-based patient record system
2) interprets results from clinical and population research
3) appropriately applies these results to individuals or groups of people (Ward, 2001, p. 79)

Summary

The term "master teacher" has had varied meanings throughout history. Its most current and relevant connotation to this study is the meaning of "teaching excellence" as used in the American Association of Colleges of Pharmacy (1998-1999).

Medical and health care education literature is replete with studies and reviews stating what faculty and students regard as excellent or effective teaching in the clinic area. These characteristics are applicable across medical and health care disciplines. Most studies fail to make clear distinctions between effective behaviors of clinical and didactic teaching leading to statements that are applicable to both didactic and clinical behaviors. The review of this literature leads to six clear distinctions of clinical teaching in comparison to didactic teaching. They are: (a) purpose or goal of teaching as patient care, (b) the learning context being that of "at the bedside," (c) requirements and demands from the learning setting, (d) professional role modeling, (e) concept of service, (f) professional curriculum with licensing requirements. These distinctions that sharpen the definition of clinical teaching will help frame the observations of the study.

The medical education literature contains criteria for identifying master teachers (Sachdeva at al., 1999) which will be used in this study. These are:

1) Demonstrating excellence in teaching
2) Receiving feedback from students, residents attesting to ability as an excellent teacher
3) Being observed by peers in teaching session, or having peers review videotaped presentations
4) Documenting contributions to teaching in the educator's portfolio or the educator's curriculum vitae.

There are three studies that will guide my study in terms of methodology. The literature in pharmacy education is bare for grounded theory case studies with observation and recording of the interactions and dialogue between master teacher and student in the clinic area.

> Literature points to a void in the study of excellence in clinical teaching. Academic institutions should find new and creative ways to evaluate clinician-educators' teaching abilities and clinical excellence. The academic community must devote resources to developing new methods so that institutions can appropriately measure these specific skills and, in turn, reward faculty members who meet established goals. In fact, we believe that the current lack of tools to measure excellence in clinical care and teaching presents an intellectual challenge…The knowledge and skills of educational experts will be required for the development of reliable and feasible methods. This task is essential if we are to provide the same rigorous and objective standards that academic medical centers have used to judge the quality of research that scientists produce. The work of clinician-educators is critical to the mission of academic medical centers. (Levinson, 1999, p. 5)

We have much to learn from the wisdom of master teachers in the clinic area. Their influence on students and ultimately on patient care can be profound. As Patricia Benner (1984, p. 78) states, "learning from experts requires attention to the context and to the avoidance of hasty generalizations…[T]hey offer ways of being, ways of coping and even new possibilities…" This study will augment the

literature and offer insights to master teaching in the clinical area of pharmacy practice.

Chapter 3
Methodology

The Research Question

What do masterful clinical (experiential) teachers do when teaching clinically?

What Do I Bring to the Study?

Being on the faculty for Shenandoah University for twenty-one years first as an instructor, then as an assistant professor, and as a department chair, has been a rich experience and a journey. Students and teachers alike weave an intricate and complex fabric that is as strong or as weak as the energy and engagement of the teaching and learning relationship. I have been surrounded with colleagues and administration who primarily are energy givers and are inspirational in their mutual encouragement and pursuit of "heartful" teaching.

My teaching has not been limited to the didactic university setting. I taught for at least a decade in a medical center setting on medical-surgical floors and in intensive care units. I was the cardio-pulmonary educator for inpatient and outpatients. One of the most challenging and rewarding teaching/learning experiences I had was coordinating the science and math learning centers for first through third grade as a parent volunteer for a public school. The variety of ages, needs, energy levels, and interests of the learners continues to provide growth and engagement for me as an educator.

I bring to this study a family career fabric woven with many textures, colorful patterns, and a variety of strong threads and fibers. Among this fabric are homemakers, pharmacists, lawyers, politicians, surgeons, a county judge, university professors, and

businessmen. The predominant thread is the educator, primarily in the public school arena. (see Note 9)

I bring to this study my personal philosophy that in my own teaching, I teach with a passion for my subject and for my students. It is an act of hospitality with the hope that in the mutual engagement in the learning process, we reweave a social fabric that is vital, safe, and provides space for continual learning and growing. I attempt to teach with the "way of knowing" not being that of fear, but with the capacity for connectedness, for mutual inquiry, and for respect of "otherness." Teaching patients or students in an intensive care unit brings a humbleness and a sense of the sacred. Literally, a teaching-learning situation can be that of life and death in such a setting. The importance of creating a trusting atmosphere that allows for mutual sharing and true communication cannot be overemphasized. The absolute delight of sharing in the creation of such an aura for learning is a thing of beauty.

I bring to this study the knowledge that good teaching can be exhausting, heart-aching, and discouraging. How much less painful it can be to disengage and simply "present the facts." I know that, despite years of experience in teaching, each time one steps into the classroom or area of practice, fears and self-doubt can well up and a disabling, paralyzing sense of "what am I doing here" can pervade. I know that a master teacher may not teach masterfully all the time.

I bring a passion to this study of desiring to know more of the ways of masterful teaching, of filling a gap in the literature for qualitative research, case study approach. I bring my own teaching experiences as well as an openness and a desire to learn and observe.

According to van Manen (1990), a phenomenological question must be "lived" by the researcher, which is a step beyond making the question clear and understood. I have lived the phenomenon of teaching students in the clinical setting, of caring for them, of facilitating their learning. It is my hope that my investigation will illuminate how we can serve students better.

Research Design

The research is designed as a qualitative non-hypothetical inductive study using content analysis to identify emerging patterns. I look for underlying order in the phenomenon of master teaching in the clinical area and suggest hypotheses that support and explain the phenomenon (Merriam & Simpson, 1995, p. 27). I offer an emerging model as a way of analyzing the behaviors of the CP and students.

Linguistic terms or phrases for different methods may vary and I agree with Leininger (1994, p. 97) that the qualitative paradigm must have evaluation criteria that flow from its philosophy and purpose and must be useful for research methods within that paradigm. I use Leininger's six major evaluation criteria and definitions. These six criteria are;

1) Credibility,
2) Confirmability,
3) Meaning-in-context,
4) Recurrent patterning,
5) Saturation, and
6) Transferability.

The following explanations of the six evaluation criteria address aspects of methodology. For ease of reading and completeness in explanation of the following, I interweave methodology with my discussions.

1) Credibility

"Credibility refers to the 'truth,' value, or 'believability' of the findings that have been established by the researcher through prolonged observations, engagements, or participation with informants or the situation in which cumulative knowing is the 'believable' or lived-through experiences of those studied" (Leininger, 1994, p. 104). Leininger also states that "The criterion of credibility as truth, or what is believable and known to the informants and that becomes discovered and known to the researcher, is one of the most important criteria to understand and use in a qualitative study….the researcher keeps in mind that the informants are the primary gatekeepers and the researcher is the secondary gatekeeper" (Leininger, 1994, p. 108, author's emphasis). The primary gatekeepers are the ones who know their world in all its richness. It is the task of the researcher to learn of the "known world" of the primary gatekeeper, to explore the phenomenon, and to grasp what is true or known to the informants in their lived environmental context. This is the essence of the method of this study. A researcher may meet this challenge by being an active listener, reflecting on the information, and having an empathetic understanding (Leininger, 1994, p. 109).

Credibility also refers to me as the researcher. I must ensure this trustworthiness by corroborating with my informants (see Note 10). The fluid nature of clinical teaching with its constant change of patients, patient conditions, units, and floors does not give a stability in the environment. What is constant is the engagement and presence of the master teacher and student. This enduring interaction is educationally significant and is the object of my critical attention. The way to establish the adequacy of "fact" or inference or its credibility is through the use of repeated observations from a single

perspective (Guba & Lincoln, 1981, p. 108). I spend sufficient time in the master teacher – student environment to know which qualities characterize it and which do not. As Guba & Lincoln emphasize, "credibility is to some extent a function of the amount of time and effort that the naturalistic inquirer invests in repeated and continuous observation" (Guba & Lincoln, 1981, p. 109). I take my data and interpretations to the informants from which they were drawn and inquire directly whether they believe the results. By being an active listener, reflecting on what is discussed in the context of the statements, I gain a sympathetic understanding.

A sampling of the transcribed interview codes are reviewed by my research professor and doctoral students. Themes and codes are revised as analysis proceeded to account for all major themes in the data. Final codes are reviewed and validated by my research professor and myself. Substantial content analysis is confirmed with my research professor (see Appendix C).

It is the informant, or in the case of my inquiry, the master clinical teacher, who knows his or her world and his or her environment. By being an active listener, reflecting on what is discussed in the context of the statements, I gain an empathetic understanding.

I maintained an awareness of the perspectives given by the informant (emic or local) and my own perspectives (etic or external.) According to Leininger (1994, p. 109), this cognizance is extremely helpful in establishing the criteria of credibility, meaning-in context, and saturation. This is accomplished by checking and rechecking with the informants of the emic and etic data. I am the sole interviewer using audiotape. I transcribe all of the interviews verbatim. I note voice inflections, periods of nonverbal communication, and memo what is going on during the interview. I submit the

transcripts to the informant who reviews them and makes desired changes. I note the changes. I summarize the interview and submit the summary to the informant to ensure my understanding of the intent of the discussion. In this way, I establish credibility of the findings and the credibility of my research capabilities. I keep in the forefront of my consciousness not imposing my own interpretations into the statements.

2) Confirmability

"Confirmability refers to the repeated direct participatory and documented evidence observed or obtained from primary informant sources. Confirmability means obtaining direct and often repeated affirmations of what the researcher has heard, seen, or experienced with respect to the phenomena under study" (Leininger, 1994, p. 105). I restate my ideas and observations to those who have shared them with me. I use "audit trails" and confirm with my informants that we are getting the whole picture of the text.

3) Meaning-in-context

"Meaning-in-context refers to data that have become understandable within holistic contexts or with special referent meanings to the informants or people studied in different or similar environmental contexts... The significance of interpretations and understandings of actions, symbols, events, communication, and other human activities as they take on meanings to informants within their lived context of the totality of their lived experiences support the criterion" (Leininger, 1994, p. 106). The orientation of my thematic analysis is within the context of the informant, from his or her perspective. This orientation is enhanced by observing the informant in his or her teaching role as well as interviewing him or her and the paired student.

In analyzing the text, I highlight phrases that seem particularly essential or revealing about the studied phenomenon or experience.

4) Recurrent patterning

Recurrent patterning refers to repeated instances that recurred over time in different and similar contexts (Leininger, 1994, p. 106). Pulling out textures of a theme shows awareness of recurrent patterning. In analyzing the transcriptions, I seek recurrent patterning to substantiate this criterion.

5) Saturation

"Saturation refers to the full 'taking in of occurrence' or the full immersion into phenomena in order to know it as fully, comprehensively, and thoroughly as possible" (Leininger, 1994, p. 106). Strauss and Corbin define saturation as, "no new information seems to emerge during coding…when no new properties, dimensions, conditions, actions/interactions, or consequences are seen in the data (Strauss & Corbin, 1998, p. 136). However, Strauss and Corbin go on to say that saturation truly is a matter of degree for the researcher could potentially find some new angle or insight with continued search. Even in recognizing saturation, I continue to interview to obtain more data to support and evaluate transferability.

6) Transferability

"Transferability refers to whether particular findings from a qualitative study can be transferred to another similar context or situation and still preserve the particularized meanings, interpretations, and inferences from the completed study" (Leininger, 1994, p. 106). These evaluative criteria are integral to qualitative research since the goal of qualitative research is, "…not to produce generalizations, but rather in-depth

understandings and knowledge of particular phenomena" (Leininger, 1994, pp. 106-107). Transferability occurs at the level of the study. A systematic examination and analysis of the data takes place so that with the accurate description, there can be an emergence of substantive theory.

Strauss and Corbin stress the "language of explanatory power" rather than that of generalizability (Strauss & Corbin, 1998, p. 267). "Explanatory power means 'predictive ability'…the ability to explain what might happen in given situations such as stigma, chronic illness, or closed awareness" (Strauss & Corbin, 1998, p. 267).

Strauss and Corbin state that the real merit of a substantive theory "lies in its ability to speak specifically for the populations from which it was derived and to apply back to them" (Strauss & Corbin, 1998, p. 267). The more wide-spread and the more systematic the theoretical sampling, the more conditions and variations will be discovered and build into the theory and here, the greater its explanatory power and precision. My study uses in-depth interviews with immediate analysis and coding, evaluation of the content, application of theory building, and then assessment of the need for more interviewing. The master clinical teacher is observed in his or her teaching capacity in the clinical setting. The interview process seeks to elicit the participant's story. The interviews coupled with observation in the clinic area serve to provide a vehicle for in-depth understanding.

My coding and analysis is in collaboration with my Ph.D. candidate colleagues. We discuss each other's analysis, coding, and theory building. I collaborate with my committee chair and research advisor.

General Characteristics of the Study Population

Each case study is of a master pharmacy teacher in the clinic area paired with his or her student. The student surveys (see Appendix D) are the primary criteria for selecting master clinical teachers. "The premise has been that the students, who are receiving the instruction, are the best judges of what effective teaching behaviors are" (Hedin, 1989, p. 79). I use a one hundred mile radius from The Pharmacy School. Student ratings determine top ranked clinical faculty. Subsequently, the following criteria are applied:

1) Demonstrating excellence in teaching and gaining recognition as a superb teacher;
2) Receiving feedback from students, residents, and peers attesting to ability as an excellent teacher;
3) Being observed by peers in teaching sessions, or having peers review videotaped presentations;
4) Documenting contributions to teaching in the educator's portfolio or the educator's curriculum vitae.

As my literature search indicates, there is a paucity of studies on clinical teaching and thus, no reliable or valid instrument exists to identify master clinical teachers. For the purposes of this study, master teachers are identified in response to my request for nominations and suggestions as to who would best exhibit the qualities of master teaching. In whom would that phenomenon most likely be located? In my research, I wanted to observe and interview individuals whose behaviors had the best possibility of exhibiting master teaching in the clinical area. I offer the criteria developed by Schadeva et al., 1999, and student surveys (Student Evaluation of the Rotation Appendix D) as a guide for the selection of those individuals.

The Director of Experiential Experience for The Pharmacy School nominates candidates for observation and interview, using the student survey results. Per suggestion of the Director of Experiential Education, other faculty from The Pharmacy School are not be consulted since they do not have a familiarity with the clinical faculty. The master clinic teachers, termed clinical preceptors hereafter referred to as CP, are all teaching faculty of The Pharmacy School. Most of the population has a teaching relationship with The Pharmacy School of one and a half years.

Paired students are fourth year doctoral pharmacy students who are with their master teacher for at least one clinical rotation, generally lasting for six weeks.

Location or Setting in Which the Study Takes Place

Interviews of the CP and paired students are conducted at their clinical site in a quiet conference area away from distractions. An alternative interview location is in a conference room at The Pharmacy School.

Observations of clinical teaching take place as determined by the survey of teaching excellence. The Pharmacy School currently offers seven rotations during the fourth year. The five core rotations and two selective rotations are: Ambulatory Care, Community Clinical, In-Patient Acute Care, Institutional, Drug Information. The objective of the experiential program is "to allow the student to study in a supervised controlled program of applied education to further enhance the didactic education received on campus. Ultimately, this experiential component will allow the student to learn and demonstrate the provision of pharmaceutical care" (Wachsmann, 2000, p. 5).

In the ambulatory care rotation, the student experience is in a clinic, out-patient area of an institution or non-distributive services of a community pharmacy, such as a diabetes care program, home care service, pulmonary rehabilitation, smoking cessation program, or anti-coagulant clinic. The student has direct patient-care service through clinical consultation, under the supervision of the faculty. This includes interviewing, assessment, counseling, provision of general and patient-specific therapeutic recommendation, patient monitoring for therapeutic and adverse effects of drug therapy, documentation of pharmacy services, and quality assurance activities. Patients in this setting often have chronic, on-going disease states or are in for "well-patient" consultations. Generally there are no acute, life-threatening emergencies.

In the community clinical, focus is on basic community pharmacy practice coupled with advanced patient care services such as diabetes education or asthmatic training/monitoring. A retail pharmacy experience is gained in this rotation with dispensing prescriptions. The student will provide patient-specific and general drug information and will have consultation of medication therapy selection and management with other health care professionals, all under the supervision of a clinical practice faculty.

Institutional rotation focuses on basic institutional pharmacy practice including distribution systems, parenterals, and basic services such as Drug Utilization Evaluation (DUE), Pharmacy and Therapy (P&T), and discharge planning.

In-patient acute care is the "typical" clinical clerkship in an in-patient setting such as a hospital. Students will participate in all aspects of pharmaceutical distribution, preparation, and information. Physical location of work could be in satellite pharmacies

within the hospital setting, or the main pharmacy and in patient care rooms and units. Students will have face to face contact with patients. They will participate in patient monitoring for therapeutic and adverse effects of drug therapy.

In the chosen rotations, I observe the interaction of student, faculty, and patient/client. Three major categories emerged during the initial pilot study of two in-depth interviews with master teachers:

1) The caring relationship between student and teacher
2) Passion and devotion to the teacher to the field of study and to the practice of teaching
3) Teaching and engaging the student in thinking as well as inspiring the student to be in charge of his or her own learning

These emerged as properties of teaching events that the master teachers described as taking place. The study is based upon my observation of what occurs in the clinical environment between master teacher, the student, and patients. Interviews with the master teacher and student that were subsequent to the clinical observations explore specific dialogue and actions observed in the clinic area.

Specifics of Clinical Observations and Interviews

Clinical preceptors (CP) meeting the designated criteria are identified along with the paired students. The Director of Experiential Education makes the initial contact with the CP and students to determine agreement to take part in the study. I make contact by telephone or e-mail with the CP and student to determine appropriate dates and times for observation and interviews. I observe each pair for at least three days. As the researcher, I am associated with the clinical environment.

Prior to each clinical rotation observation, I record my reflections of the upcoming observations, noting what categories seem to emerge from the data collected previously and how this may or may not apply to the upcoming observations. During the clinical rotation I am present as an observer, making notes and recording conversations and interactions between CP, student, and when applicable, with the patient or client. What the CP says and when is critical. The CP wears a lavaliere uni-directional microphone designed to record what he or she is saying. The receiver unit records the CP. Any inadvertent words from the patient or client that are picked up in the recording are erased from the tape recording before transcription takes place, thus ensuring patient confidentiality. The patient or client's name that is part of the recording is erased before a transcription is made.

I have an audio tape recorder to record and assist with the exact wording of the conversations, noting the context and actions during the dialogue. My being an instrument of the research allows me to use my perception, discrimination, and instinct to explore the context of what is being observed. I listen for what the instructor considers a teachable moments and focus on these during the subsequent interviews. The true units of analysis for the study are the contexts or patterns of issues which precede the teachable moments and the teachable moments themselves.

The interviews with the CP and the paired students are conducted separately and as in close proximity of the time of the teaching rotation as possible. Interview guides are created prior to the interview (Appendix E). Transcribing the clinical instruction and analysis are done prior to the interviews so that further exploration can take place during the interviews. I invite the CP and the student to reflect on the teachable moments that

occurred during the clinical rotation. I ask them to expand on what they were thinking and doing during those teachable moments. These interviews are followed with further observations. Data collection and analysis proceed simultaneously. Clinical observations are written and analyzed upon completion of each observation. As Strauss & Corbin state (1998, p. 13), "Analysis is the interplay between researchers and data…Creativity manifests itself in the ability of researchers to aptly name categories, ask stimulating questions, make comparisons, and extract an innovative, integrated, realistic scheme from masses of unorganized raw data." From these interviews and observations, theory can be built.

Calendar of Events in Carrying Out Study

The Year 2001

April 28 – first week-May – Compile all clinical teaching surveys of 4th year pharmacy students on rotation. The School of Pharmacy secretary and the Director of Experiential Education tabulate the survey. This yields the student top rated clinical teachers. Compare other criteria of teachers for determination of master teachers in consultation with Director of Experiential Education.

May –second week Results of tabulations sent to clinical preceptors by Director of Experiential Education.

June 18- July 27 - Conduct teacher/student interviews and do observations in the clinic teaching areas. Simultaneous transcribing of interviews, researcher journaling of pre-and post interviews and observations, and analysis.

July 30 – August 10 – follow up interviews or observations as needed

August 20 – October 5 - Writing results

November - Draft of dissertation

December – Final follow up interviews with CP and students for further inquiry of interpretations and meanings of interactions on clinical rotations.

December 2001 – January 2002 – Final draft

Sampling Design and Procedures

According to Strauss and Corbin (1998, p. 267), "[T]he real merit of a substantive theory lies in its ability to speak specifically for the populations from which is was derived and to apply back to them." The language of exploratory power rather than that of generalizability is the central intent of this study. A case study is a bounded system where I explore over time through detailed in-depth data collection. Information gathered can be rich in context. This means that the actions observed are fully described and contextually bound. I follow the criteria for evaluation as outlined by Strauss & Corbin (1998, p. 269) as follows:

Criterion 1: How was the original sample selected? On what grounds?

Demonstration and documentation criteria are:

1) Demonstrating excellence in teaching and gaining recognition as a superb teacher;
2) Receiving feedback from students, residents, and peers attesting to ability as an excellent teacher;
3) Being observed by peers in teaching sessions, or having peers review videotaped presentations; and
4) Documenting contributions to teaching in the educator's portfolio or the educator's curriculum vitae.

Since The Pharmacy School has had students on clinical rotations for a year and a half, some of the above criteria may not have been met for master teaching. The first criterion to be considered for choosing a clinical preceptor is to survey the pharmacy students (see Appendix C). As the highest ranked clinical teachers are identified by the survey, the other above criteria are used. The element of geographical convenience limits the interviews and observations to clinical teaching within a 100 mile radius (161.3 km) of Winchester, Virginia. The Director of Experiential Education from The Pharmacy School offers guidance to the selection of the master teachers since The Director is the

only pharmacy faculty member who is familiar with the clinical faculty. The willingness of the students and clinical teacher to be interviewed and observed during the clinical teaching rotations also determines participants.

Criterion 2: What major categories emerged?

In the pilot study of two in-depth interviews with master teachers, the one major category that emerged was that of teaching and engaging the student in thinking as well as inspiring the student to be in charge of his or her own learning. Two consistent behaviors also emerged. They were:

A) The caring relationship between student and teacher;

B) Passion and devotion of the teacher to the field of study and to teaching.

As Guba & Lincoln state, (1981, p. 131-132) "[T]he human instrument may not know except in the broadest sense what it is he is to investigate when he enters the context. It is by his perceptivity, discrimination, and instinct the he is able to focus his style, method, and approach on that which does emerge as important." I remain open to what will emerge from the interviews and clinical observations.

Criterion 3: What were some of the events, incidents, or actions (indicators) that pointed to some of these major categories?

The major categories emerged directly from the interviews with the master teachers. The categories were corroborated with my research professor, Ph.D. classmates, Ph.D. candidates in a coding class, as well as the interviewees themselves.

Criterion 4: On the basis of what categories did theoretical sampling proceed?

In my initial pilot study, the theoretical formulations from the first interviews with a master teacher guided me to interview a second master teacher to confirm or disconfirm

the emerging categories. I was particularly interested in the level of engagement of the master teacher with the students and to what extent that may determine the level of perception of mastery teaching. Second, I was interested to see if both master teachers used metaphors for their teaching. That too emerged:

"What is a metaphor for master teaching? A symphonic orchestra conductor."

> The conductor stands in front of the symphonic orchestra performers. Some parts are very complex. Others are two notes every fifty bars. And somehow you have to keep those with two notes engaged at the same level as the fiddlers over here are just sawing their lives away trying to keep things going. The conductor constantly has to blend their work because everyone has to be right at the particular point for the total balance. They have to cue entrances and exits in appropriate ways and in the end the orchestra needs to be sounding like a whole, not fifty two individuals. [Interview A, March 13, 2000]

> Enthusiasm for the field, a belief that the field is important. Enthusiasm one has….good teaching is like that…it spreads like wildfire. [Interview B, March 20, 2000]

I was guided also by the powerful sense and comments that both teachers had on the subject of developing their students to "think beyond the box," to think reflectively, and go beyond their own teacher.

Criterion 5: What were some of the hypotheses pertaining to conceptual relations, and on what grounds were they formulated and validated?

Two concepts framed the beginning of the pilot study journey. Donald Schon's model of professional artistry and reflection-in-action concept was the foundation of that study. These can be taken as part of the definitions of the unit or process of exploring teachable moments in which teaching occurs. Are these definitions visible and can they be found in these moments? If they can be found, they will emerge from the data by way of coding.

Second, I investigated and documented the educators in my own family as well as an analysis of my own formal and informal education. The large number of master teachers within my own family as well as within my own education made me realize the critical importance of the presence of master teachers, particularly in the medical and health care areas.

Criterion 6: Were there instances in which hypotheses did not explain what was happening in the data? How were these discrepancies accounted for? Were hypotheses modified?

In the initial pilot study, I did not hold hypotheses but worked within the framework as explained above.

Criterion 7: How and why was the core category selected?

After reading and studying the works of Donald Schon, I began to reflect that the master teachers I have had in my own life, as well as my strivings in my own teaching are undergirded by the reflection in action concept the Schon espouses.

The interview with the clinical instructor and paired student will focus on the observed teachable moments that occurred during the clinical rotation. The interview will include topics such as:

> Describe what was occurring during [description of teachable moment].
> What do you listen for?
> What is it about that particular teachable moment that made it effective or good?
> What were you doing or thinking?
> How were you involved (or not involved)?
> What was it that made that a moment a teachable moment?

During the interview, I am conscious to follow up on insights about the teachable moments that the CP and student talk about without introducing new topics. Upon completion of the interview, I immediately transcribe and begin analysis. I determine the need for additional interviews with the student and CP as new categories and themes emerge.

Data Collection Instruments

There are four data collection instruments in this study. The Director of Experiential Education of The School of Pharmacy developed a data collection instrument to survey the 4th year pharmacy students on their clinical preceptor. [see Appendix C] This instrument documents and ranks the top teachers in the experiential rotations.

I am a collection instrument. "The construction of any work always bears the mark of the person who created it" (Riessman, 1993, p. v.). My notes and recordings of the clinical observations are a collection instrument and the interviews with the CP and student are collections instruments.

Definition of Terms

Pharmacy preceptor – a practicing pharmacist in a community or hospital pharmacy setting who agrees to serve as a role model and mentor for students who are learning the practice of pharmacy (Beza & Stritter, 1992, p. 45).

4th year pharmacy student – those pharmacy students having successfully completed three years, doctoral level study who are studying through experiential rotations.

Professional practice – the province of a community of practitioners who share, in John Dewey's term, the traditions of a calling…this includes distinctive media, languages, and tools. They operate within particular kinds of institutional settings. Their practices are structured in terms of particular kinds of units of activity. (Schon, 1987, p. 32)

Procedures of Data Analysis

There are two approaches to isolating thematic aspects of a phenomenon in a text according to van Manen (1990). They are, first, the holistic or sententious approach and secondly, the selective or highlighting approach. Each approach is valuable and is incorporated into my procedure of data analysis. With the holistic approach, I conceptualize the text as a whole and write a summary of the narrative that captures the main meaning or significance. I also incorporate my journaling of the interview process. In addition to this, I read and reread the transcribed text and attend to the particular words or phrases that portray the essence of the phenomenon being described. To assure credibility, I:

1) Transcribe the narratives myself;
2) Identify themes, words, statements identifying the phenomenon;
3) Contact the participants, describing the stage of the research project, informing them of my findings and verifying with them that I am capturing the essence of their meaning;

4) Ask the participants for written and/or verbal commentaries on my findings soliciting any additions and corrections they wish to contribute;
5) Incorporate participants' written and/or verbal commentaries on the findings;
6) I identify main themes. I sample in open coding which, according to Strauss and Corbin (1998, p. 206) is to, "…discover, name, and categorize phenomena according to their properties and dimensions…keep[ing] the collection process open to all possibilities;"
7) I confirm my coding with my research professor as well as with my Ph.D. coding class. This is done very heavily particularly in the beginning of my coding process;
8) Axial coding relates categories and continues to develop them in terms of their properties and dimensions (Strauss & Corbin, 1998, p. 230). As part of the axial coding, I analyze the data for process, "…purposely looking at action/interaction and noting movement, sequence, and change as well as how it evolves in response to changes in context or conditions" (Strauss & Corbin, 1998, p. 167).

Pilot Studies with Clinical Preceptors in the Discipline of Pharmacy

I conducted two pilot studies with pharmacy CPs in addition to the initial pilot study. The pilot studies make two determinations: first, to ensure that the phenomenon of master teaching in the clinic area of pharmacy exists and can be studied and second; to determine if the proposed manner and approach the study of master teaching is appropriate. The pilot study allows for practice and improvement on observation, recording, and interviewing skills. I brought the results of the observations and interviews to my research professor and fellow Ph.D. candidates where we began coding and reflecting on the results. The pilot studies were successful in demonstrating the

existence of a phenomenon that can be studied and that the proposed method of study can yield meaningful results.

Protection of Human Subjects

Approval for this study was submitted to the Shenandoah University Human Subjects Review Board and Virginia Polytechnic Institute and State University, Northern Virginia Center Institutional Review Board for Research Involving Human Subjects (IRB) before any participant contact. This study proceeded after receiving approval from the Human Subjects Review Boards.

I contacted each participant by telephone to ascertain willingness to participate in the study. The initial phone conversation explained the purpose and process of the study as well as clearly delineate the obligations of the being a participant and answer any questions. I scheduled an appointment to conduct an interview. At the initial interview, I gave them the informed consent form, including the following:

- The purpose of the project and the anticipated contributions of the findings,
- How the subject pool is selected,
- What the participant will be asked to do and how long it will take,
- Listing of foreseeable risks and benefits,
- Description of confidentiality/anonymity,
- Statement of no compensation,
- Statement of freedom to withdraw, and
- Statement of subject's permission.

I allowed adequate time for the participant to read the informed consent. I reviewed it with him or her, allowing time for questions and response.

Chapter 4
Data

Introduction to Chapter 4

The pulmonary floor of a bustling acute care medical center is the site of intense drama as health care professionals and students minister to the needs of patients who are often in life and death situations. Along side the drama are moments of the mundane, with routine treatments and administration of medications. The shrill call transmitted on the beepers of the life-support team for Code Blue of at least ten specially trained health care professionals brings them racing to the bedside of a patient who may have stopped breathing and whose heart beat is irregular or is non-existent. It is within this unpredictable and ever-changing setting that the classroom of clinical educators and Clinical Preceptors (CP) exists. It is in the hallways, by the bedside, with an ever-changing array of people, that the CP has the opportunity to teach, to learn interactively with the student, and to provide healing to the client. It is in this setting that the mastery of the CP can manifest itself. The CP is able to weave a complex web of connectedness with students and patients. What is it that the master clinical preceptor does when he or she is teaching in the clinic setting? This exacting exchange called clinical education cannot be reduced to simple techniques, tips, or tricks learned over the years. It is a mastery of openness, absorption, dialogue, knowledge, and connectedness.

Observations and shadowing two CPs and each of their two doctoral level fourth year pharmacy students took place over five weeks. One CP and two students had clinical rotations at a 405 bed acute care medical center. A second CP and two students

had clinical rotations at a retail pharmacy store. Audio recording of all dialogue between the CP and students were made during all observation times. Transcriptions of the audio tapes were made immediately upon completion of the observations. Analysis and coding of the clinical teaching experiences were ongoing throughout the study. Students and CPs were interviewed separately with audio-recording. The interviews centered on their reflection of specific clinical experiences.

This chapter is organized in terms of the specific research question posed in Chapter 1. The question posed is, "What does a master clinical teacher do when teaching clinically?" Section I communicates my experiences as a researcher with a Clinical Preceptor [CP] and her two fourth year doctoral level pharmacy students. The setting is a 405 bed acute care medical center. Section II communicates my experiences as a researcher with a CP and his two fourth year doctoral level pharmacy students in a retail pharmacy setting. Underlined direct quotes of the students or CP are subject headings within each section. Dialogue from transcripts are boxed for clarity. Names appearing in this chapter are fictitious.

Four main topics that illustrate thinking and subsequent actions of the CPs emerge from the data and present a way of organizing the data. They are:

1) Types of questions the CP chooses under various circumstances
2) Types of interactions between students and the CP
3) Change of topic during the clinical learning experience
4) Teachable moments

Section 1 presents the data from the acute care medical center. Section 2 presents the data from the retail pharmacy setting.

This chapter orients the reader to the world of mastery teaching that I studied. I share with the reader what I experienced and discovered. Chapter 5 uses this same data

to support the emerging model of what a master clinical teacher does while teaching clinically.

Section I – Acute Care Setting, 405 Bed Medical Center

Introduction of Section I

> **She knows that we know it. Just that we probably have forgotten some and she wanted us to actually pry our minds and then come out with an answer.**
>
> [Doctoral pharmacy student when responding to a question as to how the CP posed a question to assist in learning. Underlining is mine for voice emphasis.]

The rich material of this clinical teaching study is organized in Section I using four topics. The first topic is the type of questions that arise from the interaction of the CP and students. Second is the type of interactions between student and CP. Third is the change of topic during the clinical learning experience. These topics serve to illuminate the teachable moment which students and CP sometimes pursue, sometimes miss, and, at times, has their full engagement. The last and fourth topic of Section I is the teachable moment.

The transcripts contain many examples of the CP's use of questions under various circumstances. The context of those questions and responses are an integral part of the interactions of CP and students within their clinical environment. The types of questions posed and the interactions that the CP has with the students are intertwined. Thus, these two topics are presented together.

Topic 1 – Type of Questions

Topic 2 – Type of Interactions

There are nine types of questions that arise from the interaction of the CP and students; prompting, direct, factual, probing, simple, opinion and reflection, clarification, challenge, and questions arising directly from the mini-lectures. Twelve types of interactions that the CP and student have as are affirming, encouraging, inclusive while

drawing in other students to give guidance and information, traditional professor/student role, probing and questioning, transitioning and redirecting focus of students, organizing and orienting, causing reflection and focus on how to think, role modeling, knowing the student with great insight, causing withdrawal, and collegial. Questions are bolded for clarity and the types of interactions are underlined. Bolding and underlining is discontinued when examples of all types are given.

The pharmacy students begin their day in the medical center soon after the sun rises with independent research of assigned patients and the patient charts. The crispness of their starched, immaculately white long sleeved lab jackets portrays a professionalism and serious approach to their patient care. The two students pour over the charts and past medical records to ascertain documentation of medications, dosages, frequency of dosages, and correlation between diagnosis and subsequent treatment plans. Students meticulously note laboratory results and patient vital signs. Upon completion of their chart study, the students begin teaching rounds with their CP who has a pre-arranged meeting site with her students in the hallway of the pulmonary floor.

The conversation begins with the CP reminding the students of the patient history, highlighting the main diagnosis of pneumonia. This patient provides an opportunity for the students to apply their knowledge gained in the classroom, extending it to a clinical situation. The students have a personal relationship with the patient through their examination and conversation with the patient. This patient is not just a case study written in a text book. This is a human being with whom the students have developed a connection. His treatment and subsequent recovery is dependent upon their knowledge and actions in conjunction with the other health care personnel.

The following sequence of teaching contains a rhythm of interchange that initially has short, direct questions posed by the CP, evoking past knowledge gained by physician and professor lectures. Once the CP has ascertained the knowledge level and grasp by the student, a mini-lecture is given by the CP. As indicated in the following transcription text, the CP responds to incomplete answers given by one of the students with encouragement and provides the students with correct nomenclature. Note the rhythms of the interchange between students and CP. The following is a transcript from clinical teaching rounds. Subsequent interviews with the students identified this example as one of teachable moments.

Transcript	Researcher Observations
CP: We were talking about community acquired versus nosocomial [hospital] acquired pneumonia. Because you said Mr. A [patient] came in with pneumonia? OK? Alright…and my question was, OK, [pause] so there is a difference between community acquired and nosocomial. And we talked about in nursing homes, you would be more likely to find **[voice going up indicating a question]**?	Prompting recollection. CP ascertaining what student knows. Simple **direct question** with only 2 possible answers. 1) nosocomial 2) community acquired
Student 1: Um, the kind gotten in the nursing homes.	Note student "hedged" and did not use proper nomenclature. So what did CP do? Here is how she handled it. The CP did not say, "No, you are only partially right." She affirmed and encouraged the student, providing the more correct answer. CP acts as a resource.
CP: Exactly, right, the nosocomial.	
So let's back up.	Giving direction in thinking.
Because I know Dr. J. [physician doing rounds with the students] talked to you about some different bugs [microbes causing pneumonia]. **So in the community what would you expect to see?**	**Factual question**. Getting no response, CP pauses and then asks another question.

Or the most likely?	**Probing question**.

It is here that the clinical preceptor begins to direct the student to think and to utilize a systematic approach to the patient situation. In a subsequent interview with the clinical preceptor, she states:

> Where I am trying to go is to think about the different kind of bugs [microbes] that they would see in one versus the other [hospital versus community]…I want to give them time to think. Because you and I do this all the time because it is easy for us to come up with the answers. But to give them time to process and think and let them have time to think back to say, "OK, Dr. J., what did he say?" I never want to put them on the spot or make them think they are being managed in that way. So anyway, yes, trying to give them time…They need to have a thought process. They need to have a mental checklist.

The dialogue between student and preceptor continues. The student responds to the clinical preceptor's question with a correct response.

Transcript	Researcher observations
Student 2: I think you would see a lot of strep pneumonia.	
CP: OK. Strep pneumonia.	<u>Affirming</u>
Student 2: Maybe….I am not very sure	
CP: No, you are right! Strep. **So what else besides strep?**	Moves directly into further questioning to direct student in the methodical thinking process. **Prompting question**.

Note that the CP did not pursue the student's statement that he was not very sure. This is a possible missed teachable moment since further pursuit of this statement may have led

both the student and CP to the realization of why the student was not sure. In talking with the CP after this teaching encounter, I questioned why the CP did not pursue the uncertainty of the student. In her answer, the CP reveals that she has a methodical, categorical way of approaching and thinking a patient situation.

I know the reason I did not pursue it… I wanted them first to go through the community bugs first. And always my fear is that if I start down another path, I will forget where I was to begin with. And so I wanted to stay focused on getting all the pathogens out in the community first and then we can talk about the nosocomial or the pathogens that we see in the hospital. And that is why I did not go ahead and pursue an explanation with her…So that is the way my own mind thinks. I want to stick with the topic.

This statement reveals a role modeling of how she thinks when approaching a patient situation. She guides the students in that same methodical approach.

CP bridging information for the students, from known information to new situation

> **Our preceptor takes us from what we know to what we don't know. There are some things that we learn in class but it all seems new in clinicals.** [Doctoral pharmacy student]

The continued interchange is an example of the CP's drawing in the second student to assist the first student who responds to a question with an incorrect answer. She also attempts to bridge information that the students should have mastered with the current patient situation.

Transcript	Researcher Observations
CP: **OK, N [student named], do you want to pitch in and help?** Community acquired, besides strep. **What is another bacteria that you think you might find in**	Draws in other student to give guidance to first student. **Prompting question**. Continues line of questioning with specific **direct** question asking for factual

community acquired?	information.
[pause where neither student is responding]	
A good way to think of it too think back to the vaccinations that kids get when they are born. There is a vaccine that they get at 18 months. [pause]	Bridge from known to unknown. Part of the mini-lecture to bring in additional information on infant vaccines but it is obscure and unhelpful since students to not follow the CP lead.
OK if that does not trigger your memory, OK [in reassuring voice.]	Recognizing that student does not readily know answer.
Student 1: What about staph?	Answer is not evoked by hint although is community acquired .
CP: Staph could be another one. Yep. **Strep, staph, and how about H. influenza?**	CP's response to the answer is affirming but she chooses to supply the answer and to move on. **Prompting** question with answer.
Student 2: Oh yes.	Student remembers and responds to answer being given in form of a question.

In a subsequent interview, I asked the CP why she chose to give the hint that she did in attempting to help the students remember H. influenza. She sees it as a bridge or a different way of reasoning an answer. She states:

> I want them to be able to think back to other instances to try to tie in another way of finding information so they just don't have to memorize and regurgitate. They can always maybe bring it back to something else that they have been exposed to, to find the answer. There is always more than one way to go about finding an answer.

The teaching sequence continues with the CP and students discussing the microbes with that systematic approach until the topic is fully covered. Once the CP is satisfied that the students have the topic mastered, she bridges the known information to an unexplored patient complication. In the following dialogue, note the CP introduces the topic of UTI [Urinary Tract Infection] and then moves on to treatment regimes. She

also draws in the second student when she realizes that the first student is struggling for recall.

Transcript	Researcher Observations
CP: Now if we get into the hospital acquired, the nosocomial, are you more likely to see more gram positives or more gram negatives?	**Simple question** which is part of CP's approach to methodical and categorical thinking process. [CP stated this in subsequent interview.]
Student 1: Gram negative.	Correct answer.
CP: Good, yes, gram negatives. Good. **And so which one would you think?**	Affirming. Question posed requires factual information but also **opinion and reflection**.
Student 1: I think pseudomonas aeregenosis.	Correct answer.
CP: Yes, that is the one that you really worry about. That is one of the more lethal ones. You are right. Pseudomonas, E. Coli. Yep. And maybe some kleb sella. Would be common. **And if they are UTI [Urinary Tract Infection], what do you think about?**	Affirmation. Mini-lecture. Then moves to probe student knowledge. **Probing question requiring thought**. Moving to disease states.
Student 1: [unintelligible]	
CP: You can have a UTI kind of in anyone whether it be community or nosocomial what.	
Student 2: I think it could be E. Coli in UTI.	Correct answer.
CP: Right, E. Coli in UTI. Exactly. OK. Let's get into treatment. We do not know where this fellow [new patient] came from. **Shall we go back down and see?** OK. Let's go back and see him. Hmmm…room 29, **is it back this way?**	Affirms student knowledge. Since this sequence of teaching is complete, the CP transitions into the topic of proper treatment. CP and students move to patient room.

The CP moves from simple direct questions to factual, probing questions. She assesses the knowledge of the students and directs them in a methodical approach to think back on their classroom learning for application in the clinical situation. She invites the second student into group discussion, directly asking the student to "pitch in and help" when the one student appears to be floundering for the correct answer. She affirms the student in the correct answers but she quickly moves on, ensuring the student can name the exact microbes that is the two different categories of infections. When the student names the correct microbe, she uses this opportunity to give a short mini-lecture and transitions into treatment. Her questions and tone of voice relay a sense of camaraderie, never showing a dictatorial stance or forcing the students on a march through clinics. There is a possible missed teachable moment where the CP does not pursue the uncertainty of her students. Her gentleness of asking, "Shall we go back down and see?" [go to the patient bedside for further investigation] invites their participation.

The interactions contain affirmation of the students by the CP. She is encouraging, supportive, and is aware of the participation level of each student. The CP draws in the student who may be able to give assistance in answers. The CP does give mini-lectures followed by questions and observations. There are pauses and space for student reflection. All of these are part of the teachable moment which will be further expanded in Chapter 5.

Innate sense of timing and knowing

> **So she leads a little bit, gives us a new way for us to actually find the right answer instead of saying, 'OK, this is the answer.' No, she wanted to interact as she proceeds. I like that very much. Because some of the questions would lead us to a point that we remember**

immediately. [Doctoral pharmacy student remarking on the teaching style of his CP]

This CP uses a series of questions as if she were solving a complex mystery, drawing in the students as the drama unfolds through the series of questions and answers. Her innate sense of timing and knowing which questions to ask at what juncture is a leads the students to correct answers. The following transcript illustrates this exact point of the student; the CP guides the students to their own recognition of relevant, known information leading to the answer. The CP and the two students are just outside the patient room on the pulmonary floor of the medical center. The patient's nurse physically moves to become a part of the teaching group when she is drawn in by questions from the CP. The exchange takes place in low tones to protect the confidentiality of the patient. The group is in close proximity to one another.

Transcript	Researcher observations
CP: Oh, is there a medication record under there that I can just grab? Where is his medication record? [Saying this to the nurse. Finding the medical record. Searching through record.] Hmmm…he doesn't have his history and physical record yet? OK. But he did have a medication record. OK. **Did he come in from a nursing home?** That is probably my only question at this point. Nurse: Nursing home. CP: All right. OK. So he did come in from a nursing home. And age. He is 85. OK. So before you recommend an antibiotic, **what are some of the kinds of questions that you want to ask?**	<u>Organizing and orienting. Role model thinking process</u>. CP stating how she would begin process of analysis **Simple question**. Setting stage by question of starting point. Beginning to unravel the mystery. <u>Question causing reflection by students</u>. **Opinion and reflection question**.

Teaching the thought process

> **They need to have a thought process…They need to have a mental check list of what they are going to ask before they start making recommendations. Everyone should. So this is the beginning.** [CP]

The above exchange not only exemplifies timing and knowing what question to use, but it is also an example of the process of analysis and thinking that the CP uses herself in analyzing a patient's condition. She role models that in the first statement and question. She desires the students to analyze their own thinking process by asking about their questioning process prior to their making a recommendation of medication.

As the dialogue continues, the students respond to her question of what they would think about prior to making recommendations. In the following, the CP uses a mini-lecture after ascertaining the thought process of the students and uses this as a spring board for further questions, drawing in a fellow health care practitioner, and bridging previously known information to a new clinical situation.

Transcript	Researcher observations
Student 1: Renal function.	Students respond to "clue gathering."
CP: OK Good.	Affirming
Student 2: Look at white blood cell count	Correct answer
CP: Excellent. OK, the other thing that you can do if you have the chart handy is to look up what other antibiotics they have had before….what bacteria they have had before. OK, that will help you think about what bacteria they could have again. OK? So, OK, MRSA [Methicillin Resistant Staff Aureaus]is the biggest thing, to see if they, so they placed him on Levaquin®. 500 IV q day. OK. As a pharmacist, we want to try to minimize cost. So we think about, "Can we switch him to oral?" Now, there are some pros and cons of switching him to	Affirming Mini-lecture. She has assessed student knowledge and moves into mini-lecture. Part of the teachable moment Gives mind-set of pharmacist. Role modeling. One way to think or

oral. He is a Medicare patient. You may actually have heard this when [resident] was talking to us about Mr. L. [pause for student response, looking at the students]	approach.
Student 1: Uh hmmm.	
CP: Once they switch him from IV antibiotics to PO, Medicare says, "Well, if he can take oral medication, there is no reason for him to stay in the hospital. So you are out the door. **Isn't that right**, [uses name of nurse]?	Question draws in other health care practitioner. CP says she is <u>role modeling</u> interaction with nursing. <u>Inclusive</u>
Nurse: Yes. That is what I understand.	
CP: So sometimes they will have him on IV antibiotics when they first come in sometimes because they really need the IV antibiotics but sometimes too because they may, the patient cannot finish the whole course at home. They may not have that ability. They may be really concerned about having them stay in the hospital and they will put them on IV antibiotics for that purpose. OK? But they put this person on Levaquin. **So what do we know about Levaquin®?** Kinetics wise.	Continues mini-lecture. **Direct, factual** question. Still clue gathering. Way of thinking and approaching
Student 1: The half life?	Student hedges on answer. Masked as a clarification question.
CP: Talk about the bio-availability, of Levaquin® of IV versus PO [by mouth].	Clarification and fuller disclosure of knowledge
Student 1 and 2: It is the same.	
CP: Exactly. It is the same. So if he can swallow, he can be switched. There is a difference in the cost. N, [student name] you work in the hospital. Do you ever have the opportunity to check out costs?	<u>Affirmation.</u> <u>Question drawing in student</u> experience and knowledge from job as pharmacy technician.
Student 2: I do, but I have not done it for some time. So I really don't know.	Bridging previously known information to a new situation.
CP: For the 500 mg of Levaquin®, it is approximately between $150 and $175 per dose. OK?	
Student 2: You mean the IV?	

CP: Hm mm. That would include the nursing time. That is the big cost. **What do you think it might be PO?**	**Reflection** question, rather than simply giving the answer. This encourages interaction.
Student 2: About ½ of it?	
CP: About $10 a dose PO. So it is about 10% of it.	Students register surprise.
Student 2: So Medicare pays for the IV?	
CP: To a degree. Medicare pays a lump sum based upon the diagnosis. OK? If you eat all that up in drug costs, they do not give you more because you have used the most expensive antibiotic. OK? So you really have to think about that. Because Mr. L., when they switched him over to oral Zyvox™, he is not going to be able to stay in the hospital. **He can stay in the hospital but who is going to eat the cost? Who is going to pay for it?**	Way of thinking and approach <u>Mini-lecture</u> **Question arising from mini-lecture**.
Student 2: The hospital.	
CP: Right. As pharmacists, it is our job to treat things in the most cost effective manner so we do not lose so much money. Make sense? OK? Now, he is also on Sinemet®. 25, 250 4 times a day. **So do you know what Sinemet® is**?	<u>Role model</u>. **Direct factual** question.

The discussion proceeds with the students supplying the correct answers. However, in the ensuing discussion, the CP come upon a topic that she thinks is important and wants the students to know in fuller depth. Note that this topic is resolved with her assigning them to look up the information for the next day and with encouragement in their thinking process.

Transcript	Researcher observations
CP: **So do you know what Sinemet® is**?	Direct factual question.
Student 1 and 2: A combination of levodopa and carbidopa.	

CP: Excellent! Good! **And used for?** Student 1 and 2: Treatment of Parkinsons CP: Yes, OK. Tomorrow I want you to tell me why. But first of all **do you know what the active part is?** Student 2: Is it levodopa? CP: OK, for tomorrow, I am not going to tell you. I want you to look up and tell me the active part. Is it the carbidopa or the levodopa? **Why is there a combination? Why is it together? OK?** Student 2: We can tell you tomorrow? CP: Yes, you can tell me tomorrow. You don't have to guess. Student 1: We already learned it. I know Dr.[name of physician] covered that. CP: **It sounds familiar?** Student 1. Yes. Student 2: Oh yes. CP: I will not put you on the spot too much! Student 2: It is the dopamine. CP: **Go ahead. Say**? You are on the right track.	<u>Affirmation</u> followed by direct factual question. **Factual** question, drawing from previously learned classroom material Not putting the students on the spot. **Clarification/challenge** question. **Probing** question. Avoiding student embarrassment. <u>Example of encouragement and encouraging thinking.</u>

How and why did the CP decide to assign this topic for further investigation? Why did she not simply supply the answer? Is this part of the teachable moment to know when to supply the answer and when to pause and have the students pursue a topic on their own

for the next day's report? The CP indicates four ways of making such a determination. [Numbering is mine for clarity.]

> 1. I had already told them enough and it was time for them to look it up. And always when I start the day, I do think that when they leave, they have to have something to be looking up. Each of them should have some homework to do.

Here the CP indicates a plan for the clinical day and for the clinical rotation weeks. The students continue in their study of their patients outside of on site clinical time. In this particular instance, she had guided them through a thinking process, supplying some information. The students needed to solidify their knowledge by going through the process of research and reporting the next day.

> 2. If ever they use the word [phrase] "I think" or "is it", they can't answer things that way. You have to be sure of what you are going to say. If you are not sure of it, you have to say, I am not sure but I can look it up. I want them to always be careful about how they say things because someone is going to come back and challenge it.

The CP wants them to be able to support their answers when they are challenged and know how to research and defend their knowledge and recommendations.

> 3. If I don't know something fully, that's a prime time in which students should look up the information on their own. But believe it or not, I go home and look it up too! Because I have to make sure they come back with the right answer.

If the CP is not sure on some of the information, that is a determining factor for requesting that the student research outside of clinic time.

> 4. The most critical thing that comes out…is patient care. That is the primary reason that I may give the answer. Because of patient care, we may not have 24 hours to wait for the answer. That is the main reason [for determining whether to supply information immediately].

The CP succinctly states the number one priority in clinical teaching and in making decisions in how and what to teach.

> The #1 priority is good patient care. That is why we are all here. That is why you [researcher] are doing this study.

There is ensuing discussion of dopamine and other drug regimes of the patient. The CP continues to ask questions to focus the students thinking process.

Transcript	Researcher observations
Student 2: It is the dopamine.	
CP: **Go ahead. Say**? You are on the right track.	Encouragement. CP urging student to verbalize thinking process. Causing reflection and focus on how to think.
Student 2: I remember. [pausing to remember] It helps not to metabolize before it reaches the brain	
Student 1: It protects the decarboxylase to convert dopamine in the periphery.	Example of students assisting one another.
CP: Very good. He is also on Buspar®….15 mg twice a day. **So do you remember from Dr. [name of professor] what class you would put buspar in? What is Buspar®? What is the generic name?**	Affirmation. Urging recall. Continuation of thinking process. Further information of pharmaceutical. **Simple**, **factual** question.
Student 1: Buspirone	
CP: Buspirone, good. Do you know what class it is in?	Affirmation and then **factual** question.
[Pause by both students]	
CP: Well you can narrow it down because I said Dr.'s [name of professor] class! So you know it is going to be in the psych [psychology] module.	Assisting recall to classroom information. A way of remembering and thinking.
Student 1 and 2: Right, yes	
Student 1: I know it is an anti-depressant. But I don't know. [voice trailing]	This is a wrong answer. Student shows hesitation.
CP: **Oh, is it an anti-depressant?**	Forces thinking and asks for defense of answer. **Challenge** question.
Student 2: I am not sure.	Withdrawal.
CP: Actually, I will take it back. N [name of student], you are right and you are wrong. It is not in that category although it does have some anti-depressant qualities to it. OK. Not a whole lot. It is really an anti-anxiety…it is	Mini-lecture

like the benzodiazepine want to be. But it does not have the addictive potential. OK. So it s an anxiolytic. OK? Alright. So he.. then he's got benztropine. And that is another Dr. N kinda drug. [referring to the fact that particular Dr. taught the drug in her class]	
Student 2: Benztropine.	
CP: Ummhmm. That is the generic name. **Do you know the brand name? What is the most common for benztropine?** Think.	Demanding thinking and recall. **Questions arising from mini-lecture**.
Student 2: Cogentin®.	
CP: Cogentin®. Think of how well-prepared you guys are going to be for the boards. Cogentin. Right. OK. Do you know what its [interrupted by student]?	Affirmation of students
Student 2 Mechanism of action? [finishing her sentence]	Evidence that student knows sequencing of thinking modeled by CP. Student finishes the sentence of the CP.
Student 1: Dopamine.	
CP: You are on the right track. Usually you see it used with anti-psychotics OK, which he is on because it helps temper the extrapyramidal symptoms [EPS]that he might get.	Encouraging. Prompting.
Student 1: Uh humm.	
CP: EPS symptoms…OK now we were, actually I had talked to her about he would be on Zyprexa® and Risperdal® (risperidone) both. That is kinda hard to, let's look at his chart and see if we can figure out is that what he came in taking.	Collegial invitation to think and search.

As this investigation proceeds, the CP continues to urge the students to proceed as if gathering clues, pausing for them to reflect. The CP poses a series of questions, not pausing for an answer to each. The effect is to cause the students to think and then the CP moves into a mini-lecture which gives direction to her students for further study. Her questions are highlighted for clarity. This is an example of her thinking process.

OK so then if you want to see, **what are some of the kind of questions that you would ask yourself to see why he would be on two atypical antipsychotics?** What, where would you look? What kind of things would cross your mind first in your thought process? OK we have somebody on two atypical antipsychotics. Sounds weird to me! I can't imagine why but I would trust that he would have a psychiatric consult or he followed a psychiatrist in the past. That might, there may be a note in there about that so, you could check in and see.

The subsequent conversation of the students and the CP is clue gathering and moving to the resolution of the mystery. It pursues a line of analysis and thinking.

Transcript	Researcher comments
Student 1: Yes, I am doing that [looking for the note in the chart] and I see there is no consult.	Student searching for clues as directed by the CP.
CP: OK, no consult. **But he is a new admit, right?**	CP urging student to think and analyze where to look. Directional question.
Student 1: He was admitted yesterday.	
CP: OK, try looking under the H & P, the history and physical.	
Student 1: There is nothing under there either.	
CP: OK. Alright. But even though it is not dictated, we know there is going to be a physician's note. Somewhere.	Continued clue searching, both CP and student.
Student 1: There is something under consult.	
CP: Consult, Dr. [name of physician] recommendations regarding psychotropic meds. We can also go to progress notes because, remember, they always write an admissions write up, even though. OK, and the doctor's writing can be really hard to follow.	
Let's see. He comes in with shortness of breath, decreased responsiveness. Flushed, temp, confined to wheel chair. Hmmm.	The mystery continues.

The students are absorbed in this dialogue, are actively engaged in the search, and are responding to questions with no hesitation. The juxtaposition of the students and CP is one of closeness, with direct prolonged eye contact. Each is at one another's shoulders, looking through the chart together, turning to one another for facial responses. The CP guides the students through the clue gathering, coming to the resolution of appropriate treatment and drug therapy.

Gauging the level of knowledge

> **I wanted to find out what they already knew. So then if they knew a lot about one specific area, then I wouldn't have to go back and explain it. But if there was an area that I discovered that they didn't know then we could take time later….[I] ask them leading questions to see if they respond appropriately or have a clue.** [CP]
>
> **So she helps us by asking us. Phrases of questions. Like an example…just, a series of questions that surrounds that topic that hint toward that topic. Things that we wouldn't normally think about or associate with that particular subject. And then we eventually get the answer because we know what she is talking about.** [Doctoral pharmacy student]

Much of the mastery of teaching in the clinic area involves asking questions that allows the CP to gauge the knowledge level of the students. The CP uses evaluative and factual questions drawing on the classroom knowledge of the students. When that knowledge level is assessed, then the CP determines the next approach to incorporate that student knowledge, or lack thereof.

The CP poses "Big Picture" questions at a juncture in the clinics just after a patient synopsis or presentation of a topic such as a disease state or a pharmaceutical agent. Questions posed to the students such as, "Your thoughts, solutions?" give free

reign of the thought process. “Is there anything…that you as a pharmacist, that you want to bring up?” is another example of such “Big Picture” questions.

The CP ask questions that verify student knowledge and after determining the student’s level of knowledge, she poses questions that lead to the attainment or exploration of further knowledge and aids the students in their thinking process. One of her students thoughtfully stated:

Some of the questions are direct. And probably would demand some few answers. But she wanted to actually know our thinking process. How did we arrive at that? What were we thinking? What was the theory behind that? So I think that is why she asks those questions.

The doctoral level pharmacy students who were a part of the study at the acute care medical facility both had several years of practical pharmacy experience. The CP knew of this experience and often drew upon that experience and caused them to apply that knowledge to their clinical education. She demanded, however, that they simply not assume the knowledge was correct simply because they remembered it from work experience. Her questions mirrored that demand. For example:

Transcript	Researcher comments
CP: Seizures, in the elderly who cannot clear the drug quickly enough. And that was her diagnosis. There are all these things. She came in for questionable seizures which I really haven’t looked to see if any of these medications could have been the reason for her admission. But she has this chronic pain and then trying to treat her chronic pain with all these things that can lower the seizure threshold and cause more seizures. So she actually has not put her on an antibiotic that causes seizures. Now this antibiotic, is probably dosed too high.	Beginning of mini-lecture CP assessment of medication dosage
Student 2: Yes.	
CP: **You think so? What is a good dose? What do you think?** She is 85 years old.	CP questions student assessment with direct question. **Opinion and reflection** question.

Student 2: I think 500 mg.	"I think" are key words that the CP has identified showing lack of confidence by student.
CP: OK, **are you pulling that out of thin air or is that what you remember from school or?**	CP will not settle for simple answer. Wants justification for answer and wants student to identify thinking process.
Student 2: From experience.	
CP: Oh, OK! I didn't say you were wrong! You just answered it so quickly. I just was curious. Is that what you see at the hospital?	Assuring student she is not challenging his answer, only the justification for it.
Student 2: I see it with older people and usually they are at 500 mg. But usually with the older people.	
CP**: But what is the interval?** We don't see Q 6.	Still continues to push student for full knowledge and justification and thinking process. **Clarification** question.

The above exchange is significant in that the there is far more in the CP's question of simply asking for the correct dose . She is actually asking, "How do you determine the right dose?" She is asking how did the student arrive at his particular answer and for his thinking process. She will not settle for the simple answer offered by the student, "From experience." Also significant is the manner in which she pursues this line of thinking. It is not one of intimidation or discomforting challenges. As the student said when asked later about this interchange:

Interactive with a friendly atmosphere, so there was no fear. Because of that we just came out with ideas and sometimes we thought it was not correct but then it was! Because we do not have that kind of fear in us. I like the nature.

The exchange continues. Note in the following the CP invites the student to work on the computer with her. She wants the student's thinking process and rationalization in the complicated and tedious determinatio n of proper dose. This is what she is driving for and teaching.

Transcript	Researcher observations
CP: We usually see Q 8. Student 2: Q 8? CP: Actually for her, probably Q 12. But we are going to look her up [on the computer] and see. Her renal function can't be any greater than [pause] she is 85. She is a little old lady. She is going to be below 40 mls/min at least. [brings up computer pharmacy program] CP: OK, [student name], why don't you hop in here and tell me or show me where you go or how you are going to find out the dosage in renal insufficiency [student and CP work side by side]	Student and CP in close proximity. Constant eye contact. Continuing looking through chart. CP's thought process of factors to take into consideration for determining proper dosage. Working with student to have concrete example of his thought process.

Just through the doorway within 10 meters of the student, is Mrs. Y, the person under discussion. She is an 85 year old frail lady, whose body is swathed in an over-large hospital gown with white sheets camouflaging her slender limbs. She gives the appearance of delicate lace and her conversation is obtunded by mild senility and confusion of being in alien surroundings. Her antibiotic has been dosed too high. It is the responsibility of the pharmacist to recommend proper dosage. The CP is determined that this calculation will be done correctly, efficiently, and thoroughly by the student. The CP is asking the student to reveal the thinking process for the task. Ultimately the proper dosage must be determined but the important process is that of thinking.

The hospital-based computer is ready and holds the needed information, if only the proper steps are followed. Shoulder to shoulder, the CP and student work through the calculations as the other student observes within view of the computer. Giving guidance, the CP says, "Let's figure her between 21-40 [mls/min which is an indication of renal function]. It is very complicated, isn't it? Take your time and look at it awhile. Look through it."

Notice in the above exchange, the CP acknowledges the complicated nature of the calculation. She does not rush or place pressure on the student for producing the calculations. She stands beside him, ready to provide assistance but gives freedom for exploration and thinking. The dialogue continues in a supportive manner as the CP and students work through the dosing calculations, with the student driving the choice of computer screens and dosing guidelines. The merits of various guidelines are discussed. Neither student has a working calculator and are gently chided for this oversight. The CP says:

> Well, I just looked at her serum creatinine. It is 1.1. And she is 85 years old. So….I think I am the only person with a calculator on board, aren't I? That is what I thought. You guys! Load your pockets tomorrow with calculators! OK [laughing]!

Humor is part of this interchange but the seriousness of the their oversight in being without a calculator is not lost to the students. The following day, they had calculators!

The CP's questions lead the students to know that they must use their good judgment not to accept statements blindly in the charts. In following the conversation, the CP supplies the background of the patient to the students and then asks for them to look up the dosage range given by the dosing guidelines in milligrams per day. The students rotely quote the guidelines, stating, "They [dosing guidelines] just have mild to

moderate." The CP will not settle for this mundane statement and approach that shows no analysis. She immediately challenges the students for more reflective thinking:

CP: **Well, do you think she would be severe**? [meaning classified as severe pneumonia] What kind of things do you look at to determine if she is severe? [asking for clues]

Students: Temperature, her blood count.

CP: OK. Her temperature, she is afebrile and she has been afebrile. Her white blood cells, normal. [CP supplies the answers] OK? [asking for further analysis]

Student 1: So, she is mild to moderate.

CP: OK. **So then where are we at**?

Here is an explicit example of the CP figuratively taking the students by the hands, leading them through thoughtful analysis involving dosing guidelines, patient vital signs, and chart information. The patient's well-being depends upon their thought process, analysis, and follow-through for recommending correct dosages. Students and CP identify this as a teachable moment. They attribute this to their being involved and engaged with the patient, they bring knowledge and understanding of the situation but they were guided by their CP through a thought process that ultimately led them to proper dosing and follow through with the protocol of contacting the physician.

Once the proper dosage is determined by the students for treating the mild to moderate pneumonia, the CP completes the picture by asking if the particular antibiotic is appropriate for the patient since she is prone to seizures. She is directive in stating, "Look at the adverse reactions and tell me what you see." The CP allows space and time for the students to confer and consult various references. She focuses their thoughts in a single direct question, "Does it [the patient's antibiotic] lower seizure threshold?" This is the whole point of the discussion, crystallized in one question. The student response is,

"All it does is lower the seizure threshold and therefore increase the risk of seizures." The CP's enthusiastic, quick response affirms the student's thinking and assessment. "Right, right, right!" She declares. But the situation is not left as is. The CP recognizes the urgency of calling the physician to correct the dosage. She gives this responsibility to the students of researching an alternative drug with the correct dosage.

> You want to give a little background, and then you want to make a recommendation. And you want to be concise and to the point…So you are going to take care of calling Dr. A? And what I would like for you to do, is before you call him, page me with the recommendation so I can hear it first. If you need any help with that, if you have any questions, you can call me.

The CP wants to ensure the students are well-versed and prepared to make the call. She supports them by letting them know she can be paged for help. She leaves them, expecting their follow-up call, with genuine acknowledgement of their hard work. "Good job. Excellent. You are busy today."

Two days later, the students begin their clinical rotation on the same pulmonary floor. Their knowledge of their patients increases with their attendance of physician rounds. The physicians oversee three residents who give synopsis case presentations with review of treatments and medications. The pharmacy students accompany these rounds generally in the observation role but are free to ask questions and to supply medication information. One student shared with me that he learned a format for case presentation simply observing the residents' style and content of case presentations. This is learning by observation.

Thus, that same student was particularly well-prepared, comfortable, and knowledgeable to give a synopsis of a patient he was following for several days. The CP

starts with a big-picture question. This scenario occurs at the beginning of the rotation, just outside the patient room on the pulmonary floor of the medical center.

Transcript	Researcher comments
CP: **Do you want to give a little quick synopsis of your patient please?**	Outside patient room. CP sitting down at patient chart. Good eye contact with Student 2. As student begins synopsis, CP flipping through chart. All students near student giving synopsis giving good eye contact. As synopsis proceeds, nurse in an out of the room two times assisting with breakfast.

The student refers to notes he made and gives a monologue of the patient's condition, treatment regime, and drug therapy. He fails to mention the patient's stroke which is one of the chief complicating issues of the patient admission. The CP swiftly identifies the omission and questions him on this. There are a series of short questions.

Transcript	Researcher comments
CP: **So what about this stroke?**	**<u>Transitioning and focusing</u>** question. Glances up at student but returns to review of chart while waiting for answer from student.
Student 2: It was a stroke and the MRI indicated a blockage in the left artery, an abnormal flair image on right temporal lobe. [This is stated confidently and eagerly.]	
CP: **Did anybody witness this seizure? Was anybody with her?**	**Probing, clarification** question. CP emphasizing important medical question. Student failed to consider. Eye contact. CP still sitting. Questions put succinctly, quickly, but in a non-threatening manner.
Student 2: Actually I don't know. Actually no, but that was what they were looking for, but I think they rule it out. Plus it is not uncommon, depending upon the kind of medications that she was on, it can be drug induced. Because she was on 3 medications. These have an increase in seizures. The are the Imipenum. The ultram, and the flexeril. These all increase the risk of seizures	Student changes answer, realizing he is unsure of this. CP identifies and zeroes in on this uncertainty.

so it can be drug induced.	
CP: OK, good! OK. Let's back up. **So, what was her main problem that we are looking at?** **OK, for the main problem coming in**?	Eye contact with student. Glances back down at chart waiting for answer. Redirecting focus. Zeroing in on main issue. **Clarification** and focusing.
Student 2: Her main problem was weakness in the left side of her body.	
CP: So, CVA [Cerebral Vascular Accident]	CP names and gets to the point.
Student 2: That was what they were trying to find out. It was a question.	
CP: **Questionable CVA?** **So is she on coumadin at this point?** Student 2: They put her on coumadin.	CP names and focuses. Transitioning and **factual** question moving from diagnosis to treatment.
CP: She is on coumadin now? OK. Then, she had. [pause] **What was her second problem?**	CP still sitting. All three students have eye contact with one another. Confidence still exhibited by presenting student. CP question leading student through complicated case.

The CP continues to lead the student through a series of questions to ascertain his knowledge and grasp of the illness, rationale for the medication regime, and most important issues. She needs and wants to know how much the student knows about the microbe causing the illness as evidenced by her statement and follow-up question.

First of all, let's back up and talk about the citrobacter fundi. Let's talk about the choice of the antibiotic that the resident made. What do you know about imipenum?

Based on the student answer, she came right to the point of giving a mini-lecture on the proper medication as well as dosing guidelines. All this was presented within a minute's time. She focuses on the critical issue. She affirms the difficulty of grasping all this by wrapping up her statement, "So it can be complicated to look at the actual dosing

guidelines." She pauses for student response to her mini-lecture. Receiving affirmation of understanding, she continues to cover the qualification of dosing drug guidelines which is pertinent to the patient.

Realizing that the student did not cover the microbe itself despite her request, she asks the direct question, "What do you know about citro bacter fundi? Have you looked up anything on it?" The student response is honest and to the point, "No I haven't. I don't know much about it." The immediate statement of the CP is one of teasing and engagement, disarming the student with her laughter but driving the point home of how important this knowledge is.

CP: N____, N_____, N_____!! [name of student in a teasing voice] You are the pharmacist. She is dying! [use of humor] What do you know about centrum bactra? Is it gram positive or gram negative?

Student 2: Let me take a chance. I think it is positive

Student 1: Negative

CP: Listen to your cohort in crime. Is it gram positive or gram negative?

Students 1 and 2: Gram negative [correct answer]

The point of this section of the clinical rotation is successfully concluded by the CP using humor, discernment of the student's level of knowledge, direct questioning approach, and the creation of an atmosphere free of fear of making a mistake. The students are willing to admit what they do not know and are willing to take a chance. In this same sequence of teaching, a lively dialogue continues between the CP and her two students as the CP switches the topic to another antibiotic and its compatibility with a blood thinner, Coumadin®.

Student 1: Cipro®, can't you use that?

CP: Because?

Student 1: Because of the Coumadin®.

CP: Can you use Levaquin®?

Student 1: YYYeeees. [said very hesitantly indicating student was not sure of response]

CP: OK, so what did you guys end up finding out about that?

[students pause so CP asks another question, leading]

CP: Cipro®, Levoquin® vs. Coumadin®. Why can some quinalones be used with Coumadin® and others aren't?

Student 1: Ahm, oh, I don't know. That was a while ago!

CP: Yes, that was a while ago!

Student 1: I don't think I found a reason [voice trailing].

CP: The exact reason [voice indicating leading on for answer]

Student 1: Then but Levaquin® isn't actually part of it. It doesn't affect Coumadin®. There are two different isomers on Levaquin®.

CP: Oh, are there two different kinds of isomers on Levaquin®?

Student 1: There are two. One is in Cipro® and the other is on Levaquin®.

CP: But you are going to know this by?

Student 1: In a month or two! [laughing]

The CP exhibits collegial learning, admitting in her interview later that she was not sure of this fact. Humor is an integral part of the direct questions and engagement between CP and students.

Use of Humor

> **Humor, laughing. You definitely need to have that. Especially in a teaching environment where you can relax and be able to joke around every once in a while. Dr. [Name of CP] has a wonderful personality**

> **and that is one of the things. We love being around her. You have to, if the person does not have a sense of humor, doesn't laugh, it is hard to learn from that person. It is hard to be around them. It is hard to communicate with them. I think it is actually a really [valuable] aspect of our relationship. [If there is no humor] I just wouldn't be able to open and be able to say my thoughts as easily or ask questions.** [pharmacy student when reflecting on her clinical rotation]

Sometimes direct questions lead to stalling and hedging by the student and subsequent change of approach by the CP. The following is the next sequence of teaching which contains first, a direct question, which evoked a student "stalling" question, which leads to CP humor, which leads to CP giving prompting questions. All of this teaching sequence is then interrupted with the appearance of a family member arriving at the patient room.

Transcript	Researcher comments
CP: OK. For her renal function, **is that a good pneumonia dose?** [student pauses in answer so CP asks another question] **What are the guidelines, say, to use?**	Direct question
Student 2: For pneumonia?	Stalling by student.
CP: Uh huh.	
[long pause while waiting for student response]	
CP: N__ N__N___ [student name in a teasing high voice]	CP reaction to stalling is one of humor.
Student 2: [smiling and conferring with Student 1] We found out yesterday!!!!! What did we arrive at yesterday? What did we agree on yesterday, the doses? Remember? [saying this to Student 1]	Student trying to remember answer and he turns to his fellow student for help.
Student 1: For her?	Stalling.
Student 2: Right. [pause] remember Dr. Dixon?	
CP: I bet she looked to you for the dose, didn't she? [pause] Did she look to you guys for the dose?	CP covering for the students.

Student 1: I think Dr. A said the dose. I don't think that she asked us the dose. She asked us what medications. CP: OK. Good morning [to family member coming on medical floor] [pause] Do you know that gentleman? [discussion about jogging while students looking and working on dosage and indications]	Saving face for classmate. Also, clarifying. Interruption of teaching. CP allows time for students to work.

Once the family member has been greeted and welcomed, he enters the patient room and discussion continues between CP and students. The CP questions are geared to providing guidance for various references that the students find helpful in tackling the questions asked. This sequence of teaching culminates with a mini-lecture by the CP first punctuated with the attention grabber of, "OK? So those are important things to remember."

The use of humor by the CP and her corresponding questions

> **I think it [humor] is a very great tool because it eases a lot of stress and all those stuff. And we do that to release a lot of stress which I like and I think it helps us a lot. Plus, it keeps us in unity. It keeps us in unity because there is no animosity, no…I don't know what to say about it. All I say is that it makes the environment very very conducive for us to study.** [Doctoral pharmacy student]

Laughter and appropriate humor is an integral part of this clinical rotation. The amount of stress and tension that is imbued in an acute care hospital setting can be numbing and debilitating for patients and health care workers. The CP incorporated well-timed humor and laughter in her teaching, serving as a de-stressor and aiding in recall. The following dialogue about a patient who had his foot amputated incorporates humor but protects the dignity and care of the patient as well as aiding the student in recall of an illusive important medical term.

Transcript from medical center	Researcher comments
CP: What do you see on flexoril?	Leading thought question
Student 1: Is it TID usually or BID?	Student clarification question. Student could have supplied this information.
CP: Usually 4 times per day it is needed.	
Student 1: Oh, OK.	
CP: So once a day makes you wonder what it is being used for.	CP inviting reflection.
Student 1: Usually it is used for his foot.	Student supplying the information.
CP: Ahmmm, used for his foot.	CP digesting the student supplied information.
Student 1: But he doesn't have one.	Emphasizing the absurdity o a medication for part of the body that doesn't exist.
CP: Used for his foot that he doesn't have?! What is that called when someone? [voice trailing up].	CP recognizing the humor and then asking medical related question. Using the moment.
Student 1: Um, you told us the other day…invisible foot syndrome or something or?	Student reaching into memory, recall.
CP: When they are missing a limb but that still they may have pain?	CP giving clues for recall.
Student 1: Phantom limb.	Remembering proper term.
CP: Phantom limb pain. Yes, good job.	CP affirmation.
Student 1: I was thinking about ghost or something! [laughing]	Continued humor.

The CP uses humor, creating laughter during the clinical rotation when she acknowledges one of her pharmacy student's special study and inquiry into the disease of diabetes and related medications. Student 2 took on the special assignment of preparing a lecture and presentation for physicians on the new diabetes guidelines and pharmaceutical agents. This required considerable time and effort. The CP recognized that effort and knowledge of Student 2 when a complicated case became part of the clinic rotation. The CP and student were discussing the ability to gain better control of a diabetes condition. The CP states:

> We discussed starting rosiglitazone versus glipizide. [turning to student 2, she states the following] So, what things do we think about, as our diabetic expert, who-is-going-to-be-very-soon?

This new title, "diabetic expert, who-is-going-to-be-very-soon" created much laughter and Student 2 stood up tall and straightened his lab jacket in mock self-importance. His verbal response was, "Wow! [laughing] Wow! Well, I think…I would think about age, and then, his medical history. The CP responded with an affirmation and then a "Big Picture" question. "Exactly! What big things do you want to look at?" The dialogue proceeds with increasingly complicated dosing questions, correlations of lab values, vital signs, and prognosis. The student rose to the occasion of being able to field difficult and complicated patient condition questions.

The CP incorporates humor by being willing to poke fun at herself. At the end of an involved teaching sequence of questions, researching through a patient's chart, consulting with computer-based programs, the CP posed a theory as to why several patient laboratory values were out of predicted range. One fact she came across dispelled

her theory. Rather than trying to over-rationalize, she simply stated, "Well, shoots that theory!" which evoked much laughter.

Demanding confidence

> **Sometimes students will, as we all do, get the right answer, but after [they] say it, [they] don't say it with that air of confidence. You are not quite certain you have it right. [laughs] Yep! That is trying to teach them to feel confident when they are right. To know they are right.** [Statement by CP at medical center when asked about listening to her students.]

How do CPs teach the students to feel confident? Are they successful in doing this? Is this a part of their mastery?

The CP asks:

CP: So in the community, what [type of pneumonia] would you expect to see? Or the most likely?"
Student: I think you would see a lot of strep pneumonia. [said with hesitation]
CP: OK. Strep pneumonia [stated with encouragement, upswing in voice]
Student: Maybe. I am not very sure.
CP: No, you are right! Strep.

The student had the right answer but did not have the air of confidence that the CP desired for her student. What did she do to instill that confidence in the student? Her immediate response is one of affirmation and confirming that the student was correct in his answer. She realizes this is an area that needs review and fuller information. The CP turns to the accompanying student, inviting her to "pitch in and help." Here is a juncture in which the CP could have encouraged divergent thinking if she had asked the student

why he was unsure of the answer and why he chose the answer he did. Instead, she turned to the accompanying student for help. This could possibly be viewed as missed teachable moment. The CP knows the curriculum and that the subject matter has been covered in class. This is one of the first times the students actually see the subject matter as a case, with a living, breathing patient with whom the students have established a relationship. Rather than giving a mini-lecture, she draws the information out of the student by a series of leading and directional questions.

I asked the CP how she assisted the student with recall of information that is covered months ago in coursework which needs to be applied in a clinical situation. She declares:

> They [the student] do it really. They are actually the ones who pull it out…[T]he right questions get them to think back.

I asked her to reflect on the kinds of questions she uses and in what circumstances. She has been teaching for so long and her teaching comes so naturally to her, she indicated that she truly was not aware of any special way of questioning or that her questions changed throughout her teaching. She reduced her questioning to the narrow and simple statement of, "Maybe I ask the right question to get them to think back." However, in observing her during her clinical teaching, she was usually able to direct her students with an effective questioning process. She candidly shares with them how and when she was a novice to the profession of pharmacy as new student and how ineffective she was at gathering information. Her questioning now elicits more truthful answer from the patients.

> CP: So when I first got out of [my clinical training I would ask the patient or client], "Do you drink? Do you smoke?" Now I go around and say "How many drinks a week do you have?" I don't even give them the option to tell me yes or no.

Student 1: Right. CP: So when you go in, you could just say, "How many cigarettes a day are you smoking?" rather than saying, "Do you still smoke?" Student 2: Direct approach.

The CP's questions to the students reflect the knowledge that the CP has of them.

> **It is almost like she knows our thought process. It is almost like she knows what we are thinking. She knows what she needs to say for us to get one more step, one more step. You know, like helping a baby to walk.** [Doctoral pharmacy student]

The following set of data support this insight of the student on his CP.

Throughout the clinical rotation, students follow patients who are admitted to the acute care medical facility. The students become familiar with all aspects of case history, prognosis, and treatment regimes as well as the daily rounds of physicians and health care practitioners. Often the CP asks for a quick synopsis of the patient. In one such teaching sequence, the student adeptly reports a complicated case history, treatment regime, and with less than her usually polished presentation style, reports on the patient's medications simply by stating, "They started her on Cipro® [antibiotic] yesterday. She is also taking, well, she has a penicillin allergy and she is on a lot of medications." Finding this to be too broad a statement, the CP questions the student further.

Transcript	Researcher comments
CP: What medications is she on for her high blood pressure at this point?	Directional questioning by CP.
Student 1: She is on Zestril®, ACE inhibitor, she is on nifedipine.	Correct answers
CP: OK. [pause while thinking] Is she on a beta-blocker? She had an MI, so remember post MI we make sure they are on an ACE inhibitor, beta-blocker.	Directional questioning, forcing student to remember what she knows

	already. No need to pursue this information since this is known by students.
Student 1: Yes, they put her on Toprol XL at 50-mg q.d. CP: No. It looks to me like N [name of student 1] she is on nitro-paste and Imdur both. What do you think about that?	Correct answer. This is a beta blocker.
Student 1: How often is the nitro-paste, qid? Q6 h?	Student answers question with a question.
CP: Q six hours, Imdur is once a day. You think there is any reason to have both of those? I mean, what is indur? Let's back up. I know you know this.	CP knows the student knows! This could be seen as a put down by the student but student takes this as a compliment and motivator. [indicated in subsequent interview]
Student 1: Nitrate, for atrial fibrillation. CP: Yeah its nitrate and nitroglycerin paste is a [interrupted by student who gave correct answer].	Correct answer.
Student 1: Nitrate. CP: Nitrate. Student 1: So she is on two nitrates, so there's probably not a reason to be on both.	Bingo! Student gives answer!
CP: Right. So why don't we leave a note, and probably what happened, is they started, I'm sure if you look back and you go back to when they ordered the Imdur, you will find that they ordered the Imdur, but didn't put down to D/C the paste and that happens a lot.	Resolution.

So, what is the thought process that the CP is trying to get the student to go through? In response to this question at a subsequent interview, the CP states:

This is an example of guiding the students through the thought process. …I want her to take each disease state, state by state and come up with those medications. If the student

just starts trying to rattle off the drugs, it doesn't mean nearly as much as if they try to put them in a class, categorize… I want them to be thinking the process through and they can rationalize out an answer and not just regurgitate the information.

Use of questions for collegial learning

> **My thinking is of course, two or three people work as a team. I am a team player all along. I try to portray that kind of team mentality over here. I think we learn a lot from each other in the sense that we are supporting each other as well as sharing ideas and information. If I don't know, [my colleague student] knows. If we don't know, Dr. [CP's name] comes and helps. I think that is a very good positive way of interaction among students and faculty and then learning. So, I like that.** [Doctoral pharmacy student]

The CP's teaching approach and questions are not simply unidirectional, geared toward one student. Although the questions are direct, the CP remains very aware of other participants and students who are an integral part of her learning environment. She incorporates all participants in the learning environment, calling them by name to invite their participation and contribution of their recall and knowledge. For example, the CP identifies a pharmaceutical in a patient's chart and asks which disease state the drug would help alleviate. The student answers "Gastoparesis?" in a questioning voice. Notice in the following exchange, that the CP asks her 2 pharmacy students to give more information about the condition. When they could not, the CP drew in the nurse practitioner student for her input with that student providing the correct response.

CP: When you talk about diabetic gastroparesis, what exactly is that? What did you learn that it was? [pause by students in answering. So CP prompts by asking another question.] What is that?

Student 2: Do you have an idea? [talking to 2 other students]

CP: [addressing nurse practitioner student] K [name of student], you can [encouraging her to speak].

Nurse practitioner student: Isn't it when you don't have your motility due to the diabetes because the diabetes inhibits the motility? CP: Right! The nerve endings and the neurons are gone. [nurse practitioner student continues speaking about bowels] Nurse practitioner student: There is a paralysis of the digestion. CP: Right! Exactly!

In this exchange, there is collegial learning incorporating all the students and their knowledge base. The beauty of the timing of the CP in drawing in the nurse practitioner student is further evidenced by her continuation of this learning experience. In talking with the two pharmacy students after this clinical day, I asked them what their reaction is to having another student with them in the rotation. They both responded that they found it helpful to have the insight of another health care practitioner. They registered surprise that the nurse practitioner student knew so much about the medications. They also stated that they knew they would be working with nurse practitioners once they graduated from pharmacy school and were glad for the opportunity to work with such a student prior to graduation.

In this clinical sequence, the CP does not change topics. The CP recognizes the knowledge of the nurse practitioner student and further explores the topic by pursuing drug usage and the medical condition of stomach stasis. The nurse practitioner student continues to offer a greater detailed explanation of the condition by stating, "There is a paralysis of the digestion."

Transcript	Researcher comments
CP: Right! Exactly! You don't move things through nearly as fast. It is a stomach kind of stasis. And so what medication group do you think would work, that you would use for that?	Question building on topic

Nurse practitioner student: Something to stimulate the motility.	Student response
CP: Something to stimulate the motility to help move things along. So a pro-motility agent? So what is the agent? It is a teeny tiny class.	Prompting for specific pharmaceutical class name.
Nurse practitioner student: Lomotil®?	Wrong answer
CP: Ah! [indicating a negative reaction to answer] Lomotil® is used for?	Building on the wrong answer to eventually get the correct response.
Nurse practitioner student: For constipation?	Another wrong answer
CP: No.	
Pharmacy students: Oh, diarrhea.	Other students helping and participating.
CP: OK. Good. [in voice encouraging more thinking and answering evidenced by further discussion on the part of the students.]	Encouragement and affirmation by CP.

The CP continues the line of questioning until the proper agent is named by one of the pharmacy students.

During the following collegial learning interchange, the discussion centers around a patient who has an infection and has subsequently been placed on a regime of antibiotics. This short interchange is an excellent example of four abilities of the CP during the collegial learning process. They are:

1) The CP's using a student's incorrect answer to get her point across
2) The CP's timing and use of a mini-lecture
3) Reflective questions posed by the CP
4) Affirmation of the CP for her students.

Note the positive manner in which the CP provides the correct answer to the student's incorrect response.

Transcript	Researcher observations
CP: So, what day of treatment is he on for his antibiotics?	
Student 1: He came in on the 11th I believe.	Note: incorrect answer given by student. Student gave the date rather than the day # for the treatment.
CP: OK	
Student 1: He came in on the 9th actually. Does he have an IV [asking the other student]? Yes, thank you.	
CP: Alright! Another good thing when you are following antibiotics is to keep track of the day. Like this is day 4 of antibiotics, this is day 5 of antibiotics, so when you are on rounds and the doctor says, "Well, how long have you been on this antibiotic." Then you can say, "This is day whatever." OK? That is a good role for us. But also, K [nurse practitioner student] they have him on Levaquin® 500 IV. And N [name of pharmacy student] why don't you explain why it is important to switch him over to PO? And why with this particular drug, is this levoquin? …..	It is here that the CP corrects the student. Pulling in nurse practitioner student.
Student 1: Because the IV _____there is no difference. And PO [by mouth] is cheaper.	Pharmacy student provides information to nurse practitioner student.
CP: Yes. It is cheaper. Right. That is a good reason. So he is on day 4? This is day 4? But he still has a temp, doesn't he?	CP referring back to her point of knowing the day # of treatment.
Student 1: Yes. He still has an axillary of 99 to 100. …. They don't know what organism it is and they are treating him with levoquin.	The mystery.
CP: Well, that is a good point. This is day # 4.	
Student 1: Yes.	
CP: He is not really any better. We do not have an organism.	The mystery.

Student 1: Um Hm..	
CP: At what day would you think you would see an improvement, if you don't see an improvement by?	Inviting reflection.
Student 1: Maybe by day 3	
CP: If you don't see an improvement by day 3, you would look at something else. OK? We don't have a culture. We don't know what to do. But we do know that levoquin, just because it is a new antibiotic, quinilin, that it still has a resistance to it, of various organisms, so it is possible they are on something that is resistant. So, what do you think we should recommend? What do you think we should do?	Stating the facts, as clues to the mystery. Inviting reflection.
Student 1: Recommend a sputum culture?	Correct answer even though it is in question form.
CP: OK. So we do a sputum culture and he has been on levoquin since day 4. Is there a problem with that?	Problem solving question.
Student 1: You have to wait for 24 hours.	Correct answer.
CP: Why? [pause for student response. After several seconds] Wait until what?	CP wants to know rationale and line of reasoning.
Student 1: Until the drug is cleared from the system.	Correct answer.
CP: Why?	CP will not settle for quick answer. Wants to know how much students know.
Student 1: Because [long pause]	
CP: You are right, you are on the right track.	Encouragement.
Student 1): The bacteria would probably be suppressed from it.	Correct answer.
CP: Perfect! Yes, yes, exactly right!	Affirmation

The aspect of collegial learning is best summed up by a pharmacy student who emphasizes working as a team. She eloquently and simply states it all by observing:

> It is kind of like a circle of interaction. You learn from all, and each other.

What made the collegial learning work? The CP states:

> We all click, and we all understand it! You need a lot of practice. If you get along with others in an environment like that, it can work.

Throughout the interaction of CP and students, there are numerous questions posed by the CP. Students question each other and the CP. Excerpts of the transcripts illustrate at least nine types of questions often beginning with factual questions from the CP in an effort to establish the knowledge base and understanding of a student. Depending upon the response of the student, the CP's own knowledge base, and the restraints of the clinical environment, the CP either poses additional questions, gives a mini-lecture, engages in collegial dialogue or research, disengages herself to give the students time and space for reflection or work, or moves to a different topic. Despite the type of question, the underlying focus is to increase patient care and knowledge base of health care personnel. And yes, questions are even posed by the student to save face and for stalling to gain time for thinking and clarification.

Topic 3 – Change of Topic During Clinical Learning Experience

The pace of teaching during a clinical rotation may seem frenetic to the outsider with a constantly changing environment of health care professionals, visitors, patient conditions, and demands of beepers. Topics covered during a clinical day may not be

able to be planned ahead of time. Students and CPs must remain open to patient conditions and learning opportunities that present themselves. But the skill of the CP brings an order to the seeming chaos and resolution to topics covered during the clinical day. There is a progression of teaching and accumulation of learning as students encounter and care for their patients and clients.

The literature is bare of qualitative studies of pharmacy doctoral level clinics analyzing how and under what conditions topics proceed and change during a clinical teaching day. The rhythm and pace of the teaching process, however, is dependent upon the interaction of CP, students, and their environment. Is it the CP, the student, the changing environment itself, the limits of time, and interplay of all these factors that drive the change of topic? The change of topic can be a natural flow and progression of the discussion following a methodical and systematic thinking process. It can also be an abrupt change with seemingly no logical progression. Are the teachable moments a part of the way of knowing of when to change topics, when to pursue the current one, and when to follow the ensuing flow of topics or ideas?

On the clinical rotations, there is no space that the CP or students could call or claim as their own space. They work and learn by the patient bedside and just outside the patient room where the medical records are located. Students literally juggle clipboards with clinical notes, stethoscopes, palm pilots, dosing guideline manuals, and journal articles pertaining to clinical topics. The actual location of the exchange of ideas, examination of patients, and participation in treatment regimes have tremendous variation. The CP is aware of the students' focus and level of engagement. It is the CP

who principally drives the topic change but, the students bring their own knowledge base, interests, and levels of engagement which drives the topic change at times.

The following sequence of teaching is eloquent in its fluidity and its operation on multiple levels. The CP is aware of the patient and the patient's condition, the interchange with the students, and the intervention and movement of the other health care practitioners.

The CP and students discuss a complicated patient case. The two doctoral pharmacy students have been following this patient for about one week and are intimately familiar with the case history. In addition to the two doctoral level pharmacy students, the CP also has a master's level nurse practitioner student who is participating in this clinical day of teaching. Each student has his or her own knowledge base and experience. The CP introduces the topic, opening the discussion of the patient by way of introducing a manner of organizing thought and approach to the patient. She states, "We want to look at. [pausing] What else, students, do we always look at as a pharmacist?" The pharmacy student immediately replies, "physician orders." But the CP has one answer in mind. She acknowledges the student response but introduces her own line of thought. The following interchange transpires:

CP: And the lab work.

[turning to the lab work in the medical chart]

Look at the potassium. It is our goal as pharmacists to make the medications dosed appropriately. You have an 80 year old….. [student interrupts CP with the lead that the CP gave. The following response is correct and the one that the CP hoped to evoke.]

Student 1: Renal function

This is the point that the student is drawn into the discussion and interrupts the CP with the answer of the lab work that must be analyzed to ensure proper medication dosage. The student receives immediate and enthusiastic affirmation from the CP.

CP: Renal function. Exactly. You always want to scan the creatinine. His creatinine is 1.0. He is 80 years old. So do we think his creatinine clearance is going to be below 50? 40?

Student 2: Yes, below, say below 50.

CP: And what is that good rule of thumb that you can kind of do quick? Just do 140 minus his age.

[students working formula out loud as preceptor goes over the rule]

And if you use the weight, you have gotten the 1. So if you use, if you have the weight, and the 72 will cancel out,

[students still calculating out loud]

So, he's down to what already?

The students continue to work on the formula, calculating the correct answer. The CP invites the students to reflect on their answer, not just to analyze if it is correctly done but urges them to another type of thinking; that of reflection on their responsibility as pharmacists.

CP: OK. So looking at his medications, is there anything that we are worried about renal dose, the adjustment and renal insufficiency that he is on right now? That the physician should see?

The students refer to their palm pilots for dosage specific guidelines for this particular disorder and after conferring with one another, they conclude, "We don't have to adjust anything." The CP concurs, "Probably not." This teaching sequence has come to a conclusion with the students calculating the correct medication dosage and confirming

that the lab values for their patient are within a normal range. The CP guides them through calculations, reflection on the results of those calculations, and ultimately to the ramifications of their actions.

It is at this juncture that the CP sets the framework for remainder of the teaching sequence in her next musing sentence. She sets up three goals [my underlining] in the simple sentence, "It would be interesting to find out why he came in taking the levoquin [drug under discussion], how many days he has had, and how many more days he is going to need." This is her thought process. The CP does not assign the students to explore these three questions in a dictatorial manner but invites their participation by working together with her. "Let's see if we can tell from the Progress Notes." All three students and the CP explore the medical record in a collegial manner. These three particular questions never get answered. The exploration and subsequent discussion of the Progress Notes lead to a different topic path, directed by the CP. She opened the door for possible topic change from her original three questions, by next directing the students' attention to the patient medical record and saying:

CP: OK they are ruling out a PE [pulmonary emboli] because he was alkalotic plus lung mass, ooo. He does have a lung mass as seen on chest x ray! [reading from the chart] "Bio [biopsy] is negative for PE. Plus left lung mass as seen on chest x-ray. Diabetes, chronic UTI. Blood sugar, 300. Will need better controlled. Will discuss starting glitazone [slang term for thiazolidinedione class of drugs] versus glucophage versus increase in usual dose of insulin to meet total needs." Something. Because now he is taking 50 units per day, about. OK, here's our role. He is a diabetic, with peripheral

vascular disease, chronic UTI, and they are looking for better control. We discussed starting rosiglitazone versus glipizide. So, what things do we think about?

The students responded readily to this "Big Picture" question and topic change involving the same patient. They began listing conditions they would think about with regards to the two drugs the CP mentioned. With each condition the students mentioned, the CP questions as to why they choose that condition and how they would go about monitoring the condition. For example,

Student 2: I would think about age and then, his medical history.

CP: Exactly! What big things do you want to look at?

Student 2: Because of the, I mean, if he had hypertension…I would want to put him on something that would keep the fluid in proper balance.

Ultimately, the student makes the following suggestion. Note the affirming response of the CP and her taking the opportunity to expand on the clinical knowledge.

Student 2: Right. So, I am going, I would probably consider troglitazones.

CP: OK

Student 2: Because it cannot retain fluid.

CP: That is true, they can worsen if someone has edema, CHF [Congestive Heart Failure], COPD [Chronic Obstructive Pulmonary Disease]. They can cause fluid retention, especially in the elderly. So that is right.

The CP invites the student for further reflection, even though he has supplied the correct answer. She next asks, "What other options? Because we want to keep him on insulin so we are looking for something to go with the insulin." Her leading questions begin to bring this topic to a conclusion. Her questions are very specific.

Transcript	Researcher comments
CP: What about metformin?	General question to see where student is leading with this statement.
Student 2: Metformin is very good.	Non-specific answer.
CP: Would that be a, something to consider?	Direct question requiring little reflection with supportive evidence.
Student 2: Yes, I think so.	
CP: I mean, can you use it with insulin?	Very leading on part of CP.
Student 2: I am not sure. [turns to confer with student 1]	
Student 1: I thought the met? [interrupted by CP]	
CP: Metformin. Can you use that with insulin?	Continued leading questions.
Student 2: They all have different mechanisms of action.	
CP: You are right! They do have different mechanisms with them.	
Student 2: Yes, and this, I think metformin, synsatizes insulin or what?? [voice going up to indicate question]	
CP: Metformin decreases the liver production.	Appropriate addition to student thinking which keeps the thinking going.
Student 2: Right, right! [enthusiastically]	
CP: It kinda of inhibits the gluconeogenesis. OK? So it kind of backs that out. Yes, it works differently.	
Student 2: It works differently. Ah! That is the reason why you can use both. Unless there is any drug interaction involved.	Indicates student understanding.

This interchange ends with the "Ah-hah" response of the student who literally exclaims, "Ah!" when he realizes the answer and finally sees where this line of questioning leads. The student transforms the response of the CP into his own thinking and words by saying, "It works differently. [pause] That is why you can use both."

The CP makes one final point about the drug, metformin. Her last question is as follows:

CP: Well, what is the big thing you worry about with metformin?

Student 1: Lactic acidosis

CP: Lactic acidosis.

Student 2: Lactic acidosis and then ah.

Student 1: Renal

Student 2: Renal failure

CP: For someone who has very brittle COPD or very brittle CHF, you really wouldn't want to put them on metformin because they are already prone to lactic acidosis. It is actually working like that.

Student 2: Yes.

CP: But I don't think that is happening at this point.

This last interchange before the change of topic is significant. It is reasonable to introduce a new topic at this point if there is full understanding by all the students. The CP has made an extremely important statement regarding putting the patient on a medication if they have certain conditions. It is her assessment that the patient does not have these conditions so it is justifiable to place the patient on the medication. She says, "But I don't think that [patient experiencing the conditions] is happening at this point."

She has the full attention and participation of the student. She has the knowledge of the medications, patient conditions, and involvement of the students. But is it obvious and clear that the students understand her statement? Is she assuming that they understand the gravity and rationale for her assessment? This is a missed teachable moment which will be further explored in Chapter 5.

The next sentence in the interchange is a topic change initiated by the student. Even though it is a topic change, it is a natural flow of the previous discussion and progresses to what else the student would consider in evaluating the patient condition and lab values. The CP immediately responds to the topic change as evidenced by the following interchange.

Student 2: Another thing that I would consider would be the creatinine level.

CP: OK, his creatinine level is?

Student 2: It is up to 1.

CP: And what is the cut off?

Student 2: The cut off is 1.2? or 1.5.

The first sentence in the above exchange changes the topic to a patient lab value and the ensuing discussion centers on this topic change. The CP steers the discussion back to the drug, metformin with staccato type questions:

CP: OK. Good. Um, do we have to worry very much about hypoglycemia with metformin?

Student 2: No.

CP: Right.

Student 2: No, you do not have to worry.

CP: Does it help with.?

Student 2: It helps with um. [pause]

CP: Which one effects your weight? Does metformin decrease weight or increase weight?

Student 2: It does decrease weight.

CP: Does sulfonylurea urea increase weight / decrease weight?

Student 2: It will increase weight.

CP: Right. Which one has a positive action on the lipids?

Student 1 and 2: Metformin.

CP: OK. We don't know what those lipids are.

Student 2: No.

The CP resolves the topic by assigning the patient to Student 2 for a case study. Note in the above exchange, there is an unresolved issue of not knowing a lab value of lipids. Due to being pressed for time, the CP assigns this research to the student for further evaluation and presentation the following day on clinical rounds.

At this juncture, the pace of the CP seems to quicken as she begins to look at her watch more often than the beginning of the rotation. In asking her in a subsequent interview if my perception was correct about the change of pace, she acknowledges that she must move to round a certain number of patients. At this particular juncture, she sensed that she needed to move her students along. Her thoroughness and attentive approach to her students and patient care, however, remained constant.

The group moves en masse to a new patient. As a way of introduction to this topic, the CP turns to Student 1 and asks a big picture question of, "Why don't you give a little background on Mr. A?" The student gives a three minute synopsis to which the CP

responds in an encouraging, affirming, manner throughout the presentation in her eye contact, her attentiveness in body language, and nodding. The student is confident in the presentation. The CP responds with another big picture question which sets the direction and organizing approach of her next set of inquiries to the student by asking, "Ok, from a pharmacy stand point, what are we looking at?" The student is organized in her approach and answer as evidenced by her response to that question. "We are looking at, well, basically three things…." The student is thorough in her coverage with the CP focusing the main question points such as, "Did they get a sputum culture?" "Did you look?" "We don't have an organism. Well?" [expecting a student response] The student meets each CP question with authoritative and complete responses. Satisfied that the student knows her patient and covers the main points, the CP changes the topic ever so slightly. She uses this opportunity to accomplish collegial learning with student teaching student. The CP draws in the nurse practitioner student by saying:

Do you also want to tell K [name of nurse practitioner student] what they [physicians] were also trying to rule out? Do you have the psychiatric sheet and the psychiatrist who follows him? And so when he came in he had the elevated temp. And what medications did he come in on?

The CP's analytic mind is moving so fast and she subsequently presents four topics in the above request. The student has the information and is able to reply with the directed request. Although the student begins to speak directly to the nurse practitioner elucidating the CP's questions, the CP keeps the student specifically focused and asks for further information. For example, when Student 1 correctly supplies the names of the medications, the CP's response is a question requiring the student to discuss the drug's classification and mode of action. The dialogue follows:

CP: And so when he came in he had the elevated temp. And what medications did he

come in on?

Student 1: Risperdal® and Zyprexa®.

CP: Which are? Do you know what those are? [meaning classification and mode of action]

Nurse practitioner student: No.

Student 1: Anti-psychotics

CP: Ok. So they were concerned about?

Student 1: NMS

CP: Neuroleptic Malignant Syndrome.

The student successfully navigates these questions and with the lead of the CP, she arrives at the main syndrome name that is central in the care of this patient. At this juncture, the CP sets the student up for a successful student initiated mini-lecture with the simple question to the student, "Can we get a little explanation of what NMS is?" Note that the CP herself does not give the mini-lecture. She knows the student is capable and knowledgeable of sharing information with her colleagues. This is a clear example of guidance of a topic change with confirmation of the student led mini-lecture on a topic that was central to the patient care.

The CP uses this platform to pursue this topic further. The student finishes her discussion of how one can treat the syndrome by saying, "And you can hydrate them." By the following simple question, the CP sets the stage for her own mini-lecture which is central to the case study.

CP: You hydrate them but you can also use, [pausing, catching herself to not answer the question herself] do you remember the medications you can use to treat…?

Student 1: Yes. Uhm, bromocriptine?

CP: You can use bromocriptine orally. This is a syndrome that we can also see in the OR with neuromuscular blocking agents. Initially, there can be a dramatic increase in urine output followed by a temperature spike and the injectable drug used in this setting would be dantrolene.

The mini-lecture by the CP on this topic continues with student involvement evident by their questions, comments throughout her mini-lecture, eye contact with one another and the CP, and physical proximity with the CP. The CP ends her mini-lecture and topic by saying:

And when you get the order for one, it is an emergent order, if you are ever working. It is the only time that you ever see that drug used. It is for that. For NMS [Neuroleptic Malignant Syndrome]. OK. So, what day of treatment is he on for his antibiotics?

Note in wrapping up her mini-lecture, the CP transitions to the next topic which is part of her systematic approach to analyzing and thinking about patient care. She asks about day of treatment for the patient's antibiotics. In transitioning to a new topic via a question, the CP receives a wrong answer from the student. The student gives her accurate information but it is not in the format that the CP requests. The CP asks for day of treatment and the student supplies the day that the patient arrived at the medical facility. The CP recognizes the student's thoroughness and accurate patient knowledge, affirms it by enthusiastically saying, "Alright!" But the CP seizes the moment to drive home the point of her question that changed the topic which was, "So what day of treatment is he on for his antibiotic?" The following is the mini-lecture given by the CP that drives home the point of her topic change.

Alright! Another good thing when you are following antibiotics is to keep track of the day. Like this is day 4 of antibiotics, this is day 5 of antibiotics, so when you are on rounds and the doctor says, "Well, how long have you been on this antibiotic?" Then you can say, "This is day whatever." OK? That is a good role for us.

The topic of the antibiotics is discussed by the CP's mini-lecture, the differences between PO [by mouth] and IV [intravenous], the expense of the drug, its effectiveness, level of resistance by the organism, and expected time of action for the patient to show improvement. The students supply all the information for the discussion. The CP recognizes the knowledge of the students to the specific drug questions and she introduces the next topic change with a reflective question of "What do you think we should do?"

This big picture question invites reflection on the part of all the students and allows them to determine the path of discussion and topic. Student 1 correctly suggests, "Recommend a sputum culture." The CP affirms and continues with this suggestion challenging the student to think through the suggestion.

The CP uses this exchange to expand discussion on this topic ranging from signs and symptoms that the patient would exhibit and viral versus bacterial infection, drawing on student dialogue. Student 1 correctly notes the patient temperature of 102 degrees F. The CP builds on this student observation of an elevated temperature and introduces the topic of "fever of unknown origin." The CP assesses student knowledge by simply asking the students if they have ever heard of this term. Upon affirming that they have heard of this term by a mere nodding, the CP briefly discourses on medications causing fever. The discussion is rich. It contains a possible missed teachable moment (which will be discussed in the next chapter), questions posed by the students, a challenge and assertion by a student against a statement made by the CP, and a direct line of questioning of the researcher for guidance in her area of knowledge in an effort to make an informed decision about patient care. Collegial collaboration and learning take place in this

discussion. The progression of thinking, discussion, and reflection is logical and came around full circle to the topic of fever of unknown origin.

The nurse practitioner student changes the topic slightly with a suggestion and question that she terms "off the wall." She asks if there has been a check of another type of sample for culture and sensitivity. The CP affirms and welcomes this input by saying:

> CP: Yes, and it was negative. Why did you think this was off the wall?

This acceptance and openness of the CP to the input of the nurse practitioner student opens a different approach to patient care and observation of patient mental status. The students ask the CP, the nurse practitioner student, and the researcher direct questions as to their experience in working with these types of patients and what the outcomes were. After considerable discussion, the topic comes to a resolution by the CP who states:

> So, this is something to always keep in mind. OK, do you think we should leave a note about considering rechecking the culture?

Once again, the CP brings the discussion to a resolution before moving to a new topic by asking a reflective question to the students and guiding their reflective thoughts if she deems the discussion is too thin. The CP, by focusing the question directly to the students, solicits their professional opinion as to the patient care. After soliciting an answer from the students, she ends the discussion by making a recommendation to the physician group that grew out of discussion and reflection of the students.

One of the realities of teaching is that of time limitations. There are deadlines to make and appointments to keep. One particularly intriguing and thought-provoking session of clinical teaching centers around a patient who has re-occurring pneumonia throughout multiple hospital admissions. The CP and students are trying to determine what organism is causing an infection, resulting in abnormal lab values and vital signs.

From there they are trying to determine the proper antibiotic. With each idea put forth by the CP or students, facts are found in the chart to dispel their theories. The frustration of the CP is evidenced by such comments as:

> CP: Let's just look to see, that we are not chasing the white elephant. [looking at chart] He had pneumonia in January and went back on augmentam. Let's see what he grew out. Well, shoots that theory. So makes you wonder if it ever cleared. "Questionable pneumonia." I feel like we are not doing anything. I don't like that feeling. [stated with emphasis] When you feel like you can't.
>
> Student 1: Do anything?
>
> CP: When you can't quite figure it out. Or don't quite know where to go.

The CP desires to solve the mystery of determining the proper antibiotic if in fact the fever was due to infection. She methodically analyzes the medical record but still feels like she and the students are "chasing the white elephant." This is clearly an unresolved topic when the CP directs the students to another floor and patient. Why is the CP leaving an unresolved question and moving on to an entirely different topic and place? Did the students have a learning experience here or was it what the CP termed as a futile exploration that "you can't quite figure out." In the post-observation interview, I ask the CP why she moved on and changed the topic and the physical location at that juncture. It was the pressing time factor, the number of patients that the students still needed to cover, and the fact that this patient was taking too much time to investigate with a questionable finding that led her to the decision to move to a different floor and patient. The CP states:

> I probably should have made it more clear to the students what we were doing. It kind of looks like we were abandoning the patient. I don't want to make that impression.

Thus, not every topic transitions from a well-defined positive conclusion, wrapped in a gift box with a satin ribbon. Uncertainty, frustration, and inconclusive findings can be part of clinical teaching.

Topic change is determined primarily by the CP but students also introduce new topics. The CP can choose to pursue these topics or ignore them by focusing on the CP's own agenda. However, there is rich collegial discussion and student involvement with student driven topics. Topic changes came about by:

- Resolution of the student calculating a correct dosage, or identifying a condition, laboratory value, or CP requested fact
- The Ah hah response of the student who indicated understanding of a discussed topic by restating in his or her own words and applying it to the patient situation
- A missed teachable moment and the CP or student moved on to another topic
- Resolving a discussion by giving an assignment to a student for further study and subsequent report
- A mini-lecture by students or CP with successful answering of questions prompted by the mini-lecture
- The acceptance of what one student termed "an off the wall" question which ultimately led to a possible explanation for patient behavior
- Time limitations with the pressure of needing to see more patients in a limited amount of time
- Discussion of professional pharmacist actions resulting from patient examinations and chart review

Topic 4 - Teachable Moments

The conditions of the teachable moments

I want to have a teachable moment. [CP]

This may be the desire and expectancy of the CP but identifying, and pursuing the teachable moment is not always the case in clinical teaching. Data of this research indicate that teachable moments require a recognition and pursuit on the part of the CP

and student, an openness to participate, and a knowledge base sufficient to at least have a recognition or understanding of the clinical encounter.

The vibrancy, expectancy, and genuine smiles with which the students greet their CP, each other, and me just after the sun rises at the medical center belies the anticipation of a full and meaningful clinical day. This is evidenced by the students' and CP's dialogue of what will be covered during the clinical day, the expectations of rounds, and presentations later in the day by students and faculty members. Both students have had four days in a row of being at the medical center working with patients under the tutelage of their CP. Their late afternoons and evenings are filled with researching medications and medical conditions encountered during the clinical teaching. They prepare written and oral presentations for physicians and fellow students complete with power point and handouts. They may spend some time reviewing their patients' medical charts and past medical history after their scheduled hours of clinics so that the following day, they are competent in reporting an accurate synopsis. There is an immersion in their clinical rotations even after the official clinical hours of being by the bedside. Despite the long hours at the clinic site, the CP moves with her group expectantly and enthusiastically to the first patient of the day.

A local nursing home is concerned with the deterioration of one of their residents, Mr. A. His physician transfers him to the medical center for evaluation and treatment. The students begin examining him and studying his past medical history. He is a pleasant though slightly confused 85 year old gentleman with numerous complications. The main focus for the students is determining proper treatment for pneumonia and infections. This gentleman is the context of the clinical experience for the students. It is with this patient

that the students reflect on their classroom teaching and draw from their limited experiences in the acute care medical area to determine proper treatment. Under the guidance of their CP, reflection, dialogue, reference searching, and conclusions take place.

With this particular patient and clinical rotation sequence, the students have five different learning contexts within an hour and a half. First, the two students examine the chart and any past medical history information on their own time, prior to meeting their CP in the morning. Second, the two students together take the opportunity to greet the patient and establish rapport. The students verify all relevant vital signs and physical assessments that are documented in the chart. Third, they meet with their CP who is knowledgeable of Mr. A's medical condition and history. The CP and two students have a lively discussion that begins with the general topic of pneumonia and then focuses on the individual, Mr. A. The CP uses this context to draw out the knowledge of the two students on community versus nosocomial (hospital or institution) acquired pneumonia. This is not just an academic discussion. The outcome of their thoughts and interpretations of lab values directly bears on the progress of Mr. A. Fourth, the students accompany the physician who includes the students on discussion of Mr. A's condition and subsequent treatment. Last, the students observe the physician's examination and dialogue with Mr. A. These are five contexts which hold potential for learning and teaching.

Condition of Time for Reflection and Working on One's Own

> **I think it is all a learning process. She is not actually encroaching, making us so uncomfortable. At the same time, she wants to be around so that if you are not doing or pulling up your weight in**

whatever you are doing, she can jump in and help. [Doctoral pharmacy student]

In three out of the five contexts, the CP is not accompanying the students. It is relevant to the research question to ask not only what is it that the CP does while teaching clinically but also what is it that the CP does not do? The CP allows space for the students for independent work. The CP strikes the delicate balance of guiding and being available to students with allowing them to work independently to provide the best patient care possible. The student says:

I remember when I was doing patient counseling for the first time, she wanted to do that with me so that I will see how she does it. And the second time, she said, "Go!"

What does a CP do to say, "Go!"? The following sequence of events elucidates the CP saying, "Go!"

8:25 a.m. in the hallway of the pulmonary floor of a 408 bed acute care hospital.

Present: 2 doctoral pharmacy students, Student 1 and Student 2,
Their clinical preceptor (referred to as CP)
Researcher (referred to as R)
Nursing student fictitiously referred to as Paula
Patient referred to as Martha, fictitious name

Martha is also well-known to many of the staff at the hospital since she has been hospitalized numerous times over the years. She is addicted to nicotine. Her tobacco stained right fore finger and middle finger and constant rattling cough are evidence of her reliance on her cigarettes. She is overweight, refuses exercise, and has an excuse for every attempt at counseling for diet, medication, and exercise. She is not taking responsibility for her own disease state. In short, she is a challenge.

Students and CP were well-familiar with Martha since she had been hospitalized several days and students had made rounds with her on previous days. They know her medications and therapy. They know of her obstinacy.

We begin the clinic rotation by going to Martha's room to talk with her about her compliance with her medications, exercise, smoking cessation, diet, and medical follow through post-discharge.

I do not audio-tape the conversation in the patient room due to confidentiality but the patient gives her verbal consent to document the student and clinical preceptor conversations and interventions with her.

The patient is in her hospital gown, in bed, propped up by pillows. Her hair is unwashed and uncombed. The conversation takes place with the clinical preceptor by the side of the patient and the students are near the foot of the bed. The curtains are tightly closed against the bright morning sunshine.

The 15 minute conversation with her consists of her describing her manner of taking her inhaled medications, her pills, her dealing with her family members who smoke cigarettes and cigars. She insists that she no longer smokes despite the fact that she has an approximately 90 pack year history. She complains that the second hand smoke she must endure by her family members exacerbates her chronic obstructive airway disease. She cries that the cigar smoke is particularly hard on her and that is what "put her over the edge" and caused her not to be able to breathe. She gives a dramatic account of her losing her breath because of her family member's cigar smoke. She says she turns blue and finally the family calls the ambulance to bring her to the hospital. It was a frightening time for them all.

The CP suggests several ways of dealing with her family members who smoke. "Tell them they have to smoke outside." The patient states this is not possible. The patient complains of how expensive her medications are and that she can not afford the medications. The clinical preceptor tries to brain-storm with her about coping mechanisms such as going to the free medical clinic, getting sample medications from her physician, and avoiding any irritants to her respiratory system. The patient has excuses and complaints about the free medical clinic and her family's lack of cooperation. She claims that the last free medication she received from the clinic had roaches in it. "I opened that bottle, and out scurried the roach."

The patient complains that she can not afford clean filters for her nebulizer unit and that she has to use cotton for the filter. [note: this would render the machine's nebulizing capability to almost nothing, delivering very little medication to the airways] Martha explains that she now owns the unit and therefore does not have access to regular maintenance by a home health care agency. She had tried to check the function of the machine by using a feather to see if it moved by the air pressure created but the feather did not move. I suggest to her that a family member bring the unit into the hospital while she was here so that Respiratory Care Services could look at it. She admits this is a good idea and that she will ask a family member to bring in the nebulizer machine.

The CP takes the lead on the conversation with the patient emphasizing the importance of avoiding smoke, adhering to her medications regime, diet, exercise, utilizing the services of a free medical clinic, and follow-up visits with her physician.

During the patient conversation, the students are attentive, standing near the bedside, actively engaging in the conversation by listening and nodding in agreement with the

dialogue. Upon leaving the room, the students thank the patient for the conversation and say good-bye.

Emerging from the room, the clinical preceptor and students search the patient chart for new physician orders. Rounds have not been completed so there are no new orders. Students and clinical preceptor have lists of her current medications. Paula, a student nurse needs to look at the patient chart so the clinical preceptor and students walked a few yards away from the patient door.

The students are indignant! Their voices betray irritation and disbelief in some of the statements of Martha.

Student 1: Do you think she still smokes right now?

CP: Oh yes!

Student 1: Then how can she say she couldn't stand the smoke before? [student exhibiting some irritation and disbelief in voice] She couldn't stand the cigarette smoke or the cigar smoke when she walked into the kitchen and she had that attack, how could she tolerate smoking?

The CP's next statement does not try to soothe the student's disbelief and anger. In the CP's response, she simply tries to make meaning of Martha's actions.

CP: Maybe it was just with the cigar smoke itself, I don't know.

The students continue to dialogue as to their thoughts of the interaction with the patient.

Student 1: She can't breathe her own medication and stop smoking.

Student 2: Actually it is no use. She is not using medications at all, nothing appropriately. Just like putting cotton as the filter on her nebulizer. So just as long as you think we can teach her.

The students are recognizing the possible futility of their interventions with Martha. The time and expense being devoted to Martha seem wasteful. What did the CP do in this situation? She did not wax poetically on the subject of quality of life or striving to serve patients to the best of one's ability. Rather she allows the students to dialogue about their patient and arrive at a plan of action themselves. What follows is an exchange between

the students about the misuse by the patient of the breathing equipment and their concerns about her receiving any of the medications from her breathing treatments.

Student 2: What she said the nebulizer is supposed to have a filter. She doesn't have a real filter so she cannot use [it]. Like a cup?

CP: OK, that would dissolve the medicine, wouldn't it?

Student 2: That is one thing that can do that.

Student 1: She hasn't been receiving her medication.

Student 2: So she has not been receiving it.

Student 1: She hasn't been getting her medications.

Student 2: And the tube, she is not using the right tube according to her, so she has been asked to tell her husband to bring the nebulizer in, so we can have RT [respiratory care personnel] look at it. She even tested a feather? She doesn't even feel anything coming up. That is a big problem there, so we can not raise that and I think she is having a hard time getting her medications.

After further dialogue, the students come generate two possible routes to help Martha. Interestingly, the CP questions one of the solutions but the student is persistent and will follow through on her idea of bringing in a social worker.

Student 1: Doesn't the Free Medical Clinic and Dr. L mention that to her and she was interested?

CP: Good, that would be good.

Student 2: I think it is OK to bring in a Social Worker to talk to her.

CP: Actually I think each patient here is assigned a social worker.

Student 1: Well, the Case Worker manages that but I am going to ask because I think there are services she could be receiving and she is really not compliant with her diet.

CP: She has been to the Free Clinic before and wasn't happy with the way the Free Clinic worked and so she hasn't been going back but the messages that you get from her regarding that are certainly strange and mixed. So I don't know.

The students follow through on their suggestions in their attempts to assist Martha. The CP has given freedom to the students to reflect on their experiences with Martha, to formulate a plan, and then to follow through with the plan.

The CP's concern for her own students not to feel defeated comes through in the following dialogue. Interviewing the students at a later time, it is exchanges such as these that made the students feel as if the CP cared about them and made them more trusting and open to their CP. This in turn could lead to more opportunities for a teachable moment as will be discussed in chapter 5.

CP: So I can't/don't understand why she [Martha] wasn't happy with the Free Clinic, that part bothers me. I also think she may be making up the thing about bug, the bug she found in her drugs. It is free and isn't that better than paying 200X dollars?

Student 2: I don't understand that. It [the roach] could come from her home.

CP: But you know what, [name of student]? You can lead a horse to water but you can't make them [interrupted by student who finishes the CP's sentence]

Student 2: drink.

CP: drink. We can educate her nine ways to Sunday but I don't want you guys to feel, you know, defeated when you go in with her. The best you can do is the best you can do. Some people just aren't willing to take your advice.

How else does the CP say, "Go!" in this sequence? The interaction of the students with Martha was among the first times that the CP saw frustration and dismay from the students in dealing with a non-compliant patient. The CP freely shares her own personal experience and growth in getting accurate information from patients. It is as if the CP hands the students a script which can be changed and incorporated with their own style.

CP: So when I first got out of [my clinical training] I would ask, "Do you drink? Do you smoke?" Now I go around and say, "How many drinks a week do you have?" I don't even give them the option to tell me yes or no.

Student 1: Right.

CP: So when you go in, you could just say, "How many cigarettes a day are you smoking?" rather than saying, "Do you still smoke?"

Student 2: Direct approach.

CP: And then if they say, "I don't smoke anything", then you know OK, they are truthful and that is what I tend to do. And especially, she wouldn't have to be smoking if there are three or four other people in her house actively smoking. I don't think it matters then at that point if she is actually doing the smoking.

Student 1: I don't think she will quit and have three to four start smoking around her, it is difficult.

Student 1 acknowledges the CP's idea with saying, "Right" and incorporates it into his own thinking by naming it, "direct approach." He goes one step further to think about the smoking situation and the possible success of his interaction with her. He wants to know more.

The Condition of Pursuing Interest and Engagement of Student

> **We [CPs] ask them from the very start where their interest lies. What would they like to see? Because there is nothing better than to have an enthusiastic student who wants to go see things.** [CP]

The CP then directs a question and a comment to me in an effort to tap other areas of expertise on smoking and smoking cessation. (see Note 11)

I don't know Karen, you've had more experience with this, smokers and COPD'ers [Chronic Obstructive Pulmonary Disease]. I find it so discouraging. I want to pick people up and shake some sense into them.

I am pleased to be invited and included in the conversation since I have had experience in smoking cessation programs with patients and clients who are chronic smokers. The concept of being only an observer was not possible in a teaching/learning situation with a collegial approach to the best patient care possible. We dialogue on the success rate of

smoking cessation programs and the importance of gathering the data for abstinence from smoking. Students are actively engaged in the discussion as evidenced by their clarification and reflection question to me asking how many months or years are the participants followed to determine their abstinence from smoking. One student indicates interest in following up on comparing the success rates among various smoking cessation programs and what are the factors that make one group of participants successful versus others who revert to smoking. The student is interested in how, as a pharmacist, she can zero in on the factors that tend to make the client or patient successful in the smoking cessation program. This clinical sequence is an example of a specific patient condition which stimulates the imagination and interest of the students and is a spring board for further investigation and application to future clinical responsibilities of the pharmacy students. In short, this is a teachable moment. It is a factor of student preparation, student involvement, a rich clinical situation, and involvement and perceptions of the CP with students and other health care personnel. It is also a factor of taking the time to pursue the teachable moment.

The CP says, "Go" to her two pharmacy students when she entrusts them with communicating with the attending physician for a dosage change. The CP and students spend considerable time analyzing and calculating an incorrectly dosed antibiotic. Note in the following exchange, the CP ensures that the students know exactly the proper formatting of their recommendation.

CP: Right, right, right. Dr. S. has rounded on this particular patient. He said continue IV antibiotics. I am probably going to page Dr. A. because she has had 6 doses and I am worried about her, if they don't get this until tomorrow morning, another 24 hours, that may not be the best thing for her. So sometimes you have to weigh the pros and cons of leaving a note which they may not see for a day versus going ahead and calling them. OK. Alright. So we will find a good place where we can do that. Because he may still

be on rounds. In fact, one of you guys wants to get it all together [CP in corrections wants to take out the "get it all together, you know"], you know, get a recommendation together, I don't have to call.
[students look at one another] One of you guys can call Dr. A.

Student 2: No problem. What was the creatinine? 35?

CP: It is approximately 35.

Student 1: [gives further information but it is inaudible]

CP: 500 Q 12. Better yet, a different drug. OK, do we call him and just say, pick a different drug? Or do we have an alternative suggestion?

Student 2: We need to do our homework before we call him. We can't just call him and say, "What do you think?"

CP: Absolutely! She has had her dose. She has already had 2 doses today. So you know you have at least, you know, a couple of hours before you have to call him. So, yeah, you do not want to sound like an idiot. OK? You want to know, you want to give a little background, and then you want to make a recommendation. And you want to be concise and to the point.

Student 2: Right.

CP: So you are going to take care of calling Dr. A?

This comes to a resolution of the students accepting the responsibility of calling Dr. A with a recommendation of change of medications. The CP is satisfied that the students analyzed the situation resulting in a thoroughly researched recommendation.

The Traditional Teacher/Student Relationship

> **Part of my job is to teach them something. What I know. I have to make sure they have the right answer.** [CP]

In subsequent interviews, the CP states that she wants to have teachable moments for her students. I asked her what she considers a teachable moment. She defines it as:

> A time when I can actually tell them something versus having them to have to look up every single thing.

This suggests a rather narrow approach to the potential of the teachable moment but it is an insightful and valuable aspect. Although her statement does not address the issue of the students "hearing" her or incorporating what she has to tell, certainly the CP's knowledge sharing is a vital aspect of teachable moment. Even though she identifies the teachable moment with "telling something" to the students, her time with them is replete with guidance and role modeling of methodical thinking and analyzing, of her directing her students to remember classroom work for application to the clinical experience, of questions demanding reflection, recall, and focus.

The CP recognizes the tremendous pressures on the time of the students. This emerges from the data in her interview when she emphasizes the time constraints.

> The time I have with them is short…Their time constraints are such that they, depending upon how many patients they have in a given day, they usually have to have those patients rounded on usually by 10:00 a.m. 10:30 if we are lucky. Because sometimes, well, Wednesdays, they have noon conference which runs from noon until 2:00, followed by new patient update which lasts until 4:00 where they present their own cases. On Fridays they do preceptor updates which means each preceptor takes a Friday and we spend 2-3 hours teaching on our topic of interest, each one of us so the students really don't have much time on Fridays…
>
> Plus the students round on their patients by themselves starting at about 6:00 a.m. prior to my meeting with the students…
>
> Usually we have between 6-8 students in the hospital at any given time so there are 4 or 5 pharmacists that have students. We try to work together so that when we have student talks, they give them to the whole group so they do have things to do on Tuesdays, Wednesdays, and Fridays, pretty much the whole afternoon so you have to have your patient load done on time…
>
> They go to the OR [Operating Room] for one day. They will do pain rounds for one or two days. If they have an interest I will get them hooked up with the diabetic teaching so they may go there for a day.
>
> Yes, they saw ECT. Usually we will take them. We ask them from the very start where

their interest lies. What would they like to see. Because there is nothing better than to have an enthusiastic student who wants to go see things.

The CP states that the most critical reason she supplies information to the students is for good patient care to occur in a timely manner. If she determines that action needs to be taken prior to the next day when students may have time to look up the information, then she will supply the information.

The following is an example of the CP supplying information to the students. the students have been interacting with a very pleasant, gentle, but slightly disoriented and confused lady. Student 1 is trying to determine if the patient is allergic to a specific medication.

Student 1: [having returned from conversing with patient in the patient room] I just told her that she is allergic to penicillin and she said, "I am? I didn't know that. I take it all the time." So I think, we can call her family and tell her to stay with that [penicillin].

The patient disorientation is a peripheral condition of the patient to the pharmacy students yet one which has implications for good patient care. The ability of the patient to respond appropriately to questions about her care and medication can have a direct affect on her course of medications and prognosis. The CP tries to guide Student 1 in her communications with the patient:

CP: OK. Yes, or you could say, "Have you ever had hives? Did you ever get a rash to anything?" And she might be able to [respond appropriately]…do you want to go in and try again?

Student 1: She [Hesitant with facial expression of meaning it is not going to do any good.]

CP: She can't hear you? [finishing sentence for student]

Student 1: No, she can hear me but she kinda of, she didn't understand. She is kind of confused.

CP: OK.

Student 1: That is what the nurses told me too. She is not "all there."

So the question arises of whether she should be put on some sort of medication that might assist in her cognition. The CP certainly could assign the students to research possible medications that would be appropriate for a patient of her age and condition. She recognizes, however, that the students need to be able to move forward with good patient care and judgment as to recommendations for the attending physician. Note that the CP shares information with the students in the form of her own mini-lecture with acknowledgement from the students of their understanding. The CP is the supplier of the information.

CP: OK. She is, as we have noticed with her, when we first met her about a week ago or earlier in the week, she was a little more oriented. She has been in the hospital longer. She has gotten more, I want to say more forgetful, more demented, kind of confused.

Student 1: Yes

CP: And that is just being out of her element, out of her home. Not knowing what is going on. Really I am surprised, that we have not put her on a low dose atypical anti-psychotic. I am glad that they haven't.

Student 1: Right. [in an acknowledging voice tone]

CP: Because as soon as she gets home, she will be fine.

Student 1: Right, right.

CP: But sometimes, they start giving the nurses a hard time. The doctors will order something just to

Student 1: calm them down.

CP: Sedate them and calm them down. I hate to see them do that. But, OK [looking at progress notes] "Can go to nursing home." So they are, "increase in zesterol and the" [pause]. Alright, we will leave that there for the attending coming around. I do not know who the attending is today. So we will leave that there. OK.

Another example of the CP assuring that information is available to the students during clinic time differs slightly from the example given above. Rather than the CP being the direct supplier of the information, she acts as the conduit of the information, introducing the students to an on-line pharmacy program so they can determine and supply their own information needs in a timely manner. The program guides the user to calculate dosages in renal insufficiency situations. In both examples, the students are able to proceed through the clinic, arriving at good conclusions for medication recommendations. This particular example of the CP being the conduit of the information that the students need occurs with a patient who has an antibiotic that has been dosed too high in the opinion of the CP. The student agrees with the assessment of the CP. The CP questions the student's agreement. She asks:

> You think so? What is a good dose? What do you think? She is 85 years old.

The student states a dose recommendation and the CP asks for verification of how the student arrived at that dosage and frequency of dosage.

> CP: But what is the interval? We don't see Q 6 [every 6 hours.]
>
> Student 2: No.
>
> CP: We usually see Q 8 [every 8 hours].
>
> Student 2: Q 8?
>
> CP: Actually for her, probably Q 12 [every 12 hours]. But we are going to look her up and see. Her renal function can't be any greater than …..she is 85….she is a little old lady. She is going to be below 40 mls/minute at least.
>
> [CP brings up computer pharmacy program on the computer just outside the patient room]
>
> CP: OK [name of student], why don't you hop in here and tell me or show me where you go or how you are going to find out the dosage in renal insufficiency?
> [student 1 working with computer]

This sequence continues with the students searching various dosing guidelines. They arrive at an answer that meets the approval of the students and the CP. In both examples the pre-existing conditions to the teachable moment were student involvement or engagement, some level of student knowledge, a CP who has knowledge/experience to share, recognition and knowledge on the part of the CP of what the student knows and his or her capability. The teachable moment requires an interaction between CP, student, and the environment.

However, not all information supplied by the CP contributes to a teachable moment and, in fact, may not be helpful in guiding the students to discover information and make it part of the learning process. For example, in a previously reported dialogue about community acquired versus nosocomial pneumonias, the CP attempts to assist the student in recall of a type of pneumonia:

CP: So in the community, what [type of pneumonia] would you expect to see? Or the most likely?"

Student: I think you would see a lot of strep pneumonia. [said with hesitation]

CP: OK. Strep pneumonia [stated with encouragement, upswing in voice]

Student: Maybe. I am not very sure.

CP: No, you are right! Strep.

At the juncture where the student made a statement and then said, "Maybe. I am not very sure." Rather than pursuing why the student was not very sure, the CP quickly said, "No, you are right!" If she had pursued why he was not sure, divergent thinking could have been encouraged. The student and the CP could have explored why he was not very sure and what factors led to his thinking. The student is engaged in the moment, has a

professional personal involvement with the patient, and brings some knowledge to the situation. Instead, the CP gives hints and almost a guessing game ensues with hints from the CP that does not bring about the correct answer that the CP is seeking. She has to supply the answer.

Teachable Moment More Than Supplying Information

> **I think especially if it is a topic that I feel very comfortable with, that I feel like I can go in depth, and know it 100%….I am very cautious that I don't want to give them misinformation. So if there is a topic that comes up that I really know very well, I will usually pick those as teachable moments. And if we have time I will use that. But if it's a topic that maybe I am not the sharpest on, then I would like for them to look it up too and then I will go look it up also so we will come back together.**
> [CP when asked, "You just used the phrase, "teachable moment." How do you identify those times? What is that?]

What does the data show about teachable moments and could all times during the clinical rotation be considered teachable moments? Does this statement of the CP mean that for her, the teachable moment is mostly about exchanging information?

According to what the clinical preceptor says about her teachable moments, she defines her teachable moment as picking topics that she knows "very well" or "100 percent." She does not imply in her statement that she is the one who determines the topic. The students themselves often introduce new topics or slightly different aspects of a topic under study. She also states that she may pursue topics that she may not know with complete confidence but will ask that the students look up something on the topic and she will do the same. In her statement, she says that they as a group will revisit the topic after it has been researched.

The data show that elements of the teachable moment allow for space for the person who is experiencing a teachable moment to reflect upon or to synthesize the

sequence of events into his own thought process and apply it to the clinical situation. The student may literally say, "Ah hah!" in recognition of experiencing such a moment or may apply the moment to the ensuing clinical practice demands. If the CP is involved in the teachable moment, there is a guidance of the student(s) by that CP in sharing information. But the CP is not always the catalyst for the teachable moment. One student stated he learned so much from observing patient examinations and oral case presentations by physicians and other health care personnel. He then incorporated those observations into his own practice. The elements that are present within the teachable moment are engagement and an awareness of the possibility of a teachable moment, some level of both subject and self- knowledge by the student and CP, and an openness on the part of the student and/or CP to engage in some level of communication.

The data reveal this in the following interchange between student and CP. The pharmacy student has been following a patient with UTI MRSA [Urinary Tract Infection Methicillin Resistant Staff Aureaus]. The CP asks him to give a synopsis of the patient to a nurse practitioner student. In giving the synopsis, the student highlights the complication of two different antibiotic prescription for the patient which may not have been given for an appropriate length of time to eradicate the infection and subsequent sepsis.

Transcript	Researcher comments
CP: So we know he came in mid-day 5/5. OK with UTI MRSA and he went back, discharge date 5/10. Let's go back admissions prior to that. [looking] August? He was also here in August. Let's see what he went home with then. He had sepsis when he came in August. Let's see if there is any MRSA in August. Why don't tell K. [nurse practitioner student] What they are going to do. He had a course of vancomycin. What did the infectious disease physician recommend?	CP focuses on specific details of complication. Continuing the engagement of the student. Giving specific focus.
Student 1: The next course of action was to put him on zyvox for 10 days. They [physician and health care team] wanted to eradicate everything. Now they are looking for MRSA negative so he can go back to the nursing home. They are going to continue with the Zyvox™	Student eagerly and quickly shares his research and knowledge of the patient and
CP: Can you give a little background about Zyvox™? What it is?	CP focuses on crucial medication.
Student 1: Umm, it is a combination. I am not sure. I don't remember the combination. But it is good coverage for gram positive. It has been documented to be very very good about eradicating staff aureus. And some vancomycin resistant. So they still want to actually add that on board to make sure you completely eradicate it.	Student exhibiting not being clear.
CP: And that is given after the vancomycin? Student 1: It is given after the vancomycin treatment.	CP probing student's being unclear. Follows up on Zyvox™.
CP: What do they usually use Zyvox™ [for]? … Student 1: It is a new antibiotic.	CP continues to cause student to think and apply knowledge.
CP: And what is its claim to fame? Why is it so special?	CP continues questioning student.
Student 1: I think its specialty is, to, it. I am not sure. [pause] It covers most of these gram	

negative and gram positive. CP: That is OK [laughing]. Student 1: Gram positive. Or you can add anything to this! [CP continues line of questioning]	CP assures student she recognizes his lack of knowledge in this area. She continues to question and also give information so a decision can be made on proper medication for this patient.

Summary of Section I – 405 Bed Acute Care Medical Center

The data in this section reflect that there are times during clinical rotation that the students have time on their own when they are not in direct contact with the CP. When they are with their CP, their interactions, at times, contain teachable moments. The CP uses a variety of questions and teaching interactions to augment these teachable moments as was illustrated in this section. The CP bridges information for the students, from information known by the students, relating it to new situations and applying the known information from classroom knowledge to that of the clinic area. The CP displays an innate sense of timing and knowing of when and how to pursue a student uncertainty or statement. The CP displays and directs a thought process for the students to analyze and organize a patient situation. The CP gauges the level of knowledge of the student. With ascertaining that level of knowledge, the CP then chooses her sequence of teaching. She uses humor which the students say helps them to relax, to think, and to trust their CP. The CP demands that the students display a sense of confidence in their actions with the knowledge and thought process to back up that confidence. The CP's questions reflect the knowledge that the CP has of her students. She never demeans or belittles them. Her questions are not threatening. The questions serve to augment the thinking process and ultimately improve patient care. She engages in collegial learning. The CP allows time

for reflection and working one's own. She pursues the interests of her students and engages with the students. Examples of what this CP defines as teachable moments are highlighted in the transcripts.

Section II - Retail Pharmacy Clinical Experience

Introduction of Section II

The world of retail behind-the-counter pharmacy to the outsider may seem to be one of a frenetic pace with the telephone constantly ringing, the drive-through window bringing a beckoning call beeper, customers approaching the prescription counter, the fax machine churning out orders, and pharmacists with their technicians processing vials, bottles, and packages of medications. Added to this environment are the four rows of over-the-counter medications in the aisles of the store, where customers often have questions, as well as the everyday products sold in the retail store. It is here that the retail pharmacist clinical preceptor [CP] oversees fourth year doctoral pharmacy students for their clinical experience. Within this environment teaching and learning occur with a progression and focus.

The days of observation with two doctoral pharmacy students and their clinical preceptor are fast-paced and filled with routine as well as sequences requiring reflection and collaborative research. Their customers vary from just a few days old to octogenarians, with all walks of life. The CP and students communicate with customers of varying educational levels, gauging the appropriate level of information to solicit and give. The time frame of the clinical rotation are regulated by the store's opening and closing hours with the students being under the tutelage of the CP for forty hours a week for six weeks.

"Well, Gladys, how are you?! How's that sore leg of yours and how are the kids? Haven't seen you in awhile!" This friendly exchange takes place over the high pharmacy counter with the glass mason jar filled with flowers partially obstructing the view into the store aisles. A grateful customer brought in this bouquet of flowers the previous day.

The folksy relaxed dialogue is part of the rich fabric of service, caring, and meticulous consideration given to the long-known customers as well as "the new folks in town." Electronic and hard-bound references, palm pilots, and potential medical contacts all over the world are a routine in this retail pharmacy staff who, with pride, knows the customer and utilizes efficient technology.

There are three environments in this retail pharmacy where the CP interacts with the students and customers. The environments are:

- behind the 8 meter long pharmacy counter
- within the aisles of the store
- in the private conference area for patient counseling

In a day's time, the students and preceptor could be working within any of these environments. The retail pharmacy activities have flexibility so that with very little prior notice, the CP could move from one of these areas to the next depending upon the customer need.

The bulk of the student time is behind the pharmacy counter where they are responsible for processing/filling/checking prescriptions, responding to and initiating telephone inquiries, servicing the customer drive-through window, meeting face-to-face with customers who walk up to the pharmacy counter, and researching possible drug interactions. Counseling patients in the private conference area involves the second most used student time. This retail pharmacy has individual patient counseling for diabetes, smoking cessation, asthma, heart disease, exercise, nutrition, and stress management and dyslipidemia. Patient counseling and guidance for over-the-counter pharmaceuticals in the store's aisles takes up the least amount of time for the CP and students but provides a platform for direct engagement with customers and specific information on products. It

is also the defining moment for the student as to whether he or she has the knowledge and the ability to communicate and understand the needs of the client and the indicated medication.

This section is organized in a sequential manner, relating interactions of CP, students, and customers that are relevant to the research question. Although the same topics emerge from the data as did in Section I, for clarity and succinctness, I use two topics. Topic 1 is the types of interactions that the CP has with students. Topic 2 is the defining features of teachable moments. They are treated separately for discussion purposes.

The First Day

It is 8:45 a.m., already muggy and hot even in the early morning shade. Despite my best efforts to arrive at least fifteen minutes before the appointed time to meet the pharmacy students and clinical preceptor, the front door of the retail pharmacy store door is locked tight. I have to wait, with four prospective customers, to be admitted. The customers are migrant workers and are talking softly about getting their prescriptions filled, how they will pay for the medications, and whether they will have to miss any work. I wonder if the pharmacy students and their preceptor will be working with these people. Finally the door is unlocked and we all proceed in, being met with a rush of welcoming coolness from the air conditioning.

As I proceed to the pharmacy counter, I see that the CP is already focusing on the computer screen, the telephone is ringing, and customers are beginning to line up at the prescription desk. Despite the demands of a busy retail business, the CP looks up and gives a warm greeting. He invites me behind the counter to the prescription drug area,

and immediately introduces me to his two pharmacy students, three pharmacy technicians, and cashier. The atmosphere is one of precision, business, focus, friendliness, helpfulness, and no non-sense. I perch on a stool as much out of the way as possible yet located within the midst of the action. The CP directs me to observe for just a few minutes until he and the students come to a break.

The CP had previously advised his staff and students of my study and presence. They are welcoming and continue with their individual responsibilities. I am relieved that despite the limited amount of space and the number of people that are working within this space, I am a part of the scene and accepted. I am grateful to this group of people for their willingness to let me experience their vital work.

While waiting for the CP and students to come to a break, I hear a familiar irritating sound; a high pitched cough of a child who is clinging to her mother who whines in-between coughs. The mother hands a prescription to one of the students who asks if she intends to wait for the filling of the medication. A very tired look passes over the mother's face as she says she will wait as long as it takes. "It will be about fifteen minutes, Mrs. Jones. We will get it filled as quickly as possible." I wish I could just hand her the medication so the relief to her child could immediately begin.

The CP and students finish processing a group of medications. The CP takes this break as an opportunity for the four of us to get together for a few minutes while I explain the logistics of the audiotaping and I learn from them where I might be for observations. We walk to the back of the store to the private conference area since the CP wants to have some time to focus with the students away from the distractions of the busy pharmacy. This is the time to prepare for customers who will be coming in later in the

day for a pharmacy counseling session. The CP wants to ensure that the students are ready for the counseling sessions with the scheduled customers.

Topic 1 – Types of Interactions CP has with Students

The CP as Facilitator Providing Direction

> **He [the CP] really helped me by steering me in the right direction, making sure I was asking the right questions to the patients [customers].** [Doctoral pharmacy student]

The CP and students are expecting three customers to come in this day for counseling. The students are familiar with the customer's medications. The CP has encouraged the students to research the medications and write down their subsequent questions, suggestions, and insights as to the best patient care plan. Each student has preparatory notes. Each eagerly and rapidly responds to the CP's questions and comments. The CP and students discuss the incoming customers in a collegial, relaxed manner.

One of the customers coming in today has just recently had a kidney transplant and is on numerous medications that may have complicating drug interactions. It is imperative that the students counsel the patient about these possible drug interactions, complications, side effects, and compliance with the rigid medication regime. The CP begins the discussion with a big picture question:

Alright, OK, so, let's run down each one of her meds. I just want to quick [pause] the kidney transplant. Let's see, she is on, just read them off there to start. Anything on any of them that we need to be concerned about? We did go over them?

Here he is focusing the students on concerns that they may have and is allowing freedom for them to direct this conversation in relation to their research and understanding of the customer's medications. When one of his students asks the clarifying question, "Well, what do you mean?" he remains open in his response stating:

Right, anything that she needs to know. Evidently they gave her a real good education but we want to be prepared that as she gets going and getting into the reality of taking all this stuff by herself without the help of somebody at the hospital, that we are ready.

His response indicates an understanding that this customer is on her own in taking all her medications. His response also indicates a good business practice of ensuring readiness to serve the customer.

One student responds to his question by bringing up the topic of side effects. In the following exchange, the CP probes the student knowledge in asking questions which solicit more information from the students as well as ensuring their understanding. The CP's questions are bolded for emphasis on his direction for the student.

Transcript:	Researcher comments:
Student 3: Some of them, [pause] she might have some side effects.	Student driven topic.
CP: OK, such as?	CP soliciting more information. Requiring student to be more specific.
Student 3: Well, like the CellCept®, since she is over 2 grams a day.	
CP: OK [voice going up indicating, leading and wanting more information]	Although the response is not framed as a question, his tone of voice indicates requesting more information from the student.
Student 4: And … with over 2 or 3 grams a day, there are a lot of side effects.	
CP: OK. What should she be looking for as she starts?	Probing more deeply. Directing students to expand their thinking. Focuses students to apply classroom attained information to the reality of patient care.

Student 3 [saying this to Student 4]: Which main ones did you have?	Supportive collegial interchange between the students.
Student 4: Ummm…remind me. I just remember that she had sore spots in her mouth that she is taking the nystatin just for that.	
CP: Right	Acknowledgement from CP as to correct answer.
Student 4: So she's got that covered… any upset stomach, dizziness?	
Student 3: Maybe chest pain, edema, the usual constipation, nausea, diarrhea, headache. The usual side effects.	Students supportive of each other in answer to CP.
CP: Right. It is not going to be a happy time. But seems like every medication that they have given her where there is a side effect of some sort, especially like sores in the mouth, they are giving nystatin. They go ahead and have that on board.	Analysis of patient situation by CP and expansion on what students have said.
Student 4: And like you said, she is getting the Pepcid®.	
CP: Right.	
Student 4: She is on the Prograf® and the CellCept®. We have to make her aware of any kind of infection. That she needs to report it.	This is not a complete list. CP recognizes this and subsequently asks the following question. Note he does not put the students on the defensive.
CP: Correct. Didn't they give her some Bactrim®? And something else?	Question asked by CP for complete information. Information gathering.
Student 4: Right, Bactrim® and um, and she has Cytovene®.	Student recognizes omission and complies with question from CP.

During this entire exchange, there is engagement between the CP and his students as evidenced by constant eye contact and a close physical proximity with leaning forward

toward each other. Their attention to one another is undivided. The CP continues the dialogue with further questions on the bactrim and cytophyne.

The CP remains responsive to the sequencing of information given by the students. He uses the next statement by the student to lead to a mini-lecture that is timely for the patient and valuable information to the student for good patient care.

Transcript:	Researcher comments:
CP: Cytovene®, right. So, be aware of that. You mentioned prograf. That can deplete?	CP continues with a drug that the student mentions. Asks a rote, memorization question.
Student 4: Magnesium.	Correct answer.
CP: Magnesium so they gave her some mag Oxide today. They called that in today. That was after you…you all did not have that down. I know that was a side effect that came up. So, and they will change the prograft pretty regularly as far as the dose goes because they do blood work on that and they kind of have to fluctuate that. Probably depending upon how the side effects go.	Mini-lecture. Omission in student list of medications.
Student 4: Right	Acknowledgement from student
CP: How high her pressure gets and whether or not she seems to be doing OK as far as that goes.	Continuation of mini-lecture.

The students make note of this information supplied by the CP. Discussion continues with the students reporting from their research notes of five additional topics for patient counseling. All five topics deal with the challenge of either drug interactions or precautions of impending side effects of the drugs. This discussion has collegiality and honesty. Each demonstrates a willingness to learn and admission of learning something from one another. For example, in the continued discussion:

Transcript:	Researcher comments:
Student 4: I have it that she needs to avoid grapefruit juice. For the potassium.	Reporting research fact
Student 3: I saw grapefruit juice in the interaction [drug interaction computer program]	Confirmation of research fact.
CP: OK. Let's make sure they know that. I did not know that. I think that is something that we need to call her on. Make a note that we will call them.	Willingness to admit that he learned something new. Directional plan given by CP.

The discussion continues with the students asking clarifying questions on their research. These questions indicate that they have thoroughly done their homework. They are an exploration of their understanding and confirmation that their suggestions for client care are appropriate. Throughout the discussion and suggestions from the student, the CP is affirming as he constantly gives positive feedback.

Humor in the Interactions

> **I try to keep a little bit of humor on board. It makes the student feel a little bit more relaxed. It is just a way of keeping people at ease so they are a little more forthcoming with things. Sometimes they will tell you things once they become a little more relaxed.** [CP in interview while talking about his perception of the use of humor in teaching]

The group finishes their positive discussion with full review of the client's medications and student suggestions for future counseling. The CP wraps up the discussion with a humorous comment which shows sympathy to the client and ends their serious discussion with some light-heartedness.

OK, alright. I don't know how anybody can take all these things [medications] at one time and still have any type of time.

The students appreciate and enjoy laughter and humor in their clinical rotation and the implications they have on their learning. It is significant that one student gives the following insight:

> Humor makes it [the atmosphere in clinics] more relaxed. It makes it easier to learn. You are not hesitant to say something or hesitant to talk about something.

For example, the CP is in conference with the students in the private office area preparing for a client visit. The CP is going over the care plan and the subjects for discussion with the client. Since the students will be the only ones present during the client counseling session, the CP wants to ensure that the students know what to cover with the patient. He solicits their lists of medications that the patient is currently on and their assessment as to what they should guide the patient to do for self-monitoring after her successful kidney transplant. The students give a complete list of medications and question whether the patient needs to be counseled about not taking any over the counter herbals. The CP responds:

> CP: I doubt if she will be taking anything [herbals]…
>
> Student 4: Right, that was what I was thinking! After all the other things that she has to take.
>
> CP: I don't think she will take anything else. She probably won't have to eat!

The ensuing discussion is on anticipated renal function, student driven questions on signs and symptoms of renal failure, and management practices of kidney transplant clients. The experience of working with a kidney transplant patient was new to them and the stated in subsequent interviews that they felt free and comfortable to ask questions.

Allowing Time and Space for Reflection

> **I like to let them go! And let them roll with it!** [CP when talking about what he does when he knows that his students are prepared and capable of handling a client situation]

The CP and his students discuss two more clients who are expected to come in for counseling before they are interrupted by the arrival of a client. What is remarkable in this discussion is the lack of questions from the CP. There is lively dialogue consisting of new information sharing and clarification of drug dosing. The students readily explain their thoroughly prepared research. The fact that there is a lack of questions does not mean the CP is not in the teaching role. Just as artists sometimes utilize the canvas's unpainted areas to be an integral part of the painting, the CP utilizes spaces created by conversation. Pauses and spaces invite participation. The students readily do so. Some of the spaces are filled with the CP giving mini-lectures as to what the client visit entails. His verbs are directional to the students. His vast 25 years experience as a retail pharmacist and his knowledge of many families in the community give insight to good patient care. For example, the following is part of the dialogue he has with his students regarding the customer who has diabetes. The underlining gives emphasis to his directions and plan for the counseling session.

Looks like she has been seeing the same group [physician group]. For her, she is well educated. She is not going to have any problem understanding anything that you want to talk to her about. So, we will go through the same routine that we always do. Explain to her the program, go through the medications, get a complete medical history. See where she is. Get her body mass index. See what that is. And make a decision at that point. We will go ahead and give her the dietary stuff. She has been through the program at the

hospital so she has had the concentrated 3 day visit with the dietician, the nutritionist, and things like that. So what we will do is re-emphasize a lot of these things. See what she is doing for exercise. I have a feeling not much. We will try to work something like that in. Try to, explain to her the importance of all these things. The fact that she is a Type II [diabetes] is really to her benefit because that is the type of diabetic that can really benefit from nutrition and exercise. A lot of times they can sort of wipe out a lot of the bad that is going on. 80% is going to be better if she will do these things and get in the habit of doing these things. Do that, try to set her up for next week. And then next week, she can come back with her dietary log and make sure she brings in her meter so we can test her while she is in here. She can do that so you can observe her monitoring. Make sure she is doing this at least twice per day. Emphasize the importance of monitoring to her. What else on her? Anything that comes to mind?

In the above CP explanation, his verbs phrases are directional and set his intended course. His phrases are specifically direct such as; explain, go though, get, make a decision, re-emphasize, see, set her up, make sure. Even though this is the client's first counseling session, the CP already has a working relationship with her and her family. He can provide insight to the students by such knowledge as commenting that she is well-educated. This translates into patient care implications in that the students were able to detail explanations of lab values, diet regime, and physiology of disease with the patient having good understanding and asking pertinent questions. He shares with his students his insight, "She is not going to have any problem understanding anything that you to talk

to her about." He solicits student input by asking the big picture question of "What else on her?" The students respond with the suggestion:

> Student 4: What they have eaten too, that past week, we can look at that too.
>
> CP: Right, we will look at that. See how that looks. Then we will go through, and formulate some goals for them. Then the next time they come in we have a goal sheet.
>
> [getting goal sheet]
>
> We have a system. We try to send them home with something that they can put on their refrigerator so they can have an idea of where they should be at different times and things to look for. A fill in the blank. All right, anything else on her? She will be new, this is the first visit for her.

This invites reflective thinking on the part of the students. In a discussion of the patient's hypertension, they suggest monitoring the amount and effects of hydrochlorothiazide, HCTZ. This is a correct and helpful insight on the part of the students since HCTZ is on the approved FDA list for the management of mild to moderate hypertension. Once again, the discussion is collegial and informative.

The discussion is interrupted by the early arrival of the patient for diabetic counseling. She is graciously welcomed by the CP with introductions to the two pharmacy students and to me as the researcher. The CP explains the reason for my presence and she immediately gives permission to be a part of the observation and study. She sits with the group and, after establishing common ground about the warm muggy temperatures, the CP directs the conversation to the counseling session. The CP begins with an explanation of the counseling program and then turns to the interview and session completely over to the students. He remains part of the group until he is paged away by his staff. The CP is available at any time should the students or patient need to confer with him. He is giving them space and freedom for their learning and pharmacy practice.

The students conduct the session with friendliness and reassurance to the client of how well she is doing with weight control and monitoring her blood glucose levels. The students meticulously record the client's weight, vital signs, and blood glucose level. They observe her technique in pricking her finger for a blood sample. They observe her measuring her glucose level on her monitoring her device. They praise her for her ability to do so well. The customer and students appear to enjoy genuinely the conversation. They linger over discussion of recipes, family, and the courage it takes to stick oneself for a blood sample. When the client has no more questions, she schedules her next counseling appointment in one week. The client expresses gratefulness and appreciation for the time spent in the counseling session and heads back out in the mid-afternoon sunshine and heat.

The students organize their papers for the debriefing session with the CP who returns shortly after the client leaves. The time together allows space for student reflection on their session with the client. The CP exhibits one of the traits of an expert when he looks through the collected data, cuts quickly to the main point and says:

> OK, let's take a look here. OK so, pretty classic. Blood pressure was up a little bit but probably reactive, I would think. But we will take it each time and see where we are.

He is not concerned by the moderately elevated blood pressure but is drawing the students' attention to a figure that should be monitored in future visits. He uses this finding as an opportunity to inquire of the students' perception of their comfort of working with the blood pressure manometer and gauge. They indicate there is no problem.

Collegial Learning and the CP as a Supporter

> **Everybody is passing the information back and forth. It just adds for more knowledge, more comfort, more confidence.** [Doctoral pharmacy student in discussing collegial learning on clinical rotation]

How is the debriefing session organized and what drives the flow of exchange between students and CP? Rather than a series of CP driven questions and answers supplied by the students, there is a collegial dialogue of pertinent student findings during the disease management counseling session. The CP expands upon the topics brought up by the students by talking about additional cases that he has had with previous clients, with sharing stories of his work with physician groups, and going through the diabetic topic check list. For example:

Transcript:	Researcher comments:
Student 4: Her diet seems really good. She had gone through the hospital program.	Student assessment
CP: I find people in that age group, they, really came along before fast food. So they are schooled in cooking and eating right. Actually a well balanced diet but it might be a lot of the wrong things but really they know how to eat and they know to eat the right food groups.	CP sharing insight and experience of working with an older generation.

The CP shares dietary experience that can guide these students who will be working with an older generation.

The family support system of clients contributes to the compliance of clients to their medication and monitoring regime. The CP is able to supply information about family support and other family members who have the same type of diabetes, Type II, that the client has. He is able to predict that not only will the client have family support but she herself will be able to be a source of information and guidance for family members with the same disease process.

CP: She has a real good family unit.

Student 3: Yes.

CP: So, very supportive, all the kids live here. They all come in all the time….I am sure she is going to have a lot of support that way. Probably the kids seeing their mother with that [diabetes Type II] will think, well, let's eat right because they are in line for the same thing.

Student 3: The daughter being a nurse will give good feed back.

CP: Right. She will be excellent to give her some feedback. Doesn't smoke, doesn't drink.

After the discussion of the family support, the CP asks the students two direct questions:

Did you explain to her the A1C? And how that works?

The A1C refers to a hemoglobin level which is the average glycerin control over several months. Even though this subject was not discussed directly in the counseling session, the students reply:

Yes. It sounds like they might be doing some liver tests too.

Here is an example of the question from the CP being completely avoided and then moving to a statement that does not have any direct bearing on the important topic brought up by the CP. This tactic, whether intentional or not, serves the purpose of "pray and spray" when one is not sure of the proper answer. This is a possible missed teachable moment because the very next statement of the CP is an inquiry as to who is the client's primary physician. There is no return to this question or explanation of the mechanism of action for AC1.

The conversation continues as the CP introduces the new topic of diet, daily calories, and percentage allowed by carbohydrates. There is a point of confusion for the

students during the counseling session due to inadequate information supplied by the client about her carbohydrates. The CP clarifies and focuses on what is important.

Transcript	Researcher comments
CP: Did they [hospital dietician] give her a specific diet?	Focusing question. He listens to the previous report by the students on numbers of carbs but he asks the clarifying question.
Student 4: Apparently with the hospital diabetic program that is where she got it [the diet] from the dietician. I think she is going to bring it in on the next visit.	Student response.
CP: So we are looking at carb, protein, and fat. And certain percentages.	Focusing assessment from CP.
Student 4: When we got ready to go through that meal planner, when we told her that we didn't know about the calories, we didn't know how much of each. With the carbs we couldn't figure it out so she is going to bring it in and we can go back over that.	Decision by students that subject could safely be delayed and revisited upon return of the client who will bring the hospital supplied information.
CP: OK. [looking over interview form] [pause] Doing OK on vitamins, calcium, and baby aspirin . That is perfect.	Focusing assessment by the CP.
Student 3: It is not a baby aspirin, it is a regular one.	Clarification and correction by the student.

At this juncture, Student 3 comments on her correction of the CP by saying that it is just the student record that records the type of aspirin. Her following statement indicates her intent to thoroughness.

We go back over that to make sure we cover everything. What we still need to cover for our next visit.

The CP gives positive reinforcement with the content and handling of the counseling session thus far. In that reinforcing statement, he introduces the next topic of exercise.

OK. That is good. You go through the general facts….I think with her it is a matter of

hammering home the monitoring and I think she says she does some exercise but I am sure it is strolling, mostly.

Student 4: Yes, that is what I think too.

Focus by the CP on Critical Areas – An Approach to Thinking

> **If they break things down into key areas, when they are dealing with somebody, that is also what makes sure they cover all those key areas…**
>
> **Within each one of those areas there are factors that they have to go over and look at. By saying, "The key thing is, what?" They go, "OK, now what do we do with that particular area?" That is sort of, that is trying to give them an outline in their head of the main thing that they need. So it is not a hit or miss or scatter.** [CP reflecting on his teaching]

The CP uses a statement that focuses and draws the students' attention. [bolded for emphasis]

We need to maybe emphasize to try to gradually pick up the pace. Just keep reinforcing those things. **That is the key with it.** You don't want to drive somebody away, like getting them on a 1000 calorie diet. After about 2 days you are done with that. It is the same way with this. It is a gradual process. It is just reinforcement.

Here the CP is drawing the student into the main point, the critical area for this counseling session. This is a role model of the CP's methodical way of thinking. He is guiding the students in an approach to their clients. One pharmacy student found this particularly helpful for she commented that the emphasis the CP gave using the word "key" and his subsequent explanations made those points stick in her mind and made it "memorable." She states:

You are going to remember that specific point because he stressed it that way.

Here at this juncture is good patient care and counseling, as assessed by the CP as well as engagement and focus on the pharmacy students' role.

The final point of debriefing of this patient counseling session centers on the self-monitoring by the patient of his blood sugar level. The students learned from the patient that she herself did not know how many times a day she needed to stick herself to monitor the blood sugar level. That determination is critical for adjusting medications and monitoring of diet. The CP gives the students freedom during the debriefing session to discuss their opinions with relation to their findings of the client's compliance with her diet, exercise, and medication schedule. The culmination of that part of the discussion is:

Student 4: It looked like it could be just once per day.

The CP's response is one of organizing the supplied information, a future plan, and one of practicality for keeping costs down for the client. His response is:

Transcript	Researcher comments
Well, it [blood sugar level] is going to be down, if she is eating right, getting the exercise, it is going to be down, and she can go to [testing her blood sugar] once per day.	"If – Then" reasoning.
And she can go to every couple of days if it is down and she has her routine.	Plan for the future.
Especially if they [insurance] are not going to pay for her strips. Save money that way.	Practicality in the plan.

This client counseling session and student debriefing on that particular patient comes to a close with resolution of a satisfactory assessment by the students and a plan of action for future counseling sessions. The CP brings the discussion to a conclusion and moves to the next topic in saying:

So we need to write her up and we will be home free on that. What did we decide on T [name of next client for counseling]? I have her coming in [for an appointment].

The CP begins the next topic with an open invitation to the students to set the direction of the discussion on the next client. The students are familiar with the client since they have been in a counseling session with her within the past two weeks. Student 4 sets the direction of the plan to meet with T, the incoming client, by making three points that she thinks should be discussed with the client. The CP affirms the students' plan and expands on one point with modeling a commitment to service to the client beyond the expectations of normal patient counseling. T is a Medicaid patient utilizing the Free Medical Clinic with no access to dental care. Even though this service is beyond the pharmacy counseling setting, he has encouraged the students to research free-of-charge dental services open to the client. Discussion ensues as to contacts that could still be made on behalf of T.

It is at this juncture that I am drawn into the conversation by the CP and students about the possible creation of a dental and medical school at our university. Discussion centers as to health and medical school education opportunities and visions for involvement of the community in such endeavors. But time is pressing and the CP directs the discussion back to the specific patient plan in a specific, organized manner. Bolding for clarity of actions:

> So we are going to **look at her diet** and **make sure she is monitoring**. **See** if she is **doing any type of exercise**. **See** what the **follow up is on her pap smear**. **Find out** when **her next doctor visit** is or if she is **going to the clinic** or what. We need to **get some additional lab values**. That would be good. At least in the next couple weeks so we can see if we are having any benefit here.

CP Teaches by Role Modeling the Professional Practice

> **[The CP] is providing us great information, great experience. He is teaching us how [he functions as a pharmacist]...in a pharmacy that runs very well, that the patients like coming to.** [Doctoral pharmacy student reflecting on her CP]

The remaining topics of the discussion for T are student initiated and are the context of their plan in meeting with T. The complexity of the patient's medical status and her lack of social support make her one of the most challenging patient counseling sessions that the students have. The CP's experience and knowledge of T's family is an integral part of her compliance with medication regimes and overall health. The CP confirms the complexity of T's situation, reassuring the students that despite all of their good efforts, not all of T's challenges are going to be easily overcome.

Transcript	Researcher comments
CP: A lot of areas for her. We got to look at her diet, her exercise, her meds. She is getting those mixed up.	Statements show CP's insight into complexity of problems.
I don't think she has any help with what she is doing. It sounds like to me. She has a boy friend but I don't think he is too worried about what is going on with her health. Her mother is not real supportive. Her parents don't seem to be [interrupted by student].	CP has knowledge of client's lack of social support system. Demonstrates knowledge of family structure.
Student 3: It is hard to figure out.	Student honesty in assessing complexity.
CP: Right. If we can start getting some of those areas in line, and it is not going to be something that is going to happen over night.	Reassurance from CP that this is a long term counseling project, one that might not indicate immediate improvement or success while students are still on rotation.
We are just going to have to get her back and get her back until she knows what she is doing.	CP emphasizes the need for repetition for this client.
Then you have done your job.	Ultimate aim for the students.

So we have her. Then N. is coming in.	Transition to next client discussion.

The CP and two students quickly discuss two other clients who are scheduled for private counseling. One is a borderline asthmatic who is learning to monitor her peak flows with the guidance of the pharmacy students. The students are interpreting the recorded results and anticipating that the client will record a higher score [peak expiratory breath flow] today since she was sick the last time and was not able to put forth her best effort.. The CP affirms their interpretation and expands upon it with insight as to her medical history. He takes it one step further with relating it to what type of plan would be best for her. This dialogue is not as rich as previous discussions. It was as if the students and CP were merely going down a check list of vital signs and topics that should be covered with the client.

The last sequence of dialogue between students and CP is scattered with little sequencing of questions or comments leading to formulation of plans of action. This is a time of "filling in the blanks" for two additional clients in the area of their compliance to the regime of their medications, and the schedule of their picking up their medications. One client has an insulin pump which neither the CP nor the students has seen. The CP readily admits he does not have experience in working with a client with such a device. He affirms the difficulty that the client may have with the insulin pump.

CP: With S [name of client], take some notes. I would be interested to see how she is doing with the insulin pump.
Student 3: Yes. I am real interested. I haven't seen one before.
CP: I have never really seen a pump before either. A lot of work.
Student 3: Yes.

This is a missed teaching moment because there is no mention of follow through with efforts to locate more information about insulin pumps nor any mention from the students about researching it for future reports. The CP abruptly introduces a new topic, asking if the client has picked up her nicotine patches. A subsequent interview with the CP reveals he is pressured by time since he has been away from the pharmacy counter for an extended period.

The last topic of conversation between CP and students is initiated by the CP. He relates a successful intervention and counseling with a diabetic patient who has success in managing his blood sugar levels, exercise, diet, and change of medications as guided by the CP and students. The CP gives an overview of the client's diabetic status including his medications both before and after meeting with the CP and students. This counseling session is an example of cooperation between the patient, the pharmacy counseling program, and the physician which results in changing medication. This is due to the patient being able to control his blood sugar level because of his diet and exercise. The students are a part of the cooperation between physician and pharmacist in working to determine the best level of medication for the client. The CP says,

> It [feedback with the physician] is a good thing. And they [physicians] trust you….see what your judgment is and what things you are doing. This physician is pretty hesitant to change his decisions. So, I thought it was pretty good. I didn't think he was going to change. [laughs]

In this situation the students have the opportunity to observe role modeling of a pharmacist who is working cooperatively with a physician and client for the best possible patient care. The CP takes the student observations one step further for the students by having them counsel the client, schedule his appointment, and keep in close contact with

the physician's office. In the following reflection by the student, she mentions that her clients want to come in every week for one-on-one attention and guidance from the CP and students. She also notes that this experience is a time of learning for the students, made possible by the opportunity that the CP has provided.

> And we have been keeping him [the client] up to date every week so every week he gets to see what his blood sugars were the week before. They [the clients] want to come in every to week with us to go over a couple of things and check things. And that is when we learn ... We will sit and write down all their values. If it is looking low, we will fax it over and follow up with a phone call a day later [physician's office]. I think that afternoon, he [physician] called back.

This dialogue in the private office between CP and students affords a time of reflection as well as an assurance that the care plans for clients are complete. This is the time that students and CP can ask questions in an atmosphere free of the distractions of a busy pharmacy business. Sharing of visions take place in this time and space. Mutual learning and sharing of information takes place. The CP states very plainly that he learns from his students and that this is beneficial to him. He has the vision of one-on-one counseling taking place between pharmacist and client. The CP states:

> I know what [pharmacy students] are learning out there is great. I know it is good for me. I learn a lot with just working with the [students]… I am hoping this type of thing will become part of every [pharmacy] chain in some way. They have been saying this since I got out of school. This is the way it ought to be. But the reality of it is that they just can't do it. You got to look at the bottom line. Can we afford to have the pharmacist back here and not out there? And how do you coordinate that and do it? …plus at the time, not many 3rd party payers are paying for this kind of service. You got to demonstrate that that has got to work. That has to generate dollars.

Truisms from the CP are a part of this teaching sequence. Despite the fact that the CP is devoted to being a pharmacist and a CP, he emphasizes to his students about being balanced in their activities. He delivers the following truism in a humorous tone which evokes laughter from the students.

> You can't expect somebody to come in on their own time and do that [client counseling]. That is what I was doing at first. After a while my wife was saying, "Are you coming home today?" I started realizing I can't do it. You can't . You also have a life. That is another thing. Always remember that you have a life. There is work and your life. But anyway. That is something that I hope is going to happen anyway. You keep plugging.

The day of being with the students and CP ended in a positive manner. The students are relating a successful client intervention with the outcome of improved lab values, healthier vital signs, and client and spouse feeling energized and better about themselves. Student 4 says:

> And that is what pharmacy is all about, is really being able to make a difference in someone's life. Just like giving them the education that they do not have or the information…that they didn't have or didn't understand.

Student 4's partner sums it all up by saying, "A successful day."

The CP is Available and Open to Engagement

> **That is my watch.**
> [CP statement when reflecting on his responsibility in the pharmacy]

How does the CP do it all? How does he fulfill the demands of being the pharmacist in charge of the shift with pharmacy technicians, cashiers, and two pharmacy students in what could be a chaotic atmosphere but at all times is focused, orderly, and efficient? In this atmosphere, the CP is a pharmacist and remains open to the students. The CP reflects:

> And I have to know everything that is going on whether it is out back here, out there, people on the phone, people through the drive-through window, questions at the counter. Things like that. You have to be, you have to have your ear on all of that, the whole time you are on duty….It is hard but that is what you have to do because ultimately you are

responsible for all that. That is just my philosophy about it. I try to make sure at some point that all my students know that when you are working, when it is your license and you are out there practicing, that is the way you have to look at things.

The CP does just that. He is aware and involved in all aspects of the activities. The students respect his responsibility in running a business. If a mistake is made in providing a medication, the stakes are high. There are questions that arise throughout the day that must be clarified with the CP but the students research their questions and make sure they have all the available information before asking their CP for guidance. One of the pharmacy students says,

I always like to be sure. To make sure that I have everything that he [the CP] wants us to cover. That is always one thing I have always done, to make sure I have everything he wants. I always ask that extra question.

Each medication question comes to a resolution in consultation with the CP. The student then carries through with the decision.

One of many faxed orders comes to the attention of the CP. There is rich discussion, focused attention and action by the student, and a follow through by the student with appropriate and good patient care. The following conversation takes place between the CP and student amidst other medications being processed and a whirl of movement at the pharmacy counter.

CP: There is another one that we need to fax here. [working with more orders with students nearby] And [interrupted by student]

Student 4: She got it on 6/3 it's for the generic Cardura®.

CP: OK, who's it for?

Student 3: Ummm, Dickson , just got it on the 15th so it won't go through until the end of the month, actually the 26th

CP: That's too soon, she's only taking one a day, let's make a note, she got a Plavix that should be here somewhere.

Student 3: OK.

CP: That's she getting right now. Put a note on there Cardura® or _____ too soon, look over in the bin and make sure she [interrupted by student]

Student 3: I just did, yeah there is one over there

CP: If she's picked it up, OK, she's calling in the wrong number I guess

Student 3: OK.

Here is a challenge of possibly a wrong number being called in for a heart medication. If the medication is filled incorrectly or at the wrong time, the results for the customer could have serious health complications. The student is experiencing the reality of incorrect numbers being called in and how to handle such situations. With the experience and quick research of the CP, the incorrect medication is deleted out by the student. The student's actions are all under the watchful guidance of the CP. But the fax continues with another possible teachable moment for the student. The student reads the fax out loud:

States that a patient with high blood pressure with a cold wants to take over the counter [medication].

The student adds her thought and suggestion of an appropriate over the counter medication. "Just like a Benadryl®?" The CP gives her suggestion consideration with a pause and a prolonged, "OK?" inviting the student to give it more thought. The student follows through stating, "She can't take any of the pseudofeds." The CP affirms the student, adding another piece of information.

Right! That's correct because of the blood pressure. Hmm [pause while giving consideration]. Have we talked [pause] is she allergic to anything that you know of?

Here the CP is information gathering, focusing the student to consider possibilities that she may not have explored. The student states, "I haven't talked to her yet." It is at this juncture that the CP gives direction. He draws on his experience and gives his recommendation. The following exchange takes place just after the student says that she has not talked to the customer yet.

Transcript	Researcher comments
Student 4: I haven't talked to her yet.	
CP: OK, so you want to find out if she is allergic to anything first and then just Benadryl® is usually my recommendation or Chlor-Trimeton® which is another one.	Giving direction and focus. Sharing his recommendation.
Student 4: OK	Student acknowledgement.
CP: If, see what her symptoms are, if she's having a lot of coughing, chest congestion, things like that, uummm Robitussin® plain is okay, if it is a non productive cough, you can add a DM to that, but if it's productive if she's getting a lot of junk up then just the plain Robitussin®, next three days, I always tell them to make sure they drink a full glass of water at every meal	Mini-lecture with plan of action. Sharing experience.
Student 4: OK.	Student acknowledgement.
CP: That way, it thins out any mucous or congestion that is building up and that should take care of that....	Continuation of mini-lecture.
Student 4: OK.	
CP: But, go ahead and ask her those questions and then make that recommendation.	Final direction. CP gives freedom to student for follow through.

The CP shows trust in the student for correct follow through. The student repeats the recommendation to ensure she has it correct. The short dialogue that follows between CP and student continues the information exchange which enables the student to have a fuller telephone conversation with the client. Just before the student telephones the patient, the CP and student have the following exchange:

Transcript	Researcher comments
Student 4: OK, so the Robitussin DM® if it's just non productive. CP: Non productive. Student 4: and Robitussin® plain if it's productive. CP: Right. Student 4: OK. CP: But if she's got the head stuff, Benadryl® is fine, drowsiness warning Student 4: OK. CP: You know and maybe good to take at night. Student 4: Alright CP: If she has to do something during the day. Student 4: OK.	Student repeats recommendation of CP to ensure understanding. Acknowledgement of CP to correct answer given by student. Continuation of mini-lecture.

The student immediately contacts the customer by phone. The student goes through the questions suggested by the CP and gathers the information so she can make an informed decision on the recommendation. The student poses all the questions recommended by the CP and suggests some over the counter medications. Her phone conversation is

professional, thorough, and offers encouragement to the client to keep up with drinking lots of water. The final part of the interaction of the student with her CP is her report back to the CP of what transpired during the phone conversation.

> Student 4 [to preceptor just after she finishes phone conversation with client]: Okay, she had mainly, just the only allergy was ummm, to antibiotics, stomach upset just to erythromycin
>
> CP: OK.
>
> Student 4: But, ummm...mainly head and she was coughing stuff up so I told her the Benadryl®/Chlor-Trimeton® and then the plain Robitussin® and drink the water
>
> CP: Plenty of water, Ok, great, cool!

The CP quickly assesses the report of the student. He affirms the student in her actions and then both of their attentions are directed to the next customer interaction.

In a follow-up interview with the student, she reflected on the value of her CP as a source of information for medications and the experience her CP brings to teaching and being a pharmacist. She states:

> They [the CPs] have been out there for so long. I mean there are some things you just learn from being in the field for so long that you might not really ever find in a book. And they just know it from being out there for so long. And so you use them. For OTC [Over the Counter Drugs], they have their favorites. So that is really helpful… OK, well, he really likes these. And that reminds me. I keep that in the back of my mind so if someone should ever ask me a question, I can think back of what were people's favorites.

The experience of the CP is valued by this student. Her statement reflects her acknowledgement that his knowledge is replete in working with many customers over the years. He has a wealth of cases illustrating which medications are effective in various

circumstances. The student can learn from the sharing of this information if she indeed makes it part of her repertoire of knowledge as she says she does.

Topic 2 - Features of the Teachable Moment

> **Anything that I am not sure of or don't know is always going to be a teachable moment. If it is something new…I am going to step aside and go and learn that.** [Doctoral pharmacy student]

The previous interactions between CP, student, and clients contain moments that are teachable as well as stretches of time that are simply rote and time filling. What distinguishes these moments?

First, as the student's statement above indicates, the teachable moment has the element of discovery or the potential of presentation of new information. It could be a situation or information that the student knows partially but gains a further insight or deeper understanding. In the context of the retail pharmacy, a list of client medications can be static and remain only a list but if the student has a concern or desires to view that medication in relation to his or her client, the list is a potential for a teachable moment.

Second, the student's statement also indicates that there is space and time taken for reflection, processing, and grasping the teachable moment. Information is seen in a new and different light, relevant to the situation. The CP, student, or combination of CP and student must engage and be open to the teachable moment.

Third, the CP and student must have base of knowledge to be able to engage in the teachable moment. The base of knowledge refers both to knowledge of the material that is part of the teachable moment and also to self-knowledge of one's own learning process. For example, one of the students realizes that she is a visual learner. She stated this in her interview and she spent more time than any of the other three students with her

Palm Pilot, with taking notes, and with looking up information electronically and in reference books. While working with a client in the aisles of the store, she learns of a new use of a medication. When the encounter is finished, she returns to the pharmacy bench and pulls aside with her palm pilot and drug reference books to research the drug. She makes hand written notes and then further discusses the use of the drug with her fellow student.

Fourth, the student or CP must be engaged and open to the teachable moment environment. As one student says, "You can create your own teachable moment. I think you just have to be willing to do it."

There are three additional elements to the teachable moment as evidenced in the following sections. They are the use of repetition, creation of an environment conducive for engagement to learning, and knowledge on the part of the CP of student's learning style, interests, and background knowledge.

Repetition as an Element of the Teachable Moment

> **I need repetition…I might not remember it [new information] right away that first time.** [Doctoral pharmacy student]

Two days later, the students are behind the pharmacy counter processing twelve prescriptions. Each prescription must be entered in the pharmacy's computer system which checks the order against pre-existing prescriptions for each client. A software program identifies any possible drug interaction with medications that the clients might be taking. This system also ensures that prescriptions are being filled in the proper time sequence so that medications are not given too frequently. With each prescription processing, the bottle or packet is hand checked at least three times for accuracy and proper labeling. Although the process can be time-consuming, it is efficient. The

students and pharmacy technicians give full focus and concentration to this demanding and exacting process. The student is familiar with this drug and has seen it in patient context before this time. Student 3 asks:

> Michael [name of CP], I've got one here. I've got, actually, it's Mrs. Smith on the phone right now. This [a request to get a prescription refilled] is coming back too soon by a week. Do you want to let it go through? They are leaving for the beach house.

The pharmacy student identifies a prescription that the client wants filled but it is too early to fill it, according to the computer. The computer system blinks a warning. The CP has the authority to bypass the warning if there are mitigating circumstances. The student begins to tell the CP about the circumstances of the request. The CP had been working on another prescription order as well as responding to a customer who has walked up to the counter. He cuts through the student's comments by asking a simple and direct question. "So, they are trying to get it before they go?" The student replies, "I guess so because he's out and like I said, it's two weeks early anyway." The CP focuses on the request, drawing on his knowledge of the patient and medication. "It's a headache medication. Sometimes they take it more than once a day….Yeah, so that's fine." Resolution. The student refills the prescription and notifies the client by phone.

The environment behind the pharmacy counter is in sharp contrast to the private counseling area where uninterrupted conversation took place two days ago. Today, the pharmacy students are in the midst of movement, constantly ringing phones, a fax machine churning out requests, customers walking up to the counter, and a busy drive-through prescription window. Despite the high demands of focus and constantly changing circumstances, there is consistent communication between CP and his two pharmacy students as they fulfill the duties of a pharmacist.

The third topic of the morning is student initiated. The interchange between the two students and their CP is significant for three reasons. First, it is a clear example of both students working interactively in a collegial manner, guiding one another with source information. Both of the students in follow-up interviews comment on the positive aspects of working and learning with a fellow student as opposed to being on a rotation alone. Second, it provides a clear example of what the CP does with students stalling and giving filler information rather than a precise definitive answer. The series of questions he uses brings about a teachable moment and resolution. Third, there is a clear example of what the CP does with a teachable moment. The situation provides fertile ground for teaching in three ways; the student is ready and involved for the teachable moment, the CP resonates with the teachable moment and creates an environment conducive for engagement to learning, the teachable moment comes to a resolution or conclusion. These points are illuminated in the following.

The two pharmacy students give full attention to the computer screen. Their eyes are focused, they are in close proximity to the screen, and they are not distracted by the telephone ringing nor nearby conversations. The two students are researching a possible drug interaction between two gastro-intestinal drugs and Methotrexate and NSAID [non steroid anti-inflammatory drug]. Ultimately the Methotrexate is to be prepared for customer pick up. They have typed the medication order into the computer and are reading the results. After looking at the information from the computer and discussing the ramifications of the results, they ask one another, "What do we want to do?" They both agree, "We'll wait for the CP on this one." This is a medication that has multiple

uses. This situation could be considered fertile ground for teaching since the students are engaged, have a background knowledge, and have established a "need to know."

Student 4: Ummm [pause then reading out loud the information from the screen] carbo main cream methotropane levels, risk of toxicity, monitor renal function. Student 3: We selected there 2? [referring to an option on the computer system. Conferring with other student] [after further confirmation of Student 4, Student 3 says] Yes, select it there [on the computer] 2 [screen] so we can read what they say. [referring to computer system] Yeah, Methotrexate ancid.

The students call the CP over to the computer after he finishes conversing with customer. He looks at the information that the students have on the computer screen and asks them a big picture question. "Alright. That's good. So what do you want to do?" The CP does not supply the information. He wants to know the thinking process of the students. Rather than answering the question, the student reads from the computer screen of what happens when the drug level increases She reads that it decreases renal excretion. The CP asks for a student assessment of this information with a simple question. "So, is that a good thing?" The student responds, "Not if it gets too high." The CP begins to expand on this answer but catches himself in asking a clarifying question:

Transcript	Researcher comments
CP: Right. Chances are. [pause] How is she taking this? How, how with taking the methotrexate? Is that one of this once a week deals?	Clarifying question. Information gathering.
Student 4: Ummmm	Stalling
CP: Probably.	Filling in the stalling
Student 3: Ummmmm.	Stalling
CP: What are they getting today, Joyce? [pharmacy technician looking at computer to check on history of medication with patient]	CP drawing in pharmacy technician for clarification and help.

When was the last time they got the Methotrexate? Pharmacy technician: March 16. She takes two tablets every Friday once a week. CP: Takes it once a week [all 4 people, still referring to computer, CP, Student 3, Student 4 and pharmacy technician]. CP: Same doctor? Pharmacy technician: Ummm, [referring to computer] Dr. Z and Dr. M?	Focusing on the point. CP stating the fact of medication frequency. Clue gathering.

Here the CP identifies one of the physicians as a dermatologist. The students agree with this information. The CP then asks the direct question of what would a dermatologist be using this medication for? It is at this point that Student 4 is honest with her deliberate answer which is spoken slowly and carefully.

I have no clue what you would use that for.

Creation of Environment Conducive for Engagement to Learning

In the above sequence, Student 4 is not trying to stall or cover up the fact that she does not know the answer. The CP had already created an environment in which the student could be forthright in what she does and does not know. In a later conversation with Student 4, she reveals that she feels safe in being honest with what she knows and does not know. The CP will not berate her for knowledge that is not forthcoming from her.

How does the CP handle this situation? He does two things. He simply supplies the information in a simple, direct manner. Second, he emphasizes that the student should look up information. In the following dialogue, Student 4 registers surprise and

becomes absorbed in getting the information from the CP. As soon as the dialogue is completed, she refers to her palm pilot. This is her reaction to the teachable moment.

CP: Sometimes they are using methotrexate for people who have certain types of psoriasis

Student 4: Oh really? [With surprise and exhibiting interest. She is hooked!]

CP: And, so you want to take a look at that.

The CP is concerned that the patient may be suffering side effects of the medication. He realizes that two different physicians are ordering medications for this customer and they might not realize what other medications the customer is taking. The CP gives directions for the correction of this situation as well as giving a mini-lecture.

CP: OK, let's give her a call and just make sure she's not having any stomach problems and also if she's doing okay taking both of these together.

Student 3 and 4 together: OK.

CP: You've got two different doctors, so you've gotta be careful. One doesn't know what the other one's doing and this lady probably doesn't get out too much, she's down at [name of retirement home] so you've gotta make sure she's not having any symptoms of increased, of the methotrexate. [answer obliterated by phone ringing and pharmacy technician talking]

Student 3 and 4: Yeah, methotrexate

CP: That's a heavy duty medication it's got a lot of real tough side effects, especially you can get blood dyscrasias and stuff like that so you want to be careful of that but [pause] Dr. Y really likes to use methotrexate a lot, seen a lot of people go on that.

The CP Knows the Student

> **I just try to see where they are….I observe and see how much experience they have and what things they have done…Everybody is different.** [CP reflecting on working with his students]
>
> **Come forward and grow in the relationship.** [CP in talking about creating a comfortable learning environment]

As the CP and student dialogue on the medications and actions of the physicians, Student 4 is looking up the medication on her palm pilot. The CP gives her time for the research. She confirms what the CP has already told her with additional information such as side effects and dosage guidelines. The student is following through on her self-recognized style of learning. She states in a subsequent interview:

> I love the palm pilot. And I think that is a great source for when, maybe you just need a quick answer to a question. Looking through like Facts and Comparisons, the big book on drug information can take a little bit longer to do. So I felt for quick answers that I knew would be in the Palm Pilot, it was readily accessible and ready to pull out of my pocket and it was right there.

Her involvement in the dialogue continues as she is able to complete the sentence and thought pattern of her CP.

> CP: He, he uses it a lot so, I'm kinda [interrupted by student finishing the sentence]
>
> Student 4: Concerned about the ____ infection?
>
> CP: Right, so I am kinda leery.

The dialogue continues with the CP supplying additional information about the medication which is purely factual in regards to its efficacy. But the CP does not leave the topic with simple information that can easily be looked up in references. He highlights the reality of the complicating situation of the client being on multiple drugs. Subsequent interviews with the students and CP reveals the fact that the students have not seen these drugs with this patient situation. This information is beyond what the students learn from their textbooks and lectures.

CP: So, but then you add then NSAID and you gotta be careful of that.

Students 3 and 4: Mm-hmm [indicating understanding but there is no direct evidence of their understanding].

CP: So we are filling the piroxicam today, correct? [students unsure of this answer so CP turns to pharmacy technician] Filing the piroxicam today is that what you are showing? [saying this to pharmacy technician who is on the store computer]

Pharmacy Technician: Yes

It is unclear at this point that the students understand why the NSAID calls for caution. This is possibly a missed teachable moment. This point will be expanded in Chapter 5. The CP then sets the direction for the students by stating the plan of action.

CP: OK, alright, so, you just want to make sure with Mrs. Bradley that Dr. X knows that she's also on methotrexate, okay? Is he aware of that?

In the dialogue that ensues, Student 4 immediately asks for her role in the plan of action.

Student 4: Do you want us to call the doctor or just call [the client]?

The CP responds with specific directions which progresses to the student taking action with a phone call to the client. The topic comes to a resolution as Student 4 talks with the client and discovers that the client is only taking the piroxicam. The client told her by phone that the dermatologist had taken her off the methotrexate. The trust that the CP has in allowing Student 4 to make that phone call unassisted allows her to act as a pharmacist to determine the well-being of her client. The CP remains nearby for consultation if needed.

The two students on this rotation often work with clients who are on multiple medications that could cause complications when taken together. These complications are referred to as "interactions." At times the interactions identified by the drug store

chain computer system are simply a caution which can be noted and bypassed. The students identified one such interaction which ultimately brought about discussion and a challenge for their recall. What did the CP do to aid in that recall? What was the student response?

The students identify two medications that interact with one another and bring it to the attention of their CP. He uses direct questions to solicit factual information and to ascertain the students' recall of this factual information. The students stall in their answers and respond with incomplete answers. Repetition of a drug's use is part of this sequence.

Transcript	Researcher comments
CP: OK, [names the students] we have Catapres® and metoprolol interactions. We did this the other day.	Identification of topic. CP gives reminder this topic was previously covered.
Catapres® is what type of medication category?	Factual question, direct
Student 4: Alpha	Student gives incomplete answer.
CP: Alpha blocker [pause] And, metoprolol or Lopressor®?	CP gives complete answer. Asks another factual, direct question.
Student 3: Beta blocker	Complete answer.
CP: Beta blocker, so what was the interaction we discussed the other day on this?	Forcing recall.
Students 3 and 4: Mmmmmm [pause]	Stalling.
CP: A lot of people are on both.	This seems to be a filler since neither student is responding with the answer.
Student 4: Is it [said very hesitantly]	Stalling
CP: What do we want them not to do?	Clue, hint, leading the students.
Student 4: Don't umm, stop the alpha blocker	Remembering the correct answer.

first? Or taper the Student 3 and 4 almost together: Beta. CP: Right, they could get, what'll happen if they stop it without [interrupted before finishing sentence]? Student 3: Rebound	 Affirmation with leading on to further recall. Partially correct answer.

In the above exchange, the students are engaged in the discussion of two familiar medications. This is a situation that they will see on a regular basis in their student rotations and future practices so it is one that the CP has identified as important not only to this particular client, but for the professional life of each student. The CP moves away from the telephone and customer walk in section to give undivided attention to the students. The students exhibit partial knowledge of the medications as evidenced by their responses. They are not explicit and quick with their answers as would need to be in such a situation. The CP first begins with an assessment of the knowledge level of the students. He gives them reminders and clues, leading them to the correct responses. These questions are short, direct, and are a segue to his mini-lecture. This is an example of the CP knowing his student and how the student learns. The student states:

Some of the CPs do a lot more explanation. We are challenged in being asked more questions…Whereas others, it is just a quick answer and on with the next part….I was challenged more by their asking me questions.

Student 4 uses her Palm Pilot as the CP talks. This is an example of her self-knowledge about her learning style. She states in a later interview, "When I look something up, that is when I learn the answer." In this sequence, there is a student initiated topic. The students have a knowledge base of the subject matter but need more knowledge to make a correct decision and recommendation as to good care for the client.

The CP brings additional knowledge and experience to the situation. He is engaged with the students both by recognizing their knowledge level and by a series of questions and subsequent mini-lecture. Additionally, he allows the one student to follow through on her desire to utilize her palm pilot as a resource as he is talking. The last part of his mini-lecture sets the course for the plan of action:

Transcript	Researcher comments
CP: So, I think we need to make sure on [name of patient] that she understands what her medications were for.	Assessment of patient need. Subsequently this sets direction for what students will do in follow-through.
Her husband is probably going to come in and pick the stuff up but, uh, I think she is a little confused.	CP assessment of patient and family member.
We need to maybe back check a little bit and see if maybe somebody else[different physician groups] didn't get things mixed up. Maybe she's only supposed to be on Climara® and not this Catapres®.	CP assessment of what needs to be done – for student follow through.
So, I think she probably needs something for her blood pressure too but I just want to make sure when she comes in.	CP assessment.
Student 4: Alright	Student acknowledgement.

After this dialogue, the students work jointly with follow through of the CP's suggestions. Student 4 continues to look up the medications on her palm pilot while her fellow student prepares medications for client pick-up.

Learning When Placed in Real Life Situations

> **Malaria. Travel to Bolivia. Geez. Wow. Who'd want to go to some place where there is malaria?** [Doctoral pharmacy student while researching and preparing Malarone™]
>
> **I think a lot of the real learning takes place when you are actually out in the aisle with a customer. Because that is really when you are**

> **learning how to communicate with the patient.** [Doctoral pharmacy student]

There are many repetitions of common drugs that are prescribed and dispensed in a retail pharmacy as well as working with new drugs. The CP laughs while thinking about all the totally new medications that he must learn and teach the pharmacy students

> There have probably been in the last couple of years, 300-400 new drugs. Maybe more than that; drugs that are used in a retail setting in a lot of new categories.

His clients are traveling frequently to unusual places and must take prophylactic medications. A family with two adults and four children are soon to be on their way to rural areas of Bolivia but only after they have protection against contracting malaria. Here is the challenge for the CP and pharmacy students.

As the students and CP begin to process the Malarone™, there is an interruption of their conversation and actions by a walk-up customer who is requesting assistance in selecting an over the counter medication for a child. The request and presence of the customer requires the CP and students to divert their attention to go into the aisle to provide assistance. Six different topics are covered before the CP and students can return to the processing of the Malarone™.

The CP encourages the students to talk with the customer and child and do the advising. He would go with them as a resource. The adult is an attractive lady in her mid 30's. She has in tow a 8 year old child who is quiet, polite, and reserved. The only information that the students have is that there is a question on some motion-sickness medication. The following illustrates four things: the interactions of CP and students within the environment of the aisles, how the CP fills in for the students when they are

non-participatory with clients, the CP role modeling of a pharmacist with clients, a missed teachable moment on the part of the CP but recovered by the student.

Transcript	Researcher comments
CP: We'll go out [into the over the counter medication aisle] and show you what the different alternatives are here.	CP takes the lead.
Customer: OK.	
Student 3: Who's it for?	Student takes initiative to gather information.
Customer: Well, actually it's for him, he's eight; and then an adult.	
CP: OK, OK, ummmm, I want to tell you we're going be taping this. These are both senior pharmacy students at [name of university] and you're going to be recorded if that's okay	
Customer: Sure	
CP: OK, alright, this is for educational purposes. Let's go out here and take a look at the different options	
[walking out to aisle in store]	CP in the lead with students behind.
CP: Right here on the bottom shelf, have you ever taken any type of motion sickness tablet before?	Students do not take initiative so CP leads the conversation.
Customer: [to child] Have you ever taken medication for motion sickness stuff before?	
Child: Cold stuff	
CP: No, nothing that would keep you from getting car sick or anything like that when you take a trip?	Students again not contributing to conversation so CP takes lead.
Child: Every time I have been getting in the car as soon as I sit in the seat I get car sick	
CP: You get car sick? OK, OK.	

So far, the students have been actively listening and stand nearby the customer and child but there is no effort on their part to be a part of the discussion. The CP thus steps into the role of the advisor for the customer. Just as he has done many times before with his pharmacy students, he highlights his main point to the child and customer by using the phrase, "The key is…"

> The key with these products is you have to take it a half an hour before you get on the train or in the car, okay? Once you start feeling sick, it's too late. So that's the main thing with motion sickness tablets.

The customer and child acknowledge this point, looking intently at the choices on the shelves. Still, the students have not participated in the conversation. The CP begins his sentence to answer the question himself. He then stops, asking a question directly to the pharmacy students to draw them into the conversation. He solicits their advice as to which product they would recommend. They only stall and give no answer.

> CP: Probably, what would you say would be the easiest as far as drowsiness or sleepiness?
>
> Student 4: Ummmm [pause. So CP fills in space by saying the following]
>
> CP: You've got Bonine®, Dramamine®, those are the choices.
>
> Student 4: I'd say the Dramamine®.

In this exchange the CP goes so far as to give the students an A or B choice, either of which would be appropriate for the customer. Student 4 responds in a very tentative manner with no expanded explanation and even a qualification of, "I'd say the Dramamine®." The CP's response is one of supporting Student 4's response but the CP once again says that either of the choices are fine.

> CP: Dramamine® is fine, yeah, you've got a chewable Dramamine® that's probably good for, you know, adults and children but either one of these are fine.

Customer: OK, he'd probably do better with one he chews. CP: OK, I'd probably go with whatever is easiest, just make sure it's a half an hour before you get going and it does cause a little bit of drowsiness which is sometimes good.... Customer: That might be good for him. [laughing]

Both students remain silent throughout the remainder of the exchange. The CP discusses the appropriate dosage, possible side effects, and when to take the medication. There is no participation from the students in terms of dialogue. The students remain part of the group with good eye contact and physically position themselves for potential conversation.

As soon as the customer and child leave, Student 3 asks a question that reveals her recall and involvement in the topic. They are questions that use the CP as a resource. These are elementary questions that could have easily been researched by the student but the student wants to clarify while in the midst of the clinical encounter.

Transcript	Researcher comments
Student 3: What's the difference with the Dramamine® and Bonine®?	
CP: One is meclizine and one's the dimenhydrinate.	Elementary question. One that could be easily researched by student.
Student 4: Does one last longer?	
CP: Umm, Bonine® is a little longer.	Recall.
Student 4: Yeah, cause I remember we had a case and they were going on a cruise.	
CP: Cruise ships probably Bonine® would be a little higher	Evidence of drawing on his experience.
Student 3: For a car, just the Dramamine®.	

CP: Or train.	Evidence of drawing on his experience.

Despite the fact that the students gave almost no guidance in the conversation with the customer and only did so when directed by the CP, the debriefing with the CP after the customer left indicates engagement and recall on the part of the students. Student 3 remembers research comparing the two over the counter medications.

> Student 3: We were reading the book, one of the magazines you had back there yesterday just flipping through it and it was just the percentages of what over the counters the pharmacist recommend and I think I just remembered Bonine® just by a little bit, [her voice goes up, everyone laughs] edged out the Dramamine®. That's why I was curious.

The CP follows the line of thought and research of the students with one last recommendation for over the counter medications in response to what Student 3 says.

> Yeah, but I was hoping you guys would pick the Bonine®, either one is fine for them, really, OK? But, I think, I kinda go with the Bonine® as far, Bonine® is also safe for someone who is pregnant.

Here is an example of the CP sharing his experience, technical knowledge, and what has been successful for customers in the past. This supports what Student 4 says in a later interview, that she learns from her CP's vast experience.

> And they just know it from being out there for so long. I keep [their recommendations] in the back of my mind so if someone should ever ask me a question, I can think back of what were people's favorites.

Student 4 also says she integrates what she learned from school about motion sickness into this particular clinical situation. The CP puts her in a practical clinical situation where recall is forced.

The CP is not rigid in topic content when working with the students in the aisles. Student 4 introduces a different although related topic to over the counter motion sickness medications. She states, "I think that I've heard that ginger is suppose to work well." This introduction to the use of herbals could have produced a rich exchange of information, plan for more research, and sharing of information. It could have been a teachable moment with interaction between students and CP. However, the CP is honest in admitting his limited experience with the use of herbals. There is only antidotal conversation with no specific suggestions for follow-up with research. Student 4 speaks of past casual experience but with no scientific defendable background.

CP: [Works] pretty good, yeah. I don't have too much experience with that, but that is definitely something, somebody who wants a natural product and, but, I think that it's an old time, natural remedy, yeah, that's a good, that's a good choice too.

Student 4: I keep telling my sister to try it and she gets car sick, what she hates is the tired, she doesn't want to get tired.

CP: Mm-hmm, right, she should try it.

Student 4: I told her she should try ginger. She's fine if she rides in the front seat.

The CP continues with the topic of non-traditional treatment for motion sickness by walking to a section in the aisle that has pressure point wrist bands that claim to aid in motion sickness. The move to a different place in the store and introducing the topic of accupressure demonstrates the CP's willingness to continue to explore a different aspect of non-traditional treatment. But the CP admits he does not have the knowledge base of expanding on the topic.

CP: There's also, the wrist bands that are supposed to…

Student 4: Oh, OK.

CP: ... do like a pressure point, sort of like an accupressure type thing. That's supposed

to be something that you can put on a certain area and it is supposed to press and that's, you know, how acupuncture can really put it in someplace and it affects somewhere else. I think that's what they're using it for.

Student 4: Have you ever had anyone say they worked well?

CP: You know, I've had people try 'em but I never. That's the bad part about pharmacy, sometimes you don't get the feedback, whether or not something works or not. But, usually if something works really well, word of mouth gets out and all of a sudden you'll run out of wrist bands or somebody will be using something but I think that's the only one we have. [looking at display]

The discussion on the topic ends here with one of the students reverting back to the topic of Dramamine. The CP directs a return to the pharmacy counter. Neither of the students displays further interest in the topic of the accupressure nor is there any indication that they will pursue research on the topic. Even though there was not a significant interaction between the CP and students on the topic of ginger and herbal medications, Student 4, who originally interjected the topic, pulls aside upon return to the pharmacy counter. She checks her palm pilot for additional information about herbals and involves Student 3 in a search for herbals on her palm pilot as well. Student 4 has a short herbal guide on her palm pilot that one of her fellow students beamed her from school from another city. Together the students explore and discuss dosages and new side effects. This is a self-initiated teachable moment.

This is an example of a student driving a teachable moment. A subject is lying around in a clinic situation. It is recognized by the student. The student has some previous knowledge and a tie in to the topic. Although the CP is not able to provide a lot of information to the student, the moment can still be of benefit to the student for learning, retention, and application. The topic of teachable moment will be expanded more fully in chapter 5.

The CP pulls his own references and expands on the topic of ginger. The sharing of the information he finds captures Student 4's imagination.

CP: They are also using it for nausea in chemotherapy too, so Student 4: Oh, really? [with enthusiasm] CP: Right here it says one gram 30 minutes prior to travel, then 1/2 to 1 gram every four hours, maximum dose is 2-4 grams. It says prior to use, prior to cancer chemotherapy is one gram. Students 3 and 4: Mmm

The CP continues to discuss with the students the use of herbals introducing the topic of St. John's Wort. The discussion continues as follows:

Transcript	Researcher comments
CP: I guess, it just depends. You know those things are sometimes, it depends on the person. Some people get no effect whatsoever and other people it's just the best thing in the world so, but, as long as it's not hurting anybody, that's the only thing you got to be careful. Some of the things that say, you know St. John's Wort can help. Maybe you have people already taking an antidepressant…then you can add that to it.	CP sharing experience with herbals. CP introduces the topic of St. John's Wort.
Students 3 and 4: Mmm-hmm [with interest and enthusiasm]	
Student 4: The other thing they ask about is birth control.	Students are engaged.
CP: A lot yeah, St. John's they are finding it more and more with St. John's Wort really interacts with a lot of stuff, so, you might be careful, good to bone up on that, so.	Student continues the topic of herbals with slightly different direction. CP gives caution in working with herbals.
[end in tape- with no data lost. Then continuation of discussion of natural herbal products]	Advises students to research.
CP: You get all types of things like that and you have to make a decision for yourself whether or	Sharing experience and advise.

not that's something you want to recommend people to use and like especially a lot of times with dietary stuff. I don't particularly recommend those things. I am sort of hard core and people don't like to hear the hard core, if you walk four times a week and drink eight glasses of water a day, you know, cut out the fat, eat a healthy diet, you are gonna lose weight, they probably don't want to do that, they want the quick fix. Student 4: Right	The realism of working with people. Student engagement continues with verbal and eye contact.

The CP brings this topic of discussion to a conclusion with a very thoughtful philosophical approach based on his experience of working in the retail pharmacy arena for twenty five years. His sentence that, "You have to make a decision for yourself whether or not that's something you want to recommend people to use…" prepares the students to begin thinking of what their own personal philosophy will be as a pharmacist. He is emphasizing the fact that the students can do the research, can compare scientific sources, but ultimately they will have to make a decision as to what they personally think is the best treatment for their future patients. This discussion is not a soliloquy for it provokes reflection and thoughtful discussion, particularly from Student 4.

Student 4 relates her own training in preparation for a marathon in the past year. There is a popular canned liquid that runners use for quick energy which has the potential for adversely affecting blood pressure. Student 4 is well-acquainted with this liquid and recognizes its danger. She discusses how she tried to convince her training companions to stay away from the drink but it was to no avail. The CP gives his undivided attention to her reflection and shows personal concern, care, and involvement in the student's interest.

Transcript	Researcher comments
CP: You know, when you are young, it's great but every once in a while there is gonna be that small percentage of people that are gonna take something like that and their blood pressure is gonna go out the roof. They're gonna have a heart attack or a stroke or something and it's, you're gonna wonder, well, could I have said something or done something, so, to prevent that.	Relating to Student's 4 experience and her concern for her fellow marathon trainers. Personal involvement.
Student 4: Yeah, he was using it for a while.	Indicates her personal involvement.
CP: But don't be afraid to tell people, don't be afraid to tell people that.	CP emphasizing the importance of pharmacist becoming personally involved and taking a stance.
Student 4: I kept saying you don't need it. You go running enough.	Personal involvement of Student 4 with her fellow trainees.
CP: That's right, that's right.	Encouragement from CP

Despite over twenty five years of retail pharmacy experience, the CP admits that there are always new situations arising and always new medications to learn. The students may possibly fill a prescription for a child with a genetic defect which disallows metabolism of gluten. Thus, products must be gluten free. The CP tells the students that this is a very rare condition and at times, the pharmacist must rely on the parents as to what medications are safe for their child. The multi-faceted, rich discussion between CP and students includes clues for recall from the CP, engagement of the students in the discussion, use of CP as a resource, collegial learning and research of CP with his students, humor, and an honesty of admittance of not knowing information. There is resolution of the topic with more research being done by the students.

What would happen if the students bypass the warning of the computer system for the drug interaction of the child with the genetic defect? This is not an option for the

vigilant students who bring the computer warning to the attention of their CP. The CP knows this family, their child, and the medications that the child can tolerate. The students are in rapt attention with their CP.

Transcript	Researcher comments
CP: We usually go right ahead and fill this prescription for Tylenol® with codeine syrup…It is always good to be aware of it…We have that lady here that always asks is everything gluten free 'cause her child can't use a gluten …that's a tough one to research. You were here right when we had the nistatin, remember?	CP speaking from experience and previous knowledge of customer. Affirms difficulty. Forcing recall.
Students 3 and 4: Right	
Student 4: I remember.	
CP: It had alcohol in it and if the alcohol that's in it is made from grain than that has gluten in it and you had to be careful and so we had to order a special, gluten free nistatin suspension.	Mini-lecture.
Student 3: I remember that.	Recall on the part of the student.
CP: So you have to just be careful, ummm, certain things like that or, you know, once in a blue moon is probably a lot for something like that to come up. But every once in a while it does.	
Student 4: So with the gluten was the child, like, allergic to it?	Using CP as a resource for information. Engagement of student.
CP: Yeah. He has a gluten allergy, so there's a lot of [interrupted by student question].	
Student 4: How did they find that out?	Continued interest of student.

The discussion continues as to the testing of the child for reactivity to gluten. Student 4 who exhibits great interest in this subject asks further questions of the CP as to dietary guidelines for gluten free products and how much of a challenge it is to have a gluten-free intake. The discussion leads to questions on Questran®, Tylenol®,

Nutrasweet, Diet Coke, and Lite products. The CP freely admits that he is learning along with the students as they all research the store computer system.

Transcript	Researcher comments
CP: [still looking through information on the store computer] That's the warnings probably on the, .possibly it's only on the Lite? [asking this as a question to the students]	Collegial research and discovery of new facts.
Student 4: The warning comes on Nutrasweet or diet Coke all the time	Continuation of collegial research and discussion.
CP: Has that warning? [still asking the students]	
Student 4: Has the warning.	
CP: Must be underneath Coke and Nutrasweet, so it's the Nutrasweet, OK, alright, well that's good, I didn't know that.	CP exhibits willingness to learn alongside the students.
Student 4: Yeah, all the diet sodas.	
CP: Like I said I don't think I've ever had a person come up and say that they had that defect. I don't know how prevalent that is. That'd be something you'd have to get off the internet.	Humor.
[all laugh]	
CP: There is a source for everything! [all laugh]	Humor.

This topic comes to a resolution with the collegial research. The CP, with the use of humor, sets the possibility for further research for the prevalence of the genetic defect.

The next to the last topic for this day of clinical rotation is initiated by the CP for prescription sunscreen with a skin bleaching agent. This is a discussion sequence that has powerful engagement of the CP with students. The CP chooses to move to the pharmacy stock shelves and discuss the medications as the students pull the drugs from the shelves. This affords them the opportunity to compare ingredients, strengths, indications for use,

and mechanisms of action with medications in hand. The topic is driven by a customer who will be picking up this particular prescription so the students and CP have the professional obligation to fill it accurately and in a timely manner.

CP: OK, so, Soloquin Forte is that exactly the same as, ummm, say a generic hydroquinone 4%? What do we have? Let me have the box on the hydroquinone 4% there, please. [is given the box]

OK so what are we looking at ingredient wise?

The students read the ingredients and compare two different products. After reading the ingredients, the CP asks what exactly this product is expected to do. Both students respond that they are sunblocks or sunscreens. The point that the CP is trying to get across is that some of the products are designed to be a skin bleach for age spots but they also can contain sunblock or sunscreen. The pharmacist must look carefully for the possibility of the existence of both in the same product. After directing the students to various medications on the shelves and being satisfied that they supply the correct answers as to ingredients, he asks them about one particular medication with a big picture question:

CP: What do you all think?

Student 4: Uh huh [indicating confirmation] I'm wondering why they consider this a…with sunblock, cause I don't really see anything. [the ingredients do not indicate it is designated as a sunblock]

CP: Ummm, probably just because of the tint.

Student 4: oh [indicating surprise and taking in the information]

CP: Kind of like a zinc oxide which is a white, you know. OK, an interesting anecdote on that. But we don't need this tape on. [indicating he does not want to be recorded for the next sequence]

The CP uses an amusing and entertaining story about a past experience he had with filling a prescription with the same situation of the medication containing sunbleach and sunblock. This story on himself serves as an aid to help the pharmacy students with their recall. It also adds humor to the teaching situation and lets the students see that their own CP had a learning situation and learned from his own mistakes.

The final topic of the clinical day reverts to a previous topic discussed earlier in the clinical day. The students, under the watchful eye of the CP, fill the family prescription for an anti-malarial medication. The research on the medication began earlier in the day but due to interruptions, this is the junction when the proper dosage is calculated and the medication can actually be filled.

Since the dosage depends upon age and weight, the students research this information in a collegial manner with input from the pharmacy technician as well as the CP.

Student 3: Oh, how old is the child? Older than 8? Does it estimate?

CP: Um, let's see I think he is '92 [referring to the year of birth] so right about 8.

Student 3: OK, cause here it says children quinine sulfate 7.5 mg dose per kg 3 times a day for 3-7 days plus doxycycline but that's not for anybody less than 8. That's why I was curious.

Student 4: How old is he?

CP: Let me get you an exact birth date.

Throughout this exchange the students and CP refer to three different resources for malarial drug information; their palm pilots, the store computer program, and the drug information book. Throughout the search, each is aiding one another even through expressed frustrations.

Student 4: This isn't telling me anything [referring to computer program on a particular drug. Frustration in her voice.] I don't understand.

CP: He's 11 [years of age].

Student 4: On this, on the [computer program] if I do the Vivax, that is all I get. [CP looking over Student 4's shoulder].

CP: Ummm, OK, um, can you tap?

Student 4: Yes, I tried up there.

CP: Go ahead, tap again. No go to um, options [pause for student action]. Then, oh, let's see [pause, continuing to work with the computer while working with Student 4].

Student 4: It's weird. [referring to computer program]

CP: Let me see what I have on mine.

Student 3: [who found something] Here!

Student 4: That's why I can't get anything to come up on that one.

Student 3: Use mine.

CP: Let's see here. OK, so, ummmmm.

Student 4: Do you get anything different?

CP: No.

Student 3: What about Larium®?

In the above exchange, the CP and students work closely together to find the best possible solution for good care for the customer. The student introduces the idea of considering another medication, Larium®.

The CP immediately affirms the students' thoughts.

CP: Well that is one of the ones that should be used, that was what I was going suggest we go to but we'll have to [interruption by student].

Student interrupts the CP due to her intensity and close focus on her research. She does not wait for him to finish his sentence.

Student 3: Depending upon how much he weighs, for children with malaria prophylaxis for Larium®, however much he weighs, that's how much you take if you are greater than 45 kg, 1 tablet and _____ (inaudible) just like the Malarone™.

Student 3: Cause I just think back somewhere and [mumbling].

Student 3: There is also whatever, fenza, fenzare….Fansidar®? [mumbling]

Student 4: Chloroquine?

CP: Uh-huh, chloroquin and Lariam® are the two that we, chloroquin is [pause while working and looking at computer screen].

Student 4: Usually have?

CP: Cloroquin is what ah.

Student 3: The Fansidar® is for chloroquin resistance.

CP: Aralen®? [asking the students who indicate affirmative answer]

Yeah, those are the two. What is the [question interrupted by student answer].

Student 3: The Fansidar® is an anti-malarial agent, used as treatment plasmodium _____ patients [for whom] chloroquine resistance is suspected, malaria prophylaxis for travelers to areas where chloroquine resistant malaria is…..

The tempo is a staccato with no hesitation of questions asked and answers supplied. There is intensity and absorption in the challenge for the students of getting this one right. The CP is in the midst of the exchange, as evidenced by the above transcription.

During the midst of the conversation, a customer walks up with a slip of white paper in hand, looking expectantly at one of the pharmacy students. Without missing a beat, Student 4 is receptive, friendly, and greets the customer with a welcoming smile.

Student 4: Hi! [client walks up for help and discussion is interrupted] Dropping something off?

Patient: I have a prescription for plan too but I don't know what it is and I think I am in your system.

Student 4: OK [continues with student taking information from the customer].

This type of interruption is typical for the retail pharmacy clinical rotation when the students are working behind the pharmacy counter. The retail pharmacy relies on revenue from their customers and desire to have repeat customers. Discussions and research must sometimes be put on temporary hold while the walk-in customer receives attention and service. In the meantime, the CP and Student 3 continue the discussion as to what the various sources suggest using and the proper dosing.

Student 4 soon gets the information she needs from the customer and rejoins the ongoing discussion. The two students bring the research to a conclusion. The CP cuts to the main point and states a synopsis of the discussion as well as the plan of action. In the following dialogue, the students are precise in what information is needed and how that information will be obtained.

CP: Alright, so, let's call Dr. Smith's office and see if he's there and umm, tell him that we have been unable to get the pediatric Malarone™ anywhere in town and we have a wholesaler who doesn't have it right now because it's so new and ahhhh, would it be OK to do Larium® regimen with [names the patient]. She is 11

Student 4: When are they leaving?

CP: Tuesday

Student 4: Oooohhh

Student 3: How much do you think she weighs?

CP: Umm, I don't know but they might have it on her chart.

Student 4: Yeah, they should have it.

Student 3: 3/4 tablet if you are under 45 kg. If you are 31-45 kg it's 3/4 tablets

The discussion continues between the two students with their continued use of palm pilot, drug information book, and retail store computer program. At the end of this discussion, the CP gives full freedom to the students to call the referring physician for the students to give the physician their medication recommendation.

Transcript	Researcher comments
Student 3: So shall we recommend either of the two? Those two? CP: I'd like to see, I like the Larium® better. But ah. Student 3: Needs to be on both? [meaning both medications need to be brought to the attention of the physician]	Students getting guidance from CP for physician follow up.
CP: Just call. [the physician]. He is flexible. He will go with whatever [to far from recording device to pick up]	Evidence of full confidence in students with giving them this freedom.
[Student 4 making phone call to physician]	Student follow through.

The physician's recommendation is obtained and the students are ready to complete the order. This requires cutting of tablets to ensure proper dosage. Enthusiastically, the CP gets the pill cutter and each student tries cutting the tiny pills. The CP shares his experience.

CP: Let's break one. We are going to have to break it in half. [overseeing students setting up the cutter and placing the pill in the device.] Usually what I do is I let it sit on there and give it a [demonstrates] …like that. Give it a tap. See what happens. It will either shatter it or break it in half fairly well. [Student 3 does this successfully] Ok, that is not too bad. Student 4: Pretty good! CP: I think we will be OK on that.

It is the close of a very busy day and the students complete successful research and implementation of a new drug for them. The CP has guided them through with the initial order, research on the order to include a patient profile for correctly filling the order, discussion of the travel involved for the customers, a phone conversation with the primary physician, and physically altering the pills to adjust the medication dosage. Each of these steps increases the students familiarity of the medications. Each of these steps is part of the professional practice of a pharmacist.

Patient Counseling in Private Conference Area

> **I loved the patient meetings for the diabetes [programs]…To me that's what I felt I was trained to do in school, was to meet with patients and help them.** [pharmacy student]

The students in this rotation are prepared by their CP to counsel patients with diabetes. The students are able to provide information on the disease, good dietary habits, weight control, medication adjustments, and monitoring of blood sugar levels. It is beyond the scope of this research question to analyze the sessions that the students held with their clients. It is pertinent to the research question to state that the behaviors which the students exhibited in those sessions are those that the CP encourages the students to display and are characteristics of the CP himself. These include creation of a comfortable, pleasant environment free of fear and intimidation, understanding of the clients' knowledge base, pauses for reflection and thinking, affirmation, engagement and interest in the client. My report of the student/client counseling session is found in Appendix C.

Summary Section II – Retail Pharmacy Clinical Experience

The retail pharmacy clinical experience is a mixture of business practice, customer relations, and application of pharmaceutical information. The CP is a role model in all of these facets of the clinical experience. He is a facilitator for learning, providing for student activity in the three learning settings of "behind the bench", in the aisles of the store, and in the private client counseling office.

The CP has been in the retail pharmacy sector in the same community for over twenty five years. He provides a wealth of practical wisdom and experience for his students. He creates an atmosphere that is non-threatening and supportive to the students. The students articulate their desire and appreciation for such an atmosphere where they feel free to ask questions and their anxiety is alleviated. The students state that this serves to build a trusting relationship where they can be honest and authentic in what they know and don't know. This is confirmed in the literature (Meisenhelder, 1987).

The CP allows time and space for student reflection. Although he bears the total responsibility for all pharmacy decisions and actions, ("This is my watch,"), he gauges the knowledge level and capability of his students and allows them to act as a pharmacist in those areas that they have shown competence. He is always available and responds to their questions and actions in a timely manner. The students state they grow in confidence with this type of learning situation and readily pursue new information or pursue known topics to fuller exploration when given this space.

The CP is open and willingly admits when he does not know something. He engages with the students in collegial learning.

The CP provides role modeling in the thought process of how to approach a patient condition and the ramifications it may have on a prescribed medication. The CP directs the students' thinking to pursue beyond the prescription order and brings in a holistic approach of family support, patient education and comprehension levels, and perceived compliance with the medication regime. He role models his professional practice in this area.

The teachable moment has the potential for occurring throughout the clinical experiences of the students. Both students and CP identify teachable moments as times in which the environment is comfortable and safe to engage in learning free of fear of being demeaned. The teachable moment is evoked by the student being exposed to new or different information with the element of discovery on the part of the student. There must be an environment that is conducive to engaging in the teachable moment; one that is free of fear, intimidation, invites questioning, and reflection. Lastly, if there is to be a teachable moment between student and CP, the teachable moment can be enhanced if the CP knows the learning style of his or her student and is capable and willing to engage the student in that learning style.

Chapter 5
Summary and Discussion Toward an Emerging Model

Introduction:

This final chapter restates the research question, briefly reviews the method of the study, summarizes the results, presents an emerging model, discusses the application and implications, and considers direction for future research.

Restatement of the research question:

What do masterful clinical (experiential) teachers do when teaching clinically?

Review of the methodology:

A. Design

The research is designed as a qualitative non-hypothetical inductive study using content analysis to identify emerging patterns. I look for underlying order in the phenomenon of master teaching in the clinical area and suggest hypotheses that support and explain the phenomenon (Merriam & Simpson, 1995, p. 27). I offer an emerging model as a way of analyzing the behaviors of the CP and students.

B. General Characteristics of the Study Population

Each of the two case studies consists of a master pharmacy clinical preceptor [CP] paired with his or her students. The student survey, entitled "Student Evaluation of the Rotation and Next Contact" form (Appendix C) served as the primary criterion for selecting master clinical teachers. "The premise has been that the students, who are receiving the instruction, are the best judges of what effective teaching behaviors are" (Hedin, 1989, p. 79) and are the best judges of the learning climate (Griffith, Georgesen, and Wilson, 2000, p. S62) (see Note 12).

After the top ranked faculty were determined by the student ratings, the following selection criteria were applied:

1) Demonstrating excellence in teaching and gaining recognition as a superb teacher;
   This will be operationalized by confirming comments and rankings of the pharmacy students, documenting any recommendations by peers or supervisors within the practice setting, or any awards or recognition relating to teaching.
2) Receiving feedback from students, residents, and peers attesting to ability as an excellent teacher;
3) Being observed by peers in teaching sessions, or having peers review videotaped presentations;
   This will be applied if such sessions have taken place.
4) Documenting contributions to teaching in the educator's portfolio or the educator's curriculum vitae (Sachdeva et al., 1999).

Six CPs met these criteria. The Director of Experiential Education of the Pharmacy School in the study contacted these six CPs by e-mail to ascertain their interest in being part of a doctoral study on CP/student interactions. The Director asked them to reply to the e-mail if they were interested in being a part of the study and would like to learn more of the details of the study. All six replied to the e-mail indicating an interest in learning more of the study. I attempted to contact all six by telephone. Three were not available by phone and did not return the phone call. Of the three I did talk with by phone, two expressed interest in participating in the study and had a student or students with them on day shifts on a regular basis for the next five weeks. One CP expressed interest but had three hesitations. First, he stated he was extremely busy in his clinical practice which would not enable him to spend a lot of time explaining things to students. Second, he thought his busy practice would not lend itself to being able to meet the obligation of follow-up interviews and transcript review on a timely basis. Third, he was not clear

which days he had students during the allocated observation weeks. From these conversations, I chose the two receptive CPs who expressed desire to participate in the study with full understanding of its intent and obligations.

I then requested these two CPs to contact the students assigned to the CP to ascertain their interest and willingness to participate in the study. The CPs did this within twenty four hours. Each student expressed interest in being a part of the study. I then contacted each student to explain the study and the obligations. Each student readily agreed to be part of the study. Thus my study population consisted of two CPs each of whom had two fourth year doctoral pharmacy students. One CP and his students were in a retail pharmacy setting. One CP and her students were in a 405 bed acute care medical hospital.

Prior to my clinical observations and interviews, I met with each CP and student to go over the Informed Consent. This meeting provided an opportunity for them to ask questions and have them answered. Each study participant and a witness signed the Informed Consent.

Before clinical observations began, I recorded my reflections of the upcoming observations. These reflections included expectations, thoughts of what the clinical environment would be like, and what my role of researcher would be. As I continued with the clinical observations, the recordings of my reflections on the upcoming clinical days proved to be an excellent tool for noting what categories seemed to be emerging from the data collected and how this might apply to the upcoming observations. It served as a centering for my thoughts and interactions with individuals who were part of the clinical rotations.

Clinical observations began within three days of my choosing the CP and respective students. In the clinical setting, I observed students interacting with their CP, with each other, with clients or patients, as well as their interactions with other health care personnel. As the researcher, I was associated with the clinical environment.

The CPs wore a lavaliere microphone which transmitted their conversations to an audio recorder that I carried. This lavaliere microphone picked up the CP's voice as well as the voices of the students so I was able to create an audio tape transcription of their dialogue. As a back up to this system, students carried a small tape recorder in their pockets which picked up their conversations and sometimes the voice of their CP. I transcribed all tapes myself, checking both audio recordings for accuracy and completeness. Since I was present during the clinical interactions, I made notes throughout the day regarding body language, physical movements, and contexts of the clinical environment. I recorded the context and actions during the dialogue.

I completed each observation, analyzed it, and then explored the observation in private interviews with the students and CPs. I audio taped the interviews, transcribed them, and submitted them to the CP and students for corrections, additions, or deletions. I used constant comparison to identify the properties of the behaviors of the CP and students. An emerging model came from these interviews and observations.

As indicated in Chapter 2, there is a paucity of significant qualitative research published in the area of clinical teaching, particularly in pharmacy education. This study focuses on what the CP does while teaching clinically. Three elements emerged within the context of the clinical environment. They are the actions of the CP, the actions of the students, and the teachable moment.

Summary and Discussion of Results

How long has it been since you have been a student in a classroom or lecture hall? Do you remember taking a class that may have been a stretch beyond your knowledge base or one that perhaps you were not quite prepared for with your mastery of the required pre-requisites? Perhaps you are at least able to keep the stress level from rising above your collar. The stress is not visible in your face – yet. As you enter the classroom during the following weeks, where is it that you choose to sit? You may have chosen that same seat you had that first day. That is one thing you CAN control; your physical space. Usually the same people sit around you and the familiarity is reassuring. There is a comfort in having the same teacher with planned assignments and the reassurance of knowing what is going to happen that day.

Contrast this with a pharmacy student who enters a large hospital on a bustling medical floor where patients may be critical and in life-threatening situations. There are a myriad of health care professionals in continuous movement caring for these patients. This may be the same hallway and patient room where the student was yesterday but the situation is fluid. There is a constancy in the potential for the unexpected. This is the equivalent of the clinical classroom where learning, focus, interaction, engagement, and, yes, possibly boredom, occur. A student may be tired but his or her decisions and actions can make the difference between life and death or health and illness.

It is in this atmosphere that the potential for excellence in clinical teaching transpires. It is here that the engagement and interaction between CP and student can be a beauty to behold. It is a dance, an interplay, a focus, and a display of indignation and disbelief. It is the, "Ah hah! I now understand this concept and how to apply it." It is

the admittance of, "I don't understand the attitude of this patient and I will never be able to make a difference in this patient's life." It can be missed teachable moments. It is the teachable moment which is the creation of a bridge between what the student knows, recognizes, or identifies with, and a new understanding with a new found perspective. There is the teachable moment.

Clinical practice is the culmination of applying all the hours of classroom lectures, homework, tests, and facts from twenty kilogram text books. It is putting theory into practice (McCabe, 1985, p. 255). The CP has the opportunity of working with students, clients, patients, physicians, and other health care personnel in order to initiate the students to the world of their chosen profession. As one CP states, "It is my watch and I am responsible for all that occurs during this shift." Not only is the CP directly responsible for the students but he or she is also obligated to provide the best possible care for patients and clients.

The emerging model from my study grounded in the data has three elements which account for the art and science of the interaction of CP and student. First there is the teachable moment. It exists within the clinical environment. Anything and anybody has the potential for becoming part of that teachable moment or being the vehicle for that teaching moment. The CP and student can become engaged in a teachable moment, each one on an individual basis or each can draw the other into the teachable moment. The second element consists of the actions or non-actions of the CP with the students within the clinical environment. Those actions and non-actions are based upon the CP's knowledge of the subject matter, knowledge of the student, and skill in the art and science of teaching. The third element is the action and non-action of the student within

the clinical environment. This includes his or her level of engagement, knowledge base of the subject matter, acknowledgement of his or her own learning style, and level of openness as working as a part of a team. This last point of working as a part of a team must not be minimized as this is one of the keys of clinical practice and thus, one of the key elements to CP/student interaction.

First, what does the emerging model look like? Second, how did this emerge from the data? Third, what is the significance and ramification of this model? Last, how can this emerging model be applied and what more needs to be studied?

Emerging Model of Master Clinical Teaching

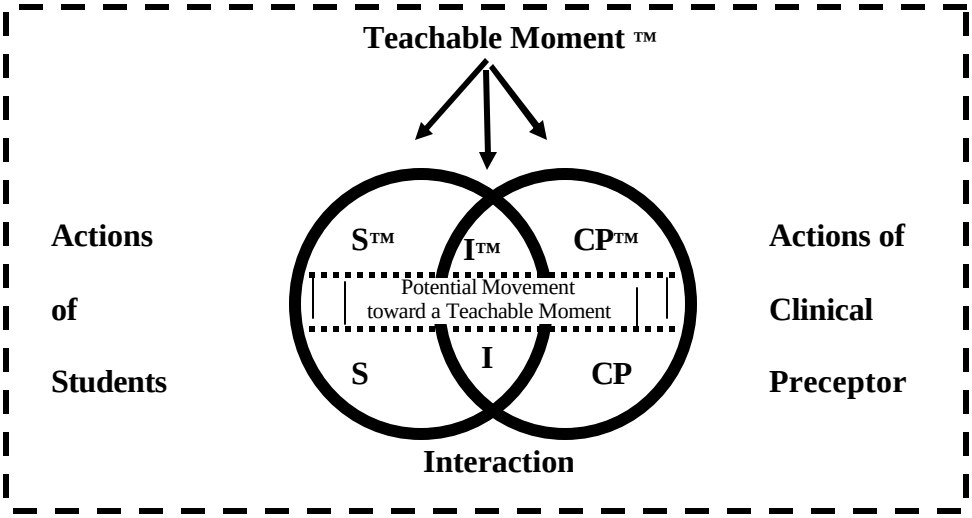

Figure 1. Emerging model of master clinical teaching

S are the actions of the students not engaged in the Teachable Moment
S™ are the actions of the students engaged in the Teachable Moment
CP are the actions of the clinical preceptors not engaged in the Teachable Moment
CP™ are the actions of the clinical preceptors engaged in the Teachable Moment
I are the interactions between clinical preceptors and students not engaged in the Teachable Moment
I™ are the interactions between the clinical preceptors and the students engaged in the Teachable Moment

The focus of the emerging model of master clinical teaching is upon the teachable moment comprised of three elements; the actions of the student, the actions of the CP, and the interactions between the two. These elements are dynamic with the clinical environment and the teachable moment. Each of these elements can and does exist by itself at various times during the clinical rotation. There are times during the clinical rotation, however, where there is interaction and a resonance among these elements (I^{TM}). The data show that there are times during the clinical rotation in which there is interaction between student and CP but there is no capture, recognition, or utilization of the teachable moment. Region I of the model represents this time. There are times in which there is interaction between the CP and student when there is engagement with the teachable moment, represented by Region I^{TM}. The student and CP sometimes engage with their own teachable moment, represented by Regions S^{TM} and CP^{TM} respectively. The data show that there are times during clinical rotation when the student and CP act independently of one another and they do not engage in a teachable moment, represented by Regions S and CP respectively. The line separating the teachable moment and those that do not capture the teachable moment is dynamic and fluid. This is represented by the dotted lines indicating potential movement from Regions S, I, and CP to Regions S^{TM}, I^{TM}, and CP^{TM}. There is potential movement of the line representing time spent with the teachable moment indicating that various amounts of time on a clinical rotation can exist with and without a teachable moment. The model is bounded by a dotted line representing the clinical environment. The clinical environment changes constantly

depending upon the individuals present, changing patient status, and movement from one clinical space to another.

The fluidity of this model is represented in the following series.

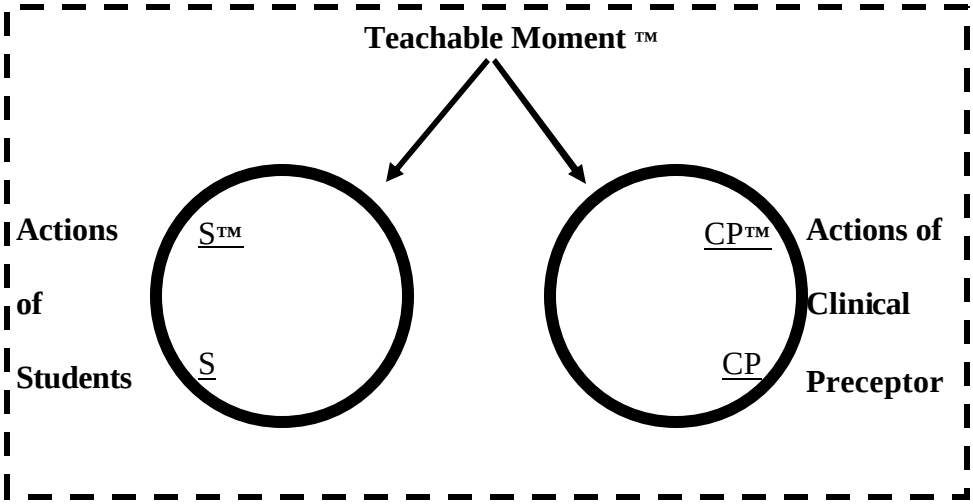

Figure 2. Independent actions of students and CPs with potential engagement of the teachable moment

Figure 2 represents the time in which students and CP have no interaction during the clinical. The potential for the teachable moment exists, as well as movement to interaction between students and CP. (See Figures 3 and 4)

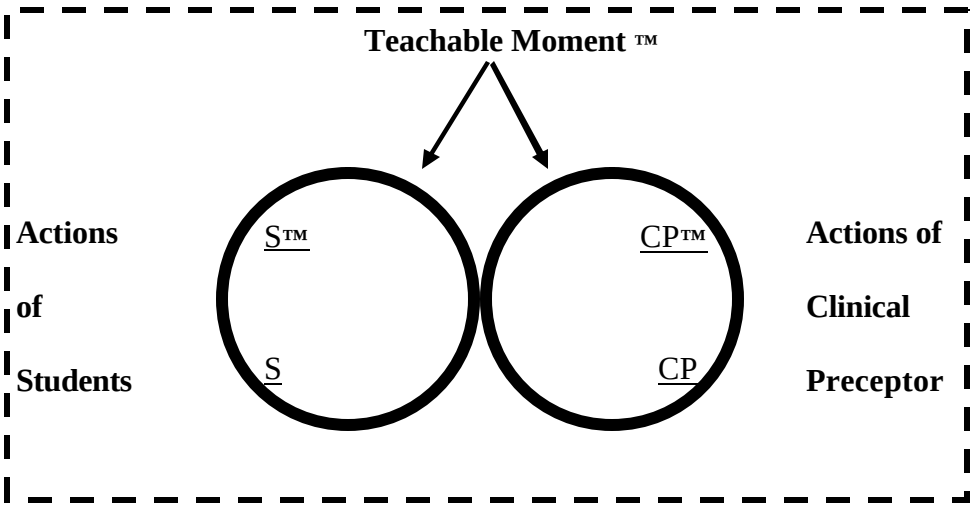

Figure 3. Movement of student and CP closer to interaction with potential for engagement in the teachable moment

Figure 3 represents movement toward interaction time between students and CP. There is no teachable moment occurring during the interaction but its potential exists.

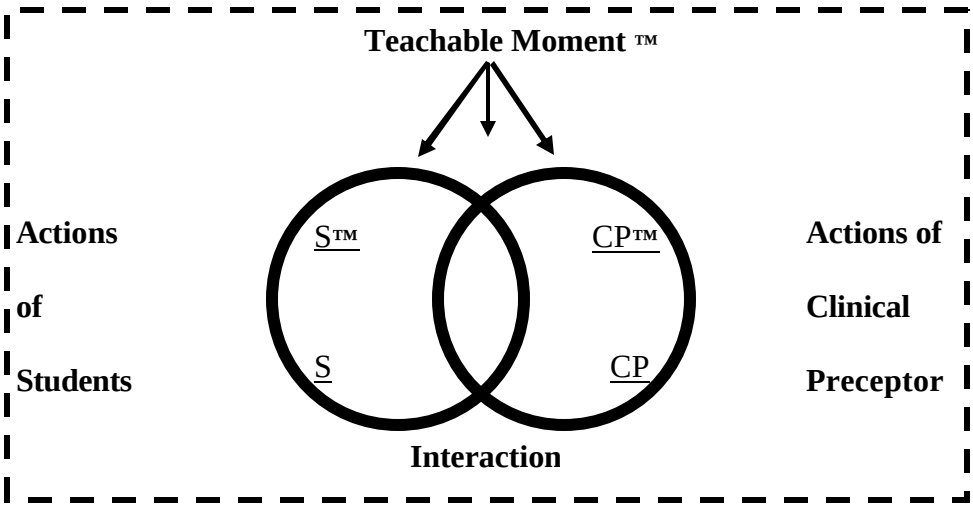

Figure 4. Interaction occurring between student and CP with the potential for engagement in the teachable moment

Figure 4 indicates the movement of student and CP behavior so that interaction is taking place. The teachable moment exists in the Regions S^{TM}, I^{TM}, and CP^{TM}.

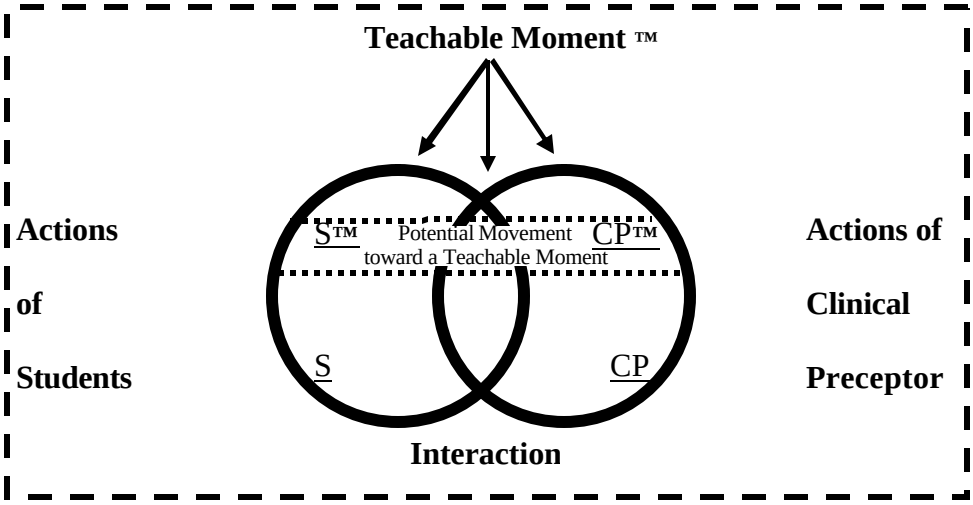

Figure 5. Interaction occurring between student and CP with engagement in the teachable moment. Amount of time spent in each region has potential for change.

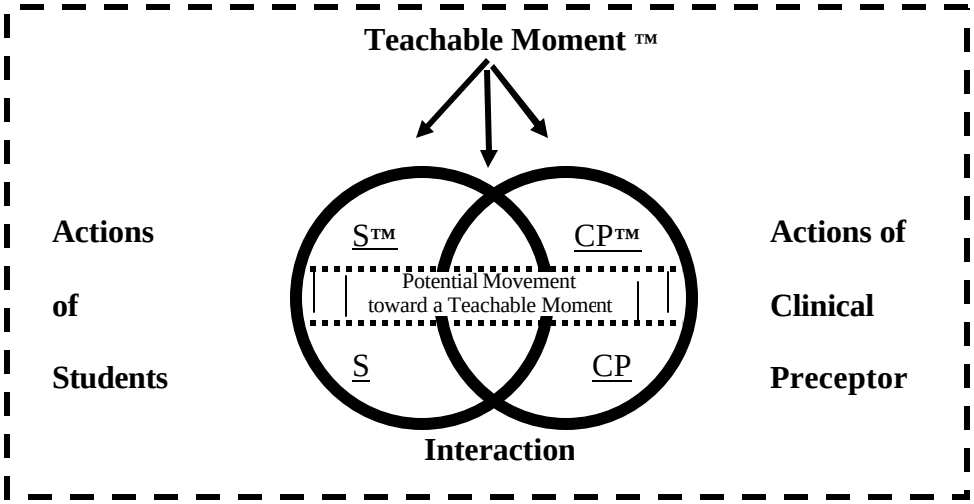

Figure 6. Interaction occurring between student and CP with engagement in the teachable moment. The amount of time engaged in the teachable moment increases

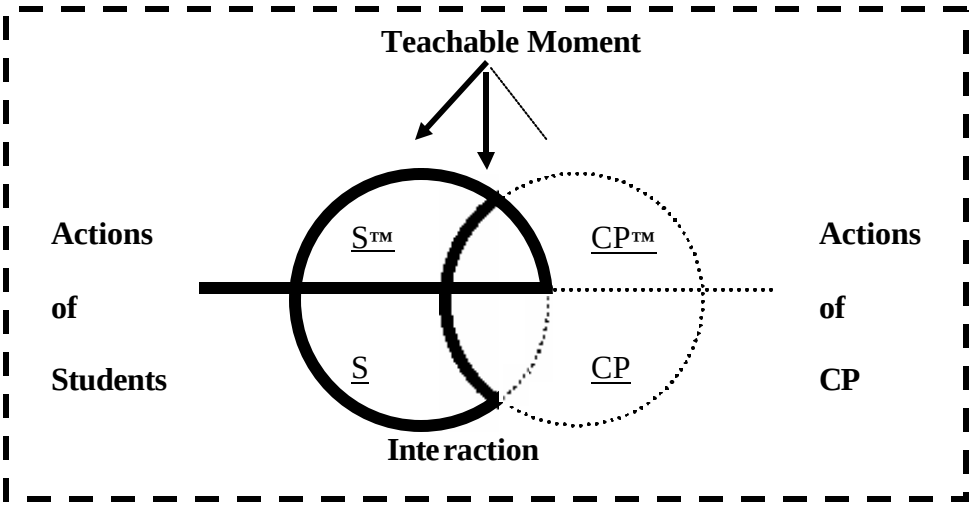

Figure 7. Region S indicating independence of student without the teachable moment. Subsequent movement to Regions S^{TM} and I^{TM} with the teachable moment.

Clinical rotations are, by design, the time in which the student can put into practice what has been learned in the classroom and labs (McCabe, 1985, p. 255). Students can work independently but remain under the supervision of a CP. They may be within the same area with their CP but are not necessarily together to perform all activities. There are times in the clinical rotation that the students perform alone. The tasks that they perform alone are those that they had performed previously with input and guidance from their CP. The following is an example of the students functioning in Region S.

In the retail pharmacy rotation, the two students check in with their CP to receive the schedule for the day of anticipated client visits. The number of faxed prescription orders and voice mail messages for refills and new prescriptions need immediate attention. The processing of prescriptions is a task that both students begin, independent of guidance from the CP. They know how to do it and begin it as a repetitious task. In

and of itself, it is rote, and, as one student implies, rather mind-numbing. The student states:

> I guess just referring to this rotation again, a lot of times I am just doing unit dose where I just look at the patient label, pull the drug off the shelf, and hand it over to the pharmacist. That, you know, I am not learning anything out of that besides learning my ABCs [laughing] because the drugs are alphabetical.

However, the potential for the teachable moment exists within the environment and within the student. In this particular instance the student takes it upon herself to change this rote experience, in Region S into one of engagement with the teachable moment, represented by Region S^{TM}. How does she do this? She has the self-knowledge to recognize that she learns from her clinical experience if she herself is actively engaged in pursuing the information rather than it being given to her. The teachable and learning moment for her is:

> I think for me, if they ask me a question and I don't know. And instead of just telling me the answer, have me go look it up. Because if I look it up and read about it, you know, I have to read about it because if someone just says it to me, it will go in one ear and out the other. But actually having me go look it up, **I think this is a learning moment.** … So I have taken it upon myself. If I come across a drug I don't know, I just stop and look it up.
>
> [bolding mine to represent the student's voice which got louder, giving emphasis to her statement]

This represents the movement of the student from the area of working alone with no teachable moment, Region S, to her embracing the possibility of the teachable moment and converting it to a teachable moment represented by Region S^{TM}. This student is exhibiting the competence found in three elements of experiential learning as expounded by Carl Rogers (Rogers, 1965, p. 5). She has shown the quality of high personal involvement in the learning event. Her involvement in the learning event is self-initiated. The experiential learning is evaluated by the learner. She is able to judge whether or not it is meeting her need and can make adjustments to have it become meaningful to her.

Another example of the student functioning within the independent area S is that of a student on rotation at the acute care medical center who is gathering patient information as to lists of drugs and their dosages and frequencies [number of times a drug is given within a twenty four hour period]. There are times that these drugs are simply read in report with seemingly little thought as to association of drug with disease state or appropriateness of drug therapy and dosages. It is a rote report. This task could have been left as is. The potential for the teachable moment, however, is there. At that juncture, the student questions the dosage. The student refers again to his patient notes, refers to dosing guidelines literature [electronic and hard copy], and formulates a recommendation as to another dosage to consider. He then shares his thought process with his CP, reviewing the drug dosing guidelines and his resulting recommendation. This is a teachable moment and movement from Region S to Region S^{TM} to Region I^{TM}.

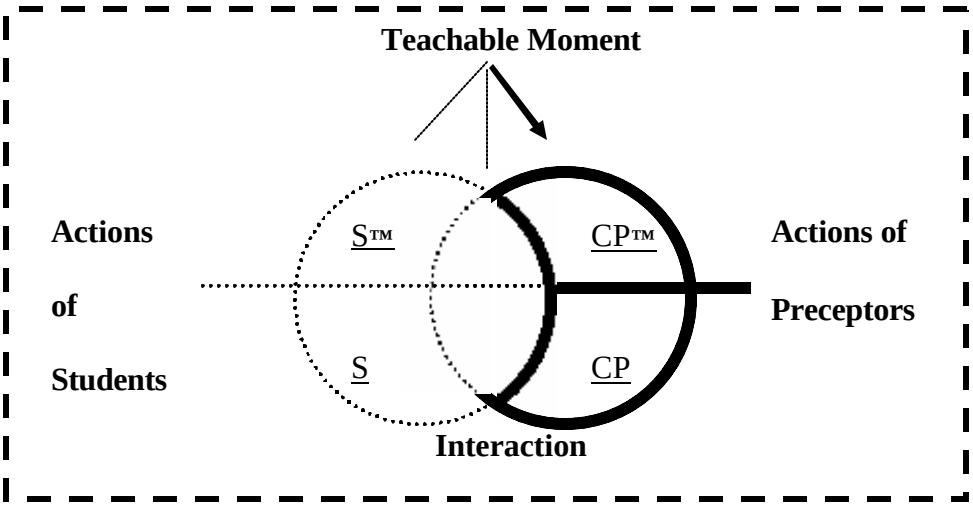

Figure 8. Region CP indicating independence of Clinical Preceptor without the teachable moment. Subsequent movement to Region CP™ with Clinical Preceptor engaging in a teachable moment without students.

During the clinical rotation, the activities of the Clinical Preceptor [CP] can exist within the independent Region CP. An example of this occurs with the CP gathering facts and information about patients who will be rounded with the students on the upcoming day. It is a routine. There is no interaction with students. Granted, there is a synthesis and process of decision making of what information is pertinent for highlighting and information sharing. Subsequent interviews with the CP revealed no indication of engagement of CP with the information and a teachable moment.

Although it is impossible to study exactly what is going on in the mind of the CP at all times as well as to have the CP recall all learning processes that he or she may personally experience on a day's clinical rotation, there are concrete examples of the CP engaging in a teachable moment without the presence of the students. Region CP™ with the arrow coming from the Teachable Moment represents the engagement of the CP in a teachable moment without the engagement of the students.

The nature of the research question precludes the collection of data in this area of the model since I was observing the CP teaching in the clinical area. However, I did make observations of the CP interacting with the resident physician from the family practice group with whom she works and noted that the CP was experiencing a teachable moment without the presence of the students. This supports the existence of the CP™ Region of the emerging model. The students were interacting with the resident while the resident was examining the patient, talking with the patient, and eliciting from the students their thoughts on the results of the examination process. The CP was by herself, reviewing one of the drugs, Evista®, that the patient was currently taking. After a pause, she and the resident had the following dialogue:

Transcript	Researcher observations
CP: The Evista®? What are your thoughts on going to the Evista®?	Indicating she had been thinking about this subject and wanted to know more.
Dr. A: Wait and see	
CP: We have had a couple DVTs [Deep Vein Thrombosis] with Evista.	Recalling past experience with the drug.
Dr. A: But we don't know if it is the Evista or some other event. I mean, unless you are controlled [a controlled experiment]. We don't know if they were going to have a DVT or not.	Resident questioning the association of the drug with the event.
CP: True	Acknowledgement from CP.
Dr. A: Were they surgical? [meaning did the patient have surgery]	Resident gathering more information.
CP: No. But we have had two that I have seen.	CP repeating the information.

Several things happen here. First the CP could have been simply gathering information on the patient in anticipation of working with her students. She acted in Region CP

without engaging in a teachable moment. The CP considers the possibility of the drug causing adverse reactions to the patient. She moves from the area in CP where she is not engaged in the teachable moment to the area where she is engaged, Region CP^{TM}. She begins a collegial discussion with the resident in which they exchange information, opinions, and each learn new information. There is no formal research pursued by each of them since there is a fast pace of rounding on each of about eight patients and interacting with the students. The CP does not move to the role of becoming the student with the resident, although that changing role could have occurred.

There is another example of the CP at first not being engaged in a teachable moment and then becomes engaged. The CP routinely gathers information from a patient's chart in the presence of the students. However, within a matter of moments, the CP verbalizes her findings, presenting it as an evolving story first with the statement of the patient's condition, the report of researching the patient's medications, and then soliciting input from the physician. In the following dialogue, there is a movement from Region CP to Region CP^{TM}. The juncture in which the CP draws in the students for their input and insights, there is movement to Region I^{TM} where there is a confluence of a teachable moment, engagement of student, and CP. In the following example, the CP had been reviewing the chart of the patient under discussion verifying the lists of current medications, activity in Region CP. Students join her and become part of the discussion. [Region I] The following transpires:

Transcript	Researcher Observation	Model Region
CP: She has been complaining of ringing in her ears that has been going on for a couple of years.	CP gathers information from patient.	Movement from I to I^{TM}
We did a little look-see [research] and the only two things that she has been taking that medication-wise that could have caused that might be the prylofex. I don't know if the time frame fits for her?	Engagement of CP and students in the patient problem. Possible solution to problem.	I^{TM} "
And the valium. Especially when you are trying to get people. I know she takes various dosages. I think she is down to one per day now. But benzonayepeem is known to do that too.	CP does not finish this thought. She is talking quickly. CP adds more information.	"
Dr. S: But there is not a very high incidence?	Physician soliciting information.	"
CP: No. Very small. For both of those. The ringing in her ears, tentatively we would go with the Prilosec. Any of the protein pump inhibitors can cause that [voice going up indicating a question]?	CP providing the answer.	"
Dr. A. I think the blood pressure is the real cause of that issue. [inaudible due to being too far from microphone]	Statement as to cause of problem.	"
CP: She said it was like, she felt there wasn't enough blood getting into her head. And she said it makes her dizzy.		"
Student 1: Maybe she has hypotension.	Student offers her opinion and thought. Evidence of being drawn into the discussion.	"
CP: Yes, and when I asked, I said describe the ringing in your ears. And she said, "Well, it is like there is not enough blood up here. And when I get up, I'm dizzy.	CP supporting reflection and opinion of student.	"
Dr. A: Maybe she is dizzy since her blood pressure is low.	Active continuation of discussion with students and CP. All engaged.	"
CP: OK is there anything other than the	CP continues to invite the	

ringing in her ears that we want to point out?	students to remain engaged and thinking.	
Students: Oh, I think so. I am not sure.	Students not able to remember.	"
CP: There was something else we talked about.	Clue giving by CP. [almost a guessing game]	"
Students: Yeah! [trying to remember]	Active engagement by students. Looking through notes.	"
Dr. A: When I had her on a drip, at 4 an hour.		"
CP: We were thinking about the glitizones too, we were looking at which one you could not use. We did not come to a conclusion.	Description of what CP and students researched together.	"
[Dr. A in the background with students in discussion. Inaudible due to distance from microphone. Long pause from CP].	Students animated, in full attention with the physician.	"
CP: When she came in she was almost 600 [blood sugar level] so she was on an insulin drip. I wouldn't think that the steroid, no, could bump it up that much? So.		"
[Dr. A confirms no]	Discussion continues.	

As Schon states, "When they [student and coach or CP] do their jobs well, [they] function not only as practitioners but also as on-line researchers, each inquiring more or less consciously into his own and the other's changing understandings" (Schon, 1989, p. 298). This collaborative discussion between student, CP, and, at times, other health care personnel is possible when each participant brings knowledge, is willing to be engaged,

and has the perception that the interaction is pertinent or vital to the practice or profession.

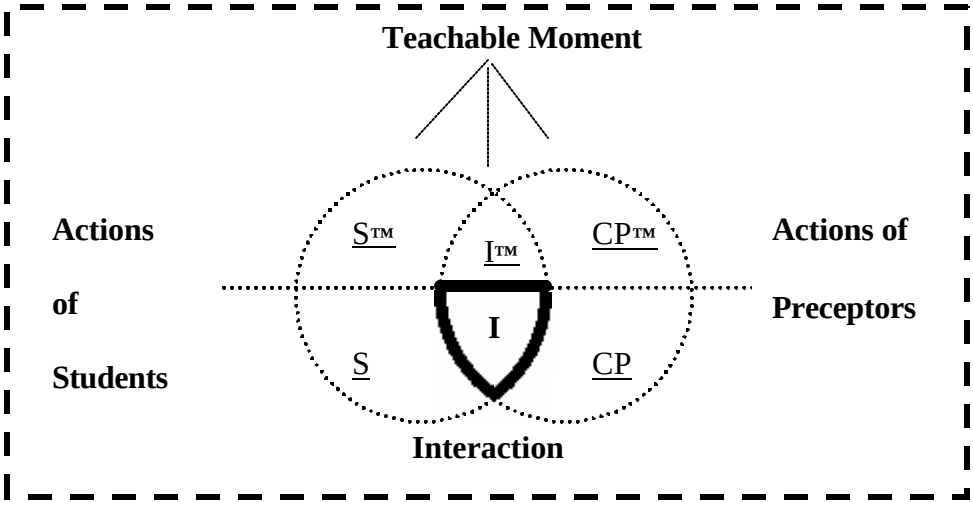

Figure 9. Missed teachable moments. Examples of Region I with failure to move to Region I^{TM}

Within the box that represents the clinical environment, the teachable moment is present. Within the clinical environment, anything and anybody has the potential for being a teachable moment. Learning and engagement can occur but sometimes it is not recognized, or it is ignored. For example, a missed teachable moment occurs during the clinical rotation at the medical center during a dialogue between the CP and her two students while discussing a patient whom the students had been following for just one day. The patient was admitted through the emergency room with multiple complications. The CP reviews the patient chart with her students. There were so many chief complaints [CC] and reasons for admission, that the CP even asks her students:

So, is there any other disease state that we could have and that we don't have covered? He doesn't have COPD! [Chronic Obstructive Pulmonary Disease]

The student replied with humor:

> He may have it now!

The students are absorbed in the review and discussion of the patient. The CP draws the students in with questions of which medications are ordered to address which disease state, the appropriateness of the dosage and frequency, the interactions of the drugs, the pathology of the three major complications that the patient exhibits, and the role of the pharmacist in this particular case. After a lengthy discussion of the pharmacokinetics of metformin in which the students demonstrated knowledge of the drug and its side effects, the CP makes an assumption:

> For someone who has very brittle COPD [Chronic Obstructive Pulmonary Disease] or very brittle CHF [Congestive Heart Failure], you really wouldn't want to put them on metformin because they are already prone to lactic acidosis. It is actually working like that. But I don't think that is happening at this point.

At this juncture, an introduction of a new topic is appropriate if there is full understanding from the students. However, in talking with the students and CP in separate interviews, this point is not clear to the students. It was an assumption of student understanding on the part of the CP. This is a teachable moment that is not recognized, does not receive engagement, and does not come to fruition. This is an example of the students and CP being in Region I and not moving to Region I^{TM}. Had the CP not made the assumption of clear student understanding, or if the students had questioned the assumption, the clinical experience could have moved to a mutual engagement of

teachable moment and engagement of CP with students to the confluence of the two circles and the teachable moment, Region I^{TM}.

Another example of the possible movement from Region I to I^{TM} in which a teachable moment is a potential but does not come to fruition occurred in the retail pharmacy setting. The transcript of the dialogue between CP and students was previously given in Chapter 4. The CP and students are in the pharmacy aisles assisting two customers in choosing some motion sickness medication. After the customers had left, one of the students brought up the topic of herbal therapy for motion sickness. In the dialogue, Student 4 introduces the topic. The CP admits he does not have much experience with the herb and it is discussed in a cursory manner. The CP introduces a new topic with no pursuit of herbal therapy. This is a teachable moment that had potential but is not realized, recognized, and pursued. The subject is abruptly changed by the CP without pursuit and resolution of the topic of ginger.

The continuum of engagement, learning, and increase of professional skills depends upon the student's understanding and acceptance of his or her own learning skills as well as the CP's understanding of his or her student's learning skills. As the CP and students spend more time together, there is a building of mutual acceptance, trust, and willingness to share levels of understanding. With a high level of trust it is possible for more time to be spent in Region I' rather than remaining in Region I. As one of the pharmacy students stated:

> When you get to know the person they become more comfortable with you. It helps being comfortable with a person. Then you know that you can trust them… He [CP] said, "She knows that stuff. Let's get her learning something new."

In speaking specifically about trust and the role it plays in learning, the student states:

> It is real important. If you trust somebody and you feel real comfortable, you'll go to them and ask them any question. You won't feel hesitant. If I didn't feel as comfortable it would be like, "I am not sure about this but I do not want to feel dumb asking him because he will think I should know that."… I feel comfortable going to and asking them a question. I might know part of the answer. I might not know any of it but they are behind me and they will pick and see what I know and then help me come up with the answer. Or they may say, "It is something like this. Look it up tonight and get back to me tomorrow when you know it," if it is something that I don't need to know right away. But it helps me, it helps to learn more too.

The trust factor aids in the movement from Region I to Region I^{TM} with engagement in the teachable moment. The student emphasizes that trust translates directly into engagement of CP, student, and the teachable moment:

> The CP, as it [drug interaction] comes up says, "Take a look. See what it does. If it is something to be concerned about, let's talk about it. Let's see how it is going to interact with the patient." So I have gotten more of a learning on drug interactions.

A specific example of trust between CP and student which leads to engagement with a teachable moment comes from the retail pharmacy rotation in which a client arrives to have a prescription filled. On her own, the student processes the refill and discovers a drug interaction, a potential problem that the client might experience if the drug is refilled while the patient is taking another medication. The student brings the interaction to the attention of the CP. Note the discussion between CP and student. The

CP explores the problem, gathers information, and actually leads the student to a discussion with the client about the medication.

Transcript	Researcher comments
Student 3: Got an interaction from a patient. It is amiodarone and Coumadin®.	Student initiated topic.
CP: Right.	CP acknowledgement.
Student 3: Ah.	
CP: You are going to get that every time. It is Cordarone®.	Identifying the interaction.
Student 3: Right.	
CP: An anti-coagulant. With warfarin. So, you just have to make sure that there they are having their protimes drawn.	Root of drug interaction. Explanation.
Student 3: OK. He gets one and then like 2 months later, he gets the other. And then two months he gets the other. This time he is getting them, one right after the other. It doesn't look like he is taking them together. But, I am not positive.	Further clarification from student. Student willing to admit not sure.
CP: OK. Alright [pause while thinking] We just want to, let's just make sure, he takes care of all her meds. I think she is an invalid. So, we have to be sure that he is doing that but he is real up to date on, on taking her over to the doctor and making sure that everything. We want to make sure they are doing that, so. [pause] Is he going to wait?	
Student 3: Yes, he is here.	
CP: OK. Let's walk. One of you guys walk out with me and make sure to talk to him about it.	Follow up with client and student.

Does this mean that the goal for every CP and student should strive to be in Region I^{TM} as much as possible? Is this where the highest level of learning occurs? It is beyond the scope of this research to ascertain where the highest level of learning occurs and what circumstances must exist for that learning to occur. But what is repeated throughout these two case studies is the engagement of the students in a clinical practice that is relevant to their professional practice. If their activities are perceived as being relevant to passing their boards, to their professional practice, and that they are making a difference in their patient or customer's life, then there is evidence of commitment, engagement, and focus. They take it upon themselves to have self-initiated learning and engagement with the clinical situation. If the students perceive their activities as tedious, unnecessarily repetitive, or if they perceive they are being used as unpaid help, they become disengaged with the rotation. As one student said:

> You can just sit there and just be like an assembly worker. And just keep passing out medications. But what is the point of that? That is not what I am in school for.

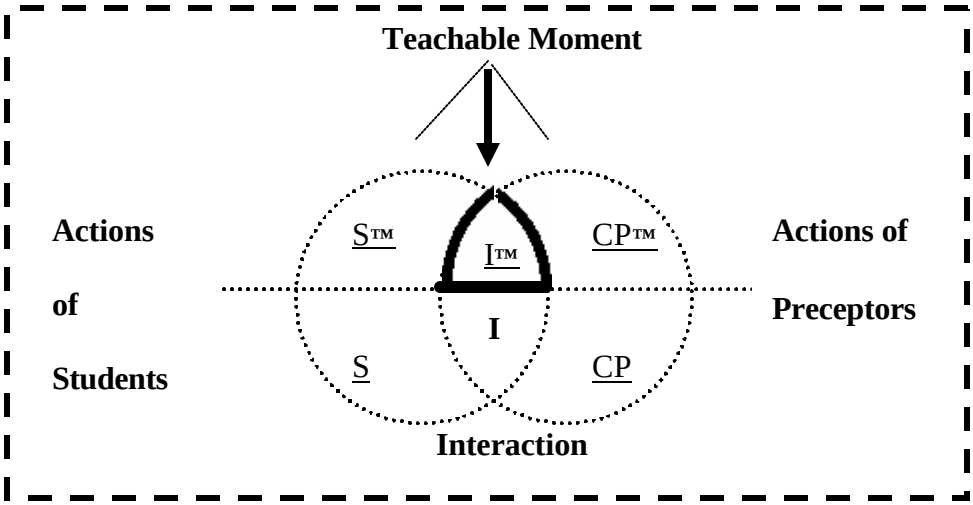

Figure 10. Region I^{TM} indicating the teachable moment with CP and student

Conclusion

As discussed in Chapter 4, the moments in which there is engagement between CP and student with the teachable moment contain many features. Chapter 4 relates concrete examples of the interactions between CP, students, and the environment when in Region I^{TM}. There are six patterns and themes that emerge from the observations and interviews regarding the teachable moment. They are;

1) Trust, openness, and a willingness to share
2) Engagement on the part of CP and student with the teachable moment
3) Consciously investing the time to pursue and develop
4) Time for reflection
5) Subject or content knowledge on the part of the CP and student
6) Sustaining a process of collaborative inquiry (Schon, 1987, p. 269)

(See Appendix F)

1) Trust, openness and a willingness to share

During the teachable moments that occurred in this study, there was a trust, openness, and a willingness to share with one another between student and CP. Branch et al. (2001) also documented the importance of establishing an openness and trust between

learners and teachers. This increases the possibility for the teachable moment to be shared. This has practical applications to the use of time on clinical rotation. One student said it took a lot of time for her to get comfortable on clinics so that learning could begin.

> The first week for me was probably the most difficult because I felt kinda like an outsider. I couldn't remember anybody's name. [laughing] But I think by the end of that first week, I finally felt more comfortable and felt like I was part of the work force…After that first week, and like the second week on, that is when I felt I started learning a lot more. I felt comfortable to just get out there and ask the questions. I think the first week is the hardest, especially, I just think you don't learn as much that first week. Cause it is a shock.

In pursuing this statement further, this student said that she really did not know the system of the store and the work flow. Her CP did not yet know her learning style which is one of visual learning and looking things up on her own. If the trust, rapport, and openness can be developed quickly, or if some way of establishing contact between students and CP prior to the rotation could occur, this increases the possibility of experiencing more learning moments. It is tragic to think that perhaps a large portion of a clinical rotation may have low potential for teachable moments as evidenced by this student's statement:

> For me I think I tend to be a quiet person to start with so I have a harder time adjusting to new situations which is one thing I have been worried about with rotations. Because by the end of 5 weeks, I am finally comfortable but I switch and go to a whole new rotation where I have to do the same thing all over again.

What is it that the CP does to foster this sense of trust, openness, and engagement? My observations took place toward the end of a 6 week rotation for students so I did not witness the "getting acquainted" period but I was able to observe what sustained the level of trust and comfort that all 4 students reported having with their CP. For example, one student said of his professor when asked how she created the atmosphere on clinicals which he had termed "free from fear and a friendly atmosphere" promoting learning:

> Oh, I think she even did this morning, when I was getting ready for my presentation. I think she is very **sweet**, **loving**, professor because she just [does] not give you the work to do. **What she does is actually work**. You will do the work but then there is **this care around** and she will ask you, she will actually try to **encourage you** by asking you questions. "Do you think that you are right?" Which actually **encourages me, personally**, to do what I did. [Bolding mine for emphasis of the student's voice.]

This particular student emphasizes the concept of care that he experienced with his CP. He felt care on the part of his CP, which contributed to motivate to do his best during his clinical practice. This concept is supported in the literature of caring in teaching. "We facilitate best by presenting ideas in a setting that we have prepared to be the most conducive to each student's highest level of focus, a setting that offers the most care" (Agne, 1999, p. 176). The opposite of this is the fear state which this student states is absent in this CP's clinical rotations. "Fear states…are more likely to promote stress, disrupted concentration, and scatterbrained, irrational perceptions and behavior – in general decreased levels of achievement" (Ange, 1999, p. 181).

The partner of this same student speaks of the effective teamwork of CP and students. She states about the teamwork:

> We all click…You need a lot of patience, if you get along with others in an environment like that. We were all, the personalities! We are easy going. We are willing. We are willing to listen to what someone else has to say. What they have to say about a certain idea and **not really judging anybody**. Working together. [Bolding mine for emphasis.]

This statement from the student is supported by the literature as a definition for the capacity for caring for others; unconditionally accepting, nonjudgmental, forgiving (Agne, 1999, p. 184).

Throughout the observations of clinical rotations, there was not one instance of a CP's impatience, berating, or ridicule of the student. There was acceptance of student input, topic changes, and even acceptance of a student not completing an assignment of looking up past medical records for a patient history.

2) Engagement on the part of CP and student with the teachable moment

Not only must a teachable moment be recognized but it must be pursued with engagement and energy. For example, a student had developed a rapport with a patient in the acute care medical center who was non-compliant with her medications and smoking cessation program. The student and her fellow student partner were irritated and exasperated as to how to help this patient. They felt ineffectual in their efforts. There was a conflict between the students' desire to help the patient and the patient's refusal to care for herself and take her medications. As Briggs (1996) states, moments in a student's life that involve conflicts can be transformed into learning experiences, or become a teachable moment.

At this point, the subject of smoking cessation programs was mentioned by a fellow health care practitioner. The CP pursued the topic with additional clarification

questions. Both students were drawn into the smoking cessation conversation which covered the topic of program compliance rates, success rates, measurements and definitions of success, costs, topics, and whether such a program would be applicable to their particular patient. At the end of that particular teaching topic, both students were to research further on the topic of smoking cessation. Both of them were to continue in their interventions with their patient. This teachable moment required a recognition of the moment and pursuit and engagement on the part of the CP and student.

3) Consciously investing the time to pursue and develop

The teachable moment is not simply a matter of information output. A teachable moment must be embraced and pursued with energy. For example, one of the course objectives of the acute care medical center rotations is effective communication between physicians and students. The CP and students had identified a patient who had an inappropriate dosage and frequency of an antibiotic. This was accomplished through prolonged dialogue and examination of patient and lab values. The CP and students mutually came to the resolution that the physician needed to be called to bring this situation to her attention. A recommended alternative antibiotic and dosage was yet to be determined. The CP could have simply made the phone call with a recommended dosage. Instead, she took a break from rounding on the patients to give the students the opportunity to research an alternative recommendation and prepare to make the phone call to the physician. This was a teachable moment, unhurried, with engagement, and energy on the part of CP and students. As Branch et al. (2001) hypothesizes, teachable moments such as the one just described involve, "creating moments for discussion and

reflection immediately after the event [which] can promote understanding of the observed behavior and help solidify learning" (Branch et al., 2001, p.6).

4) Time for reflection

The pace for clinical practice can be frenetic with a number of patients who need to be rounded, changing patient conditions that may demand immediate attention and action, and a teaching environment that can not always be controlled (Karuhije, 1997). There is variety of teaching settings (Skeff, 1983, Skeff, 1988, Bergen, Stratos, German, Skeff, 1993). It would be efficient and easy to slip into a pattern of simply reviewing a patient's chart, quickly examining the patient, review the updated medications, and routinely have CP recommended changes. The students could passively observe or simply be there. The element of reflection is a feature of the teachable moment. Through reflection, the student faces the uncertainty of features of the moment. There is focus on what is unique or conflicted. The student can pause to make the bridge from what is familiar and known to the unknown, to that which causes pause and thinking. The CP must help the student focus on what he already knows in a situation that he takes to be unique" (Schon, 1987, p. 66).

During this reflective thinking time dialogue took place between the CP and students and sometimes between the students themselves. During the dialogue, different viewpoints were exchanged or an explanation of a particular view point was given. Often the view point was challenged leading to the student giving the rationalization or thought process behind a given statement. Thus, the student was encouraged to make sense of assertions. The CP often ensured that the student could articulate the thought process.

Colucciello (1988) found this to be true in her study of creating powerful learning environments (Colucciello, 1988, p. 25).

During the dialogue of reflective thinking, the CP sometimes challenged the students in their acceptance of the facts or what seemed to the students as something that should be taken as face value. This discussion served to point out the irregularities of their thinking and forced them to confront the uncertainty. They either proceeded with verbally going through their thought process to illuminate how they arrived at their statement or they were forced to rethink and embrace another perspective.

These dialogues with their CPs served to increase their confidence in their performance of their professional roles. The two students on the acute care rotation both independently reported that they felt challenged by their CP but felt much more confident in their judgments and rationale in making patient care recommendations.

The CP in the retail pharmacy recognized the critical nature of taking time to think reflectively and analyze. He talks of "pulling them [students] aside and having some overlap time…" He states:

> You need some quiet time sometimes to mentally put something together… you can verbalize things without interruption. You can carry one thought and keep on going with it for a long time without having to go someplace else real quick.

The CP allows time for reflection. The students state they value the time that they step aside from the pharmacy bench or the customer aisles to think through their clinical experiences with their CP.

5) Subject or content knowledge on the part of the CP and student

One CP defines a teachable moment in her interview as one in which she is very comfortable with the topic; one she can explain in depth and know 100%. She also

indicates that she will not turn away from a topic that could become a teachable moment just because she isn't "the sharpest on" it. Her solution to the latter situation is, "I would like for them [students] to look it up too and then I will go look it up also. We will come back together." Thus, a teachable moment does not require full knowledge on the part of the CP or student. At least an acquaintance with the subject at hand must exist. Thomasson, et al. (1994) state that when teachers can admit their lack of knowledge directly, it allows the teacher and student to become colearners. For example the following dialogue took place on a subject that the CP admittedly was not 100% sure.

Transcript	Researcher comments
Student 1: But Levaquin® isn't actually part of it. It doesn't effect Coumadin®. There are two different isomers on levoquin.	Fact given by student.
CP: Oh, are there two different kinds of isomers on Levaquin®?	CP unaware of this fact (verified in subsequent interview) Learning fact.
Student 1: There are two. One is in Cipro® and the other is on Levaquin®…	Fact given by student.
CP: … And you will find, because doctors will say, well, ciprofloxacin is a quinolone. Levaquin® is a quinolone. You mean I can use one and not the other? The answer is yes you can use Levaquin® but you can't use ciprofloxacin if they are on Coumadin®. So.	
Student 1: There is one that has the isomer. I am not sure that exact mechanism.	Student stating own uncertainty.
CP: And I don't know either. That is why I was hoping.	CP stating own uncertainty.
Student 1: In some texts I looked in they said it was better if you don't take levoquin either. It can effect renal function.	Student reporting her findings.
CP: Really?	CP learning new fact.

Student 1: Yes. I think it was the HFS book. CP: Sometimes you accumulate all these little guides, these little books. Let's see if this one addresses it at all [referring to a guide book]. OK. So you go ahead. We talked…	Progressing to mutual exploration and pursuit of topic.

The student initiated the topic of the different kinds of isomers on levoquin. The CP was not familiar with this fact but together they explored the topic by relating it to clinical practice and researching it.

The literature is replete with documenting highly rated clinical teachers as possessing clinical knowledge and a thorough base of understanding of their field of expertise (Bellet, 1992, Bergman & Gaitskill, 1990, Brown, 1981, Irby, 1978, Irby Gilmore & Ramsey, 1987, Irby & May, 1994, Jarski, Kulig, Olson, 1990, Meinick, 1992, Stemmler, 1988, Whitman, 1993). My study also confirms this finding. The students in my study all state that their CPs possess such knowledge. It is a factor in the teachable moment. My study also indicates that the students themselves must possess a basic clinical knowledge and understanding to engage in a teachable moment.

6) Sustaining a process of collaborative inquiry (Schon, 1987, p. 296)

The paired students were important to one another. As one pharmacy student stated, they "bounced ideas off of one another," covered for one another when one was not sure of an answer, supplied the correct answer for each other, and literally held notebooks, drug dosage guidelines, and calculators for one another. In terms of the teachable moment, they were able to turn to one another for support, direction, and a different approach to a subject. A student says:

> My thinking is of course, two or three people work as a team. I am a team player all along. I try to portray that kind of team mentality over here [in clinical practice]. I think we learn a lot from each other in the sense that we are supporting each other as well as sharing ideas and information. If I don't know, [name of my fellow student] knows. If we don't know, [name of my CP] comes and helps. I think that is a very good positive way of interaction among students, faculty, and then learning. So, I like that…We learned a lot from each other.

The partner of this student agrees with the concept of working as a team:

> I think there is actually an advantage [of having two students together] to both of the students because you work as a team…But usually if I don't know something, he knows something. And I liked having someone else with me. Definitely. Because I learned a lot [with emphasis] from the other student also. And they asked questions that I may not have thought of. I asked questions that they may not have thought of. And they say things that I don't know….It is kind of like a circle of interaction. You learn from all, and each other.

The collaborative inquiry resulted in discussions of medication options filled with calculations, lab reviews, and search of primary sources for alternative medications. Collegial discussions took place with challenging of interpretations and applicability to the particular patient who needed care. The skilled CP was able to help the student focus on the desired outcomes and what he or she wanted to accomplish. Then the CP could guide the student, develop pathways to get to the desired outcome, and evaluate the proposed pathways for their efficacy. "Paradoxically, the more [the CP] knows about the

problem the harder it is for him to do this. He must resist the temptation to tell a student how to solve the problem or solve it for [the student]" (Schon, 1987, p. 296). Sometimes the CP was not able to resist the temptation to offer the solution in a clinical situation.

For example, the students in the retail pharmacy setting received an order for a prescription sunscreen called Soloquin Forte. The CP led the students with a series of questions as to the efficacy of the ingredients and a comparison of this product with the generic version. The students literally went to the medication shelves, researching the medication and comparing it other products. The CP was supportive of the inquiry process but did resolve the topic by supplying his own answer. There was the beginning of collaborative research and discovery but the CP supplies the solution.

Both of the CPs in this study encourage students to work together in three ways: research, patient counseling and examinations, and physically helping one another. The students often worked on joint research. Students at the acute medical care facility and the retail pharmacy rotations jointly researched medications, disease states, lab values, and therapy protocols both during the clinical rotation and after hours as homework assignments. There were direct invitations from the CPs to encourage students to work together such as, "[Name of student], why don't you hop in here and help [name of partner student]." Students also supported one another in patient/customer counseling or examinations. For example, in the retail pharmacy setting, students jointly gathered information and vital signs from their patients who were being counseled for diabetes management or smoking cessation. This was such a positive experience for one of the students that she states, "I wish I could have another student at all my rotations." She elaborated further by stating that she thought there was an advantage in being paired with

a student from a different school since academic subjects are taught with various approaches. She could learn from the other student about various methods. For example, with this paired student group, I observed one student suggesting herbal therapies more often than her partner. She spent more time researching the herbs than her student partner or the CP and she shared her findings. In pursuing this difference in subsequent interviews with both students, I discovered that the one student with the interest in herbal medications had had a course covering these topics whereas her partner did not opt to take this elective course since she was enrolled in the MBA program. The student who was in the MBA program was able to learn from her student partner. The CP provided time in the clinical rotation to have this research shared. Lastly, the students physically helped one another in carrying books, calculators, charts, palm pilots, and in retrieving past medical charts.

Perimeter delineating clinical environment

The line representing the clinical environment indicates variance. As defined in the literature, one of the key distinctions for clinical teaching in comparison with didactic teaching is the unanticipated requirements and demands that arise in the learning setting. There is limited control over outside factors that occur in the clinical setting such as the interaction with unanticipated personnel, patient procedures, or a change in the status of a patient. Diversity of facilities is a factor in the distinction of clinical teaching (Bergman & Gaitskill, 1990; Skeff, 1997, p. 252). Changing the boundaries and the context of the environment can influence all regions of the model. It is beyond the research question in this study to describe the CP's control and lack thereof in aspects of the environment. It

is pertinent to ask what did the CP do and not do in an attempt to influence and control the environment resulting in an effect on the interaction between student and CP. The CP influences the perimeters of the clinical environment by the inclusion and exclusion of people in the clinical teaching situation, by directing the physical movement of students, and by embracing the teachable moment with movement from Region I to Region I^{TM}.

Both the CP in the retail pharmacy environment and the CP in the acute care medical center invited other people into the clinical interactions. Most often the invitation was extended to health care personnel. Sometimes it was for clarification purposes such as in the retail pharmacy setting when the pharmacy technician is asked to join the group to give additional information on medications as to frequency, date of last purchase, or confirmation on a physician's order. In the acute medical facility, student nurses, associate degree through master degree take part in the discussion between the CP and pharmacy students. The majority of the time these individuals are asked directly by the CP to give clarification for disease states, patient compliance, and physicians orders. The pharmacy students and CP then use this information to proceed with their discussions. On one clinical teaching day, a master degree nurse practitioner student is assigned to be with the CP and pharmacy students for the day. The CP controls the environment of the clinical experience of the pharmacy students by actively engaging the nurse practitioner student on patient rounds and discussions. The nurse practitioner student contributes to a teachable moment. The CP guides the students through a reflection process as to what might be causing a fever of unknown origin. Just prior to the following dialogue, one of the two pharmacy students discusses the patient's

changing mental status, the chest x-ray indicating pneumonia, and the elevated temperature.

Transcript	Researcher comments
CP: The other thing to look at too is what they call fever of unknown origin. Have you ever heard of this? [pause] [students nodding indicating they are familiar with the term]	Introduction by CP of topic.
Sometimes medications can cause the fever. Of course he has the white count to go along with it so that doesn't really follow. [pause] But what you could do, [name of student] is to look up in the Sanford's guide sometime before rounds, the pneumonia, community acquired. Well, he is in [name of nursing home], right?	Implying there is an infection that would cause the white blood cells to increase.
Student 1: Yes. But doesn't the quinolone cover most community acquired?	Veering away from topic of fever of unknown origin.
CP: They do except in the nursing home patient who get a higher percentage of resistance for various things.	CP responding to student, confirming student thought.
Student 1: Oh.	
CP: And it is true, he could be viral. And in which case we are chasing nothing. Really, we do not know what we are treating. So I would probably, I don't know! Anybody else have any thoughts?… [discussion continues by students about different options to take with the patient and what may be causing the fever of unknown origin.]	CP explaining that the medication would be ineffectual if a viral process is occurring with patient. CP opens up possibility of other causes of the fever.
Nurse Practitioner Student: This may be off the wall, but did they ever check his urine [for infection and culture]?	Thought process of Nurse Practitioner Student for solutions.
CP: Yes, and it was negative. Why did you think this was off the wall?	Affirmation by CP of thought process and further inquiry by CP as to student's thought process.

Nurse Practitioner Student: Well, not off the wall but….	

The Nurse Practitioner Student continues by discussing why she thinks this may be a reason for fever of unknown origin. The CP pursues the nursing student's thought process. The pharmacy students are engaged throughout the discussion and a teachable moment ensues. During this discussion, the patient's assigned nurse is in and out of the patient's room. The nurse pauses to listen to the discussion but is not drawn into the discussion. This is an example of the CP controlling the clinical environment.

An example of the CP not controlling the clinical environment occurs in the retail pharmacy setting. The students and CP are in the midst of collaborative research on anti-malarial medications for adolescents. The group is physically standing at the customer walk-up window. Within an arm's reach are drug information guidelines. The focus of the students is intense with animated dialogue.

Transcript	Researcher comments
Student 3: What about Larium®? CP: Well that is one of the ones that should be used, that was what I was going suggest we go to but we'll have to [interrupted by student]. Student 3: Depending upon how much he weighs, for children with malaria prophylaxis for Larium®, however much he weighs, that's how much you take if you are greater than 45 kg, 1 tablet and _____ (inaudible) just like the Malarone™… Student 3: There is also whatever, fenza, fenzare, Zanzabar? [looking at references] Student 4: Chloraquin? CP: Uh-huh, Cloraquin and Larium® are the two that we, Chloraquin is [sentence finished by student]	Student offers suggested drug. Student continues thought process based on looking at the references.

Student 4: Usually have? CP: Cloraquin is what ah. Student 3: The Fansidar® is for chloroquine resistance. CP: Aralen®? [asking the students who indicate affirmative answer] Yeah, those are the two. What is the? Student 3: The Fansidar® is an anti-malarial agent, used as treatment plasmodium patients who chloroquine resistance is suspected, malaria prophylaxis for travelers to areas where chloroquine resistant malaria is [interrupted by customer]. Student 4: Hi! [client walks up for help and discussion is interrupted] Dropping something off? Customer: I have a prescription for plan too but I don't know what it is and I think I am in your system. Student 4: OK Customer: You'll have to check cause this started January 1 Student 4: This is your new card?……..	Interruption by customer.

The collegial research comes to a halt with the interruption and changing boundary of the clinical environment. Both the CP and the second pharmacy student turn to processing other prescriptions while Student 4 serves the customer. The discussion eventually comes to resolution when Student 4 finishes serving the walk-up customer.

These changing boundaries of the clinical environment are a part of the clinical learning environment. They cannot always be controlled by the CP but can be

incorporated by the CP and have the potential for a teachable moment. As stated by the CP from the retail pharmacy site:

> Well, "teaching on the go" is part of, I like to call, the reality of what pharmacy is. And hopefully it's teaching and learning by example. I am hoping they will see what types of things that I do and what the demands are as far as the questions and a lot of things coming at you from a lot of different angles all the time. That kind of reiterates why you have to keep you ear and eyes on everything that is going on while you are working in the pharmacy.

Just as this CP realizes that the changing demands and environment of the clinical learning experience are part of the reality of teaching and being a pharmacist, he also realizes that he must control the environment to focus the students on certain points and thought processes. He states:

> There are some things that need more in-depth work. Pulling them aside and having some overlap time where we can come back in the office and talk over people [medical history] and write things up and do things like that, you need some quiet time sometimes to mentally [laughs] put something together and, it is almost like having a "down time.' You can, you are not "on." You are kicking back a little bit and having a more of a leisurely discussion with somebody like that. That is educational too because you can verbalize things without interruption. You can carry one thought and keep on going with it for a long time without having to go someplace else real quick. So, it is just the environment that we have here. That is how it is.

The CP does this numerous times with his students by either asking them to come to the conference area or to move to a different area behind the pharmacy counter away from the walk-up customer area. Uninterrupted conversation can take place there.

The CP embraces the changing clinical learning environment and teaches his students to accept and learn from that environment. He embraces it by being able to function as a pharmacist as well as respond to students' questions and comments. The CP draws the attention of the students to situations which may reinforce their knowledge or may present new knowledge. One of his students reflects on learning from the changing clinical environment:

> One thing he [the CP] told me, he said, "You need to know exactly what is going on. You need to know what is going on at this end of the counter. What they are doing at that end of the counter? What they are doing at the drive through? Who is on the phone? You need to be able to make sure you are familiar with what is going on in every area of the pharmacy." I think it is just something you learn to adjust to. You learn, the phone is ringing, and someone is talking to you all at the same time. You just learn that you have to, for me, I learned I have to handle one thing at a time. If I am on the telephone, I will say, "I will be with you in just a minute." They can wait maybe 2-3 minutes while I take care of another problem then get to that problem. But at the same time, I always realize they are there waiting. So I think you just learn to do multiple things at once.

The CP in the acute care medical facility influences the clinical teaching environment by directing the students to move physically from one patient to another. In doing so, the context of the learning environment is changed. As was presented in Chapter 4, the rationale for change of topics and movement to another area may be based

on bringing a discussion and topic to a resolution. However, the CP's direction of movement may be simply driven by the number of patients that must be covered by a certain time, irregardless of topic completion and resolution. The CP feels a pressure of time and patient coverage. In reflecting on directing the students to another floor to see additional patients without coming to a resolution on the previous patient, she states:

> Probably looking at the patients we still had to cover, down on the 3rd floor and it already was 9:30 and we had to be somewhere else at 10:15, and this patient was going to take way too much investigating and maybe it would turn out to be nothing.

Thus, my research indicates that a CP can influence the clinical teaching environment by controlling the individuals involved , by directing the student movements, and by embracing the teachable moment with movement from Region I to Region I™.

Application of the emerging model and summary

The clinical experience is the time in which students apply classroom knowledge and theory to the customers and patients under the guidance of the CP (O'Shae & Parsons, 1979, p. 411). The CP assists the students to draw out known facts from the classroom and apply them to new situations. The student is the searcher or inquirer of what he or she already may know and applies it to what is unique to his or her experience (Schon, 1987, p. 66). It is at this critical juncture that the CP can interact with the student and can guide the student in the application of that knowledge. The interactions in the clinical teaching environment between CP and students should be rich in teachable moments promoting excellence in patient/customer care. It is not realistic to strive for every encounter of CP and student to engage in the teachable moment, Region I™. It is critical, however, that teachable moments be recognized and acted upon. The value of

this model comes from recognizing that the clinical environment is constantly changing, that it is filled with potential teachable moments, and that engagement of student and CP is only one part of a complicated and dynamic experience for both CP and student.

The CP must be aware that they themselves are not the sole agents of teaching in the clinical area. The CP facilitates the experiences of their students by influencing the clinical environment by engaging other individuals in the clinical experience such as other health care professionals, family members, and visitors. The CP directs movement from bedside to bedside and incorporates changing client or patient conditions and situations.

In order to facilitate a teachable moment, the CP must allow time for reflection, experimentation, and application of thought process on the part of the student. The CP must have enough self-confidence and insight to realize that the students can experience their own valuable teachable moments without constant interaction with their CP. Students can recognize, grasp, and experience teachable moments without engagement and interaction of their CP. This encourages more time in the student teachable moment Region of S™.

It is vital to recognize the features of the engagement between CP and student when a teachable moment is recognized, grasped, and pursued in Region I™ so that a larger portion of the valuable clinical experience is with the teachable moment. During this study, teachable moments with CP and student occur when there is a trust, openness, and willingness to share on the part of both CP and student. There is an energy and focus to pursue the teachable moment which takes time. There is time for reflection on the part of the CP and student. The CP and student both bring knowledge to the teachable

moment although it does not necessarily need to be full knowledge. Co-learning can occur. There is a sustaining of the process of collaborative inquiry (Schon, 1987, p. 296).

Clinical teaching must be perceived as relevant and helpful to the student. The clinical teaching must be correct and up to date (Whitman, 1993). The focus of the CP should not be on validating his or her own professional competence or credibility but should center on the needs of the students to supply excellent patient and client care.

The CP must have a knowledge of learner's needs, motivations, and abilities (Irby, 1994). This involves knowledge of students' past clinical experiences and the students' modes of learning. One CP states that when he has this kind of knowledge, then "real learning and teaching can occur and I can let the student fly. But I remain nearby." This is the essence of the teachable moments in the model.

The data reflect the vital nature of the teachable moments regions of the model. As stated by one of the students in the study:

> It was an exciting way [to start rotations]. I am not a morning person at all. I woke up every morning like I can not wait to get up and go. You have no idea. I am not a morning person at all. I could get up at 10 or 11 o'clock. I hate getting up. I wasn't motivated to get up earlier before….I adjusted to it right away. I look forward to coming every day…Maybe this is what I will be doing the rest of my life.

Broad-scale assistance for faculty in their clinical teaching role is long overdue (Skeff, 1988). "All faculty have an obligation to teach well, to engage students, and to foster important forms of student learning…" (Hutchings & Shulman, 1999). Clinical teaching must continue to remain vigorous, relevant to students, and must attract the highest caliber possible of health care educators. Clinical teachers should continue to

take the maximum advantage of teaching research and they should contribute to that research. Good teaching, and serious intellectual investigations into teaching practices should not be pursued for one's own self-promotion, self-aggrandizement, or credibility. The scholarship of clinical teaching should ultimately be tied to increased student learning and to achieving the highest possible quality of patient care.

It is impossible to teach someone to be an expert. Expertise comes through experience. What can be done to assist potential and current clinical instructors is to raise their awareness of the characteristics of the teachable moment, to give them specific examples of teachable moments and those that are missed as are discussed in this study. Just as the doctoral pharmacy students were engaging with their master CPs, individuals who currently teach or who wish to teach in the clinical environment need experience with master CPs.

This research and emerging model provides insights into the phenomenon of the interactions between master clinical preceptors and their students. These interactions are complex and contain substantive areas that can be further explored. The interpretations, concepts and relationships offered in this study necessarily are offered for discussion, are modifiable, and open in part to negotiation ((Strauss & Corbin, 1998, p. 5) as this is part of the analytic process of qualitative research. This study and emerging model are offered as a means to continue scholarly study of clinical teaching, a crucial and vital part of the education process for reaching the highest state of health as possible.

Future studies

The present study illuminates the interactions between two distinguished CPs and their students in a 405 bed acute care medical center and a retail pharmacy setting. It presents an emerging model of the interactions of students and CPs with teachable and non-teachable moments within the ever changing clinical environment.

The findings in this study indicate that the interactions of the CPs with their students had a positive effect on the students with enhancing their thinking process, assisting in formulating their plans of which area of pharmacy specialty to pursue, and building their self-confidence as a practitioner. The students and CPs all report an increase in student competence, skill, and quality of patient care during their clinical rotations. The influence of a single outstanding instructor should never be underestimated (Griffith et al., 2000, p. S64). "All faculty have an obligation to teach well, to engage students, and to foster important forms of student learning" (Hutchings & Shulman, 1999, p. 13). This emerging model can contribute to the scholarship of teaching, giving insight to the elements of teachable moments and engagement in teaching. My hope that it will not only provide the potential for encouraging scholarship in clinical teaching but it will lead to an increase in student learning and ultimately an increase in the quality of patient care.

Further research is needed among clinical teachers who may be less distinguished and more novice. This emerging model can be tested among those instructors to see if the interactions contain the same characteristics and quality as those of the distinguished CPs.

This emerging model should be tested with clinical rotations in other pharmacy schools as well as other health professions such medicine, nursing, respiratory care, physical therapy, physicians assistant programs, or occupational therapy. The qualitative approach could yield more insights and understanding to the interactions between CPs and students. The amount and quality of time that CPs and students spend alone on the clinic rotations either engaged or disengaged in the teachable moment is intriguing and important to improving the use of precious time on these clinic rotations.

Literature containing qualitative studies in pharmacy school clinical rotations is bare. As qualitative research methods become increasingly important modes of inquiry, the gravity to gain insights by this type examination increases. Qualitative inquiry allows for exploration of complex phenomena. "Qualitative methods can be used to obtain the intricate details about phenomena such as feelings, thought processes, and emotions that are difficult to extract or learn about through more conventional research methods" (Strauss & Corbin, 1998, p. 11). Strauss & Corbin (1998) define "phenomenon" as the term that answers to the question, "What is going on here?" (p. 130). This type of research can explore the conditions that surround the phenomenon, that causes or influences it. The interactions between the master CP and student cannot be confined solely to surveys or quantitative calculations. This study should be a spring board for continued discussion, challenge, and questioning of its findings and emerging model.

The present study contains many examples of the changing environment of the clinical setting. How the CP reacts, controls, or does not control the changing environment necessarily impacts the experience of the students. Future studies could be

focused on the effects that changes in the clinical environment make on the teachable moment and student experiences.

One aspect of the CP/student interactions that emerged throughout the study was that of caring. The CPs interacted with the students in a caring manner and continued this in their interactions with their patients, clients, and customers. Literature regards caring as the essential ingredient for excellence in instruction and as a trait of the master teacher (Agne, 1999, p. 165). Future studies could explore if this characteristic contributes to time spent in Region I^{TM} (teachable moment with CP and student) of the model.

Regions S^{TM} and CP^{TM} illustrate teachable moments for the student and CP when they are alone. Future studies should focus on effective ways of facilitating these teachable moments for CP and student. Studies in this area may indicate that either more or less time should be required of the student to be alone in the clinic area.

One of the features of the teachable moment was that of the CP being able to assist the student if the CP had knowledge of the student's learning style and capabilities. This is also upheld in the literature (Dunlevy & Wolf, 1994, Irby, Gilmore & Ramsey, 1987, Irby & May, 1994, May, 1983, McLeod & Harden, 1985, Orlander & Fincke, 1994, Skeff & Mutha, 1998, Skeff, 1987, Whitman, 1993). Future studies should explore ways in which students could clearly recognize and identify their own learning style and abilities and communicate this information to their CPs. Since the data of the present study indicate that this facilitates the teachable moment, future studies could investigate this claim.

Another aspect of the teachable moment that could be explored in future studies is that of the developmental task (Havighurst, 1972).

> A developmental task is a task which arises at or about a certain period in the life of the individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by the society, and difficulty with later tasks. [Havighurst, 1972, p. 2]

These tasks can be "located at the ages of special sensitivity for learning them" (Havighurst, 1972, p. 7). Analysis could be made of each student in terms of his or her central developmental task in relation to stage of adulthood. Those stages could be applied to the adult life cycle tasks. CPs could receive in-service education as to the tasks that the students were experiencing in his or her developmental tasks. With that increased knowledge and sensitivity as to the developmental stages and tasks the students were experiencing, a study could be done as to teaching strategies that are most effective for students in the various developmental stage. Adult Life Cycle Tasks /Adult Continuing Education Program Response (McCoy, 1977) could be a starting point for such an investigation.

Observations and interviews of students and clients participating in private client counseling reveal involvement of students in client's lives that produce measurable changes in quality of life and improvement of the client's health. Since much of that student counseling took place outside the direct interaction of CP and student, it is beyond the scope of this paper to analyze the effectiveness of these interactions or explore how previous actions of the CP may have influenced the students' effectiveness in these sessions. Future studies could explore the effectiveness of student/client

counseling sessions and measure the effectiveness of such interventions on short and long term health outcomes.

The participants in this study became better observers of their own behavior in the process of the researcher observations and interviews. This is confirmed in the statements of the CP during one interview when asked about why and how she pursued a particular line of questioning:

> I never realized I was doing that before. This makes me think. This makes me think every time I open my mouth from now on. Thank you! This is good!

One student confirmed the same thing in her interview when asked to look at a teaching transcript that allowed the student time for reflection and changing her suggestion for patient care. She states:

> I didn't realize all that was going on. Yes, of course, I see now about that time I had. I really needed that time to think through it [the patient condition and subsequent medication changes].

The phenomenon of teachable moments is complex. The interactions between CP and students and what features bring about the teachable moments are equally multi-layered but are vital for improving clinical teaching and practice and ultimately improving student learning and quality of patient care. Additional qualitative studies observing teachable moments both in the context of CP/student interaction and the student alone would yield valuable information and insight.

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Notes

Note 1

Abraham Flexner produced a legacy and a model contributing to the improvement of medical education in the United States. Although he had a profound influence on the format of professional medical education, he was not a physician. He was an educator. He was a former headmaster of an excellent women' high school in Louisville, Kentucky (Fischer, J., 1999). He attended Johns Hopkins University and was impressed by the Hopkins curriculum. The key to his "Flexner curriculum" was that of physicians being trained as scientists and that proper medical education should be provided by a professional school at a university (Shulman, L., 1990, p. 301).

Flexner spent eighteen months touring nearly every medical school in the United States and Canada in 1908/1909. His scathing report highlighting teaching in filthy storefronts, diplomas given to incompetent "graduates," and no uniformity of curriculum, led to the closure of more than half of the medical schools in the United States. These closures occurred within a decade of the release of his report. His report was powerful and is the underlying model in many medical schools today.

Note 2

Boyer (1990) addresses this issue by broadening the definition of scholarship to include the scholarship of discovery, application, integration, and teaching. Boyer's concept of the scholarship of teaching acknowledges that:

> The work of the professor becomes consequential only as it is understood by others…When defined as scholarship, however, teaching both educates and entices future scholars…Teaching… build[s] bridges between the teacher's understanding and the student's learning… [T]eaching, at its best means not only transmitting knowledge, but transforming and extending it as well… teaching keeps the flame of scholarship alive (Boyer, 1990, pp. 23-24).

Note 3

This is the designated name for purposes of anonymity of the participating School of Pharmacy

Note 4

This total figure comes from the following in 1999:

Entry Level Respiratory Therapist	3,813
Advanced Level Respiratory Therapist	6,603
Occupational Therapy Assistant	7,594
Occupational Therapist	16,925
Medical School	66,327
Physical Therapist	20,279
Physical Therapy Assistant	9,455
Pharmacy	32,000

Sources:

Respiratory Therapy: Committee on American Respiratory Care Education. Annual Education Report, 1999.

Occupational Therapy: Annual/Biannual Reports to Accreditation Council for Occupational Therapy Education.

Medical School: www.aamc.org/stuapps/facts/famg8.htm Association of American Medical Colleges.

Physical Therapy: Annual Report to Office of Education, American Physical Therapy Association
Physical Therapy, 1999

Pharmacy: Profile of Pharmacy Students, 1999

Note 5

In the literature of nursing, medicine, and physical therapy, there are descriptive studies of actual clinical teaching. They are found in Benner, 1984; Bellet, 1992; Gandy, 1993; Thomasson et al. 1994; Chapnick & Chapnick, 1999.

Note 6

The education data base ERIC has had the descriptor for "master teacher" since the inception of ERIC. The Thesaurus of ERIC Descriptors, 12th Ed. indicates a first usage of July, 1966 (Houston, 1990, pp. xxii-xxiii).

Note 7

The Report of the Executive Vice President: A Year in Review (1999) of the American Association of Colleges of Pharmacy (CAPE) uses the term "master teacher" to refer to a teaching excellence development project. According to Susan Meyer, Senior Vice President of CAPE, the term "master teacher" was omitted from use when it was discovered that the term "master teacher" is a copyrighted term (Personal correspondence, 10/27/00). The Master Teacher, Inc. has been in existence since 1969. Its purpose is to assist educators, administrators, and parents in the United States and most recently, twenty-six other countries. It specializes in nine different publications, 800 products, and numerous seminars. Its mission statement, activities, and projects can be accessed at (http://www.masterteacher.com).

Note 8

Bell's statement critically and insightfully defines the problem of not having a method of rewarding truly outstanding teachers. The literature does not elucidate the inquiry as rewarding outstanding teachers in the clinical area since there is a lack of models describing exactly what clinical teachers do while teaching, and the expectations of their teaching. In an attempt to fill a void in this area, Sachdeva and his task force created a model for rewarding the educational accomplishment of surgery faculty which includes clinician educators.

Note 9

Educators in my Family

My family career fabric is woven with many textures, colorful patterns, and a variety of strong threads and fibers. Among this fabric are homemakers, pharmacists, lawyers, politicians, surgeons, a county judge, university professors, and businessmen. The predominant thread is the educator, primarily in the public school arena.

As a child spending most of my summers in the small east Texas town of Palestine, I was among an extended loving family living on East Pine Street. Almost all of the adults were teachers, some having taught over 1,000 children during their careers.

My maternal great grandfather, James Eastland, was a gentleman farmer in the country and thought it shameful that no school was available to the children on the cotton growers farming along the Trinity River Valley. He built a one room log cabin from timber on the farm and started the first school in that area. He was a well-respected citizen, a poet, and a family man. He was in the Texas Legislature in 1872, 1873 and 1874. His school bell had a place of prominence in my own office where I was the Division Chair, Respiratory Care in the School of Health Professions at Shenandoah University.

My maternal grandmother, Mae Eastland was a school teacher in elementary school and junior high school in Palestine, Texas for most of her adult life. She was a poet, just like her father, James Eastland. She was a tall, willowy woman with great character and piercing blue eyes. She had a brother, Orin who graduated from medical school and taught at the University of California, Berkley in the School of Pharmacy.

My mother, Helen Hancock Kennedy, was also a school teacher in Palestine, Texas. She taught high school and junior high school English. She is still known by many of her former pupils as the "beautiful Miss Hancock." I once met two of her former pupils who were in their 60's. They were reminiscing about being in her classes. They both swore that they would attempt to knock each other out so that at least one of them would be able to marry the lovely Miss Hancock.

One incident defines the reverence given to my mother as a teacher. I was accompanying my 82 year old mother. My daughter, Katherine, was with us. At this time, my mother had been married and named Mrs. Kennedy for 44 years. A lady in her late 50s came rushing up to us and exclaimed, "Oh, Miss Hancock! I am so glad to see you. I was in your class so many years ago. I want you to know that I am a music teacher now and that I have always held you up as the highest model for teaching. I always try to be as good a teacher as you always were."

My third cousin, Joseph Laumen, Jr. was an educator all his life being a teacher in the classroom, a principal, a school counselor, a diagnostician for special education, and a member of the National Psychological Association. His educational career covered over three decades. His wife, Nancy Laumen, was an outstanding first grade teacher. She turned down the opportunity to be a principal, preferring to be in the classroom where her main interest was. She taught from 1951-1982.

My third cousin, Martha Surles (maiden name Laumen) is also an outstanding educator having taught in the public school systems of Palestine, Winona, and Tyler, Texas, and in Shreveport, Louisiana. Ms. Surles also taught part time for the University of Texas in Tyler. Her M.Ed. was from Stephen F. Austin University.

Ms. Surles daughter, Susan Surles, has her M.Ed. from University of Texas at Tyler and has taught for almost 20 years in the public school system. She has about 15 hours toward her doctorate.

Annie Celeste Cutter, my "Cousin Annie," was a principal of Lamar Elementary school in Palestine but she during her entire career she was a teaching principal. Cousin Annie was always present among the loving family of Pine Street and was part of the unhurried-but-rich-in-experiences-summer days that I spent as a child. She always had fascinating books, records, and conversation that expanded my mind and inspired me to travel and learn.

My great aunt Lillian, Lillian Hancock Runkle, was a voice teacher who lived with my mother for several years. My mother describes the amusing attempts by the voice students to master the scales and difficult pieces.

Lastly, my Aunt Pet, Frances Petty, adopted by my great grandmother and grandfather, taught at the Alamo School, Lamar School, and Reagan Elementary school in Palestine. She was a loving educator with many pupils under her tutelage.

These warm and loving relatives were the quintessential educators for me. Not only were they models of educators in the classroom, but I was able to live and breathe their "at-home-time" and their passion for learning and expanding their own minds as well as their pupil's minds.

Note 10

Collaboration with informants took place in the form of audiotaped interviews after clinical observations. I had created typed transcripts, had done initial transcript analysis, and initial coding. Interviews took place to collaborate peer review, researcher, and research professor comments and analysis. The following is the schedule of clinical observations and interviews:

<u>Site A – 405 Bed Acute Care Medical Facility</u>

Clinical observations:	06/11/01
	06/13/01
	06/15/01
Interviews with CP:	07/11/01
	07/12//01
	07/13/01

12/02/01

Interviews with Student 1: 06/26/01
07/16/01
07/27/01

Interviews with Student 2: 06/26/01
07/16/01

Site B – Retail Pharmacy

Clinical Observations: 06/12/01
06/14/01
06/22/01

Interviews with CP: 06/27/01
07/27/01

Interviews with Student 3: 06/28/01
11/06/01

Interviews with Student 4: 06/22/01
11/06/01

Note 11

Researcher's experience in Pulmonary Rehabilitation:
For approximately one year, I taught the classroom and exercise portions of the Pulmonary Rehabilitation Program for adults at the 405 bed medical center. Many of these adults were or had been nicotine addicted. I worked directly with them to assist in their smoking cessation efforts. Throughout my 21 years of teaching or working as a Respiratory Therapist, I educated students and patients about smoking cessation and the components of smoking cessation programs.

Note 12

"Student Evaluation of the Rotation and Next Contact" form, Appendix C, is the primary criteria utilized in the identification of preceptors for this study. Fourth year pharmacy students complete this form at the end of their rotation.

The student evaluation form was developed and implemented with the pharmacy school's first class of students during the 1999-2000 academic year. The evaluative portion of the instrument remains unchanged with the results from each student being entered into a computer database for analysis. The fields from this form used to identify the master teacher are "Preceptor" and "Overall Experience". Data from the Facility portion are excluded since the intent of the research is confined to the CP/student interaction without reflection that might be characterized by the physical facility in which the interaction occurs. Item 7 from the Preceptor portion of the form was deleted since it relates to the completion of a mid-rotation evaluation form. Its purpose is to access the preceptor's compliance with the course policies and not to evaluate the CP/student interaction.

To be considered for inclusion in this study, the school must have received completed evaluations on the preceptor's performance from no fewer than three students. Student rating of the CP had to achieve an average for both academic classes (Class of 2000 and Class of 2001) above a 4.5 out of a possible 5.0 in all areas considered on this form.

Practice settings included for consideration were those with direct patient care functions. This was to abide by the accepted definition of "clinical" which are practice settings with direct patient care. Excluded are those sites that focus on administrative and dispensing functions. This determination utilized the following rotations:

- PHAR 800 Ambulatory Care Clerkship
- PHAR 801 Community Clinical Clerkship
- PHAR 803 In Patient Acute Care Clerkship

Preceptors were required to have at least one student during the months of May through August 2001. This requirement allowed the researcher to observe direct interaction between the CP and student. CPs must be within a one hundred mile radius from the pharmacy school.

In reviewing he database of the student evaluations, six candidates for research were identified. The Director of Experiential Education of the pharmacy school under study initially contacted the candidates by e-mail to determine their desire to participate in a research project requiring observation of the CP/student interactions, and interviews. If the CP indicated an interest, the researcher telephoned the CP to explain in more detail the obligations, time commitment, and intent of the research project.

Summary of Criteria for master CP selection using the "Student Evaluation of the Rotation and next Contact" form:

1) Student survey with P and O minus P-7 (Class of 2000 and Class of 2001)
2) 100 mile radius of the pharmacy school under study
3) At least 3 students completing the survey
4) CP in patient care area
5) Score >4.5 in all areas identified in Criteria #1
6) Has student(s) assigned in May – August of 2001

Appendix A

Characteristics applicable to didactic and clinical (experiential) teaching

	Pedagogical skills								Relationship with Students					
Studies	Create atmosphere for independent or self-directed learning	Organization and clarity	Teaching style meets student needs	Creativity	Relevance	Create positive supportive learning environment	Encourage problem solving/critical thinking		Provides positive feedback and direction	Demonstrates care and interest in the student	Available and involved with the student/personal interest	Knows the student so can guide learning	Willing to share knowledge and experience	Viewed as a facilitator
Bellet, '92														
Bergman & Gaitskill, '90	X								X					
Brown, '81									X					
Chapnick & Chapnick, '99	X	X		X		X				X				X
Dunlevy & Wolf, '94		X					X					X		
Dunlvey & Wolf, '92									X	X				
Gjerde & Coble, '82		X			X		X		X	X	X		X	
Irby, '78		X							X		X			X
Irby, Gilmore, Ramsey, '87		X							X	X	X	X		
Irby, May, '94			X						X			X		
Jarski, Kulig, Olson, '90		X			X		X		X	X	X			
May, '83		X	X		X				X			X		
McLeod & Harden, '85	X	X					X			X		X		
Melnick, '92					X									
Orlander & Fincke, '94	X									X		X		
Skeff & Mutha, '98									X			X		X
Skeff, '87	X	X			X	X			X			X		
Skeff, et al., '97	X	X				X			X					
Stemmler, '88														
Tiberius & Sakin, '88	X										X			
Whitman, '93	X		X	X						X		X		X
Wiindsor, '87									X				X	

	Personal Attributes						Subject Knowledge	
Studies	Enthusiasm	Encouragement	Appropriate emotional tone/Comfortable with students	Friendly	Excitement		Demonstrates clinical knowledge	Knowledge of student/learner
Bellet, '92		X					X	
Bergman & Gaitskill, '90	X	X					X	
Brown, '81		X					X	
Chapnick & Chapnick, '99	X	X	X					
Dunlevy & Wolf, '94				X				X
Dunlvey & Wolf, '92								
Gjerde & Coble, '82	X		X					
Irby, '78	X						X	
Irby, Gilmore, Ramsey, '87	X						X	
Irby, May, '94	X						X	X
Jarski, Kulig, Olson, '90	X	X	X				X	
May, '83								
McLeod & Harden, '85	X	X		X				
Melnick, '92							X	
Orlander & Fincke, '94								
Skeff & Mutha, '98	X							
Skeff, '87	X		X		X			
Skeff, et al., '97								
Stemmler, '88							X	
Tiberius & Sakin, '88	X	X						
Whitman, '93							X	X
Wiindsor, '87	X			X				

Study	**Pedagogical skills**
Bergman & Gaitskill, ‘ 90	Ability to stimulate the student to want to learn
Chapnick & Chapnick ’99	Set appropriate emotional tone for each teaching session Facilitate the learning process Act as role models of students Provide positive educational experience Make it enjoyable Make good use of time Clearly stated objective Learning environment comfortable and encouraging Meaningful material Students assume active role in their learning by planning and organizing their learning Think creatively
Dunlevy & Wolf '92	Good communication skills Provides immediate feedback Provides much hand-on experience
Dunlevy & Wolf ’94	Student given responsibility Problem solving and critical thinking Outline expectations for the day Be aware of how students experience learning
Gjerde, Coble, '82	Answers questions clearly Is well prepared for teaching sessions Provides constructive feedback Discusses practical applications of knowledge and skills Asks questions in non-threatening manner Shares his or her knowledge and experience Maintains atmosphere that encourages expression of different viewpoints Summarizes major points at conclusion of teaching session Asks questions that stimulate problem solving Explains basis for his or her actions and decisions
Irby '78	Role facilitate learning Create atmosphere where students are active independent learners Organization and clarity of presentation Provides direction and feedback

Irby, '94	Clinical knowledge of general principles of teaching and learning Actively involve learners Capture attention and have fun Connect the care to broader concepts Meet individual needs Be practical and relevant Be selective and realistic Provide feedback and evaluation
Irby, Gillmore, Ramsey ’87	Knowledgeable and analytical Clear and organized Actively involved trainee in learning experiences Provide direction and feedback
Jarski, Kulig, Olson '90	Takes time for discussion and questions Answers questions clearly Provides constructive feedback Discusses practical applications of knowledge and skills Asks questions that stimulate problem solving Emphasizes problem-solving approaches rather than solutions per se Asks questions in a non-threatening manner Summarizes major points at the conclusion of the teaching session Actively promotes discussion
May, ’83	Writing clear learning objectives Planning learning experiences
McLeod & Harden, ’85	Encourages problem solving Encourages students to develop their own learning skills Establishment of expectations and guidelines with overall plan.
Melnick '92	Ability to teach with clinical relevance Dedication to teach above all other considerations
Orlander & Fincke, ’94	Facilitate the learner’s participation
Skeff, ’87	Create a positive learning climate Organized to keep effective pace

	Set relevant teaching agenda Communicates clear expectations/goals for students Promotes self-directed learning
Skeff et al., ’97	Promote self-directed learning Clearly communicating educational goals Establish a positive learning climate
Tiberius & Sackin, ’88	Teachers act as a catalyst, drawing in the student to active Involvement in learning, with teacher presence being less important.
Whitman '93	Diagnosis of where learner is and where he wants to be Creativity Creating helpful interactions Fine judgment Wisdom to know when conventional thinking is wrong or right Insight to seek options When teaching is correct and up to date perceived as relevant to learners Use of four teaching styles: assertive, suggestive, collaborative, facilitative
	Relationship with Students
Bellet '92	Encouragement
Bergman & Gaitskill, ’90	Provides useful feedback on student progress
Brown, ’81	Conveys confidence in and respect for the student Provides useful feedback
Chapnick & Chapnick '99	Facilitate the learning process Provide support and encouragement Demonstrate care Learning environment comfortable and encouraging Students assume active role in their learning by planning and organizing their learning

Dunlevy & Wolf '92	Shows genuine interest in students
Ende, ’83	Positive feedback essential
Gjerde, Coble '82	Is willingly accessible to residents Asks questions in non-threatening manner Shares his or her knowledge and experience Demonstrates genuine interest in resident
Irby '78	Establishes rapport Actively involves students Provides direction and feedback
Irby, '94	Clinical knowledge of learner Meet individual needs Provide feedback and evaluations
Irby, Gillmore, Ramsey '87	Greater involvement with the trainees Associate with showing personal interest in them (in trainees mind) Concerned with personal and professional development Providing appropriate guidance to the clinical setting All this is linked to willingness to help Established rapport Provided direction and feedback Accessible
Jarski, Kulig, Olson '90	Provides constructive feedback Is willingly accessible to students Shares his or her knowledge and experience Demonstrates a genuine interest in the student Demonstrates sensitivity to student needs
May, ’83	Assessing learner expectations Adapting teaching to individuals needs Giving and receiving feedback
McLeod & Harden, ’85	Gives good feedback, sensitive to differing needs of each student
Orlander & Fincke, ’94	Shows interest and concern in student Use non-judgmental language Recognize the needs of the student

Skeff, ’87	Shows good judgment of needs of student Positive appropriate feedback
Skeff & Mutha, ’98	Be aware of learners’ viewpoints to be effective guide to learning
Tiberius & Sackin, ’88	Teachers act as a catalyst, conveying their own enthusiasm, interest, and active involvement Teacher actively engages with the students
Whitman '93	Creating helpful interactions Diagnosis of where learner is and where he wants to be Showing you care and have interest in the student
Windsor, ’87	Instructor willing to share knowledge Feedback that is private and frequent intervals

Personal Attributes

Bellet '92	Encouragement
Bergman & Gaitskill, ’90	Encourages student to feel free to ask questions or ask for help Enthusiastic
Brown, ’81	Encourages student to feel free to ask for help or ask questions
Chapnick & Chapnick '99	Set appropriate emotional tone for each clinical session Enthusiasm Learning environment comfortable and encouraging Create an environment emphasizing trust Listen Answer accurately and politely Body language: eye contact, lean slightly forward, respect personal space, sense physical place
Dunlevy & Wolf '92	Humor
Dunlevy & Wolf '94	Patience Kindness Sense of humor

	Respectful Flexible Intimidating Unapproachable Friendliness Empathy Welcoming
Gjerde, Coble, '82	Demonstrates enthusiasm for teaching Willing to admit when he or she does not know
Irby '78	Challenge - excitement and enthusiasm Enthusiastic and stimulating
Irby, '94	Capture attention and have fun
Irby, Gilmore, Ramsey '87	Enthusiastic and stimulating
Jarski, Kulig, Olson '90	Deals with students in a friendly, outgoing manner Asks questions in a non-threatening manner Demonstrates enthusiasm for teaching
McLeod & Harden, ’85	Encourage student and show respect. Shows enthusiasm for teaching and for the student Concerned, compassionate, understanding, friendly
Melnick '92	Motivation to integrate
Skeff, ’87	Enthusiasm and excitement in teaching
Skeff & Mutha, ’98	Enthusiastically convey importance and applicability of fields unfamiliar to learners
Skeff, Stictes, Wygdal, Manfred, Quick, Roberts Greenberg '97	Establish positive learning climate Overseeing control of learning/teaching sessions Communicating educational goals Promoting understanding and retention Evaluating the learner Feedback Promoting self-directed learning
Whitman '93	Showing you Care Showing interest in the student

	Creativity
Windsor, ’87	Friendly, honesty, humor, warmth, enthusiasm

Subject Knowledge

Bergman & Gaitskill, ’90	Well informed and able to communicate knowledge
Brown, ’81	Able to communicate knowledge
Chapnick & Chapnick '99	Act as role models for their students Activate long term knowledge
Irby '78	Instructor knowledge
Irby, '94	Clinical knowledge of medicine Case based teaching scripts
Irby, Gillmore, Ramsey '87	Knowledgeable and analytical Demonstrated clinical skills and procedures
Melnick '92	Strong grounding in specific disciplines Ability to teach with clinical relevance
Skeff et al., '97	Specific clinical knowledge Specific "illness scripts" Possess knowledge related to specific content and settings
Stemmler, ’88	Need to maintain balance between theoretical and practical knowledge
Whitman '93	Knowledge and experiences

Appendix B

Study	Distinctions of Clinical Teaching in Medical and Health Care Education
	Purpose or goal of teaching
Ende, 1983	Ultimate goal is student expertise in the care of patients
	Learning context
Stritter, 1980	The teaching/learning interaction occurs within the intellectual vicinity of the patient. Its focus is either the patient or a clinical phenomenon concerning the patient.
Irby, 1994	Clinical teaching is at the bedside
	Requirements and demands from the learning setting
Wong & Wong, 1987	The element of risk for the safety and well-being of the patients Limited control over outside factors
Windsor, 1987	Learning situation may be unique and cannot be repeated
Bergman & Gaitskill, 1990 Skeff, 1997	Diversity of facilities
Thomasson et al., 1994 Whitman, 1993	Instructor must address the patient's concerns and concurrently identify the learner's goals

Professional role modeling

Bergman & Gaitskill, 1990
Chapnick & Chapnick, 1999
Irby, 1978
Mogan & Knox, 1987
Pugh, 1983
Rauen, 1974

The clinical instructors acts as a role model for the profession
Clinical teaching takes place within the context of the professional environment and student observes professional role model

Concept of service to students and patients

Stemmler, 1988

Clinical instructor must provide education for the student concomitantly with service to the patient

Skeff, 1983 Clinical instructors are not only responsible for teaching but also for ensuring excellent patient care

Whitman, 1993

Clinical instructors are members of two service professions

1) clinicians with the goal to help patients
2) teachers with the goal to help students

Appendix C

Sample of method by which I establish plausibility using peer review, review with research professor, CPs, and students:

Topic: Type of questions leading to the identification of the use of mini-lectures.

1) Initial coding of Site A observations

This began immediately upon completion of observation of clinical teaching. I transcribed the audio tape the day of the observation, sometimes finishing the transcription the next day. I incorporated my written notes that I made during the clinical observations which included body language, who was present during the interactions, and facial expressions.

Dates of clinical observation for Site A are June 11, 13, 15 in the year 2001.

I noted that during all observation days, questions were used extensively during the clinical teaching by students, the CP, patients/clients, and other health care personnel. I looked for patterns of behavior or circumstances that led up to these questions and the consequences of these questions. I began to code these question types.

2) Collaborating with peers

I attended a Coding Class with peers of the Ph.D. and Master Programs of my institution concomitantly with my data collection weeks. Copies of the transcripts were given to my classmates numbering 5-10 people throughout the summer. Coding class Summer Sessions I & II met on Tuesdays from 4:00 – 6:30 p.m. I collaborated with my classmates 4 class times during July and 2 separate times with my research professor prior to class. During the first 2 weeks of August, I collaborated with my research professor by telephone. I audiotaped all my collaboration meetings.

It was through these collaboration processes that a list of 9 questions types were identified. Patterns of behaviors prior to and after these questions were identified.

The category of "mini-lectures" appeared as an integral part of the CP's teaching. I conducted follow up interviews with her on July 11, 12, 13, and December 2 of the year 2001. I specifically asked her about her use of mini-lectures, how she determined when and when not to use them, and what the mini-lectures accomplished.

I collaborated these findings with the CP's students in audiotaped interviews on June 26, July 16, 17 and 27.

During the summer, I interviewed and audiotaped a colleague at my institution who is a Ph.D. ethics professor with a specialization in medical ethics, full time faculty to collaborate on my findings. I also met with and audiotaped another colleague who is a full time faculty member, Nursing Ph.D. candidate to collaborate those same findings. Both concurred with the interpretation.

3) Sample of collaborating findings with CP and students:
Taken from interview with CP, June 25, 2001:

R [Researcher]: You mentioned teaching styles, in looking at the transcripts of your being with the students, it is fascinating to see the pattern. In looking at the transcripts, you will a series of questions, questions, questions, short. [CP laughs]. And then at some point you go into a full explanation. How is it you do that?

CP: I started out doing that because I wanted to find out what they already knew. So then if they knew a lot about one specific area, then I wouldn't have to go back and explain it. But if there was an area that I discovered that they didn't know, then we could take time later.

R: How do you discover if they know it or not?

CP: Ask them leading questions to see if they respond appropriately or have a clue. I don't know if that is the right way. It is the way I do it [laughing].

R: At one point in a specific time, N [name of Student 2] gave the right answer..

CP: Uh huh

R: But you kept probing. And at the end, you said, "Well, you gave the right answer, but I just wanted to make sure."

CP: What he knew why? Is that what I was going for? I don't remember.

R: You wanted him to have that air of confidence.

CP: Oh. Yes. Sometimes, well, yes, sometimes students will….as we do, as grownups, you get the answer right, but after you say it, you don't say it with that air of confidence. You are not quite certain you have it right. [laughs] Yep! That still happens to this day. So, I don't know, that is trying to teach them to feel confident when they are right. To know that they are right.

R: Yes, that was interesting. Another thing that I have noticed about your teaching is…

I followed up again with the July 13 interview trying to determine why and how the CP uses questions and then follows up with a mini-lecture. The following is a sample of that interview:

R: p. 4 [referring to teaching transcript] Did the student give the right answer?

CP: That was the right answer but I wanted them to come back and I wanted them to have to go look it up and tell me more.

Researcher: OK, so, tell me more.

CP: I guess I should have answered them.

Researcher: No, there is no should or wrong or right. I am just making sure I am understanding. OK. So it was questioning.

CP: He didn't come out and say, because they asked it as a question, they obviously weren't 100% sure and if I had told them yes or no that they were right, they probably wouldn't have gone and looked it up. I think when you look it up, you retain it more…. You can just tell by looking at their eyes or how they answer it that they may not know.

p. 5 Why give answer? (mid page)

CP: I don't know. It just seemed [pause] when I do it, I don't want to do everything that we do on rounds something that they have to go and look up later. I want, some things, I want to give them [mini-lecture]. I want to have a teachable moment. I want to have a time when I can actually tell them something versus having them to have to look up every single thing. Which ones I pick, which ones I do {pause] there is no right or wrong reason.

Researcher: You just used the word, "teachable moment." How to you identify those times? What is that?

CP: I think especially if it is a topic that I feel very comfortable with, that I feel like I can go in depth, and know it 100%….I am very cautious that I don't want to give them misinformation. So if there is a topic that comes up that I really know very well, I will usually pick those as teachable moments. And if we have time I will use that. But if it's a topic that maybe I am not the sharpest on, then I would like for them to look it up too and then I will go look it up also so we will come back together.

R: Is there anything that the students do that in addition to coming up with a topic that you know very well that you realize, this is where I need to go?

In my interview with Student 2, I ask him about the use of questions and mini-lectures. The following is taken from June 26 interview:

Student 2: [Our CP's} questions would lead us to a point that we remember immediately. We did this and this was the answer. So I like that approach.

R: How does she come up with those leading questions?

Student 2: I don't know. Maybe she has done it for a long period of time and she has experience in doing it or as a professor she knows how to get answers from the students by posing different questions.

R: I have noticed in her series of questions that there will be a series of short questions with short answers and then sometimes she will go into a full explanation, almost like a mini-lecture.

Student 2: It is very true. I think one thing I liked about that we just don't just do the rotation but there is an alongside teaching process going on over there. Or if she sees that, we have some ideas about it, she will seize the opportunity and give us a brief lecture on that which is very very good.

It is in this manner that I collaborated with the participants of the study, colleagues, peers, and research professor.

Appendix D

Student Evaluation of the Rotation

STUDENT NAME: _____ DATE: _____

ROTATION SITE: _____ PRECEPTOR: _____

Student: Please utilize this evaluation form for the overall evaluation of rotation. This final evaluation form should be returned to the Shenandoah University School of Pharmacy, Director of Experiential Education, 1460 University Drive, Winchester, VA 22601 with the presentation evaluation form upon the end of the rotation period. Thank you.

Please rate the following statements (score of 5 is the highest)

5 Strongly Agree 4 Agree 3 Neutral 2 Disagree 1 Strongly Disagree

Preceptor:

1. *The preceptor provided me with an appropriate orientation.*

   5 4 3 2 1

2. *The preceptor is an excellent preceptor.*

   5 4 3 2 1

3. *I was always in contact with my preceptor.*

   5 4 3 2 1

4. The preceptor was always available.

5 4 3 2 1

5. This preceptor should remain in the experiential program.

5 4 3 2 1

6. The preceptor provided good feedback and support.

5 4 3 2 1

7. The preceptor conducted a mid-rotation evaluation.

5 4 3 2 1

8. I was evaluated fairly.

5 4 3 2 1

Comments regarding your assigned preceptor (optional):

Facilities:

1. *I felt comfortable with the environment I was assigned.*

   5 4 3 2 1

2. *I was given adequate work and storage space.*

   5 4 3 2 1

3. *The facility was maintained appropriately.*

   5 4 3 2 1

4. *The facility contained sufficient resources for the practice.*

   5 4 3 2 1

Facility (cont.)

Comments regarding the facility (optional);

Overall Experience:

1. The rotation maintained an appropriate workload.

5 4 3 2 1

2. I benefited a great amount from this assignment.

5 4 3 2 1

3. I recommend this rotation to others.

5 4 3 2 1

3. This rotation should remain in the experiential program.

5 4 3 2 1

Comments:

Appendix E

Sample of Interview Guides and Subsequent Interviews

Interview Guide for June 25, 2001, Monday at 7:15 a.m. at 405 Acute Care with CP

1. Thank you.

2. Ask about dynamics of having 2 students. Check on my observation for correctness that the students worked well together.

3. With 2 students together, how does the CP function when there may be 2 different learning styles, levels of knowledge, reactions to patients?

4. As to specific of transcript, get CP's reaction to the pattern I noticed of series of questions: short, short, short, ending generally in an explanation (mini-lecture) from her.

5. Ask CP about what I consider, "probing" questions. How does CP decide to continue with series of questions and when does CP move on.

6. What is the importance or reason for CP saying, numerous times, "I don't want to put you on the spot?"

7. Ask about CP's understanding of why CP's students often used the word "comfortable" in referring to clinics with the CP.

8. Frequently, you used the phrase, "Well, as a pharmacist, how would you approach this?" What role does role modeling have in your teaching?

9. Ask about use of humor with specific examples from transcript. "leap of faith" sequence.

10. How do you assist the student with recall from classroom knowledge that is learned months ago? Can you give me specific instances. [I have a few if you can't identify some]

11. What role does homework or assignments for the next clinical day have in your teaching. How and when do you determine what is appropriate?

12. Topic of thinking and reflecting. See if CP brings this up. Thinking process.

Interview with CP, June 25, 2001, Monday, at 7:15 a.m. at 405 bed Acute Care

Present: Researcher and CP

Researcher hereafter referred to as R: Thanks again for coming. I have really enjoyed being with you and your students. I have learned so much. Thanks.

CP: These are probably the best 2 students that I have had. Not so much in terms of the knowledge base, although they are very good in that but willingness, interest.

R: Speaking about that I have noticed that the two of them seem to work very well together. What is your take on having 2 students and the learning versus one and how does that effect your teaching?

CP: I have never had one student so I can't tell you what that would be like. I think the college's philosophy and when Dr. C talked to me about it, he said, well, he always felt that 2 students were better because they could learn off of one another. You could get more accomplished because they could each be looking at separate questions and come back together and discuss issues. You could sometimes cover more ground and use them as sounding boards. I don't think they like being put in the position of being sounding boards. I find that when I say, well, N [name of Student 1], would you please critique N [name of Student 2], they are very hesitant to offer the peer comments other than the positive. They are always very positive. But in terms of constructive criticism, they are very hesitant to give that. I liked having 2. Those 2 especially worked very well together. If you have 2 that don't work well together, it is a very long 6 weeks.

R: Has that happened to you?

CP: Uh huh! Very long 6 weeks.

R: Do you have to tailor your teaching with different learning styles perhaps?

CP: I probably should [laughing]. Based on time, I usually don't. [FIND OUT MORE HERE] But I probably should. Ahm. In a larger context we as a group, there are 4 faculty down here, pharmacy preceptors. We as a group have done things differently. This time since there has been 4 of us, previously I would just stick with my students. Mark would stick with his students, that were his. Now that we have 10-12 students here at a time, we tend to divy up duties and come together for group lectures and things like that more often.

R: What do you mean divy up duties?

CP: Well, previously like I would try to cover psych drugs and anti-hypertensives and anti-diabetics. We, each week, I would take a different topic. This time, I would take a

week and do a topic. M [name of colleague CP] takes a week and does a topic. D [name of colleague CP] takes a week and does a topic. So, it is easier in that regard.

R: Did the 4 of you figure that out and negotiate that?

CP: yeah, we did. We met together probably 2 months ago and sat down and decided, you know, how do we want to structure this since we have so many students now and space is a factor at the hospital and once everyone thought on that we just kind of came together and lets do journal clubs together, lets do drug updates together, lets do….and I think it has worked out.

R: How has this affected the students?

CP: I actually think it makes them feel more comfortable because they have their peers that they have gone to school with for the past 3 years together. So I think that part is kind of nice. I think having them be with different professors at different times shows them different teaching styles and plus it covers more ground.

R: Yes, definitely. Speaking of teaching styles, in looking at the transcripts of your being with the students, it is fascinating to see the pattern. In looking at the transcripts, you will a series of questions, questions, questions, short. [CP laughs]. And then at some point you go into a full explanation. How is it you do that?

CP: I started out doing that because I wanted to find out what they already knew. So then if they knew a lot about one specific area, then I wouldn't have to go back and explain it. But if there was an area that I discovered that they didn't know, then we could take time later.

R: How do you discover if they know it or not?

CP: Ask them leading questions to see if they respond appropriately or have a clue. I don't know if that is the right way. It is the way I do it [laughing].

R: At one point in a specific time, N [name of Student 2] gave the right answer..

CP: Uh huh

R: But you kept probing. And at the end, you said, "Well, you gave the right answer, but I just wanted to make sure."

CP: What he knew why? Is that what I was going for? I don't remember.

R: You wanted him to have that air of confidence.

CP: Oh. Yes. Sometimes, well, yes, sometimes students will….as we do, as grownups, you get the answer right, but after you say it, you don't say it with that air of confidence.

You are not quite certain you have it right. [laughs] Yep! That still happens to this day. So, I don't know, that is trying to teach them to feel confident when they are right. To know that they are right.

R: Yes, that was interesting. Another thing that I have noticed about your teaching is that you are extremely encouraging.

CP: Oh, that is nice! [surprised]

R: Yeah. And numerous times you have said in your transcripts, "I don't want to put you on the spot."

CP: Uh huh. [acknowledgement]

R: Can you comment on that, why and how you do that?

CP: I never had professors when I went through rotations that did that. But I witnessed professors that did do that. I have seen faculty be demeaning, thinking that if you treat them mean they will rise above it and come out as better people. I can't do that! It would make me cry! [laughing] And I don't want to people to feel uncomfortable. I think they will learn more, or learn as much going about it in an nice, non-threatening manner than if you beat them up.

R: In other clinic areas, the students have used the word "comfortable" numerous times with me. That they need an environment that is comfortable.

CP: Uh huh.

R: So I found that is interesting. That is an atmosphere that they are looking for.

CP: Uh huh! I can't imagine anyone who wants to be in an atmosphere that is not comfortable. In anything that we do.

R: Another thing that I noticed on clinics and being with you is that you not only had 2 formal pharmacy students but you were often took on the role of having staff as your students, nursing students…

CP: Oh..

R: The flexibility that you showed….

CP: I think it is because I cannot say no. [laughing] You know. It is hard to say no to people when other people ask you to help them out. I always just usually say yes. I don't find it any more difficult to have more bodies. In fact I think that more bodies can, can add more interest and can bring up different ideas that I don't think about.

R: Different points of view?

CP: Plus I think it is good to have the nurse practitioner students with the pharmacy students. I think it is good for either group to see what the other one has to offer. When they get out and they are working, that way they will be able to see.…and rely on each other for that.

R: Which goes along a little bit with role modeling.

CP: Hmmm…uh huh.

R: What happens in the real world. Which brings up another observation. Frequently you would use the phrase, "Well, as a pharmacist, how would you approach this?" What role does role modeling have in your teaching?

CP: Sometimes, and I think, it comes back to, when I was going through school, and I don't know if it was like this when you went, but they tend to….sometimes I think pharmacy tends to teach the students how to diagnose and to be, I hate to say, to be everything except pharmacists. They teach them all about the disease states. They teach them all the extra things that they do need to know. But sometimes they forget to point out, "Ok, what is our role here?" I don't want to go on patient care rounds and talk about to diagnose hypertension. That is not our role. Our role is to be more familiar with the drugs and what our place is going to be. So I always want them when they are up by the bedside, to not just get so involved in the patient medical disease but also to think about what their role is here.

R: One of the things too that I noticed is that you used humor a lot [M laughs] and…

CP: Why not?!

R: There was a lot of laughter on your, in your teaching rounds.

CP: That could be bad! [both laughing]

R: What…why was that and how was that?

CP: If you are going to do it, it might as well be fun. I don't know! It could be…..well, I think if we are going to do this it is going to be fun. It could be a nervous kind of energy and laughter. It could be….but I want them to have fun. I want them to enjoy being there.

R: Your use of eye contact and very often you would call them by name. For instance one time, N [name of Student 2] took a leap.

CP: A leap of faith!

R: He completely gave the wrong answer [CP laughing] and….

CP: Bless his heart!

R: And I remember your saying, N____, N____, N_____!! [CP laughing] Which made….

CP: Oh, that could be bad!

R: Not in that situation because it used humor.

CP: OK!

R: And he laughed…

CP: Oh, good!

R: And he immediately knew what was going on. It was an example, again, of your using their name, and engaging.

CP: Uh huh. I mean they, to me, everyone should do that. They are people. They are students. They are trying to learn. And I enjoy being around them. To me they are like little children. [laughs] That you are responsible for and I do enjoy being with them.

R: And yet, you said they are like being like a little kid. But also several times they found something in the chart, for instance, some sensitivities, and you said "Oh, yes!" I saw some collegial things going on to. You remained open to what they were finding.

CP: Well, as you well know, we don't know everything. And we miss a lot still. And I do think they do have a lot to offer. A pair of fresh eyes is a good thing, for sure. Yeah.

R: In terms of assisting the student with recall, so often they go through course work that is months old. And then come to a clinical situation and have to pull out some of that knowledge. How do you do that?

CP: I don't know! They do it really. They are actually the ones who pull it out. Maybe I ask the right question to get them to think back. If we are going to talk about a certain topic and it is planned ahead of time which usually does not occur during rounds, but sometimes I will say, now tomorrow come back in and have this topic looked up. So they will go back to their notes and they will do that. Sometimes if I ask them a questions, I think they just have to pull back in their brains and pull it out. I don't think I do anything special to get them to do that. I don't know.

R: I do notice that most all clinical days you do give them assignments…

CP: Oh yes.

R: …for the next day. How is that you come up with those? What drives that?

CP: Usually the severity of….in other words is it a topic that must be looked at in terms of patient care? In the next 24 hours? That is the most important. Second thing is a pharmacy related topic that we are going to have bearing upon. And I try not to give them too difficult a topic because they have so many other things that they are working on, that particular, during those 6 weeks that they are here. So I try not to make it too involved.

R: How much in the back of your mind does the success on their boards drive your topics or teaching?

CP: Oh! The only data that we are given is if they pass or not. And I can only really compare the last 3 years with this class compared to the prior years. Each year they are getting better in terms of the [university students]. In terms of what I see, whether I have good students or what, or the whole class is doing better. But, these particular students….let me back up. I think what happens is once a year the faculty meet and we talk about those areas that we see the students are weak in. The following year the faculty go back and they restructure how they are going to teach to make sure that they broaden those areas. And I can see that change from year to year. So as far as how they do on their boards, I don't know. We just know the pass/fail rate.

R: But in terms of…..

CP: What I cover?

R: Right.

CP: I don't give it a lot of thought. It is not in the back of my mind. Patient care comes first. Yea. I don't give the boards a whole lot of thought. I guess I always feel that if I don't teach them something [laughs] the boards will then catch it. So, if they learn something wrong, I always feel like the boards are kind of like my safety net. Which is a ….I don't know if that is good or bad.

R: We are an outcome based society [meaning health care education community] and school.

CP: We are. And sometimes I worry that some students who come through are just not very strong students and you want to try to fix that but you can't fix it in 6 weeks. And I always feel like the state boards are the last safety net that will catch them.

R: Both Student 1 and Student 2 seem to do a lot of thinking on clinics.

CP: Hmm..[almost in surprise]

R: How much of that is a part of your goal as a clinical preceptor?

CP: They had to do a lot of thinking in terms of….?

R: In terms of seeing the drugs, seeing the diagnosis and incorporating a patient care plan. I didn't see them simply looking at the med list and saying, "OK." [M laughs] They were thinking what is appropriate, what is not. Again, I wonder how that is incorporated in your teaching.

CP: The first week, we spend the first week kind of like an orientation week. Where we talk about what to look for when you look at a chart. We talk about the steps to go through as a pharmacist when you go to the chart. The disease states, the plan, the medications, the monitoring, the goals, the outcomes. So we get used to that. And I always tell them, I say, there is a reason there is a drug on board. There should be a disease state for that drug. There shouldn't be any drugs that don't have a reason for being there. So in their minds, they should be going through, "Ok, is there a reason for that drug? Is it the right drug based upon the particular patient." They should be thinking about drug interaction. They should be thinking about side effects. How the side effects manifest themselves as a problem in the disease state. So they have a lot that they should be….in their heads they should have a check list that they are going through. We talk about that.

R: So as this 6 weeks progresses, does your teaching change?

CP: Oh, I think so.

R: How so?

CP: It should be…well, it <u>should</u> be [laughs] my goal is that it would change!! I think I am more motherly and more guiding the first couple of weeks. By the end I like for them to take control and to be independent in terms of how they follow. So when we go to the beside this last week, I stand back and let them kind of take me through the steps of what they are looking for. And I tell them up front. I will say by the 5^{th} or 6^{th} week I want you guys to walk it through in your mind. Because I think it is not so much what….well, it is what they know but I really want to see them go through the steps. What they are looking for in that particular patient. As pharmacists there are just certain things that we should always look at. Kidney functions, basic things about the drugs that they should b thinking of always. Check this off.

R: How do you get them to verbalize that thinking process.

CP: Sometimes I will just ask them, "OK what are your thoughts on this?" "Go through the steps with me." "As a pharmacist, what things do you want to look at?" And usually what we will do, we will go to the bedside and I will say, " OK, what is the creatine clearance?" And they should have it figured out always.

Sometimes, I don't do it all the time. I should.

R: Numerous times you acknowledge to them that a process or a drug calculation is complicated. Or hard. [CP laughs knowingly] And you would say, "Take your time. Look at this for awhile." Or sometimes you would even say, "Ok, tomorrow, I want you to have looked this up." What role does that play of acknowledging, "This is complicated and hard" in your teaching?

CP: You mean the fact that I give them time to do it?

R: uh huh..... or simply acknowledging the fact that you recognize this is complicated and difficult.

CP: There are certain drugs they should be able to calculate very quickly and have the answer right then and there. There are other drugs that more factors come in to play. And it becomes more difficult. And I don't want them to give a superficial answer. I want them to make sure they know the answer. That they feel like they know the answer and they can come up with that answer. And if it comes up to the patient care at that particular time, in other words, if patient care is compromised, then we will get the answer right then and there. But if the answer at that point is OK, then I want them to go back and really look at it and come back the next day and say.

R: Yes, a couple of times I remember you said, "Well, we've got at least 24 hours [CP laughs] before somebody is going to round....

CP: right! And that is important for them to know because sometimes hasty decisions are not always the correct ones.

R: How do you decide you are not going to be the one who is going to call the physician? That it is Student 2's turn to do this? How do you make that determination?

CP: Depends upon the difficulty of the question. In other words, if all they are going to give back....it is important to them to learn to feel comfortable with doing that. And if preceptors always do it for them, they will never learn the comfort factor. That is one of the main problems in pharmacy is that we are hesitant to call the physician. I don't know how that ever got started. But it is very [laughing] embedded and ingrained in people. "You don't call them unless you absolutely have to!! 'Cause they will be mad at you!" And all these other things. So, I take the easier questions. The ones that I know they can answer and feel good about answering and let them do those. The more difficult ones, I may help them through it and then let them call or I will call. And actually if I am trying to make an inrow with a physician who may not be....ah...pharmacy-friendly, I won't let, I won't have the students call. I will call. So it depends upon who the physician is too.

Let me go see who this page is from real quick.

[break while phone call is being made]

R: In looking through these transcripts, I noticed that in one area you crossed out…..[rest of time spent in what could be used in transcript from corrections made by CP]

[Comment from CP about giving students more time to look something up and not putting them on the spot]

CP: Yeah, well time never hurt anything really.

Interview Guide for July 13, 2001 with CP at Location S

1. CP sometimes asks students to look things up and sometimes does a mini-lecture. How does she determine which to do? Ask her specific about p. 4 of transcript of clinical day.

2. In this specific instance, how did you determine to go ahead and give the answer?

3. What was your thinking on p. 6 to give this line of questioning?

Researcher notes: On this interview, CP used the word "teachable moment." I pursued this topic which the CP named.

CP July 13, 2001 interview at Location S, 12:30 p.m.

Researcher, pointing out specific of transcript of clinical, day 1.

R: p. 4 [referring to teaching transcript] Was this the right answer?

CP: That was the right answer but I wanted them to come back and I wanted them to have to go look it up and tell me more.

Researcher: Ok so, tell you more.

CP: I guess I should have answered them.

Researcher: No, there is no should or wrong or right. I am just making sure I am understanding. OK. So it was questioning….

CP: He didn't come out and say, because they asked it as a question, they obviously weren't 100% sure and if I had told them yes or no that they were right, they probably wouldn't have gone and looked it up. I think when you look it up, you retain it more…. You can just tell by looking at their eyes or how they answer it that they may not know.

p. 5 Why give answer? (mid page)

CP: I don't know. It just seemed…..when I do it, I don't want to do everything that we do on rounds something that they have to go and look up later. I want, some things, I want to give them. I want to have a teachable moment. I want to have a time when I can actually tell them something versus having them to have to look up every single thing. Which ones I pick, which ones I do…there is no right or wrong reason.

Researcher: You just used the word, "teachable moment." How to you identify those times? What is that?

CP: I think especially if it is a topic that I feel very comfortable with, that I feel like I can go in depth, and know it 100%….I am very cautious that I don't want to give them misinformation. So if there is a topic that comes up that I really know very well, I will usually pick those as teachable moments. And if we have time I will use that. But if it's a topic that maybe I am not the sharpest on, then I would like for them to look it up too and then I will go look it up also so we will come back together.

R: Is there anything that the students do that in addition to coming up with a topic that you know very well that you realize, this is where I need to go?

CP: If they are answering it, like the busebar, they obviously kind of knew something about it. They, were, I guess I really don't know. I was going to say, if they obviously know some things about it already, then I will just cover. For instance, she said, "Anti-depressant," It is not really so I did not want that misinformation to go to the other student but it can be used for that. So I wanted to particularly clarify that right away so they didn't leave, thinking that was the right answer.

R: Is there any way you can check to see if that teachable moment worked?

CP: Ohh.!!…I guess I kept track of those times when we have those teachable moments, then at the end of the rotation you could go back and kind of quiz them on them again.

R: But nothing during the actual rotation?

CP: I never have before. No.

R: Alright,

Interview Guide 3rd follow up for CP, Acute Care Facility

Overall, I am trying to identify specifics of:

- How CP chose the route of questioning.
- Why CP would not accept a particular answer from the student and, rather than pursuing the wrong answer of the student, why the CP stuck with her route of questioning
- Why the CP did not pursue a Student 2's statement, "I am not very sure." I am confirming with the CP that this might be a lost teachable moment.
- Confirm my observations of the CP using each of the students as resources as part of the teachable moment.

1. Bottom of page 5, is that the correct answer from the student? If not, what were you trying to elicit?

2. Is bottom page 5 a hint from you? Possibly a guessing game?

3. Why did you not pursue the student comment, "Maybe, I am not very sure." Could this possibly be a lost teachable moment?

4. It seems like you did not want to pursue the path that the student began to take. What was your reasoning here?

5. P. 6, Student 1 and Student 2 response, is this a correct one? Why did you not follow this path of the student?

6. Why, at this juncture, did you turn to the other student and say, "Do you want to pitch in and help?'

7. Later in this page, I interpret this section as your bridging information for them. Is this correct?

8. Why and how did you choose the particular line of questioning with the gram positive vs. gram negative, giving them a 50-50 chance? A guessing game?

9. In the section of discussing the patient with the UTI, it is my interpretation that you are taking them to the next level of thinking, beyond just the facts. Is this the case?

10. P. 13, what is the value of having the student look this up if you already have it in your head and can tell them the answer?

11. P. 15, it seems as if you are pursuing their thinking process. Is this the case?

12. Ask about CP controlling the learning environment on clinical.

CP, Acute Care facility interview 3rd follow up
11:00 a.m. Health Professions Building, her office

Explanation researcher of why interview….trying to understand why. Going over transcript.

Bottom of page 5, transcript first day of clinical. I spent some moments orienting CP as to the scenario of the clinical. She indicated she remembered.

R [Researcher]: Difference of nosocomial vs. community acquired.

Did you want that term that the student gave you?.

CP: Where I am trying to go is to think about the different kind of bugs [microbes] that they would see in one versus the other. And we talk about, there is a difference [her voice goes up for emphasis.]. "So in nursing homes you would be more likely to find.." So I did want them to correlate hospital with nursing home. That in the nursing homes, you will find the same bugs [microbes] that you would find in the hospital.

I wanted them to make that correlation between nursing home and the hospital.

R: And you were actually looking for the name of the microbe itself?

CP: I think eventually. I would like for them to go to that point. "So let's back up."

R: You said Dr. J. To me this was a "hint."

CP: Um hmm.

R:….another hint?

CP: Yes, I guess want them to come up with something. Maybe I am just throwing in time too. [R – meaning giving them time to think.]

R: Kind of filling in time too. I notice that you are very courteous.

CP: Well, I want to give them time to think. Because you and I do this all the time because it is easy for us to come up with the answers. But to give them time to process and think and let them have time to think back to say, "OK, Dr. J., what did he say?" Try to give them time to think. I never want to put them on the spot or make them think they are being managed in that way. So anyway, yes, trying to give them time and obviously, [now reading from the transcript] "What you would expect to see?" I am trying to narrow

it down. Or if they can't narrow it down, [then I sat] "Or the most likely pathogen?" Maybe they have heard that term, most likely pathogen to see in the community.

R: In other words, another way to think about it, or another way to approach it.

CP: Right.

R: [continuing to read from the transcript] "Maybe, I am not very sure."

CP: I wonder why she said that?

R: My question is, why did you not pursue this?

CP: [Looks at transcript more] I wonder if I lead her to believe, in this statement here. [voice trails upward in thought]

R: It was very affirming [meaning CP's response in the transcript].

CP: I wonder why you said this? [long pause] I don't know. Unless she is thinking, "Well there is more" The most likely. She has gotten one of them and maybe she feels like she should be able to come up with 2 or 3 more. And maybe she is not so much talking about back here. Maybe she is thinking I am not very sure about what else.

R: It went on here with. She answered with a question, "What about pseudomonas?"

CP: OK, she was trying to think ahead and come up with more. And she is not coming up with it.

R: Then you said, "No, you said strep." As if you meant don't pursue this path..

CP: Huh!

R: Was that not right?

CP: This was not right.

R: OK.

CP: Strep is right. Pseudomonas you would see in the hospital, nosocomial.

R: So quite possibly this is a path that could have been pursued to say, "You know, no because blah blah blah…" or for you to say, "No, why do you think that is right?"

CP: I know the reason I did not pursue it. It is because my own personal fault is that, ha ha, this is probably why, is that I wanted them first to go through the community bugs first. And always my fear is that if I start down another path, I will forget where I was to

begin with. And so I wanted to stay focused on getting all the pathogens out in the community first and then we can talk about the nosocomial or the pathogens that we see in the hospital. And that is why I did not go ahead and pursue and explanation with her answers here.

R: I am so glad that you said that because my whole hypothesis in watching you teach, and if you don't mind reacting to this I would appreciate it, is that at times you have, even though you might not know it, a path, and end vision in mind and you have got to get there somehow. And at times, because of time constraints, and who knows what else, it is pressured and you can pursue those side paths. And ask, you know, that is not really right, why do you say that?

CP: I think some topics, for me, in particular, come easier so I know exactly where I want to go with it. There are teaching points

Tape interrupted.

R: [Explanation of model]……So some topics are easier. And you have determined that some topics are of more importance.

CP: Some topics from a pharmacists point of view are more important. So I tend to, plus it may be a topic that I like better. There are just. So I tend to go with those topics. And usually I have an idea. I want them to learn things A B C and D.

R: Do you have those at the beginning of the day, generally? OK, this is what we have got to cover or does it sometimes occur as you are going through?

CP: As we are going through. Because with the hospital service, as the patient load changes on the daily basis, you never know what you are going to encounter. But as far as before the students leave the rotation, there are certain topics that I want us to have talked about. And if we don't see if from a patient's stand point, then we will just go back and go over it, just notes or something like that. Another topic of discussion.

R: In the middle of page 6, Student 2 and Student 1 are both there. "No" you said. We did decide that she gave an incorrect answer.

CP: Correct, that is right.

R: And you needed to follow that agenda, per say, is one reason that you did not take the time, at this point, to follow her response.

CP: And what I would have done if I, we had started talking about this particular bug, in my mind, I know I would have said, "Well, let's talk about other bugs that you would see in the nursing home or the hospital" and then I would have forgotten to come back to the community. So just the way my own, the way my mind thinks is that I want to try to stick with the first topic.

R: Tell me your thoughts why you turned to the other student and said, "Do you want to pitch in and help?" You didn't say definitely pitch in. You invited them to be, once again, as part of your courtesy.

CP: Well, I always

R: My question, why at this point, did you?

CP: Obviously, I [pause] I cannot demean someone. I can't do that. If I see a student struggling, and someone else may know the answer, why not let that person pitch in and let that person have some time off.

R: In other words, to pull somebody else in as a resource.

CP: For a resource, and to make them feel a part of it. I don't think I ever started out saying, "OK, Student 1, this is your turn to have questions asked." And she started volunteering information and I always want to her to feel like she can volunteer information. In my mind, if students start volunteering information, and then they give wrong information, and then you proceed to tell them, no that is wrong, they may not want to volunteer any more. I don't want that to happen.

R: Does that contribute to the atmosphere of "collegiality" and group learning?

CP: I would hope so.

R: So that would not be an incorrect assumption on my part?

CP: No. That would not be an incorrect assumption.

R: Now, so, you did invite her [referring back to transcript] "What is another bacteria that you might find in community-acquired?" Long pause. Not uncomfortable. And then, you said, "A good way to think about it too, think back to the vaccinations that kids get when they are born. This is a vaccine they get when they are 16 months." I interpret this as a bridge for you are trying to get them to remember something else in their background and build on it to where you want to go.

CP: I want them to be able to think back to other instances to try to tie in another way of finding information so they just don't have to memorize and regurgitate. They can always maybe bring it back to something else that they have been exposed to, to find the answer. There is always more than one way to go about finding an answer. I guess that is why I did that.

R: So in other words, it is a different way of thinking about it.

CP: Yes.

R: A different path.

CP: A different avenue to go to find an answer and that is important for people to know that there is not just one right way to find an answer. There are many different ways. If that doesn't trigger their memory!! [laughing]

R: This didn't work. So what did you do?

CP: "Alright, what about staff?" Well somebody came up with it.

R: Exactly.

CP: They had enough time, and whether or not they were using what I said or not, just by giving them enough time.

R: So, in your interpretation, the student, on his or her own, came up.

CP: With the answer.

R: So, this doesn't have anything to do with this [referring to the transcript].

CP: No, H. influenza is where I was going with this.

R: Well, at this point, you supplied them with the answer.

CP: Well, that was enough, probably. We needed to move on.

R: Why did you need to move on?

CP: I think if they eventually don't get it, obviously there had been enough interaction, we are going to have a lot of topics to talk about. I am going to go ahead and just give them the answer. I could have said, go out and find the answer and come back and give it to me tomorrow but I think they may remember it. Part of me wants to act as a teacher to finally give them the answer some point in time.

[Here is the mind set that the role of the teacher is to give the answer]

R: When you say, "Act as a teacher" do you mean resource?

CP: As a resource, as a supplier of the information. As their teacher.

R: At one point, my professor asked me, because I made this statement that there are times as a clinical preceptor, a clinical teacher, facilitator, that it is important for a student to look things up.

CP: Oh yeah

R: Because # 1, if we can recognize the way they learn some students learn better if they are in fact the ones who are getting the information. And # 2 it is important that they know how to look up the information when we are not there. So he asked from my data, how does a CP determine when someone looks it up and when they supply them with the answer. And I actually asked you that one time and you said that one of the instances in which you asked students to look things up is when you yourself are not sure. And you are very conscious of not giving incorrect or partial information.

And the second thing that seemed to come from my data is when there was the perception that we need to get through this. We are running out of time. We don't have time, they have too much to do. This is the time. I have got it in my head so I am going to tell them. And you simply do.

CP: Probably the most critical thing that comes out, and I am surprised that I did not mention it before, but, if it is a patient data that we need to talk about for patient care, then that is the primary reason that I may give the answer. Because of patient care, we may not have 24 hours to wait for the answer. So that should have been the main reason.

R: And actually there is a very clear example just of that. I can go right to it.

CP: That is the main reason.

R: Yeah. Patient care.

CP: Yes.

R: And I think you also told me in a previous interview that the # 1 priority on this is good patient care.

CP: Sure. That is why we are all here. That is why you are doing what you are doing.

R: It certainly is not for the glory!

[laughter]

R: I am sorry if this seems tedious.

CP: No actually, this is insightful. It makes me think every time I open my mouth again. It makes me examine my own way of teaching and being on clinicals, of relating to the students.

R: No, you just keep opening your mouth because what you are doing is so good.

[laughter]

R: OK same scenario. [together looking at transcript]

CP: Obviously I have gone back to it.

R: Student, "oh yeah" [quoting from transcript]

CP: "Oh yeah" [quoting from transcript]

R: "Yes, staph could be another one. Yep, yep." How about, finally, answer.

CP: I bet that was Student 2.

R: This was, student remembers. My Research Professor was questioning, how do I know that student was remembering? Well, I could just tell, it wasn't , oh yeah.

CP: With Student 2, you can tell it in his eyes.

[here is point that CP is intuitive]

R: Exactly! Yep, H flu. "Now, we give vaccines for that to the kids. You went back to your hint that they didn't get before. "OK. That is the community acquired." My point here is, at this point, you were able to tie your two points together.

CP: OK

R: You did supply them with information. But then you went back to your hint and not only did you talk about community vs. nosocomial, but, you hit again for them the concept for vaccines and this really is two different things but at this point you were able to tie two different things together. Am I correct on that?

CP: Yes. I am certain that I didn't plan it that way when it all started.

R: So to me this is another point of that bridge of your trying to tie back to what they remembered to, hey, this is reality.

CP: Uh, huh. [in confirmation]

R: Now, it seems to me here too.

CP: Now we are getting to the hospital acquired.

R: You reminded them, nosocomial, hospital. "Are you more likely to see gram positive or gram negative?" At this point it was my interpretation that they were having a little bit of trouble so you just gave them a 50 –50 chance. You wanted success. Am I? Why are you getting so elementary here?

CP: Uh, I guess, I should have said, "As we look at these bugs, two or three are gram positive." I didn't say that but I probably should have. [looking at transcript] Ah….I guess I am trying to take them step by step. Probably the reason I said this was because, Ok, now we are going to start talking about the bugs that we are going to see and I want them to think in their minds, gram positive or gram negative and the fact in the hospital you do have more gram negative. That is where they come from the most and because once they get the gram negative thing, they are going to say, "ok, what <u>are</u> some of those bugs." That will just lead them just one step, that will narrow it down in their choices.

R: So it is not really a guessing game. It is part of thinking process.

CP: It is part of the thinking process. You know, Karen, I would like to say that when I go in to actually start saying something that I have an idea of what is going to come out but I usually don't. [laughing]

R: I don't think that is the case. I am afraid I disagree with what you just said [in laughing tone] . [continues on reading transcript]

Here is my next question. "Yes, that is the one you really worry about. That is one of the more lethal ones. You are right." All this affirmation.

CP: Oh, I gave them too much information [as if under her breath as I was reading the transcript out loud]

R: Now why did you say what you just said?

CP: Well, it is not like me to give them all the answers. But they gave me one and I gave them two more.

R: Here is my next question: "And if they are UTI, what do you think about it?" Now, when I went back and looked at this patient, I think this patient did not have UTI. My interpretation is that you were taking them to the next level. They had this and you were thinking, "Well, in real life, maybe this patient would have a UTI.

CP: Well, they mentioned the bug. You start with the gram positive – gram negative. We got the three bugs [identified] down. Now I want them to think about the disease state.

R: And this is all part of the great plan.

CP: UTI is one of the more common disease states. I can't remember if with this particular patient if he came in with a UTI from a nursing home or what. I don't know if this was the patient we were talking about but who knows. [in other words, maybe it was hypothetical] [reading transcript]

R: Is my interpretation correct? "Well, you've gotten all this. OK, let's get into "treatment." That is the next step.

CP: Well, they've got their bug [identified the micro organism] Yes!

R: You INVITED them to go down. It is collegial, it is courteous.

CP: [laughing] My mother raised me right!
When I was in school, you always heard, there were always professors that were just mean. Their whole goal, their thought was that you wouldn't learn unless you were demeaned. You were crawling on the ground. That was how you would learn. I so disagree with that. My first year having students here, we had a faculty person who worked at the hospital and that is when we were having teaching rounds. That is what he would do. It just upset me to no end. Because he would have the little girls crying. And how does that, how can anyone possibly benefit from that?

R: Here is where [looking at transcript] you are working on a new patient. Where is his medical record. OK. [continued reading] This is your orientation [for the students to the new patient] You are checking with the nurse. [reading] "What are some of the types of questions you want to ask?" This, once again, in you teaching is, you want them to think. You want them to know their own thinking. You want to hear what their own thinking process is.

CP: They need to have a thought process. When they go in and start with the chart, they need to have a mental checklist of what they are going to ask before they start asking recommendations. Everyone should.

R: So is this the beginning?

CP: Yes! Before you begin recommend, what are some of the things, especially antibiotics, what are the kind of questions that you want answered?

R: [check list reading] [continue reading] This is when you bring in the nurse who is just hanging around listening.

CP: Well, you want to make, she is listening. Either she is learning too or maybe she can provide more information that I may not know. Group effort.

Plus you always want to make sure that pharmacy students, that medical students, anyone knows that the nurse ultimately has a lot, is the biggest resource that you can actually use. You should treat them nicely! [laughs]

R: So you perceive this also as role modeling for your students.

CP: They way that they should interact with the nurses. Yeah.

R: The nurse, qualified. She was treating you with great deference.

[Side B of tape]

R: [reading from transcript] What is the value of looking it up if the CP already knows.

CP: The student may have answered it because he wanted to show me how smart he was. OK? But for this particular, and maybe he could have gone on and expounded on why you have them both in there. Why both parts are in there. I am not really certain. I don't really know if we were short on time. I don't remember but because he asked that as a question, when they say, "Is it this?" I always think that they have some guessing part in that. I thought they should have gone home and looked it up.

R: Why didn't you supply them with the answer then and there since you knew it? How did you determine?

CP: I guess I that I had already told them enough already and it was time for them to look it up. And always when I start the day, I do think that when they leave, they have to have something to be looking up. Each of them should have some homework to do.

That seemed like a good topic because they have to go, I really didn't think they would know the whole reason why you have carba dopa in there with it. I guess I really didn't think that they would [know]. But then we did talk about it some more.

R: Yes, you did talk about it some more. Great kindness. "I don't want to put you on the spot." [read transcript] Is this an example of encouragement and pulling the information out of the student. Do you see that.

CP: Is this all the same student. [reading transcript] Both of them work so well together. They were good students. Well, obviously they are on the track. They are getting there. And sometimes especially they are so afraid to say something for fear that they will say the wrong thing. Sometimes you can tell that they already know it. And so I am just encouraging them to go ahead and say it. You are not going to be reprimanded if you say the wrong thing. And they are obviously getting there.

R: So, in other words, you are saying, "Let me hear your thinking process."

CP: Yes. [reading transcript] Good job. They did get it.

[part about Student 2 answering anti-depressant]

CP: Well, first of all, the student is wrong. Probably because he came out and said, "I know it is an anti-depressant." It is not in that category.

I am sure I didn't say it in a mean way. Anyway.

R: It seems to me you are giving clues here. You are not doing a guessing game.

CP: [reading transcript about part of hint from Classroom Professor] I like them to try to go back and I know for me, if I try to go back and dig it will all sometimes come back. I always figure it is in their heads somewhere. I try to draw the information out.

R: How is that different from, you don't see this as a guessing game?

CP: They are not guessing. I consider it as digging, clue finding. It is not guessing. Because I am not guessing. And I know where the information was when they were given it. So, but I want them to go back and try to retrieve it.

R: I love this example and I have used it numerous times but he is challenging my assumptions so I have to ask you about it. We are talking about seizures and the elderly who cannot clear the drug. [read from transcript] To me, you are asking for their thinking process.

CP: Yes.

R: You are not actually looking, I mean ultimately you would like to have this [the right dose] but the most important thing to me is,

CP: What is the thinking process.

R: But the student said [read from transcript] and you said, "OK, are you pulling this out of thin air?"

CP: When they say, I <u>think</u> 500. I am looking for their thinking process. I also want them, before they leave the rotation, if you notice, if ever they use the word [phrase] "I think" "is it", you can't answer things that way. You have to be sure of what you are going to say. If you are not sure of it, you have to say, I am not sure but I can look it up. I want them to always be careful about how they say things because someone is going to come back and challenge it.

R: So there are key phrases you look for?

CP: Yes. Not only key phrases but <u>how</u> they say it. They have to have that air of confidence.

R: I am going to read p. 29 to you and what do you think?

CP: This is fun!

R: This is a quote by one of your students when I asked them about your questions. [read part about Student 2 stating, she wanted to know our thinking process….she wanted to know what we are doing.] React to those things.

CP: Those sweet things, is my first thought. I agree with what he is saying. It is true that I care about them. It is true that I want them to be thinking the process through and they can rationalize out an answer and not just regurgitate the information. So that part is true.

R: [reads more about my writing and I say that I may need to change the part about the gram negative – gram positive. I may need to change that. Discussion about taking out promaxin for pain.] Renal function. Why don't you hop in here….[etc.] This is an excellent example of your wanting to know their thinking process. It is very focused and tedious. Is that what you are trying to get here?

CP: No, this is probably a good one. [altram which can actually worsen seizures.] What I want them to get, in order for them to come up with the dose, the bottom line is that they have to come up with the dose, but how they get to that dose has to take into [consideration] a lot of factors, one being, they have to figure out the renal function of the patient because that is a renally eliminated drug. It is going to be based a lot of it is because she is 85 will have a lot to do with it. Now I could just go to the computer and pull up the dose real quickly but I want them to see with this particular drug, the dosing is so tedious that you want them to see that. You want them to pull it up so they can remember it better than if I just do it for them.

R: His whole point..;

CP: It is not so much which organism is being treated, it is what dose they are going to get out of it.

R: 68 and 64. Student 1 really surprised me with Student 1. She gave a nice patient synopsis. She said [reading transcript, she is on a lot of medications]. [reads more transcript] What is the thought process that should guide .

CP: This is an example of guiding the students through the thought process. …I want her to take each disease state, state by state and come up with those medications. If the student just starts trying to rattle off the drugs, it doesn't mean nearly as much as if they try to put them in a class, categorize. [for example] we know she has an infection so here are here antibiotics. We know she has had an MI and is hypotensive so here's medications for them. And because I must have known that the patient was on a beta blocker, and she must have left that out, even though it is an anti-hypertensive, she did not mention it. So rather than just telling her, "Well, you forgot the toprol, I like to try to have them remember why she might be on the toprol." "Well, she had an MI, so you want to make sure they are on the H inhibitor beta blocker while, "Oh yeah, they did put her on toprol. OK."

R: [review what Research Professor wrote in this section. I say that his interpretation is wrong.]

p. 68. OK here is where he says I am making assumptions. Read this. Quote about how CP chooses teachable moments.

CP: Sounds kinda flaky [in reaction to her quote.]

R: [I read my writing about CP being acutely aware of all the demands on students.]

I should add part about patient care here.

But his point here, "this is an assumption, not in the data…..uses Teachable Moment." Are there any times that I was on your clinic that the tremendous pressures of time and demand for high quality performance, it does emerge from the data?

CP: What is there day like? In other words, what hours do they have? Do you want to know what their requirements are in their rotations?

We can talk about what their time constraints are and what my time constraints are. Their time constraints are such that they, depending upon how many patients they have in a given day, they usually have to have those patients rounded on usually by 10:00 a.m. 10:30 if we are lucky. Because sometimes, well, Wednesdays, they have noon conference which runs from noon until 2:00, followed by journal club which runs from 2-4. On Fridays they do preceptor updates which means each preceptor takes a Friday and we spend 2-3 hours teaching on our topic of interest, each one of us so the students really don't have much time on Fridays. Tuesdays they do journal club from 2-4. Not on Wednesdays, journal club is 2-4. Wed. noon conference. Oh, new patient update is from 2-4 on Wednesdays where they present their own cases.

And usually we have between 6-8 students in the hospital at any given time so there are 4 or 5 pharmacists that have students. We try to work together so that when we have student talks, they give them to the whole group so they do have things to do on Tuesdays, Wednesdays, and Fridays, pretty much the whole afternoon so you have to have your patient load done by 11:00 which would be the final limit. So my time with them is sometimes only 2 hours in the morning. Then they have their assignments, plus they have their final project that they have to work on which they do [present] the last week.

R: And if I am remembering correctly, they I remember that Student 1 was assigned to go to a pain clinic one day.

CP: Oh yes, they rotate. They go to the OR for one day. They will do pain rounds for one or two days. If they have an interest I will get them hooked up with the diabetic teaching so they may go there for a day.

R: And I think Student 1 went into a shock therapy session.

CP: Yes, the saw ECT. Usually we will take them. We ask them from the very start where their interest lies. What would they like to see. Because there is nothing better than to have an enthusiastic student who wants to go see things. I never make anybody go but if they choose to, we will try to set them up so they can see surgery, pain rounds, those kind of things. So a lot of time, the time I have with them is short. I don't think they should have to look everything up because they don't have time for it, one and secondly, part of my job is to teach them something. What I know. If I don't know something fully, that's a prime thing, that is a good time for them to look it up. But believe it or not, I go home and look it up too! Because I have to make sure they come back with the right answer.

R: I think from what you just said and from my observations, I can justify, I can meet this question of his. That this is not an assumption. That is fact it does arise from the data.

CP: And of course my time is that I have mornings down there but I have responsibilities here [Health Professions Building] so you have to be, you can't spend all day. Which is sad.

R: Lastly, I have a big point, I haven't shown this to any body but you. Explains model. Clinical learning environment changes.By:

- patient condition changing
- people coming
- people leaving
- knowledge brought by participants
- non-knowledge brought

It is not a controlled classroom

CP: Heavens no!

R: Could you tell me how. How do you see yourself or not see yourself in controlling that environment?

CP: You can't control the environment. But you can control how you are going to react within that environment. So, you take the environment within that particular day and you, I always tell myself I am going to teach them at least one thing today! Maybe more! But you take the environment and I just try to work with them as best I can. But you can't really change that environment.

R: My I offer a way that I think that you did control the environment? You can tell me I am wrong or right. For instance, at times, you direct the students to go to another room, to study another patient. And then you invite other people to be a part of you. That to me is an example of your controlling, or influencing, maybe that is a better word, the environment. Would you agree with that?

CP: When did I do that?

R: For instance when you finished with one patient and you said, "OK, treatment. Let's now go to the bedside and look at the patient's chart.

CP: Oh, in terms of the day to day! Yes.! What I like to do is talk about the patient before we get there because I want to make sure they have looked at that patient before they even meet with me. Part of their job is to pre-round and look at the charts, the patient first. We stand outside the room or go down the hall. We talk about that patient before we get to the chart. Then I may have questions for them and they can look it up when we get there or we look at the chart together where I can point out things they got right or that they think they missed or other factors about that particular patient. And then once we have done that, we get to treatments, and we go to the next patient.

So in terms of what patients we see, that part I can control. But in terms of what types of patients are actually there or who else might come in that particular day, we don't have control over that.

R: But in terms of the immediate teaching environment, you often invite other people to be a part of your group. I have never seen you turn any body away.

CP: NO! Someone always is welcome.

R: That is the way I see you influencing the teaching environment. Also the example you just gave me, you were saying the students have to have a certain knowledge base before they come. To me, that is influencing the clinical learning environment.

CP: Oh, yes! You mean even before we meet. They come in probably 6:00 a.m. so they can get through all their patients before I get there at 7:30 or 8:00. And we do it all over again. So then I can question them.

R: See, to me a whole study in an of itself is how a CP could or could not influence the clinical environment, control it, and manipulate it to what would be best in terms of creating teachable moments.

CP: You make me look at this in a whole new way. I think each day when you come in, well, each, before we start the whole rotation, we sit down and we talk about what they are going to be doing for the whole 6 weeks. We talk about where they are going to go or what kind of patients they are going to see. How they are going to go about doing that. So the expectations are laid out, at day one. So they know what they are going to be doing.

R; To me that is shaping the clinical learning environment.

CP: Yes, oh. Yeah! And then it is laid out.

R: But your point is that you don't know what particular patients you are going to have in a day's time. You can't control the visitors interrupting.

CP: I can't control the nurses coming in. I can't control the patients going to x-ray or for procedures. You can't control the kind of patients you are going to see or the codes that are going to happen. Or another preceptor getting sick so that you all of a sudden have their students too. Those are the kinds of things that you can't control. But how I do the students when I have them, and take them to bedside, I can control that.

Researcher preparation questions for Student 4 follow up from Clinical Observation On July 15th. Retail Pharmacy Clinical Site. Interview done 3 days later.

Note: Thank you to student.

1) It is my observation that you seemed to be part of a work force team with your follow student. Is that a correct observation? If so, how does that fit into learning/teaching?

2) In going over transplant patient medications, I noticed that you and your CP and Student 3 were talking about side effects. How would you describe that kind of dialogue/teaching?

3) In the discussion that you, your CP, and Student 3 had about the diabetic patient, I noticed that the CP reviews and then solicits your opinions as to how your counseling went with the diabetic patient. How did that facilitate your learning? If not, how did you view that time in your clinic?

4) You and Student 3 seemed to be frustrated with Patient X who was not staying compliant with your exercise and weight control suggestions. Is this a correct observation? Your CP was there and he confirmed that he too thought you were frustrated. [Student 3 has the transcript] What part of this was helpful or not helpful? How did this facilitate your clinical experience?

5) During this clinical day, you used many different drug information references, electronic and hard bound. I noticed that you had space and time for looking things up. How did this time play a part in your clinical day? How did you make a decision or receive direction in using this time and these references?

Appendix F

Features of the Teachable Moment of this Study

1) Trust, openness, and a willingness to share on the part of the CP and student
    a) Knowledge on part of CP and student's learning styles, interests, and background knowledge .

    b) Creation of environment conducive for engagement to learning
        1) free from fear
        2) mutual respect

2) Engagement on the part of the CP and student with the teachable moment
    a) Repetition

    b) Open and engaged to the teachable moment
        1) Expectation of engagement and learning on the part of CP and student
        2) Enthusiasm and a passion for the endeavor

3) Consciously investing time to pursue and develop the teachable moment
    a) Willingness of part of CP and student to take the time for pursuit of information
    b) Allowing time for developing a line of questioning and responses

4) Time for reflection
    a) Space and time taken for reflection, processing, grasping of teachable moment
    b) This time for reflection sometimes has to be a part of "teaching on the go" and can also be a space in the clinical day of removing oneself from the clinical activities for processing and reflection

5) Subject or content knowledge on the part of CP and student
    a) Base of knowledge must be present for grasping significance of the clinical experience
    b) Expertise in a topic area contributes to a teachable moment

6) Sustaining process of collaborative inquiry
    a) Element of discovery or potential of viewing information in a new light
    b) Collaborative inquiry is a feature of the traditional teacher/student role

Appendix G

It is the fifth visit of Johnny and his wife with the two pharmacy students on this hot and muggy summer day. Sometimes there is a question of whether a client will show up for a scheduled counseling session, particularly if it is too hot or rainy. There are many excuses for not being at the appointment. But there is no question that Johnny and his wife will be here. Johnny is a blue collar worker on night shift at a manufacturing plant. He and his wife do not have much formal education. They are both obese and are 2-3 pack per day smokers. Johnny has known that he is a diabetic for several years yet chose to ignore his doctor's recommendation for weight loss and blood sugar control. He did not want to go to any hospital-based education program nor did he want anyone to tell him what to do. That is, up until 6 weeks ago. He got scared. His blood sugars were out of control as well as level of consciousness when diabetic comas were threatening him. He took a chance to come in to talk with his pharmacist. It is here that he met with the CP and the two pharmacy students and his health outlook took a dramatic change for the good.

Johnny, his wife, and the two students warmly greet one another in the private counseling area of the pharmacy with broad smiles and pleasantries. Everyone is glad to be together again. The CP continues to work at the pharmacy counter but is available to come to the counseling session at any time should his assistance be needed.

Just as the CP has done numerous times with his students, Pharmacy Student 3 begins the counseling session by asking a big picture question of "How is everything doing?" This allows Johnny the freedom to take the lead in the discussion. His response is a general one although enthusiastic. "Pretty good!" His wife concurs with, "He is

doing pretty good!" This assessment receives affirmation by the students. But one student is persistent in wanting Johnny to be more specific.

Transcript	Researcher comments
S 3: Is everything looking better?	Persistent with her question.
DC: Ummm…yeah	General answer from both husband and wife.
W: Yeah.	
DC: I have noticed since ah, since, you know, since we have changed the pills, and, everything is kinda stabilizing now. It is a little bit higher [blood sugars] than what it was when we were on them…you know those bigger pills.	Demonstrates knowledge and understanding of correlation between blood sugar levels and medication change.
S 3 and S 4 Uh, huh… [encouraging]	Not interrupting but encouraging.
DC: But it is still within my ranges, pretty much.	Knowledge of blood sugar levels.
S 4: [looking through old records]. Oh, good!	Affirmation from students.
DC: [looking at his wife] Somebody forgot my book! [referring to his diet diary and blood sugar record. This is said kindly and with laughter]	Insight of husband/wife relationship. Teasing one another.
[everyone laughs sympathetically]	
W: I did.	Slightly embarrassed.
S 4: Ah, oh….that is OK.	
W: I was rushing around!	
S 3: So the evening ones were higher like they should be? After dinner?	Specific directional question. Gathering information.
DC: They fluctuate, like I have been eating a lot of stuff, you know, off my diet because of the reunion this weekend.	Demonstrates knowledge. Complete openness and sharing information.
S 3: Right.	Affirmation.
DC: It runned between 160 – 170 but the next morning….	Customer knows his lab values and taking an active interest in

S 3: [interrupting] And that was after dinner, right? DC: Uh huh [indicating yes] S 3 and S 4: That's good. That's right. That is still within the range. DC: And in the morning, it is back to 'round 80 or 90.	controlling them by his diet.

The students show affirmation and interest in the customer and his wife throughout this conversation. The students have built a rapport with both the customer and his wife over the past 4 visits and are visibly pleased with Johnny and his wife's understanding and pro-active approach to checking blood sugars and diet report. The students ask specific questions such as:

Have you had any low sugars where you have had to take the orange juice?

Have you seen any side effects with the medication?

These questions generate candid responses and sometimes great laughter.

S 4: Are you liking the food better? The new diet? DC: Oh, yeah!! [with enthusiasm]… S 4: You like that diet soda now? DC: Alright! S 3: How the water coming? DC: I am drinking 3-4 glasses a day and sometimes more. S 3: Great: S 4: Wow! That is great! DC: I drink about 2 or 3 at night when I am working. Then I drink about 2 or 3 at the house.

This is an area where Johnny is successful and has started to break an undesirable habit of drinking sodas and replacing it with the healthy habit of drinking water and occasional diet sodas. There are two areas that the students are concerned that Johnny has not made progress and that is in exercise and in curbing his smoking. They broach those subjects in a non-threatening manner.

S 4: How about exercising? [DC laughs] Did you manage to start that at all?

DC: I don't know if that's……[laughter from everyone as if to acknowledge that the answer to that question was already known to be negative before it was even asked]…..I may start that in about 2 weeks! [laughter from everyone continuing]

S 4: That is going to be a hard one. [laughing]

DC: I played volleyball for about 3 or 4 hours Saturday and I said, "Eh…..that is enough. I am getting too old for this!" [laughs belly laugh]

S 4: That counts as exercise.

Je: Good!

S 4: Good!

W: He couldn't hardly get up the next morning. [all laugh]

In this exchange, Student 4 emphasizes to Johnny that exercise is going to be one of the life style habits that will be hard to change. The sedentary nature that both he and his wife have is difficult to change. Both students remember that their CP had talked about this very subject during counseling with another diabetic patient. If they push too hard and are too insistent on compliance in many areas at once, there is the danger of loosing the customer to counseling. The customer may become discouraged and give up. The students remain positive and encouraging.

Great! It sounds as if everything is going well.

The students remain persistent in helping Johnny with his weight loss and diet. The students have gone the extra mile in visiting area stores and performed Internet searches for recipes of foods that Johnny and his wife like. They have even used their own personal money in an effort to get more information for Johnny. They do not get discouraged by the fact that they have not tried the recipes that they were given several weeks ago.

S 4: Have you tried any of those recipes?

W: No not yet.

S 4: We have been talking about making some ourselves. But we just haven't had a chance.

DC: Well, I told my mother and my aunt about them and they said they want to try them.

S 3: We actually, Kelly and I went out. They do have the magazine at Books a Million. 'Cause I bought it the other weekend. It is actually $3.50 so it benefits to get the subscription..

DC: Uh huh [acknowledging]

S 3: … because it is $19.98 for 2 years so it definitely benefits to get that. And Kelly went and bought it the next day.

DC: Uh.

S 3: So, it is there.

S 4: I think I am going to try the peanut butter fudge brownies this weekend. [great laughter from all] They are suppose to be low fat!! [laughter] So, we will see how they taste.

Johnny continues the discussion about which foods tend to boost his sugar levels upward and how he has made dietary adjustments to avoid such big swings in these levels. Throughout this conversation, he receives praise and affirmation from the students.

One student directs the conversation with another big picture question of:

So, how are you feeling over all compared to when you started the program? DC: Feel good! S 4: Feel a lot better now? Good! Less of the, ah,….I know before you talked about getting ah…maybe getting in a bad mood or crabby when…. DC: Uh huh S 4: …your sugars would go low. DC: Pretty much you get used to it now. And so…..it ain't quite as bad. [hearty laugh by all]

The students begin to bring the counseling session to a close with sharing factual information as to weight loss and vital signs. In the following exchange, they gently make suggestions.

S 4: You were 209 [pounds] last week. Here is where if you want to look [showing him record of weight over the last 5 weeks.] You were high at 214. And here you are down to 204.	Students sharing specific information as to weight progress.
DC: So I lost 10 pounds over 4 weeks.	Self-assessment by customer.
S 3: Yep, in 21 days.	
S 4: And you blood pressure looks good. Your pulse is great. [using calculator] I have to calculate your BMI. [pause] BMI is exactly 31. And what that is, is called a "Body Mass Index." And you really want to try to get it at least to 25-29. That is the Body Mass Index. So, you have gone down from 32.5 to 31. So that is good. You are doing really good.	Sharing more specific information. Educating customer about Body Mass Index and using him as a specific example. Positive results.
DC: Except for the exercise. [laughs]	Self-assessment. Indicates he knows what he has to work on.
S 3: Just try to continue on what you do. And then just add the exercise. What about the smoking?	Student brings in one more subject.

The customer admits that he and his wife are still smoking but he claims to have decreased the number of packs smoked per day. The students are honest with him, acknowledging that this habit will be the hardest to change. They offer him different approaches to quitting smoking, all the while being supportive and non-judgmental.

The students allow the customer and his wife to determine their own preference for the next appointment and the amount of time between appointments, rather than insisting on their own idea of when the customer should come in next.

> S 3: You are welcome to come back next week. Don't feel like you have to. Everything is looking really good. If you didn't what would happen, probably in 6 months to a year, depending upon how Jim is going to do it, you know, you would probably get another call from another student, asking you to come in, just to check up, to see if you have stuck to your diet, how the sugars have been looking, etc.
>
> S 4: Or if you want, you can also just come in once a month or every two weeks. I mean, really, as often as you want to come. You know. If you want to come in every week, you can keep doing that too. That is fine with us. Um, we really leave that up to you.
>
> DC: Let's try for every 2 weeks. See how I hold out every 2 weeks.

What is it that made these counseling sessions effective with such positive measurable outcomes for Johnny with controlled weight loss, improved blood pressure, and improved blood sugar levels? Johnny has a simple explanation.

> They explain stuff to us, the stuff I don't understand like some of them big words. And ah, you know, they explain it to you like I can understand it. What, it helps me stay on my diet, and watch what I eat and stuff like that. They are here, and if I have a problem, they call me. I mean, I call them and they answer as soon as they can.

The students take the time and are able to explain words and concepts to Johnny and his wife so there is genuine understanding. Second, the students are present. "They are here." "I call them and they answer." There is reliability, trust, and follow-through. Johnny has high praise for the counseling of the pharmacy students. He states:

If it weren't for them , I never would have done that [improved his health and stuck with the diabetes education program]. Y'all done a good job [saying this to S 3 and S 4].

I want to provide anything I can to the patient and go out of the way to show them that I do care for them as opposed to, "I just want to give you your medications." I am here for you. I want to come to you.

The disease state management sessions provide the opportunity to talk one on one with the clients in a private and confidential setting. One student makes the point that this private atmosphere is quite different from answering questions and counseling clients from the pharmacy counter. She tries to be caring and generous in her offer to provide information to the client no matter what the setting but there is sustained and uninterrupted conversation during the counseling sessions. The characteristics of caring and researching information beyond expectations for clients are observable in her CP and are characteristics that the CP encourages the students to display.

Appendix F

Features of the Teachable Moment of this Study

1) Trust, openness, and a willingness to share on the part of the CP and student
    a) Knowledge on part of CP and student's learning styles, interests, and background knowledge .

    c) Creation of environment conducive for engagement to learning
        1) free from fear
        2) mutual respect

2) Engagement on the part of the CP and student with the teachable moment
    a) Repetition

    b) Open and engaged to the teachable moment
        1) Expectation of engagement and learning on the part of CP and student
        2) Enthusiasm and a passion for the endeavor

3) Consciously investing time to pursue and develop the teachable moment
    a) Willingness of part of CP and student to take the time for pursuit of information
    b) Allowing time for developing a line of questioning and responses

4) Time for reflection
    a) Space and time taken for reflection, processing, grasping of teachable moment
    b) This time for reflection sometimes has to be a part of "teaching on the go" and can also be a space in the clinical day of removing oneself from the clinical activities for processing and reflection

5) Subject or content knowledge on the part of CP and student
    a) Base of knowledge must be present for grasping significance of the clinical experience
    b) Expertise in a topic area contributes to a teachable moment

6) Sustaining process of collaborative inquiry
    a) Element of discovery or potential of viewing information in a new light
    b) Collaborative inquiry is a feature of the traditional teacher/student role

Vitae

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